TEST PRODUCT QUALIFICATION REPORT

TITLE:

LT86xx Test Site Transfer from Analog Devices Singapore to UTAC Thailand

PCN Number:

PCN

REVISION:

A

DATE:

31 Aug, 2020

CONTENTS:

PROJECT BACKGROUND:

The LT86xx family is currently undergoing production testing at the Analog Devices Singapore (ADSG). As ADSG is closing in Apr2021, it is a business strategic decision to qualify UTAC Thailand (UTL) to be test site to ensure continuity in supply.

SUMMARY:

The LT86xx step-down regulator features Silent Switcher architecture designed to minimize EMI emissions while delivering high efficiency at frequencies up to 3MHz. Assembled in a 3mm · 4mm QFN, the monolithic construction with integrated power switches and inclusion of all necessary circuitry yields a solution with a minimal PCB footprint. An ultralow 2.5µA quiescent current—with the output in full regulation— enables applications requiring highest efficiency at very small load currents.

This report documents the successful completion of the product test transfer requirements for the release of LT86xx family in UTAC Thailand.

TEST AND PRODUCT INFORMATION:

Device:	LT8614 / LT8640 / LT8641
Package:	QFN (3mm x 4mm)
Leads:	18 leads

Affected products:

Generics	FGs
LT8614	LT8614IUDC#PBF
	LT8614IUDC#TRPBF
	LT8614HUDC#PBF
	LT8614HUDC#TRPBF
LT8640	LT8640IUDC#PBF
	LT8640IUDC#TRPBF
	LT8640HUDC#PBF
	LT8640HUDC#TRPBF
LT8641	LT8641IUDC#PBF
	LT8641IUDC#TRPBF
	LT8641HUDC#PBF
	LT8641HUDC#TRPBF

Tester Platform: ETS364B

Handler: RASCO1000

The LT86xx is planned to be tested in UTAC Thailand using exactly same test design as ADSG, details shown in the Table 1 below:

***Table 1**: LT86xx Test Details*

Parameters	ADSG	UTL	Remarks
Tester Platform	ETS364B	ETS364B	No change
Handler	RASCO1000	RASCO1000	No Change
Test Flow	FT – QAR – QAH - QAC	FT – QAR – QAH - QAC	No Change
Contactor	18L JTI socket D#9037	18L JTI socket D#9037	No Change
Performance Board	LT8614/LT8640 DIB	LT8614/LT8640 DIB	No change
Test Program	LT8614_03 LT8640_01 LT8641_00	LT8614_03 LT8640_01 LT8641_00	No change

There is no change to the form, fit and function of the product.

DESCRIPTION AND TEST RESULTS:

Below tables provide description of the qualification tests conducted and corresponding test results for LT86xx family, among which LT8614 is selected to be representative of performing detailed parametric correlation analysis and GR&R analysis. All the units have undergone electrical tests on both the sending and receiving sites on the same test platform. Any device that will not meet the electrical qualification requirements will mean failure of the qualification and require solid corrective actions and a repeat of the qualification process. Qualification activities performed, and acceptance criteria is shown on Table 2 below:

Table 2: *Qualification Activities and Acceptance Criteria*

Qualification Activity	Sample Quantity	Accept Criteria
Correlation device run	5 correlation device units	*100% Passing correlation devices
Parametric Correlation	Minimum of 300 known Bin1 units tested in full product test flow (ALL temperature passes) in Sending site (ADSG) and Receiving site (UTL).	*CpK≥1.67 * For tightened limits, Mean Shift Criteria and sigma-spread criteria to apply - Mean Shift Criteria (ABS (SS_mean - RS_Mean) / Limit Range) x 100 ≤ 5% - Sigma-spread criteria (RS_Sigma / SS_Sigma) ≤ 1.3
Validation Lot Run	Minimum of 2,500 fresh units in full product test flow (ALL temperature passes)	yield between receiving site vs. historical yield of sending site should be comparable
Untrimmed/Fresh unit verification using QA program	5 Fresh (Untrimmed) unit tested in QA Program.	QC program must detect untrimmed or fresh parts
GR&R	10 Bin 1 units tested on 1 board and 3 testers	R&R % =<10%

- *SS = Sending Site*
- *RS = Receiving Site*

To validate full set-up functionality such as hardware, software, test paraphernalia and tester platform, 5 correlation devices of LT86xx were tested both in ADSG and UTL. Data between sites were analyzed and summarized in Table 3.

Table 3: *Correlation Device Run result*

Generic	Package	No. of correlation device	ALL correlation devices passed?
LT8614	18L QFN	5 units	YES
LT8640	18L QFN	5 units	YES
LT8641	18L QFN	5 units	YES

The LT8614 was further analyzed by testing a sample of minimum 300 known-good-units in both ADSG and UTL. This is to capture variation in tester and set-up condition thru mean shift and sigma spread analysis, to ensure the parameter measurement are still within the accepted range of variations. Data between sites were analyzed and summarized in Table 4.

Table 4: *Product Site Transfer Correlation*

Temperature	Generic	Package	Lot Number	Lot Size	Sending Site	Receiving Site	Total No. of Correlation Parameters	Result
Ambient	LT8614	18L QFN	1012692.1	310	ADSG	UTL	153	ALL PASSED
Hot	LT8614	18L QFN	1012692.1	310	ADSG	UTL	153	ALL PASSED
Cold	LT8614	18L QFN	1012692.1	310	ADSG	UTL	153	ALL PASSED

The LT86xx was qualified by running a validation lot with minimum 2,500 units in UTL and was compared to ADSG historical yield. Comparison result is summarized in Table 5.

Table 5: *Manufacturing Validation Lot Run*

Generic	Package	FT lot number	Lot Size	Test Site	lot yield comparison between ADSG and UTL
LT8614	18L QFN	1061103.1	26716	UTL	MATCHED
LT8640	18L QFN	1055316.1	21273	UTL	
LT8641	18L QFN	1022523.1	11504	UTL	

To ensure QA Program does not trim untrimmed/fresh parts, samples of untrimmed or fresh parts were tested using QA Program. Results were analyzed and summarized in Table 6.

Table 6: *Untrimmed/Fresh unit verification using QA program*

Generic	Package	Lot Number	No. of Untrimmed/Fresh units tested on QC program	QA Program detected untrimmed or fresh parts?
LT8614	18L QFN	1012692.1	5	YES
LT8640	18L QFN	Z46713.1	5	YES
LT8641	18L QFN	1019270.1	5	YES

GR&R was performed on LT8614 to confirm ATE repeatability and reproducibility performance, 10 serialized units were repeatedly tested on 1 test board and 3 test systems. GR&R result was analyzed and summarized in Table 7.

Table 7: *GR&R Result*

Generic	Package	Lot Number	No. of Units	No. of Test Boards	No. of Testers	All parameters passed R&R % =<10%?
LT8614	18L QFN	1012692.1	10	1	3	Yes – ALL PASSED

APPROVALS:

Technical Review Board No. TRB-61507 - ADSG to UTL Test Transfer

ADDITIONAL INFORMATION:

Homepage: https://www.analog.com/en/index.html

Customer Service: https://www.analog.com/en/support/technical-support.html

TEST PRODUCT QUALIFICATION REPORT

TITLE:

LT8611 Test Site Transfer from Analog Devices Singapore to UTAC Thailand

PCN Number:

PCN

REVISION:

A

DATE:

04 Sep, 2020

CONTENTS:

PROJECT BACKGROUND:

The LT8611 is currently undergoing production testing at the Analog Devices Singapore (ADSG). As ADSG is closing in Apr2021, it is a business strategic decision to qualify UTAC Thailand (UTL) to be test site to ensure continuity in supply.

SUMMARY:

The LT8611 is a compact, high efficiency, high speed synchronous monolithic step-down switching regulator that consumes only 2.5µA of quiescent current. Top and bottom power switches are included with all necessary circuitry to minimize the need for external components. The built-in current sense amplifier with monitor and control pins allows accurate input or output current regulation and limiting. Low ripple Burst Mode operation enables high efficiency down to very low output currents while keeping the output ripple below 10mVP-P. A SYNC pin allows synchronization to an external clock. Internal compensation with peak current mode topology allows the use of small inductors and results in fast transient response and good loop stability. The EN/UV pin has an accurate 1V threshold and can be used to program VIN undervoltage lockout or to shut down the LT8611 reducing the input supply current to 1µA. A capacitor on the TR/SS pin programs the output voltage ramp rate during start-up. The PG flag signals when VOUT is within ±9% of the programmed output voltage as well as fault conditions.

This report documents the successful completion of the product test transfer requirements for the release of LT8611 in UTAC Thailand.

TEST AND PRODUCT INFORMATION:

Device: LT8611

Package: QFN (3mm x 5mm)

Leads: 24 leads

Affected products:

Generics	FGs
LT8611	LT8611EUDD#TRPBF
	LT8611EUDD#PBF
	LT8611IUDD#TRPBF
	LT8611IUDD#PBF

Tester Platform: ETS364B

Handler: RASCO1000

The LT8611 is planned to be tested in UTAC Thailand using exactly same test design as ADSG, details shown in the Table 1 below:

***Table 1**: LT8611 Test Details*

Parameters	ADSG	UTL	Remarks
Tester Platform	ETS364B	ETS364B	No change
Handler	RASCO1000	RASCO1000	No Change
Test Flow	FT – QAR – QAH - QAC	FT – QAR – QAH - QAC	No Change
Contactor	24L JTI socket D#5701	18L JTI socket D#5701	No Change
Performance Board	LT8611 DIB	LT8611 DIB	No change
Test Program	LT8611_03	LT8611_03	No change

There is no change to the form, fit and function of the product.

DESCRIPTION AND TEST RESULTS:

Below tables provide description of the qualification tests conducted and corresponding test results for LT8611. All the units have undergone electrical tests on both the sending and receiving sites on the same test platform. Any device that will not meet the electrical qualification requirements will mean failure of the qualification and require solid corrective actions and a repeat of the qualification process. Qualification activities performed, and acceptance criteria is shown on Table 2 below:

Table 2: *Qualification Activities and Acceptance Criteria*

Qualification Activity	Sample Quantity	Accept Criteria
Correlation device run	5 correlation device units	*100% Passing correlation devices
Parametric Correlation	Minimum of 300 known Bin1 units tested in full product test flow (ALL temperature passes) in Sending site (ADSG) and Receiving site (UTL).	*CpK≥1.67 * For tightened limits, Mean Shift Criteria and sigma-spread criteria to apply - Mean Shift Criteria (ABS (SS_mean - RS_Mean) / Limit Range) x 100 ≤ 5% - Sigma-spread criteria (RS_Sigma / SS_Sigma) ≤ 1.3
Validation Lot Run	Minimum of 2,500 fresh units in full product test flow (ALL temperature passes)	yield between receiving site vs. historical yield of sending site should be comparable
Untrimmed/Fresh unit verification using QA program	5 Fresh (Untrimmed) unit tested in QA Program.	QC program must detect untrimmed or fresh parts
GR&R	10 Bin 1 units tested on 1 board and 3 testers	R&R % =<10%

**SS = Sending Site * RS = Receiving Site*

To validate full set-up functionality such as hardware, software, test paraphernalia and tester platform, 5 correlation devices of LT8611 were tested both in ADSG and UTL. Data between sites were analyzed and summarized in Table 3.

Table 3: *Correlation Device Run result*

Generic	Package	No. of correlation device	ALL correlation devices passed?
LT8611	24L QFN	5 units	YES

The LT8611 was further analyzed by testing a sample of minimum 300 known-good-units in both ADSG and UTL. This is to capture variation in tester and set-up condition thru mean shift and sigma spread analysis, to ensure the parameter measurement are still within the accepted range of variations. Data between sites were analyzed and summarized in Table 4.

Table 4: *Product Site Transfer Correlation*

Temperature	Generic	Package	Lot Number	Lot Size	Sending Site	Receiving Site	Total No. of Correlation Parameters	Result
Ambient	LT8611	24L QFN	1000536.1	310	ADSG	UTL	206	ALL PASSED
Hot	LT8611	24L QFN	1000536.1	310	ADSG	UTL	206	ALL PASSED
Cold	LT8611	24L QFN	1000536.1	310	ADSG	UTL	206	ALL PASSED

The LT8611 was qualified by running a validation lot with minimum 2,500 units in UTL and was compared to ADSG historical yield. Comparison result is summarized in Table 5.

Table 5: *Manufacturing Validation Lot Run*

Generic	Package	FT lot number	Lot Size	Test Site	lot yield comparison between ADSG and UTL
LT8611	24L QFN	5004130.1	12574	UTL	Matched

To ensure QA Program does not trim untrimmed/fresh parts, samples of untrimmed or fresh parts were tested using QA Program. Results were analyzed and summarized in Table 6.

Table 6: *Untrimmed/Fresh unit verification using QA program*

Generic	Package	Lot Number	No. of Untrimmed/Fresh units tested on QC program	QA Program detected untrimmed or fresh parts?
LT8611	24L QFN	1000536.1	5	YES

GR&R was performed on UTL ETS364 ATEs using a switcher product representative LT8614 to confirm tester repeatability and reproducibility performance, 10 serialized units were repeatedly tested on 1 test board and 3 test systems. GR&R result was analyzed and summarized in Table 7.

Table 7: *GR&R Result*

Generic	Package	Lot Number	No. of Units	No. of Test Boards	No. of Testers	All parameters passed R&R % =<10%?
LT8614	18L QFN	1012692.1	10	1	3	Yes – ALL PASSED

APPROVALS:

Technical Review Board No. TRB-61507- ADSG to UTL Test Transfer

ADDITIONAL INFORMATION:

Homepage: https://www.analog.com/en/index.html

Customer Service: https://www.analog.com/en/support/technical-support.html

Worked on: (Name, Function)	Jason Hu
Date:	12/09/2020
PCN number:	PCN 20_0293
Signature:	
For integrated circuits or discrete semiconductors select below:	AEC-Q100 Revision H

Form provided by ZVEI - Revision 4.1 - November 2019

Mark change with an "x"

Assessment of impact on Supply Chain regarding following aspects
- contractual agreements
- technical interface of processability/manufacturability of customer
- form, fit, function, quality performance, reliability

ID	Type of change	Remaining risks within Supply Chain? No	Remaining risks within Supply Chain? Yes	Understanding of semiconductors experts	Examples to explain	Evaluation level A / B / C (A: Application level, B: Boardlevel, C: Component level, *: Not relevant for qualification matrix)	Further applicable conditions
	ANY						
SEM-AN-01	Any change with impact on agreed upon technical contractual agreements	P	P	Intended to be used if no other type of change is applicable but the change affects agreed technical contractual agreements		*	
SEM-AN-02	Any change with impact on processability/manufacturability at customer, which is not covered in the matrix below.	P	P	Any change which is not covered in the matrix below, but risk assessment at customer is recommended.		B	
	DATA SHEET						
SEM-DS-01	Change of datasheet parameters/electrical specification (min./max./typ. values) and/or AC/DC specification	P	P	Update of data sheet because of technical change of the product.	e.g. recommendations for pull-up/pull-down or NC pins, MSL	A	
SEM-DS-02	Correction of data sheet or issue of errata	I	I	No technical change of product, process or test. New description of behavior which was not specified before or which is different from initial specification. Please indicate clearly, that Infonote contains this type of change! Assessment in application required!	e.g. Errata	A	
SEM-DS-03	Specification of additional parameters	I	P	Description of a new not previously covered parameter. No technical change of the product. **(I):** Definition of new parameter which was not documented before. **(P):** Not known as single change. Only in combination with other changes.	**(I):** e.g. adding new tested parameter.	A	
	DESIGN						
SEM-DE-01	Design changes in active elements. [1])	P	P	Any device relevant changes in design / layout of elements with effect on data sheet [1]) **Not included:** Modification to adjust product parameter within specified process window and design rules.	e.g. change of ESD structure e.g. add / remove a transistor in layout	A	Please check if data sheet is affected **(SEM-DS-01)**.
SEM-DE-02	Design changes in routing . [2])	P	P	Any change of wiring between elements in chip design / layout with effect on data sheet. [2]) **Not included:** Modification to adjust product parameter within specified design rules.	e.g. mask changes in metal fix for corrective action (based on external 8D report)	C	**A:** Impact on EMC behavior cannot be evaluated / excluded on component level. **A:** If impact on electrical function is not excluded on component level. Please check if data sheet is affected **(SEM-DS-01).**
SEM-DE-03	Die shrink [3])	P	P	Shrink of active area. [3]) **Not included:** sawing street/kerf/scribe line	Typical shrink of die.	A	Please check if change in process technology **(SEM-PW-09)** is also affected.
SEM-DE-04	Firmware modification	I	P	Integrated software by design or memory as defined by supplier. **(I)**: Firmware modification or update without effect of functional performance at the customer (bug fix). **(P)**: Firmware modification or update with effect of functional performance at the customer.	**(I)**: e.g. addition of Firmware opportunities **(P)**: e.g. bug fix with impact on functional performance	A	
	PROCESS - WAFER PRODUCTION						
SEM-PW-01	New / change of wafer substrate material	P	P	New wafer material.	e.g. different wafer material to currently released material (like change from EPI material into non-EPI material)	C	
SEM-PW-02	New wafer diameter	P	P	Change of wafer diameter resulting in equipment and process changes.		C	Impact on changes in **SEM-PW-09** and/or **SEM-EQ-01**.
SEM-PW-03	New final wafer thickness	P	P	Change in final wafer thickness.	e.g. change in final chip/die thickness	C	**A:** If thermal conductivity is affected (like MOSFET; IGBT, BGA package, stacked dies, …) **A:** If impact on EMC or ESD behavior cannot be evaluated / excluded on component level.
SEM-PW-04	Change of electrically active doping/implantation element	P	P	Change in electrically active doping / implantation element resulting in a new technology.		A	
SEM-PW-05	Change of gate material / dielectrics	P	P	Change of gate material and / or gate dielectric material.		A	
SEM-PW-06	New / change of backside operation (grinding / metallization)	P	P	Change of bottom layer of die (between die and leadframe). Change in process, material, or dimensions necessary. Alternative see SEM-PW-09	e. g. change from Cr/NiV/Au to Cr/NiV/Ag	C	**A:** If thermal conductivity is affected (like MOSFET; IGBT, BGA package, stacked dies, …) **A:** If impact on EMC or ESD behavior cannot be evaluated / excluded on component level.
SEM-PW-07	New / change of metallization / vias / contacts	P	P	Change in metallization of bondpads, material, layer thickness specifically for chip frontside and internal layers.	e. g. change from AlSiCu to AlCu e. g. change in over pad metallization	C	
SEM-PW-08	New / change of passivation or die coating (without bare die)	P	P	Change of top layer on die (between mold compound and die).	e. g. addition of polyimide	C	A: If thermal conductivity is affected (like MOSFET; IGBT, BGA package, stacked dies, …) A: If impact on EMC or ESD behavior cannot be evaluated /
SEM-PW-09	Change in process technology not covered by any other type of change	--	P	**(--)**: If the change in process technology does not influence the integrity of the final product. **(P)**: If the change in process technology can influence the integrity of the final product.	**(--):** e.g. change from wet to dry etching, e. g. change from horizontal to vertical oven for oxidation **(P):** e.g. change of layer thickness	A	Please also check changes described under **EQUIPMENT.** Please check if change is described by specific type of change in this matrix.
SEM-PW-10	Process integrity: tuning within specification	--	P	Variation within process specification **(--):** If tuning within process specification does not influence the integrity of the final product. **(P):** If remaining risk on product specification is anticipated.	**(--):** e.g. process control	C	Please check if **DATA SHEET** is affected. Please check if **SEM-PW-09** is affected.
SEM-PW-11	Change of wafer supplier.	--	P	**(--)**: If no remaining risk in supply chain exist **(P)**: If the change of wafer supplier can influence the integrity of the final product.	**(--):** e.g. change of wafer supplier with same material composition. e.g. same material composition and does not influence electrical behavior. **(P):** e.g. new supplier with impact on substrate material and / or electrical behavior.	C	Not on component, tested on test structure (typical for IC). Interaction on component level for discrete components expected. In case of SOI substrate HF properties have to be qualified. Please check if **SEM-PW-01** and **SEM-DS-01** is affected.
SEM-PW-12	Change of specified wafer process sequence (deletion and/or additional process step)	--	P	Any change which is not covered by another type of change. Risk is to be assessed. **(--):** No Risk for Supply chain. **(P):** Risk for Supply chain (influence on product integrity)	**(--):** e.g. change of cleaning process in wafer production **(P):** e.g. additional sinker implantation after standard implantation (to protect circuit against interference impulses).	C	
SEM-PW-13	Move all or parts of production to a different wafer fab site.	P	P	Wafer fab transition with additional changes (described above). Includes transfer as well as additional site.	e.g. dual source / fab strategy	A	Check if any other type of process change is applicable due to the transfer
SEM-PW-14	Lithography	--	P	Change in process technique for lithographic process and material **(--):** If the change in process technology does not influence the integrity of the final product. **(P):** If the change in process technology can influence the integrity of the final product.	**(--):** e.g. exchange of defect mask **(P):** e.g. change from E-beam process to X-ray process e.g. change from contact into projection mode	C	Please also check changes described under **EQUIPMENT**.

Device evaluation

MATERIAL PERFORMANCE TEST RESULTS (on the basis of AEC-Q100 Revision H)
includes integrated circuits (e.g. ASICs, µ-Controller, memories, voltage regulators, smart power devices, logic devices, analog devices,...)

ID	Line evaluation (can be evaluated by data or audit/on site check)	AEC-Q100 Revision H	Check of specification (for raw material only)	Temperature Humidity Bias or biased HAST THB A2	Autoclave or Unbiased HAST AC A3	Temperature Cycling TC A4	Power Temperature Cycling PTC A5	High Temperature Storage Life HTSL A6	High Temperature Operating Life HTOL B1	Early Life Failure Rate ELFR B2	NVM Endurance, Data Retention, and Operational Life EDR B3	Wire Bond Shear WBS C1	Wire Bond Pull WBP C2	Solderability SD C3	Physical Dimensions PD C4	Solder Ball Shear SBS C5	Lead Integrity LI C6	Electromigration EM D1	Time Depending Dielectric Breakdown TDDB D2	Hot Carrier Injection HCI D3	Negative Bias Temperature Instability NBTI D4	Stress Migration SM D5	Electronic Discharge Human Body Model HBM E2	Electronic Discharge Charged Device Model CDM E3	Latch up LU E4	Electrical Distribution ED E5	Characterisation CHAR E7	Electromagnetic Compatibility EMC E9	Short Circuit Characterization SC E10	Soft Error Rate SER E11	Lead free LF E12	Hermetic Package Test MECH G1-4	Package Drop DROP G5	Lid Torque LT G6	Die Shear DS G7	Internal Water Vapor WV G8	additional to AEC-Q10x: Whisker test (IEC 60068-T2-82, JEDEC JESD201)	additional to AEC-Q10x: Parameter-Analysis: Comparison of current with changed device characterization, electrical distribution	Remarks
ANY																																							
SEM-AN-01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SEM-AN-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DATA SHEET																																							
SEM-DS-01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SEM-DS-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SEM-DS-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DESIGN																																							
SEM-DE-01	-	•	-	-	•	•	M	-	•	•	D,J	-	-	-	-	-	-	D	D	D	D	D	•	•	•	•	•	•	•	•	-	-	F	-	-	-	-	•	
SEM-DE-02	-	•	-	-	-	A	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-	•	
SEM-DE-03	-	•	-	•	•	-	M	-	•	•	D,J	-	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	•	
SEM-DE-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
PROCESS - WAFER PRODUCTION																																							
SEM-PW-01	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	•	-	-	-	-	-	-	-	-	-	-	•	Qualification effort acc. AEC-Q100: see diffusion/doping
SEM-PW-02	•	•	-	-	-	E	M	-	•	•	-	E	E	-	-	-	-	-	-	-	•	-	E	E	E	•	-	-	-	-	-	-	-	-	-	-	-	•	AEC-Q100: "For broad changes that involve multiple attributes (e.g., site, materials, processes), refer to section A1.3 of this appendix and section 2.3 of Q100, which allows for the selection of worst-case test vehicles to cover all the possible permutations."
SEM-PW-03	-	•	-	-	-	E	M	-	•	•	-	E	E	-	-	-	-	-	-	-	•	-	E	E	E	•	-	-	-	-	-	-	-	-	-	-	-	•	
SEM-PW-04	-	•	-	-	-	-	M	-	•	#	-	-	-	-	-	-	-	-	-	-	•	-	•	•	•	•	•	-	-	-	-	-	-	-	-	-	-	•	
SEM-PW-05	-	•	-	-	-	•	M	-	•	-	D,J	-	-	-	-	-	-	-	-	-	•	-	•	•	•	•	•	-	-	-	-	-	-	-	-	-	-	•	
SEM-PW-06	-	•	-	-	-	•	M	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	M	M	•	-	•	-	-	-	-	H	-	-	H	-	-	•	AEQ-Q100: Applicable to all smart power devices
SEM-PW-07	-	•	-	•	•	•	M	-	•	-	-	•	•	-	-	-	-	•	-	-	-	•	-	-	-	•	•	-	•	-	-	-	-	-	-	-	-	•	
SEM-PW-08	-	•	-	•	•	•	M	-	•	#,N	D,J	•	•	-	-	-	-	-	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-	-	-	•	
SEM-PW-09	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	Qualification effort depends on type of change.
SEM-PW-10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	
SEM-PW-11	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	-	-	-	-	-	-	-	-	-	-	-	•	Qualification for IC & µ-Controller difficult on product level. Characterisation on wafer level only on test structure. Supplier should perform a risk assessment if there is a technology dependend risk requiring additional qualification effort. AEC-Q100: "For broad changes that involve multiple attributes (e.g., site, materials, processes), refer to section A1.3 of this appendix and section 2.3 ofQ100, which allows for the selection of worst-case test vehicles to cover all the possible permutations."
SEM-PW-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SEM-PW-13	•	•	-	•	•	•	M	-	•	•	J	•	•	-	-	-	-	•	•	•	•	•	•	•	•	•	-	-	-	-	-	H	-	-	H	-	-	•	AEC-Q100: "For broad changes that involve multiple attributes (e.g., site, materials, processes), refer to section A1.3 of this appendix and section 2.3 of Q100, which allows for the selection of worst-case test vehicles to cover all the possible permutations."
SEM-PW-14	-	•	-	•	-	•	M	-	•	#	-	•	•	-	-	-	-	-	-	-	•	-	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	•	

SEM-PW-15	Oxide / Interlayer Dielectric	--	P	Change in process technique for oxide / interlayer dielectric process **(--):** If the change in process technology does not influence the integrity of the final product. **(P):** If the change in process technology can influence the integrity of the final product.		A	Please also check changes described under **EQUIPMENT**.	-	•	-	-	-	•	M	-	•	#,N	D,J	-	•	-	-	-	-	-	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-	-	-	•	
	BARE DIE																																												
SEM-BD-01	New final wafer thickness	P	P	Change in final wafer thickness.	Change in final chip/die thickness	A		-	-	-	-	-	-	-	-	•	•	-	-	-	-	-	-	-	-	-	-	-	-	E	E	E	•	-	-	-	-	-	-	-	-	-	-	•	ELFR can only be performed on packaged test vehicles. NBTI was removed in deviation from the AEC-Q100 Matrix because there it is a combined type of change (Wafer Dimension/Thickness). NBTI is applicable for wafer dimension change only.
SEM-BD-02	Change of top metallization or bond pad stack	P	P	Change in bondpads (incl. stack below), material, pad pitch, surface changes, layer thickness	e. g. change from AlSiCu to AlCu e. g. change in over pad metalization	B		-	-	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	•	-	•	-	-	-	-	-	-	-	-	-	
SEM-BD-03	New / change of backside metallization	P	P	Change of bottom layer of die (between die and leadframe). Change in process, material, or dimensions.	e. g. change from Cr/NiV/Au to Cr/NiV/Ag	A		-	-	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	M	M	•	-	•	-	-	-	-	-	-	-	-	-	-	•	
SEM-BD-04	Change of wafer setup or number of possible good dies on wafer.	I	P	Needed information for pick & place machine. **(I):** amount of possible good dies on wafer **(P):** influence on wafer setup and wafer mapping	**(I):** e.g. change from 350 to 240 good dies on wafer **(P):** e.g. information change for pick & place machine.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SEM-BD-05	Change of optical appearance of wafer edge region (like imide coverage or edge exclusion)	I	P	Selection of dies in wafer edge region which have full electrical functionality. **(I):** in case of wafer edge is affected only **(P):** in case of single die is affected	**(I):** e.g. appearance of wafer edge (rounded instead of square) **(P):** e.g. polyimide as new coating on die	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	
SEM-BD-06	Die scribe or separation	I	P	Needed information for sawing and pick & place machine. **(I):** If the change in sawing process does not influence the integrity of the final product. **(P):** in case if product is delivered on wafer	**(I):** e.g. if product is delivered as known good die (in tape and reel) **(P):** e.g. information change for pick & place machine. e.g. information change for sawing machine.	B	Please check if **SEM-BD-04** is affected.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SEM-BD-07	Die Preparation / Clean	--	P	Change in process technique for die preparation / cleaning **(--):** If the change in process does not influence the integrity of the final product. **(P):** If impact on product integrity is anticipated.	**(--):** e.g. change of cleaning time. **(P):** e.g. change in cleaning procedure after change of sawing equipment.	B	Please check if **SEM-BD-06** is affected.	-	-	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SEM-BD-08	New / change of passivation or die coating	P	P	Change of top layer on die.	e.g. addition of polyimide e.g. change of polyimide thickness	B		-	-	-	-	-	-	-	-	•	#,N	D,J	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-	-	-	•	
	PROCESS - ASSEMBLY																																												
SEM-PA-01	Change in critical dimensions of package	P	P	Change in dimensions of existing package.	e. g. changes in package dimensions (further development).	B		-	•	-	•	•	•	M	•	•	•	-	•	•	•	•	T	•	-	-	-	-	-	•	•	-	•	-	-	•	-	L	H	-	-	H	H	-	-	
SEM-PA-02	Change of leadframe base material	P	P	New leadframe material in new composition.	e. g. change from alloy42 to copper e. g. change between two different copper alloys	B		-	•	•	-	•	•	M	•	-	-	-	-	•	•	•	-	•	-	-	-	-	-	-	-	-	-	-	-	•	-	L	H	-	-	H	-	•	-	
SEM-PA-03	Change in leadframe dimensions	P	P	Change in leadframe dimensions which has impact to the specified electrical parameter acc. data sheet or specification (e.g. heat sink, pin dimensions, die paddle size, ...) **Not included:** Variation within specification.	e. g. change in lead frame geometry	B	ESD investigations are only necessary if internal ground and power supply connection of leadframe is affected. **A:** If impact on EMC behavior cannot be evaluated / excluded on component level.	-	•	-	-	•	•	M	-	-	-	-	-	-	-	•	•	-	•	-	-	-	-	-	-	-	-	-	-	-	•	-	L	H	-	-	-	-	-	-	
SEM-PA-04	Change of lead frame finishing material / area (internal)	P	P	Change of surface material of die attach pad and second bond area (e.g. influence in adhesion to mold compound, wedge bond reliability)	e. g. change from Ag flash to NiP protection layer e. g. change from Ag spot to Au spot e. g. increase of silver plating area	C		-	•	•	•	•	•	M	•	-	-	-	-	C	•	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	L	H	-	-	H	-	-	-	For wire bond strengh test: Pre- & Post-process change comparison to evaluate process change robustness (AEC-Q101).
SEM-PA-05	Change of lead and heat slug plating material/plating thickness (external)	P	P	Change in material and / or process resulting in a new technology (e.g. pure tin).	e.g. change in heat slug stack e.g. change from Sn into Ni/Pd/Au e.g. change of layer thickness	B		-	•	•	•	•	•	M	•	-	-	-	-	C	•	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	L	H	-	-	H	-	-	-	
SEM-PA-06	Bump Material / Metal System (internal)	P	P	Stack die or die to substrate (flip chip)	e. g. change to Pb-free material e. g. change of copper pillars	C		-	•	•	•	•	•	M	•	•	-	-	-	-	-	•	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	L	-	-	-	-	-	-	-	
SEM-PA-07	Die attach material	P	P	Change of die attach material and / or process resulting in a new technology (e.g. soft solder, epoxy, etc.)		C	**A:** If impact on EMC behavior cannot be evaluated / excluded on component level (if die attach has impact on electrical conductivity).	-	•	•	•	•	•	M	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-	•	-	L	H	-	-	H	H	-	•	
SEM-PA-08	Change of wire bonding	P	P	Material, diameter, change in bonding diagram and / or change in process resulting in a new technology.	e.g. change from Au to Cu material e.g. change from 25µm to 23µm diameter e.g. change from single to double bond e.g. change from stich bond to stich on ball bond.	C	**A:** In case of bond diagram change and EMC cannot be evaluated on component level. Please also check changes described under **SEM-EQ-01**.	•	•	•	•	•	•	Q	•	-	-	-	•	•	-	-	-	-	-	-	-	-	-	-	-	-	-	M	-	-	•	-	-	H	-	-	-	-	-	•	Parameter Analysis: Strictly required only for Power devices. In general: Site audit for material change with impact on bondprocess (e.g. from Au to Cu) recommended. AEC-Q100: "For broad changes that involve multiple attributes (e.g., site, materials, processes), refer to section A1.3 of this appendix and section 2.3 of Q100, which allows for the selection of worst-case test vehicles to cover all the possible permutations."
SEM-PA-09	Substrate / Interposer	P	P	Change of BGA substrate	e.g. changes in routing	B	**A:** Impact on EMC behavior cannot be evaluated / excluded on component level. **A:** If impact on electrical function is not excluded on component level.	-	•	•	•	•	•	M	•	•	-	-	•	•	-	-	T	-	-	-	-	-	-	-	-	-	-	-	-	@•	-	-	L	H	-	-	H	H	-	-	
SEM-PA-10	Die Overcoat / Underfill	--	P	Supporting layers for complex packages like flip chip and / or change in process resulting in a new technology. **(--):** If change does not influence the integrity of the final product. **(P):** If impact on product integrity is anticipated.	**(--):** e.g. change of dispensing speed **(P):** e.g. change of underfill material	C		-	•	•	•	•	•	M	•	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-	-	-	-	H	-	-	
SEM-PA-11	Change of mold compound / encapsulation material	P	P	Change of mold compound / encapsulation material.	e.g. change to green mold compound e.g. change of filler particles	C	B: impact on thermo-mechanical stress caused by mismatch of mold compound, interconnecting technology and carrier is anticipated (specific for Power Devices). B: for wave soldered devices A: in case of high frequency signals (> 3GHz) it should be assessed if possible changes in permeability of mold compound could affect signal behavior (e.g. digital signal processor).	-	•	•	•	•	•	M	•	•	•	-	-	-	•	•	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	•	L	-	-	-	-	-	-	-	
SEM-PA-12	Change of hermetic sealing	P	P	Affected areas are material and process of hermetic (e.g. ceramic) packages, capped die and sealed devices (e.g. pressure sensors)	e.g. change of sealing material for RoHS	B	**A:** impact on EMC behavior cannot be evaluated / excluded on component level (if encapsulation / sealing has impact on electrical conductivity).	-	•	•	-	•	•	-	•	-	-	-	-	-	-	•	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	•	-	•	-	-	
SEM-PA-13	Change of product marking	I	P	Change of marking on device and / or change in process resulting in a new technology.. **(I):** If change does not influence the integrity of the final product. **(P):** If impact on product integrity is anticipated.	**(I):** e.g. change of appearance (additional marking) **(P):** e.g. change from inked marking to laser marking e.g. marking of pin 1	B		-	•	-	-	-	-	-	-	-	-	-	-	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SEM-PA-14	Change in process technology (e.g. trim and form, leadframe preparation …)	--	P	**(--):** If the change in process technology does not influence the integrity of the final product. **(P):** If the change in process technology can influence the integrity of the final product.	**(P):** e.g. change from punched to sawn QFN	B	Please also check changes described under **SEM-EQ-01**. Please check if change is described by specific type of change in this matrix.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SEM-PA-15	Process integrity: tuning within specification	--	P	Variation within process specification **(--):** If tuning within process specification does not influence the integrity of the final product. **(P):** If impact on product specification is anticipated.	**(--):** e.g. process control	C		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SEM-PA-16	Change of direct material supplier	--	P	Change of suppliers for direct materials which are used in assembly process (BOM). **(--):** If change does not influence the integrity of the final product. **(P):** If impact on product integrity is anticipated.	**(--):** e.g. change of wire material supplier. **(P):** e.g. change to new mold compound supplier e.g. additional leadframe supplier with specific leadframe manufacturing technology	C	Please check if material is changed!	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	See change of material.
SEM-PA-17	Change of specified-assembly process sequence (deletion and/or additional process step)	--	P	**(--):** no influence in final product integrity or *specified sequence* **(P):** influence in final product integrity or *specified sequence*	**(--):** e.g. additional cleaning step e.g. deletion of optical inspection **(P):** e.g. change lead finishing pre trim & form to post trim & form	C		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Qualification depends on specific change.
SEM-PA-18	Move all or parts of production to a different assembly site.	P	P	Assembly transfer or relocation. Includes transfer as well as additional site.	e.g. dual source / fab strategy	C	**A** or **B**: impact on other type of changes described under **PROCESS ASSEMBLY** and **SEM-EQ-01**. Check if any other type of process change is applicable due to the transfer	•	•	-	•	•	•	M	-	•	•	-	•	•	•	•	T	•	-	-	-	-	-	-	-	-	-	•	-	-	-	-	L	H	-	-	H	H	•	•	Whisker tests have to be done on monitoring basis! AEC-Q100: "For broad changes that involve multiple attributes (e.g., site, materials, processes), refer to section A1.3 of this appendix and section 2.3 of Q100, which allows for the selection of worst-case test vehicles to cover all the possible permutations."
SEM-PA-19	Die scribe or separation	--	P	Separation process from single wafer to dies. **(--):** If the change in process does not influence the integrity of the final product. **(P):** If impact on product integrity is anticipated.	**(--):** e.g. change of kerf width **(P):** e.g. change from sawing to laser cut	C		-	•	-	•	•	•	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SEM-PA-20	Die Preparation / Clean	--	P	Change in process technique for die preparation / cleaning **(--):** If the change in process does not influence the integrity of the final product. **(P):** If impact on product integrity is anticipated.	**(--):** e.g. change of cleaning time.	C		-	•	-	•	•	-	M	-	•	-	-	•	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	H	-	-	-	
SEM-PA-21	Molding / Encapsulation process	--	P	Change in process technique for molding / encapsulation. **(--):** If the change in process does not influence the integrity of the final product. **(P):** If impact on product integrity is anticipated.	**(--):** e.g. tuning within process specification	C		-	•	-	•	•	•	M	•	•	-	-	-	-	•	•	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	L	-	-	-	-	-	-	-	

		PACKING/SHIPPING																																																		
	SEM-PS-01	Packing/shipping specification change	**P**	**P**	Packing/shipping specification change.		*		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	SEM-PS-02	Dry pack requirements change	**P**	**P**	Change of dry pack requirements (e.g. change of MSL)		*		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	SEM-PS-03	Change of carrier (tray, reel)	**P**	**P**	Change of carrier (tray, reel)		**B**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	SEM-PS-04	Change of labelling	**I**	**P**	Change of labelling also on reel. **(I):** Change of material label without impact on barcode. **(P):** Changes of material label information which affects data processing at customer.	**(I)** e.g. additional information (RoHS stamp) **(P)** e.g. change of defined nomenclature for data processing	**B**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		EQUIPMENT																																																	
	SEM-EQ-01	Production from a new equipment/tool which uses a different basic technology or which due to its unique form or function can be expected to influence the integrity of the final product	**P**	**P**	Change in process technique which is not already covered above.	Change from single wafer to batch process (e.g. over pad metalization) e.g. dambar cutting (mechanical to laser cutting)	**A**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	Affected process change is to check.
	SEM-EQ-02	Production from a new equipment/tool which uses the same basic technology (replacement equipment or extension of existing equipment pool) without change of process.	**--**	**P**	PCN required for dedicated equipment for sensitive component production. **(--):** If change does not influence the integrity of the final product. **(P):** If impact on product integrity is anticipated.	**(--):** e.g. extension of existing equipment pool **(P):** e.g. extension of dedicated equipment in case basic technology still need to be proven	**C**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	
	SEM-EQ-03	Change in final test equipment type leading to a different test concept.	**P**	**P**	Change of tester platform with differences in HW or SW that makes a change in test concept necessary (only in case of bare die: final test means wafer test).		**C**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	•	Gage R&R / delta correlation
		TEST FLOW																																																	
x	SEM-TF-01	Move of all or part of electrical wafer test and/or final test to a different test site.	**P**	**P**	Tester transfer or relocation. Check impact on SEM-AN-01 Includes transfer as well as additional site	Dual source strategy	**C**	Check if any other type of process change is applicable due to the transfer	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	•	Gage R&R / delta correlation
		Q-GATE																																																
	SEM-QG-01	Change of the test coverage/testing process flow used by the supplier to ensure data sheet compliance (e.g. elimination/addition of electrical measurement/test flow block; relaxation/enhancement of monitoring procedure or sampling)	**--**	**P**	e.g. test flow block, reduction from three temperature measurements to two temperature measurements, change in burn in / run in process. **(--):** If change does not influence the integrity of the final product. **(P):** If impact on product integrity is anticipated.	**(--):** e.g. test implemented without customer requirement **(P):** e.g. reduction from three temperature measurements to two temperature measurements e.g. change in burn in / run in process.	**C**		•	-	-	-	-	-	-	-	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	•	Parameter Analysis: Delta correlation * For "burn in" changes ELFR recommended
		Tests, which should be considered for the appropriate process change.					C		•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	•	
		Tests, which should be considered for the appropriate process change after selection of condition table.							•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	•	
		Suppliers performed tests (mark with an 'X' for done or 'G' for generic)							G																														X												G	
		Reason for exception of tests and/or usage of generic data:																																																	

--	Not required.
I	Information Note required.
P	PCN required.

A letter or "•" indicates that performance of that stress test should be considered for the appropriate process change.
A @ recommended additionally by ZVEI

	CONDITIONS	No
A	Only for peripheral routing	
B	For symbol rework, new cure time, temp	
C	If bond to leadfinger	
D	Design rule change	
E	Thickness only	
F	MEMS element only	
H	Hermetic only	
J	EPROM or EEPROM	
L	Lead free	
M	For devices requiring PTC	
N	Passivation and gate oxide	
P	Passivation and interlevel dielectric	
Q	Wire diameter decrease	
T	Only for Solder Ball SMD	
#	Only from non-100% burned-in parts	
*	For "burn in" changes IOL or ELFR recommended	

=> Please mark 'NO' with 'x', default is 'YES'

Worked on: (Name, Function)	
Date:	12/06/2020
PCN number:	PCN 20_0171
Signature:	

Form provided by ZVEI - Revision 4.1 - November 2016

Mark change with an "x"

ID	Type of change	Assessment of impact on Supply Chain regarding following aspects - contractual agreements - technical interface of processability/manufacturability of customer - form, fit, function, quality performance, reliability	No	Yes	Remaining risks within Supply Chain?	Understanding of semiconductors experts	Examples to explain	Evaluation level A / B/ C	Further applicable conditions	Has a device qualification been successfully executed to cover the change?	AEC Q100	Device evaluation MATERIAL PERFORMANCE TEST RESULTS (on the basis of AEC Q102 – Revision March15, 2017)	Remarks
	DIE												
	LED-DS-01 Any change with impact on agreed upon technical contractual agreements		P	P		Needed to be used if no other type of change / applicable but the change affects agreed technical contractual agreements.		*		-	-	-	
	LED-DS-02 Any change with impact on technical interface or processability/manufacturability of customer, which is not covered in the matrix below		P	P		See processability on board level electrical interface means component terminals		B	Check if **LED-DS-01** is affected Processability should be assessed.	-	-	-	
	DATA SHEET												
	LED-DS-01 Change of datasheet parameters/electrical specification (min./max./typ. values) and/or Pulse/DC specification		P	P		Change of application relevant information (e.g. maximum pulse current) due to a technical product or process change.	e.g. change of die substrate material.	A		-	-	-	E E E - E E - - - - S - - E - - E - - - E
	LED-DS-02 Correction of data sheet or issue of errata		I	I		No technical change of product, process or test. New description of behaviour/with was not specified before or vehicles different from initial specification. Please indicate clearly, that it/noone contains this type of information. Assessment in application required	e.g. Errata e.g. change of typ. values due to new information about component behavior e.g. improved statistics e.g. reduction of max. allowed forward voltage due to improved statistics.	A		-	-	-	- -
	LED-DS-03 Specification of additional parameters		I	P		o Definition of an additional parameter which was not specified before **P**: if there is a risk on supply chain where at least one additional other PCN-relevant change category will apply.	e.g.: adding new-tested parameter e.g.: additional temperature coefficient parameter	A		-	-	-	- • Remarks since this is not a product change, any additional information Classification: C
	DESIGN												
	LED-DE-01 Design changes in epitaxy.		P	P		Any device relevant changes in design / layout of epitaxial structure **Not included**: Changes within design rules and design specification without affecting specified functions, parameters and reliability.	e.g. change from Double-hetero to Quantum wells e.g. change of barrier thickness	C	**A:** change from Double hetero to Quantum wells --> spectrum is affected	-	•	-	• - • • • • - - - - - • H - - - - - •
	LED-DE-02 Design changes in routing/layout.		P	P		Any change in chip design / layout. **Not included** = Changes within design rules and design specification without affecting specified functions, parameters and reliability.	e.g. change in layout of current spreader; thickness of current spreader e.g. reduction of bond pad size	C	**A:** change in layout of current spreader --> radiation pattern changes	-	•	-	• • • • - - - - • - M • M M - B B D,M - • Int might be considered for complex die bond technologies
	LED-DE-03 die shrink		P	P		Shrink of active area. **Not included**: issuing sh rewrite/Sturzbe ibre	Typical shrink of die.	A	Please check if change in process technology (LED-PW-09) is also affected.	-	•	-	• • • • • • - - - - • - - • - - • B B • - •
	LED-DE-04 LED package (except leadframe)		P	P		Any change in housing thickness. any change in form or dimensions.	e.g. change of dimensions e.g. change of x, y, or z dimension of the package	B	Check if **LED-DS-02** is affected which leads to a change of the electrooptic parameters or distributions.	-	•	-	• • • • - - • - V V • T D - D D L B B D - •
	LED-DE-05 Design of leadframe		P	P		Any change of leadframe / carrier dimensions any change of outer dimensions	e.g. change in leadframe / carrier dimension in x,y, or z direction e.g. change in carrier design of the leadframe not affecting the die performance & reliability of the device	B	Check if **LED-DS-02** is affected which leads to a change of the electrooptic parameters or distributions.	-	-	•	• • • • • • • - V V • T - - - - • B B D 2 •
	PROCESS - WAFER PRODUCTION												
	LED-PW-01 New / change of wafer substrate or carrier material		P	P		New wafer substrate material.	e.g. different wafer material to currently released material (change from Sapphire to Silicon)	C	Check if **LED-DS-02** is affected which leads to a change of the electrooptic parameters or distributions.	-	•	•	• P P • P P - - - - • - P • P P • • - •
	LED-PW-02 Wafer diameter		P	P		Change of wafer diameter resulting in equipment and process changes.	e.g. 4" to 6"	C	In case other type of changes are affected or equipment/process technology - they need to be identified in addition	•	•	•	• - • - P P - - - • - - • - - • - - •
	LED-PW-03 New/final wafer thickness		P	P		Change in final wafer thickness	e.g. change in final chip/die thickness	C	Check if **LED-DS-02** is affected which leads to a change of the electrooptic parameters or distributions.	-	•	-	• • P • P P - - - - • - - • B B • - •
	LED-PW-04 Change of electrically active doping/implantation element		P	P		Change in electrically active doping / implantation element resulting in a new technology.	e.g. change from Be to C as dopant	C		-	•	C	• - C C • • - - - - • - - • - - - - •
	LED-PW-05 Change of stacking		P	P		Change in layer sequence or thickness	e.g. change of isolation layer thickness between n- and p-material	A	customer application needs to be checked due to potential system voltage differences	-	-	-	• F • • • • - - - - • - F - - - - - •
	LED-PW-06 New / change of metallization (specifically chip frontside)		P	P		Change in metallization of bondpads, material, layer thickness	e.g. change in bond pad metallization thickness	C		-	•	M	• • • • M,B M,B - - - - • - M • M M - • • - •
	LED-PW-07 New / change of metallization (specifically chip backside)		P	P		Change of bottom layer of die (between die and leadframe/carrier). Change in process, material, or dimensions necessary.	e.g. change from Au to AuSn	C	**A:** customer application needs to be checked due to potential system voltage differences	-	•	M	• • • • D,M D,M - - - - • - D,M • D,M D,M D,M - • - •
	LED-PW-08 Change in process technique (e.g. significant process changes like lithography, etch, oxide deposition, die back surface preparation/backgrind, ...)		--	P		Change from wet to dry etching, change from horizontal to vertical oven for oxidation, change from contact litho into stepper litho,	e.g. change from wet etch to dry etch e.g., change from laser cutting (sawing) to plasma cutting (sawing) e.g. change from contact litho to stepper litho	C	**B:** change from DUV-litej to sputter dep for backside/frontside metallisation. In case of new equipment please check if **LED-PS-14** is also affected.	-	•	-	- Qualification effort depends on type of change.
	LED-PW-09 Process Integrity: Tuning within specification		--	P		Variation within process specification	e.g. process control	C		-	-	-	- -
	LED-PW-10 Change of material-supplier with no impact on agreed specifications		--	P		Change of wafer supplier. Change of supplier for chemicals needed for wafer production.	e.g. Change of wafer supplier	C		-	•	-	- Qualification effort depends on type of change.
	LED-PW-11 Change of specified wafer process-sequence (deletion and/or additional process step)		--	P		Any change which is not covered by another type of change. Has to be assessed.	e.g. additional cleaning process in wafer production	C		-	-	-	- Qualification effort depends on type of change. PPAP has to be updated.
	LED-PW-12 Change in die coating or passivation		P	P		Change in material, thickness, and process for coating and passivation	e.g. change from SiO2 to SiN3	C		-	•	P	• • • P P P - - - - P - P P - P P - •
	LED-PW-13 New wafer production location or transfer of wafer production to a different not previously released location/manufacturer/contractor		P	P		New wafer proproduction location or transfer of wafer production with possible additional changes.		C	**A or B**: Impact on other type of changes described under PROCESS - WAFER PRODUCTION and EQUIPMENT categories IF this INCLUDE	•	•	•	- • • • - • • - - - - • - - - J • • • - •
	SURE DIE DELIVERIES												
	LED-SD-01 New / change of front-side metallization		P	P		Change in bondpads, material, pad pitch, surface changes, layer thickness	e.g. change from Au to Au alloy e.g. change in over pad metallization	B	Check if LED-DS-02 is affected which leads to a change of the electrooptic parameters or distributions.	-	-	M	• • • • M,B M,B - - - - • - • • • • • • - -
	LED-SD-02 New / change of backside metallization		P	P		Change of bottom layer of die (between die and leadframe/carrier). Change in process, material, or dimensions	e.g. change from Au to Au alloy	B		-	-	M	• • • • D,M D,M - - - - • - • • • • - • - -
	LED-SD-03 Change of wafer-setup or number of dies on wafer.		I	P		Needed information for pick & place machine. o only additional number of chips **P**: change in spacing between chips and form of wafer	e.g. information change for pick & place machine.	B		-	-	-	- -
	LED-SD-04 New/final wafer thickness		P	P		Changes in final Chip height (including carrier) / very rare and usually combined with a material change (change of carrier material)	e.g. change on converter thickness	B	Check if **LED-DS-01** is also affected.	-	-	P	• • P • P P - - - - • - - • - - • B B • - •
	LED-SD-05 Change in die coating or passivation		P	P		Change in material, thickness, and process for coating and passivation	e.g. change from SiO2 to SiN3	B	Check if **LED-DS-01** is also affected.	-	•	P	• • • P P P - - - - P - P P P - •
	PROCESS - ASSEMBLY												
	LED-PA-01 Change of leadframe/carrier base material		P	P		New leadframe/carrier material (new/+ composition)	e.g. change from copper alloy to bare copper	B	Check if **LED-DS-02** is affected which leads to a change of the electrooptic parameters or distributions.	-	•	•	P • • - - - - - 3 - - • • A - A A P,1 • • • P - Explanation should be provided in case H3N test is not applicable Regarding applicable materials please refer to the Whitelist standard.
	LED-PA-02 Change of leadframe/carrier finishing material (inner/all)		P	P		Change of surface material of die attach pad and second bond area (e.g. influence in adhesion to mold compound, wedge bond reliability)	e.g. change from Ag flash to NiPd protection layer e.g. change from Ag spot to Au spot	A		-	•	•	P • • • • - - - - - - • • A - A A P,1 • • • • - H3 test should be considered for automotive exterior/ applications, explanation should be provided in case H3t test is not applicable
	LED-PA-03 Change of lead and heat slug plating material/plating thickness (external)		P	P		Change in material and process technique for final die attach (e.g. pure tin); Hermet-package, processability and reliability on board level can be verified by generic data. Classification depends on impact of change	e.g. change in heat slug stack e.g. change from Sn into NiPdAu e.g. change of layer thickness	B		-	-	M	P • K - - - 1 - - - - • • A - A A P,1 - - - K - Explanation should be provided in case H3t test is not applicable Regarding applicable materials please refer to the Whitelist standard.
	LED-PA-04 Bump-Material / Metall System (internal)		P	P		Stack die or die to substrate	e.g. change to Pb-free material	A		-	-	•	• • • • • - - - - - - • - W - W W • - - • - -
	LED-PA-05 Die attach material		P	P		Change of die attach material (e.g., soft solder, epoxy, etc). Thermal-management must be respected.	e.g. change of Ag glue to Au glue\.	B		-	•	•	• • • • - - - - N N • - Q - N Q • - - • - -
	LED-PA-06 Change of bond wire material		P	P		Material, wire diameter, change in process technique	e.g. change from 30µ to 25µ	A		-	•	•	• • P,D • - - - - D D • - P,D • - P,D - • • - - - Wir audit for material change with impact on bondprocess (e.g. from Au to Cu) recommended.
	LED-PA-07 Change in material for sub-components (excluding LED chip & LED package related items) with impact on agreed specifications		P	P		Change of sub-component supplier using different technology/materials **Note**: Jump start test ist Ohmic might be necessary.	e.g. using a different ESD-diode in technology and material than previously	A	Check if **LED-DS-01** is also affected.	-	-	-	- Qualification effort depends on type of change.
	LED-PA-08 Die Overcoat / Underfill		--	P		Supporting layers for complex-packages like flip chip. Not relevant for standard LED. **P**: change can influence the integrity of final product	P: e.g. change of underfill with change of thermal resistance	B	Check if **LED-DS-01** is also affected.	-	•	P	• • P • • - - - - - P • - P • - P U - - U - -
	LED-PA-09 Change of mold compound/encapsulation/sealing material		P	P		Change of mold compound, encapsulation, or sealing material might be affected optical function in case of package related LED. Also, if thermal-mechanical properties and board-coating has to be assessed, MSL might be changed.	e.g. PPA mold compound	A	Check if **LED-DS-01** is also affected.	-	•	•	• - - • • - - D 3 D D • T P P P P P - - - - -
	LED-PA-10 Change of conversion material		P	P		Change of material class.	e.g. change from garnates to nitrides.	C	Check if **LED-DS-01** is affected for optical/photometric parameters	-	•	•	• Y • • - - - - Y Y • - P P P P Y - - - - •
	LED-PA-11 Change of direct supplier for converter material		--	P		New supplier with same material specification		C		-	-	•	• P • • - - - - P P • - P P P P P - - - - •
	LED-PA-12 Change of converter process technology		I	P		New technology for converter production o no influence on e/o performance of product **P**: in case of impact on product integrity	e.g. change from volume conversion to layer conversion; e.g. change from stamping to printing of layer	C	Check if any change in electro-optical characteristics results in change of data sheet **LED-DS-01**	-	•	•	• Y • • - - - - Y Y • - Z Z Z Z Y - - - - •
	LED-PA-13 Change of product marking		I	P		Marking on device. o change in appearance, readability not affected **P**: change of content or change of appearance of data matrix	e.g. marking of cathode;	B		-	-	-	- O - - - - - - - - - - T T - - - - - - - - -
	LED-PA-14 Change in process technique (e.g., die attach, bonding, moulding, plating, trim and form, ...)		P	P		Any change in assembly process technique	e.g. change die attached from gluing to soldering;	B	**A or B**: Please check if **EQUIPMENT** and other type of changes of material (**LED-PA-02/03/06/07/08/09/10**) are affected	-	•	-	- Qualification effort depends on type of change.
	LED-PA-15 Process Integrity: Tuning within specification		--	P		Variation within process specification	e.g. process control	C		-	-	-	- -

LED-PA-16	Change of direct material supplier with no impact on specification	--	P	Change of suppliers e.g. for lead frames, wire material, die attach, electronical components …	Change of suppliers e.g. for lead frames, wire material, ESD-diode …	C	Assumption that change material specification remains unchanged. Otherwise see change of material.	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	See change of material.
LED-PA-17	Change of specified-assembly process sequence (additional and/or deletion of process step)	I	P	Addition or deletion of a process step in assembly process sequence with potentially significant impact on the product performance **I:** no influence on product integrity **P:** influence on product integrity expected	e.g. additional or deletion plasma cleaning process	C	Single case assessment necessary to identify possible interactions or risk.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Qualification effort depends on type of change.
LED-PA-18	New assembly location or transfer of assembly to a different not previously released location/site/subcontractor	P	P	New assembly location, assembly transfer or relocation. Transfer of known technology and equipment.	e.g. Dual source strategy	C	**A** or **B:** Impact on other type of changes described under **PROCESS ASSEMBLY** and **EQUIPMENT**	•	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Qualification effort depends on type of change.
	PACKING/SHIPPING																																
LED-PS-01	Inner Packing/shipping specification change	P	P	dimension change of direct product packing	e.g. SMT pocket in tape changes	B		-	-	P	-	-	-	-	P	P	-	-	-	-	-	T	-	-	-	-	-	-	-	-	-	-	
LED-PS-02	Outer Packing/shipping specification change	I	P	dimension changes indirect product packing **I:** small changes in dimension or appearance **P:** number of reels in the packing are changing	e.g. pizza box	*		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
LED-PS-03	Change of labelling	I	P	Change of labelling also on reel. **I:** additional information no change of previous information **P:** change in content of previous information	**(I)** e.g. additional information (RoHS stamp) **(P)** e.g. change of customer specific information	B	Check if **LED-DS-01** is also affected.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
LED-PS-04	Dry pack requirement change	P	P	Change of dry pack requirements (change in MSL)	e.g. change from MSL3 to MSL1	*	Check if **LED-DS-02** is also affected.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	EQUIPMENT																																
LED-EQ-01	Production from a new equipment/tool which uses a different basic technology	P	P	Change in process technique which is not already covered above. **Note:** Major changes affecting the product not covered by the table require also a PCN.	e.g change from single wafer to batch process e.g. over pad metalisation e.g. dambar cutting (mechanical to laser cutting)	B	Check if **LED-DS-01** is also affected. Corrosion stability should be assessed.	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Qualification effort depends on type of change.
LED-EQ-02	Production from a new equipment/tool which uses the same basic technology (replacement equipment or extension of existing equipment pool) without change of process.	--	P	PCN required for dedicated equipment for sensitive component production.	e.g. change from single site to multi site handler.	C		-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Qualification effort depends on type of change.
LED-EQ-03	Change in final test equipment type that uses a different technology	I	P	Change of tester platform (e.g. major test program changes , new tester interface, …). **I:** product specification is not affected **P**: product specification is affected	e.g. change in test method from cd to lumen	B		-	•	-	-	-	-	-	•	•	-	-	-	-	-	T	-	-	-	-	-	-	-	-	-	•	Gage R&R / delta correlation
	TEST FLOW																																
LED-TF-01	Move of all or part of electrical wafer test and/or final test to a different location/site/subcontractor	P	P	Tester transfer or relocation.	e.g. Dual source strategy	C		•	-	-	B	•	•	B	•	•	-	-	-	-	•	T	-	B	-	-	-	B	B	B	-	•	Gage R&R / delta correlation; addtional specification check B should be considered for Wafer testing
	Q-GATE																																
LED-QG-01	Change of the test coverage/testing process flow used by the supplier to ensure data sheet compliance (e.g. elimination/addition of electrical measurement/test flow block; relaxation/enhancement of monitoring procedure or sampling)	--	P	Reduction or additional control steps, test coverage within the process flow	e.g. test flow block like Final test / final clearance	C		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	

Tests, which should be considered for the appropriate process change.			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tests, which should be considered for the appropriate process change after selection of condition table.			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Suppliers performed tests (mark with an 'X' for done or 'G' for generic)																												
Reason for exception of tests and/or usage of generic data:																												

--	Not required.
I	Information Note required.
P	PCN required.

A letter or "•" indicates that performance of that stress test should be considered for the appropriate process change.
A @ recommended additionally by ZVEI

	CONDITIONS	No
A	Not for Ag plated devices applicable (Ag intended to fail for this test)	
B	Only if Bondarea/Wirebond is changed/affected	
C	Only if dopand/implantation material is changed	
D	Only if Dimensions are changing	
E	Only if min/max Values are changing	
F	Sequence change only	
H	Non Epoxy Casted Devices only	
J	Only for chip technology using wafer bonding	
K	Not for Au plated devices	
L	Only if Leadframe/Substrate Dimensions are changed	
M	Only if metal composition is changed including sequence	
N	Only for glued chips	
O	Only if process is changing	
P	Only if material properties are changed	
Q	Only if glue components are changing	
R	Only if marking technology changes	
S	Only if Floor Life is affected	
T	Only if Board Reliability is affected	
U	Only if underfill is affected	
V	Only for non-hermetic devices	
W	Only if risk of corrosion is increasing	
Y	Only for layer technology	
Z	Only if conversion technology changes	
1	Only if data sheet parameters are affected	
2	Only if outer dimensions are critical	
3	Only for leaded parts	

=> Please mark 'NO' with 'x', default is 'YES'

Worked on: (Name, Function)	
Date:	12/06/2020
PCN number:	PCN 20_0171
Signature:	

Form provided by ZVEI - Revision 4.1 - November 2019

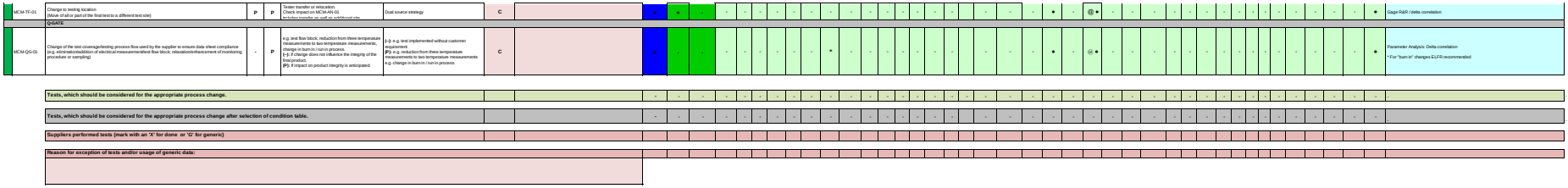
Mark change with an "x"

ID	Type of change (Assessment of impact on Supply Chain regarding following aspects: - contractual agreements - technical interface of processability/manufacturability of customer - form, fit, function, quality performance, reliability)	Remaining risks within Supply Chain? No	Yes	Understanding of semiconductors experts	Examples to explain	Evaluation level A / B / C (A: Application level, B: Boardlevel, C: Component level, *: Not relevant for qualification matrix)	Further applicable conditions	Remarks
	ANY							
MCM-AN-01	Any change with impact on agreed upon technical contractual agreements	P	P	Intended to be used if no other type of change is applicable but the change affects agreed technical contractual agreements		*		
MCM-AN-02	Any change with impact on processability/manufacturability at customer, which is not covered in the matrix below.	P	P	Any change which is not covered in the matrix below, but risk assessment at customer is recommended.		B		
	DATA SHEET							
MCM-DS-01	Change of datasheet parameters/electrical specification (min./max./typ. values) and/or AC/DC specification	P	P	Update of data sheet because of technical change of the product.	e.g. recommendations for pull-up/pull-down or NC pins, MSL	A		
MCM-DS-02	Correction of data sheet / errata	I	I	No technical change of product, process or test. New description of behaviour which was not specified before or which is different from initial specification. Please indicate clearly, that Info note contains this type of change! Assessment in application required!	e.g. Errata	A		
MCM-DS-03	Specification of additional parameters	I	P	Description of a new not previously covered parameter. No technical change of the product. **(I):** Definition of new parameter which was not documented before. **(P):** Not known as single change. Only in combination with other changes.	**(I):** e.g. adding new tested parameter.	A		
	DESIGN							
MCM-DE-01	Firmware modification	I	P	Integrated software by design or memory as defined by supplier. **(I)**: Firmware modification or update without effect of functional performance at the customer (bug fix). **(P)**: Firmware modification or update with effect of functional or reliability performance at the customer.	**(I)**: e.g. addition of Firmware opportunities **(P)**: e.g. bug fix with impact on functional performance	A		
MCM-DE-02	Change that adds or subtracts sub-components from the module BOM	P	P		e.g. addition of passive elements in filter circuit	A		
	PROCESS - ASSEMBLY - MATERIALS							
MCM-PA-01	Replacement of any sub-component by a Non-AEC qualified sub-component	P	P	Change from an AEC Qualified sub-component to a Non-AEC Qualified sub-component or Change from a Non-AEC Qualified sub-component to another Non-AEC Qualified sub-component		A		
MCM-PA-02	Replacement of any sub-component by an AEC qualified sub-component	P	P	Change from one AEC Qualified sub-component to another AEC Qualified sub-component Change from a Non-AEC Qualified sub-component to an AEC Qualified sub-component e.g. with impact on electrical robustness (ESD, latch up, …) electrical functionality, test coverage		A	Requires additional evidence that new sub-component is AEC qualified	
MCM-PA-03	Replacement of any sub-component by an AEC qualified sub-component Critical characteristics of sub-component are **not** affected	I	P	e.g. with **no** impact on electrical robustness (ESD, latch up, …) electrical functionality, test coverage		C	Requires additional evidence that new sub-component is AEC qualified	
MCM-PA-04	Change within a sub-component that has been requalified Critical characteristics of sub-component are affected	P	P	e.g. with impact on electrical robustness (ESD, latch up, …) electrical functionality, test coverage		A	Requires additional use of the appropriate ZVEI DeQuMa (e.g. active, passive component) for qualification of the changed sub-component	
MCM-PA-05	Change within a sub-component that has been requalified Critical characteristics of sub-component are **not** affected	I	P	e.g. with **no** impact on electrical robustness (ESD, latch up, …) electrical functionality, test coverage		C	Requires additional use of the appropriate ZVEI DeQuMa (e.g. active, passive component) for qualification of the changed sub-component	
MCM-PA-06	Substrate change affecting module schematic (Changes to the internal dimensions and / or schematics)	P	P	Design change and routing Change in substrate, leadframe dimensions which has impact to the specified electrical parameter acc. data sheet or specification (e.g. heat sink, pin dimensions, die paddle size, ...) Not included: Variation within specification.		A		
MCM-PA-07	Change to the processes used in module assembly (e.g., pick & place, die attach, bonding, reflow, encapsulation, singulation, die overcoat, underfill, die preparation, die clean)	-	P	(--): If the change in process technology does not influence the integrity of the final product. (P): If the change in process technology can influence the integrity of the final product.	**(--):** e.g. tuning within process specification	C		
MCM-PA-08	Process integrity: tuning within specification	-	P	Variation within process specification **(--):** If tuning within process specification does not influence the integrity of the final product. **(P):** If impact on product specification is anticipated.	**(--):** e.g. process control	C		
MCM-PA-09	Change to materials used in module assembly (e.g., adhesive, underfill, encapsulate, solder, epoxy, bump material, die attach material, bond wire, die overcoat, substrate, leadframe base material)	P	P	Change of used material (e.g. bump material, die attach material, soft solder, epoxy, etc.) Change of bond wire material, diameter, change in bonding diagram	e.g. Stack die or die to substrate (flip chip) e. g. change to Pb-free material e. g. change of copper pillars e.g. change from Sn into Ni/Pd/Au	C	B: impact on thermomechanical stress caused by mismatch of mold compound, interconnecting technology and carrier is anticipated B: external lead finishing material is affected	
MCM-PA-10	Change of direct material supplier	-	P	Change of suppliers for direct materials which are used in assembly process (BOM). **(--):** If change does not influence the integrity of the final product. **(P):** If impact on product integrity is anticipated.	**(--):** e.g. change of wire material supplier. **(P):** e.g. change to new mold compound supplier e.g. additional leadframe supplier with specific leadframe manufacturing technology e.g. additional or new substrate supplier	C	Please check if material is changed!	See change of material.
MCM-PA-11	Change to assembly location (Move all or parts of production to a different assembly site)	P	P	Assembly transfer or relocation Includes transfer as well as additional site	e.g. dual source / fab strategy	C	A or B: impact on other type of changes described under PROCESS ASSEMBLY and SEM-EQ-01. In case of Cu wire product please consider AEC-Q006.	Whisker tests have to be done on monitoring basis! AEC-Q100: "For broad changes that involve multiple attributes (e.g., site, materials, processes), refer to section A1.3 of this appendix and section 2.3 of Q100, which allows for the selection of worst-case test vehicles to cover all the possible permutations."
MCM-PA-12	Change of product marking	I	P	Change of marking on device and / or change in process resulting in a new technology.. **(I):** If change does not influence the integrity of the final product. **(P):** If impact on product integrity is anticipated.	**(I):** e.g. change of appearance (additional marking) **(P):** e.g. change from inked marking to laser marking e.g. marking of pin 1	B		
	PACKING/SHIPPING							
MCM-PS-01	Packing/shipping specification change	P	P	Packing/shipping specification change.		*		
MCM-PS-02	Dry pack requirements change	P	P	Change of dry pack requirements (e.g. change of MSL)		*		
MCM-PS-03	Change of carrier (tray, reel)	P	P	Change of carrier (tray, reel)		B		
MCM-PS-04	Change of labelling	I	P	Change of labelling also on reel. **(I):** Change of material label without impact on barcode. **(P):** Changes of material label information which affects data processing at customer.	**(I)** e.g. additional information (RoHS stamp) **(P)** e.g. change of defined nomenclature for data processing	B		
	EQUIPMENT							
MCM-EQ-01	Production from a new equipment/tool which uses a different basic technology or which due to its unique form or function can be expected to influence the integrity of the final product	P	P	Change in process technique which is not already covered above.	Change from single wafer to batch process (e.g. over pad metallization) e.g. dambar cutting (mechanical to laser cutting)	A		Affected process change is to check.
MCM-EQ-02	Production from a new equipment/tool which uses the same basic technology (replacement equipment or extension of existing equipment pool) without change of process.	-	P	PCN required for dedicated equipment for sensitive component production. **(--):** If change does not influence the integrity of the final product. **(P):** If impact on product integrity is anticipated.	**(--):** e.g. extension of existing equipment pool **(P):** e.g. extension of dedicated equipment in case basic technology still need to be proven	C		
MCM-EQ-03	Change to testing platform (Change in final test equipment type leading to a different test concept)	P	P	Change of tester platform with differences in HW or SW that makes a change in test concept necessary	e. g. change tester equipment from LTX to Teradyne	C		Gage R&R / delta correlation
	TEST FLOW							

Device evaluation

MATERIAL PERFORMANCE TEST RESULTS on the basis of AEC-Q104 Revision -September 14, 2017 / additional to AEC-Q10x

ID	Line evaluation (can be evaluated by data or audit/on site check)	AEC-Q104 Revision September 14, 2017	Check of specification (for raw material and sub-component)	Temperature Humidity Bias or biased HAST THB A2	Autoclave or Unbiased HAST AC A3	Temperature Cycling TC A4	Power Temperature Cycling PTC A5	High Temperature Storage Life HTSL A6	High Temperature Operating Life HTOL B1	Early Life Failure Rate ELFR B2	NVM Endurance, Data Retention, and Operational Life EDR B3	Wire Bond Shear WBS C1	Wire Bond Pull WBP C2	Solderability SD C3	Physical Dimensions PD C4	Solder Ball Shear SBS C5	Lead Integrity LI C6	X-ray / CSAM XRAY C7	Electronic Discharge Human Body Model HBM E2	Electronic Discharge Charged Device Model CDM E3	Latch up LU E4	Electrical Distribution ED E5	Fault Grading FG E6	Characterisation CHAR E7	Electromagnetic Compatibility EMC E8	Soft Error Rate SER E9	Hermetic Package Test MECH G1-4	Package Drop DROP G5	Lid Torque LT G6	Die Shear DS G7	Internal Water Vapor IWV G8	Board Level Reliability BLR H1	Low Temperature Storage Life LTSL H2	Start Up and Temperature Steps STEP H3	MCM Drop Test MCM DROP H4	Destructive Physical Analysis DPA H5	X-ray XRAY H6	Acoustic Microscopy AM H7	Whisker test (IEC 60068-T2-82, JEDEC JESD201)	Parameter-Analysis: Comparison of current with changed device characterization, electrical distribution
ANY																																								
MCM-AN-01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MCM-AN-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DATA SHEET																																								
MCM-DS-01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MCM-DS-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MCM-DS-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DESIGN																																								
MCM-DE-01	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MCM-DE-02		•	•	@ •	•	•	@ •	@ •	•	•	-	-	-	-	-	-	-	-	•	•	•	•	•	•	•	M	@ •,D	-	-	@ F	-	-	-	-	-	-	-	-	-	•
PROCESS - ASSEMBLY - MATERIALS																																								
MCM-PA-01		•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-		•	•	•	•	•	•	•	M	@•,D	@ •	-	@ F	-	-	-	-	-	@ •	@ •	@ •	-	•
MCM-PA-02		•	•	-	-	-	-	-	•	-	•	-	-	-	-	-	-		•	•	•	•	•	•	•	M	@•,D	@ •	-	@ F	-	-	-	-	-	@ •	@ •	@ •	-	•
MCM-PA-03		•	•	-	-	-	-	-	@ •	-	@ •	-	-	-	-	-	-		@ •	@ •	@ •	@ •	@ •	•	•	@ M	@•,D	@ •	-	@ F	-	-	-	-	-	@ •	@ •	@ •	-	•
MCM-PA-04		•	•	-	-	-	-	-	•	-	•	-	-	-	-	-	-		•	•	•	•	•	•	•	M	@•,D	-	-	@ F	-	-	-	-	-	-	-	-	-	•
MCM-PA-05		•	•	-	-	-	-	-	@ •	-	@ •	-	-	-	-	-	-		@ •	@ •	@ •	•	@ •	@ •	•	@ M	@•,D	-	-	@ F	-	-	-	-	-	-	-	-	-	•
MCM-PA-06		•	•	@ •	•	•	@ K	-	•	•	-	@ •	@ •	-	-	-	-	-	•	•	•	•	•	•	•	M	-	-	-	-	-	-	-	-	-	@ •	-	-	-	•
MCM-PA-07		•	-	•	-	•	@ K	-	@ A	-	-	•	•	-	•	•	-	•	-	-	-	@ H	-	@ •	-	-	-	-	-	-	-	-	-	-	-	@ •	-	-	-	•
MCM-PA-08	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MCM-PA-09		•	•	•	-	•	@ K	@ •	@ E	@ E	-	•	•	•	•	•	•	-	-	-	-	•	-	@ •	-	-	-	-	-	-	-	-	-	-	-	@ •	-	-	-	•
MCM-PA-10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MCM-PA-11	•	•	-	•	•	•	@ K	-	•	•	-	•	•	•	•	@ T	•		-	-	-	•	-	@ •	-	-	-	-	-	-	-	-	-			@ •		-	@ •	•
MCM-PA-12	-	-	-	-	-	-	-	-	-	-	-	-	-	B	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PACKING/SHIPPING																																								
MCM-PS-01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MCM-PS-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MCM-PS-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MCM-PS-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EQUIPMENT																																								
MCM-EQ-01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	•	-	@ •	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•
MCM-EQ-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MCM-EQ-03	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	•	-	@ •	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•
TEST FLOW																																								



–	Not required.
i	Information Note required.
p	PCN required.

A letter or "•" indicates that performance of that stress test should be considered for the appropriate process change.
A @ recommended additionally by ZVEI.

	CONDITIONS	No
A	die preparation and/or die clean	
B	For symbol rework, new cure time, temp	
C	If bond to leadfinger (requirement in Q100)	
D	G1 - G2: no G4	
E	only for bare die and change of mold compound	
F	bare die sub-component only	
H	processes for material in direct contact with die surfaces	
K	For devices requiring PTC (requirement in Q100)	
M	Applicable for subcomponents with > 1M SRAM or DRAM per AEC-Q100	
T	Only for Solder Ball SMD (requirement in Q100)	
*	For "burn in" changes tOL or ELFR recommended	

=> Please mark 'NO' with 'x', default is 'YES'

History of DeQuMa

Version	Remarks
2.0	Revised by ZVEI PCN Methodology Workgroup in March 2015
2.1	Released March 2015
2.1.1	Active Components - delete write protection in comments
2.2	Solved problems with some ActiveX configurations
2.2.2	Solved Problems in Active Components
2.2.3	Solved Problems ActiveX, Active Components SEM-DE-02 (Design changes in routing) error fixed
2.2.4	Minor fixes
3.0	General Revision by ZVEI PCN Methodology Workgroup in June 2016 Changes are indicated by underlining in the read only version named Changes_DeQuMa_rev3_vs_rev2.xlsx
3.0.4	Expert Release
3.0.5	Fixing of macro bugs
3.1	Final Release (orthographic and punctuation corrections)
4.0	General Revision by ZVEI PCN Methodology Workgroup in July 2019. Muliti Chip Modules newly added to DeQuMa LED Components now based on the AEC Q102 Further Changes see separate ~~PDF's~~ Excel-File, where changes are indicated by underlining
4.1	LED worksheet: Content of columns had been swapped due to rearrangement and omission of columns.

DeltaQualifikationsMatrix

Allgemeines

Kurze Produkt- und Technologiezyklen elektronischer Bauelemente sowie neue Umweltauflagen führen häufig zu prozeß- und werkstofftechnischen Änderungen an Bauelementen, Leiterplatten, Verbindungstechnik und Schaltung, welche evaluiert werden müssen. Eine geeignete Methodik zur Handhabung von Änderungen an elektronischen Bauelementen beschreibt die ZVEI "Guideline for Customer Notifications of Product and /or Process Changes (PCN) of Electronic Components specified for Automotive Applications". Ein wesentlicher Teil dieser Guideline sind die hier vorliegenden Matrizen, welche sich als Empfehlungen für die Evaluierung von typischen Änderungen an elektronischen Bauelementen verstehen. Dies sollte Teil des offenen und risikobewussten Dialoges zwischen Lieferant und Kunden sein.
Diese DeltaQualifikationsMatrizen wurden durch den Industriearbeitskreis "PCN DeltaQualifikationsMatrix" und den Bauteilexperten des ZVEI Arbeitskreis "PCN-Methodik" erarbeitet. Der Inhalt wurde basierend auf dem aktuellen Stand der Technik erstellt und erhebt keinen Anspruch auf Vollständigkeit. Im Einzelfall ist ggf. ein abweichendes Vorgehen abzustimmen, da kundenspezifische Vereinbarungen zur Qualifikation zu berücksichtigen sind.

Anwendung der DeltaQualifikationsMatrix *(auszufüllen durch den Bauelementehersteller)*

a) Diese Tabelle ist nur bei Änderungen anzuwenden. Neuqualifikationen und Sonderqualifikation (z.B. Verguß von Modulen) sowie Information Notes bleiben von diesen Matrizen unberührt.
b) Ist eine Änderung in dieser Tabelle nicht aufgeführt, so ist der Qualifikationsumfang zwischen Kunde und Lieferant abzustimmen.
c) Die Matrix der Aktiven Bauelemente ist so aufgebaut, dass zwischen integrierten Halbleitern (AEC-Q100 Rev. H) und diskreten Halbleitern (AEC-Q101 Rev. D1) auszuwählen ist (Zelle D4).
Für passive Bauelemente gilt die AEC-Q200. Für LED's gilt die AEC-Q102.
Für Multi-Chip-Module gilt die AEC-Q104.
d) Alle Änderungen in der PCN sind in der Spalte B durch ein Kreuz (x) zu markieren und werden dadurch farblich hervorgehoben. Sofern dies geschehen ist, werden im Feld "Tests, which should be considered for the appropriate process change" alle in Betracht zu ziehenden Zuverlässigkeitstests angezeigt.
e) In "Tests, which should be considered for the appropriate process change after selection of condition table" wird die Anpassung der in Betracht zu ziehenden Tests in Folge der Relevanz bezüglich der Änderung berücksichtigt.
Dazu ist die Tabelle "Conditions" entsprechend der Auswahl (A/B/C) mit einem (x) zu bewerten.
f) In "Suppliers performed tests" dokumentiert der Bauelementehersteller die durchgeführten bzw. geplanten Tests.
g) Falls von der Testempfehlung abgewichen wird, so sollten diese Abweichungen vom Bauelemente-hersteller angezeigt und kommentiert werden. Hierzu ist der Bereich "Reason for exception of tests" zu verwenden. Werden die in Betracht zu ziehenden Tests durch generische Daten (G) belegt, ist dies ebenfalls hier anzuzeigen und zu begründen.

Die Einstufung des Untersuchungslevel erfolgt in folgende Kategorien

"C: Component level": Die Evaluierung der Änderung am Bauelement ist durch Untersuchungen ausschließlich am Bauelement beim Bauelementehersteller durchführbar. Zur Evaluierung der Änderung dürfen Ergebnisse aus bereits durchgeführten Untersuchungen herangezogen werden, wenn diese zu einem ähnlichen Bauelement bereits vorliegen **(Generische Daten).**

"B: Board level": Die beschriebene Änderung hat möglicherweise Einfluss auf die Verarbeitbarkeit des Bauelementes im Steuergerät. Die Evaluierung der Änderung wird wie unter C beim Bauelementehersteller durchgeführt. Zusätzlich ist durch den Kunden/Steuergerätehersteller die Verarbeitbarkeit zu prüfen, die z.B. abhängig von der Änderung, Zuverlässigkeitsuntersuchungen auf applikationsrelevanten Testbords erfordert.

"A: Application level": Die beschriebene Änderung hat möglicherweise Einfluss auf die Applikation/ das Steuergerät. Die Evaluierung der Änderung wird wie unter C oder B durchgeführt. Zusätzlich ist vom Kunden/Steuergerätehersteller der Einfluss der Änderung im Steuergerät durch geeignete Untersuchungen zu bewerten. Dieses Vorgehen ist mit dem OEM abzustimmen. Hierbei ist zu berücksichtigen, ob die Steuergeräte- / Baugruppenanforderungen durch andere Qualifikationen bereits hinreichend abgesichert sind **(applikationsspezifische Risikobetrachtung).**

" *: Not relevant for qualification matrix": Änderung(en), die nicht in A, B oder C eingestuft werden können und somit nicht relevant für die DeQuMa sind

Infomation Notes

Änderungen die nur eine Information Note benötigen (bei der Bewertung Risk on Supply Chain als "I" gekennzeichnet), dürfen nicht in der DeQuMa angekreuzt werden, da Sie ansonsten den erforderlichen Evaluierungslevel verfälschen. Für als "I" bewertete Änderungen ist das Information Note Formblatt zu verwenden.

Wichtige Hinweise

- Zur formgerechten Anwendung der DeltaQualifikationsMatrizen steht auf der Homepage des ZVEI AK ein Tutorial bereit (ZVEI-Tutorial).
- ID Nummer: ist eine eindeutige Identifikationsnummer für jede angegebene Änderung, die in den ZVEI PCN DeltaQualifikatiosMatrizen identifiziert ist. Die gleiche ID Nummer wird zur Identifizierung der Änderung im PCN Form Sheet verwendet.
- Die mittels Matrix identifizierten Tests sind in **Betracht zu ziehen**, d.h. es ist zu prüfen, ob der jeweilige Test für die spezifische Änderung in dieser Form notwendig ist. Abweichungen oder generische Daten sind im Detail zu begründen.
- Die Spalte "Further applicable conditions", Bemerkungen und Fußnoten sind unbedingt zu beachten, da sie wichtige Hinweise und Einschränkungen enthalten.
- Zur Nutzung aller Funktionen muss in Excel die Anwendung von Makros freigegeben sein.

DeltaQualificationMatrix

General

Short product and technology cycles as well as new environmental regulations frequently result in process and material changes of components, printed circuit boards, assembly techniques and circuit layout which have to be evaluated. The ZVEI "Guideline for Customer Notifications of Product and /or Process Changes (PCN) of Electronic Components specified for Automotive Applications" describes an appropriate methodology for dealing with changed electronic components. The qualification matrices in this guideline are recommendations for how to assess typical changes of electronic components. These recommendations promote an open risk-based discussion between supplier and customer regarding qualifications.
The DeltaQualificationMatrices were developed by the Industry Task Force Team "PCN DeltaQualificationMatrix" together with component experts from the ZVEI Working Group "PCN-Methodology". Actual content represents state-of-the-art technology and does not claim to be comprehensive. Deviation from proposed guideline should be mutually agreed as customer specific requirements have to be considered.

DeltaQualificationMatrix Application *(completion by component manufacturer)*

a) This table has to be used for changes only. The matrices are not applicable for new product, special qualifications (for instance for encapsulation of module) or Information Notes.
b) If a change is not listed in this table, the qualification plan has to be defined and agreed between customer and supplier.
c) The matrix for Active Components requires the user to choose between integrated circuits (AEC-Q100 Rev. H) and discrete semiconductors (AEC-Q101 Rev. D1) (cell D4).
For Passive Components AEC-Q200 is used. For LED'S the AEC-Q102 is used.
For Multi-Chip-Modules the AEC-Q104 is used.
d) All changes as listed in the PCN have to be marked by a cross (x) in column B and will appear colored. The relevant reliability tests are then shown in "Tests, which should be considered for the appropriate process change".
e) In "Tests, which should be considered for the appropriate process change after selection of condition table" is for modification of the found relevant tests under consideration of the weight of change.
Related table "Conditions" has to be assessed per proposed letters with an (x).
f) In "Suppliers performed tests" the component manufacturer documents the planned and performed tests.
g) In case of deviations from tests, which should be considered this should be notified and commented by the component manufacturer in the area "Reason for exception of tests".
Test results in form of generic data (G) are allowed when notified and justified.

Evaluation Levels are categorized as follows

"C: Component level": The evaluation of a change at component level by the component manufacturer is sufficient. Generic data from other relevant evaluations can be used.

"B: Board level": The intended change described in the PCN may influence processability / manufacturability of the component at board level. Therefore additional evaluation by customer may be necessary, for example reliability tests on application relevant testboards, depending on change.

"A: Application level": The intended change described in the PCN may influence the properties of the application (e.g. Electronic Control Unit).
In addition to the evaluation under C or B the influence of the change in the application is evaluated by suitable investigations by the customer. The scope of the evaluation has to be aligned with the OEM. It has to be considered whether the application / assembly requirements are already sufficiently safeguarded by other qualifications **(application specific risk assessment).**

" *: Not relevant for qualification matrix": Changes which fulfill neither A,B nor C definitions

Infomation Notes

Changes indicated as "I" shall not be marked in the DeQuMa. For those changes the Information Note sheet shall be used. As the DeQuMa is desired for PCN only, a marking of "I"-changes would automatically influence evaluation level and test effort.

Important Notes

- To use the matrices in the right form the ZVEI working group provides a Tutorial on its homepage (ZVEI-Tutorial)
- ID number: is a unique identification number for each indicated change defined in the ZVEI PCN DeltaQualificationMatrices. The same ID number is used in the PCN Form sheet to identify the change.
- Tests identified by the matrix have **to be considered** and checked if they are necessary to assess the specific change. Test modifications or generic data have to be justified in detail.
- "Further applicable conditions", comments and notes need attention, as they provide important hints and limitations.
- In order to use all functions in EXCEL, macros have to be allowed.

Form provided by ZVEI - Revision 4.1 - November 2019

Worked on: (Name, Function)	
Date:	12/06/2020
PCN number:	PCN 20_0171
Signature:	

Form provided by ZVEI - Revision 4.1 - November 2019

Mark change with an "x"

Selection of component	ID	Type of change (Assessment of impact on Supply Chain regarding following aspects - contractual agreements - technical interface of processability/manufacturability of customer - form, fit, function, quality performance, reliability)	Remaining risks within Supply Chain? No	Yes	Understanding of component experts	Examples to explain	Evaluation level A / B / C (A: Application level, B: Boardlevel, C: Component level, *: Not relevant for qualification matrix)	Further applicable conditions	Remarks
NETWORKS & RESISTORS		**NETWORKS & RESISTORS**							
NETWORKS & RESISTORS		**ANY**							
NETWORKS & RESISTORS	PAS-RES-AN-01	Any change with impact on agreed upon technical contractual agreements	P	P	Intended to be used if no other type of change is applicable but the change affects agreed technical contractual agreements	Not relevant for technical evaluation.	*		
NETWORKS & RESISTORS	PAS-RES-AN-02	Any change with impact on processability/manufacturabiliy at customer, which is not covered in the matrix below.	P	P		Technical interface means component terminals.	B		
NETWORKS & RESISTORS		**DATASHEET**							
NETWORKS & RESISTORS	PAS-RES-DS-01	Change of datasheet parameters/electrical specification (min./max./typ. values) and / or AC/DC specification	P	P	Change of application relevant information **Not included:** Editorial changes.	e.g. tighten of electrical parameter distribution	A	Risk assessment depending on change for each application.	
NETWORKS & RESISTORS	PAS-RES-DS-02	Correction of data sheet or issue of errata	I	I	No technical change of product, process or test. New description of behavior which was not specified before or which is different from initial specification. Please indicate clearly, that Infonote contains this type of change! Assessment in application required!!	e.g. data sheet correction because of new information about component behavior	A		
NETWORKS & RESISTORS	PAS-RES-DS-03	Specification of additional parameters	I	P	Description of a new not previously covered parameter. No technical change of the product. **(I):** no influence **(P):** Risk assessment depending on change for each application to provide evidence of additional parametes (stat. evaluation)	e.g. adding new (tested) parameter.	A		
NETWORKS & RESISTORS		**MATERIAL**							
NETWORKS & RESISTORS	PAS-RES-MA-01	Change of material composition - Ink/Wire material of Resistor element	P	P	Change of Ink / Wire material	e.g. resistor paste, NiCr, resistor wire	C		
NETWORKS & RESISTORS	PAS-RES-MA-02	Change of material composition - Ink/Wire material of Terminal element	P	P	Change of Ink / Wire material	e.g. AgPd paste, Ag paste, lead wire , NiCr for side termination	B		
NETWORKS & RESISTORS	PAS-RES-MA-03	Change of material composition - Package/ Mold	P	P	Change of Package	e.g. for chip res.: final coating, epoxy	B		Check whether AOI at tier 1 can be affected.
NETWORKS & RESISTORS	PAS-RES-MA-04	Change of material composition - Passivation	P	P	Change of Passivation /Inner protection	e.g. change of glass	C		
NETWORKS & RESISTORS	PAS-RES-MA-05	Change of material composition - Substrate material	P	P	Change of substrate material		C		
NETWORKS & RESISTORS	PAS-RES-MA-06	Change of supplier of material	-	P	Change to a new or additional material supplier at component manufacturer.	e.g. for 2nd source purpose	C		Assumption material specification remains unchanged. Otherwise see change of material.
NETWORKS & RESISTORS		**DESIGN**							
NETWORKS & RESISTORS	PAS-RES-DE-01	Changes of termination, surface finish, shape, color, appearance or dimension structure	I	P	Change of package		B		
NETWORKS & RESISTORS	PAS-RES-DE-02	Changes of inner construction - Passivation	-	P	Change of passivation/Inner protection	e.g. change of glass, laquer, epoxy, ...	C		
NETWORKS & RESISTORS		**PROCESS**							
NETWORKS & RESISTORS	PAS-RES-PR-01	Changes in process technology or manufacturing methods - Ink Fire	-	P	Change of ink fire process	e.g. change of firing profile e.g. change from normal atmospher to nitrogen atmospher	C		
NETWORKS & RESISTORS	PAS-RES-PR-02	Changes in process technology or manufacturing methods - Ink Print	-	P	Change of ink print process		C		
NETWORKS & RESISTORS	PAS-RES-PR-03	Changes in process technology or manufacturing methods - Trim	-	P	Change of trim process	e.g. change from mill trimming to laser trimming	C		
NETWORKS & RESISTORS	PAS-RES-PR-04	Changes in process technology or manufacturing methods - Lead Form	-	P	Change of lead form process	e.g. change from bending to punching	B		
NETWORKS & RESISTORS	PAS-RES-PR-05	Changes in process technology or manufacturing methods - Termination Attach	-	P	Change of termination attach process	e.g. chip resistors: electroplating process e.g. welding of leads for through put devices.	B		
NETWORKS & RESISTORS	PAS-RES-PR-06	Changes in process technology or manufacturing methods - Marking	-	P	Change of marking process	e.g. change from tampon printing to laser marking	B		
NETWORKS & RESISTORS	PAS-RES-PR-07	Changes in process technology or manufacturing methods - Molding	-	P	Change of molding process		B		
NETWORKS & RESISTORS	PAS-RES-PR-08	Process integrity: tuning within specification	-	P	Variation within process specification.	e.g. process control	C		
NETWORKS & RESISTORS		**PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS**							
NETWORKS & RESISTORS	PAS-RES-PN-01	Packing / shipping specification change (loosening of tolerances)	P	P	Change of packing specification.	e.g. number of pieces on reel.	B		
NETWORKS & RESISTORS	PAS-RES-PN-02	Dry pack requirements change	P	P	Change of dry pack requirements.	e.g. change of MSL e.g. change in dry pack assurance (HIC, MBB)	B		
NETWORKS & RESISTORS	PAS-RES-PN-03	Change of carrier (tray, reel)	P	P	Change of carrier	e.g. change by material e.g. change by geometry.	B		
NETWORKS & RESISTORS		**PACKING / SHIPPING - VISUAL INSPECTION**							
NETWORKS & RESISTORS	PAS-RES-PV-01	Change of labelling	I	P	Change of labelling, also on reel.	**(I)** e.g. additional information (RoHS stamp) **(P)** e.g. change of customer specific information	B		
NETWORKS & RESISTORS	PAS-RES-PV-02	Change of product marking	I	P	Marking on device.	e.g. change of content of marking e.g. change of method of marking e.g. change of appearance of marking	B		
NETWORKS & RESISTORS	PAS-RES-PV-03	Change of packing/shipping specification	P	P	Change in packing specification which does not described a change of dimensions or material of the packing.	e.g. change of documentation in packing specification	*		
NETWORKS & RESISTORS		**LOGISTICS / CAPACITY / TESTING - EQUIPMEMENT**							
NETWORKS & RESISTORS	PAS-RES-EQ-01	Production from a new equipment/tool which uses a different technology or which due to its unique form or function can be expected to influence the integrity of the final product	P	P	Change in process technique which is not already covered above. **Note:** Changes affecting the product not covered by the table require also a PCN.	e.g. new equipment supplier with different process concept	C		Test effort depends on final risk assessment. Performance test according to affected process change.
NETWORKS & RESISTORS	PAS-RES-EQ-02	Production from a new equipment/tool which uses the same basic technology (replacement equipment or extension of existing equipment pool)	-	P	PCN required for dedicated equipment for sensitive component production.	e.g. additional equipment to increase production capacity e.g. replacement of same equipment	C		Test effort depends on final risk assessment. Performance test according to affected process change.
NETWORKS & RESISTORS	PAS-RES-EQ-03	Change in final test equipment type that uses a different technology	P	P	Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	C		Gage R&R / delta correlation
NETWORKS & RESISTORS		**LOGISTICS / CAPACITY / TESTING - PROCESS FLOW**							
NETWORKS & RESISTORS	PAS-RES-PF-01	Manufacturing site transfer or movement of a part of production process to a different location/site	P	P	Change of manufacturing site. Includes transfer as well as additional site. **Note**: Reorganization inside one plant/site is not affected!	e.g. movement or transfer of manufacturing site or process step(s) to a different location/site. e.g. dual source / fab strategy	B		
NETWORKS & RESISTORS	PAS-RES-PF-02	Elimination or addition of a manufacturing process step	-	P	Change of manufacturing process sequence.	e.g. washing / cleaning process e.g. change of order of processes	C		Characterisation depends on impact of production flow.
NETWORKS & RESISTORS		**LOGISTICS / CAPACITY / TESTING - Q-GATE**							
NETWORKS & RESISTORS	PAS-RES-QG-01	Change of test coverage used by the supplier to ensure data sheet compliance (e.g., elimination/addition of electrical measurement/test flow block, relaxation/enhancement of monitoring procedure or sampling)	-	P	Change of test coverage.	e.g. change from 100% to sample inspection e. g. test flow block, reduction from three to two temperature measurements e.g. change in burn in/run in process.	C		R (electr. funct.): test coverage. R (reliability) only for change in burn in process.
INDUCTORS		**INDUCTORS**							
INDUCTORS		**ANY**							
INDUCTORS	PAS-IND-AN-01	Any change with impact on agreed upon technical contractual agreements	P	P	Intended to be used if no other type of change is applicable but the change affects agreed technical contractual agreements	Not relevant for technical evaluation.	*		
INDUCTORS	PAS-IND-AN-02	Any change with impact on processability/manufacturabiliy at customer, which is not covered in the matrix below.	P	P		Technical interface means component terminals.	B		
INDUCTORS		**DATASHEET**							
INDUCTORS	PAS-IND-DS-01	Change of datasheet parameters/electrical specification (min./max./typ. values) and / or AC/DC specification	P	P	Change of application relevant information **Not included:** Editorial changes.	e.g. tighten of electrical parameter distribution	A	Risk assessment depending on change for each application.	
INDUCTORS	PAS-IND-DS-02	Correction of data sheet or issue of errata	I	I	No technical change of product, process or test. New description of behavior which was not specified before or which is different from initial specification. Please indicate clearly, that Infonote contains this type of change! Assessment in application required!!	e.g. data sheet correction because of new information about component behavior	A		

Device evaluation — MATERIAL PERFORMANCE TEST RESULTS (on the basis of AEC-Q200 Revision D); additional to AEC-Q200

ID	Line evaluation (can be evaluated by data or audit/on site check)	AEC-Q200 Revision D	Check of specification (for raw material only)	High Temp Exposure (Storage) 3	Temperature Cycling 4	Destructive Physical Analysis 5	Moisture Resistance 6	Biased Humidity 7	Operational Life 8	External Visual 9	Physical Dimension 10	Terminal Strength (Leaded) 11	Resistance to Solvents 12	Mechanical Shock 13	Vibration 14	Resistance to Soldering Heat 15	Thermal Shock 16	Electrostatic Discharge (ESD) 17	Solderability 18	Electrical Characterization 19	Flammability 20	Board Flex 21	Terminal Strength (SMD) 22	Beam Load Test 23	Flame Retardance 24	Rotation Life 25	Surge Voltage 27	Salt Spray 29	Electrical Transient Conduction 30	Shear Strength 31	Fault Current Durability 32	End-of-Life Mode Verification 33	Jump Start Endurance 34	Load Dump Endurance 35	Whisker Test (IEC 60068-T2-82, JEDEC JESD201)	Parameter-Analysis: Comparison of current with changed device characterization, electrical distribution
PAS-RES-AN-01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PAS-RES-AN-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	-
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INDUCTORS	PAS-IND-DS-03	Specification of additional parameters	I	P	Description of a new not previously covered parameter. No technical change of the product. **(I):** no influence **(P):** Risk assessment depending on change for each application to provide evidence of additional parametes (stat. evaluation)	e.g. adding new (tested) parameter.	A		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
INDUCTORS		MATERIAL																																											
INDUCTORS	PAS-IND-MA-01	Change of material composition - Bobbin Material	P	P	Material without magnetic function ("Spulenkörper") typically made by plastic material	e.g. change from Thermoset to Thermoplastic	B		-	●	●	●	●	-	-	●	●	●	@●	-	-	●	-	-	●	-	-	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
INDUCTORS	PAS-IND-MA-02	Change of material composition - Core Material	P	P	Change of core material, which is material with magnetic function	e.g. change from NiZn into MnZn	A		-	●	●	@●	●	-	-	-	●	●	-	-	-	●	-	-	●	-	-	B	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	
INDUCTORS	PAS-IND-MA-03	Change of material composition - Insulation Material	P	P	Change of insulation material	e.g. wire insulation, insulation tapes, … e.g. change from Polyurethane to Polyamide	C		-	●	●	●	●	-	-	●	●	●	-	-	●	-	-	●	●	A	-	B	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
INDUCTORS	PAS-IND-MA-04	Change of material composition - Lead Material	P	P	Change of lead material	e.g. change from tin coverd to non-coverd lead material	B		-	●	-	-	-	-	-	-	●	●	-	●	-	-	●	●	-	-	●	-	-	●	●	-	-	-	-	-	-	-	-	-	-	-	@●	-	
INDUCTORS	PAS-IND-MA-05	Change of material composition - Mold Compound	P	P	Change of mold compound material	e.g. change to green mold	B		-	●	●	●	●	-	●	●	●	●	-	-	●	●	-	-	●	-	-	B	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	Electrical function affected if mechanical stress distribution changes. AOI, wave soldering and board coating has to be assessed. MSL might change.
INDUCTORS	PAS-IND-MA-06	Change of material composition - Solder Material	P	P	Change of solder material at internal connection.	e.g. change of SnAgCu composition	B		-	●	●	-	●	-	-	-	-	●	-	●	-	●	●	@●	●	-	●	-	-	●	●	-	-	-	-	-	-	-	-	-	-	-	@●	-	
INDUCTORS	PAS-IND-MA-07	Change of material composition - Wire / Foil Material	P	P	Wire for wounded inductors. Foil for multilayer inductors (inner electrode).	e.g. change of Cu composition	B		-	●	●	@●	-	-	●	●	●	●	-	-	-	-	-	-	-	●	-	B	-	●	●	-	-	-	-	-	-	-	-	-	-	-	-	@●	
INDUCTORS	PAS-IND-MA-08	Change of material composition - Glue	P	P	Change of glue material	e.g. change from glue A into glue B	C		-	●	●	-	@●	-	-	@●	-	@●	-	-	-	-	@●	@●	-	-	@●	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	Considere in case of core-core glue the air gap.
INDUCTORS	PAS-IND-MA-09	Change of supplier of material	-	P	Change to a new or additional material supplier at component manufacturer.	e.g. for 2nd source purpose	C		-	●	●	-	●	-	●	@●	-	●	●	●	-	-	-	-	●	-	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	Assumption material specification remains unchanged. Otherwise see change of material.
INDUCTORS	PAS-IND-MA-10	Change of material composition - Potting Material	P	P	Change of potting material	e.g. change from epoxy resin to silicon	C	**A**: If influence on other connections on PCB or laquer expected.	-	-	●	-	@●	-	-	@●	-	@●	@●	-	-	-	@●	@●	-	-	@●	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	
INDUCTORS		DESIGN																																											
INDUCTORS	PAS-IND-DE-01	Changes of termination, surface finish, shape, color, appearance or dimension structure - Bobbin	I	P	Material without magnetic function ("Spulenkörper") typically made by plastic material	e.g. construction / dimension change of bobbin	B		-	●	-	-	●	-	-	-	-	●	●	-	-	●	-	-	●	●	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	
INDUCTORS	PAS-IND-DE-02	Changes of termination, surface finish, shape, color, appearance or dimension structure - Lead/Terminals	I	P	Change of lead/terminals	e.g. change from PTH terminals to SMD terminals	A		-	●	-	-	-	-	-	-	-	●	●	●	-	-	●	●	-	●	●	-	-	●	●	-	-	-	-	-	-	-	-	-	-	-	@●	@●	Effect regarding EMC relevant for high frequency only.
INDUCTORS	PAS-IND-DE-03	Changes of termination, surface finish, shape, color, appearance or dimension structure - Mold	I	P	Change of mold	e.g. new mold material with different color	B		-	●	-	-	●	-	●	@●	-	●	●	-	●	●	-	-	●	-	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	Parameter Analysis only for components where mold material has magnetic function
INDUCTORS	PAS-IND-DE-04	Changes of inner construction - Core Construction	-	P	Change of core construction, which is material with magnetic function	e.g. change fromdrum core & shield core into pot core & cover plate core	A		-	●	-	-	●	-	-	-	-	●	●	-	-	●	●	-	●	-	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	
INDUCTORS	PAS-IND-DE-05	Changes of inner construction - Insulation System	-	P	Change of insulation system	e.g. wire insulation, insulation tapes, … e.g. change from Polyurethane to PTFE (Teflon)	C		-	●	-	@●	-	-	-	●	●	●	●	-	●	-	-	●	-	A	-	B	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
INDUCTORS	PAS-IND-DE-06	Changes of inner construction - Wire / Foil Construction	-	P	Change of wire / foil dimensions	e.g. change from round cross section to rectangular cross section e.g. from single wire to litz wire	B		-	●	-	-	●	-	-	-	-	●	●	-	-	-	@●	-	●	-	-	B	-	●	●	-	-	-	-	-	-	-	-	-	-	-	-	@●	
INDUCTORS	PAS-IND-DE-07	Changes of termination, surface finish, shape, color, appearance or dimension structure - Potting Material	I	P	Change of potting dimension	e.g. change of potting (filling) height	C	If data sheet is affected **(PAS-IND-DS-01)**	-	-	-	-	@●	-	-	-	-	@●	@●	-	-	-	@●	@●	-	-	-	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	
INDUCTORS		PROCESS																																											
INDUCTORS	PAS-IND-PR-01	Changes in process technology or manufacturing methods - Insulation Strip	-	P	(Mechanical) removal of insulation.	e.g. change from mechanical removal to laser removal	B		●	●	-	-	-	-	●	-	-	●	-	-	●	-	-	●	-	-	@●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Mechanical damage of wire, impact on solderability in case of stripping process is affecting soldering area.
INDUCTORS	PAS-IND-PR-02	Changes in process technology or manufacturing methods - Lead Prep. / Plating	-	P	Change of lead prep. / plating	e.g. change from hot dip tinning to electroplating	B		●	●	-	-	●	-	-	-	-	●	-	●	-	-	●	●	●	-	●	-	-	●	●	-	-	-	-	-	-	-	-	-	-	-	@●	-	Influence regarding reliability of solder joint.
INDUCTORS	PAS-IND-PR-03	Changes in process technology or manufacturing methods - Terminal Attach	-	P	Connection of wire terminal and / or connection of termination to core/bobbin.	e.g. chanfe from Manual winding to Semi-automtic winding (winding of wire on terminal)	C		●	●	-	-	●	-	●	@●	-	●	-	●	-	●	●	A	●	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	-	Increase of contact resistance.
INDUCTORS	PAS-IND-PR-04	Changes in process technology or manufacturing methods - Marking	-	P	Change of marking process	e.g. change from ink marking to laser marking	B		●	●	-	-	-	-	-	-	-	●	-	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
INDUCTORS	PAS-IND-PR-05	Changes in process technology or manufacturing methods - Molding	-	P	Change of molding process	e.g. change from one component molding to two component molding (other technology needed)	B		●	●	-	●	●	-	-	●	●	●	●	-	●	●	-	-	●	-	-	B	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
INDUCTORS	PAS-IND-PR-06	Changes in process technology or manufacturing methods - Soldering Internal Connections	-	P	Change of soldering internal connection	e.g. change from hot tip tinning to resistance welding	B		●	●	-	-	●	-	-	-	-	●	-	●	-	-	●	-	●	-	●	-	-	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	
INDUCTORS	PAS-IND-PR-07	Changes in process technology or manufacturing methods - Winding Insulation	-	P	Change of winding - insulation	e.g. change from manual to automatic process	B		●	●	-	@●	-	-	-	●	●	@●	-	-	●	-	-	●	-	A	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
INDUCTORS	PAS-IND-PR-08	Changes in process technology or manufacturing methods - Winding Wire	-	P	Change of winding - wire	e.g. change from semi-automatic winding to full automatic winding	C		●	●	-	@●	-	-	●	-	●	●	-	-	-	-	-	-	-	-	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	
INDUCTORS	PAS-IND-PR-09	Process integrity: tuning within specification	-	P	Variation within process specification.	e.g. process control	C		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
INDUCTORS	PAS-IND-PR-10	Changes in process technology or manufacturing methods - Potting	-	P	Change of potting process	e.g. change from manual potting process to automatic potting process	C		●	-	-	-	@●	-	-	@●	-	@●	@●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
INDUCTORS		PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS																																											
INDUCTORS	PAS-IND-PN-01	Packing / shipping specification change (loosening of tolerances)	P	P	Change of packing specification.	e.g. number of pieces on reel.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
INDUCTORS	PAS-IND-PN-02	Dry pack requirements change	P	P	Change of drypack requirements.	e.g. change of MSL e.g. change in dry pack assurance (HIC, MBB)	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
INDUCTORS	PAS-IND-PN-03	Change of carrier (tray, reel)	P	P	Change of carrier	e.g. change by material e.g. change by geometry.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
INDUCTORS		PACKING / SHIPPING - VISUAL INSPECTION																																											
INDUCTORS	PAS-IND-PV-01	Change of labelling	I	P	Change of labelling, also on reel.	**(I)** e.g. additional information (RoHS stamp) **(P)** e.g. change of customer specific information	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
INDUCTORS	PAS-IND-PV-02	Change of product marking	I	P	Marking on device.	e.g. change of content of marking e.g. change of method of marking e.g. change of appearance of marking	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
INDUCTORS	PAS-IND-PV-03	Change of packing/shipping specification	P	P	Change in packing specification which does not described a change of dimensions or material of the packing.	e.g. change of documentation in packing specification	*		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
INDUCTORS		LOGISTICS / CAPACITY / TESTING - EQUIPMEMENT																																											
INDUCTORS	PAS-IND-EQ-01	Production from a new equipment/tool which uses a different technology or which due to its unique form or function can be expected to influence the integrity of the final product	P	P	Change in process technique which is not already covered above. **Note:** Changes affecting the product not covered by the table require also a PCN.	e.g. introduction of potting process	C		●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	Test effort depends on final risk assessment. Performance test according to affected process change.
INDUCTORS	PAS-IND-EQ-02	Production from a new equipment/tool which uses the same basic technology (replacement equipment or extension of existing equipment pool)	-	P	PCN required for dedicated equipment for sensitive component production.	e.g. duplication of existing winding machine	C		●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	Test effort depends on final risk assessment. Performance test according to affected process change.
INDUCTORS	PAS-IND-EQ-03	Change in final test equipment type that uses a different technology	P	P	Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	C		●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	Gage R&R / delta correlation
INDUCTORS		LOGISTICS / CAPACITY / TESTING - PROCESS FLOW																																											
INDUCTORS	PAS-IND-PF-01	Manufacturing site transfer or movement of a part of production process to a different location/site	P	P	Change of manufacturing site. Includes transfer as well as additional site. **Note**: Reorganization inside one plant/site is not affected!	e.g. movement or transfer of manufacturing site or process step(s) to a different location/site. e.g. dual source / fab strategy	B		●	●	-	●	●	-	●	@●	●	@●	-	●	-	-	-	●	●	-	-	B	-	-	●	-	-	-	-	-	-	-	-	-	-	-	@●	@●	
INDUCTORS	PAS-IND-PF-02	Elimination or addition of a manufacturing process step	-	P	Change of manufacturing process sequence.	e.g. washing / cleaning process e.g. change of order of processes	C		●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	Characterisation depends on impact of production flow.
INDUCTORS	PAS-IND-PF-03	Elimination of final electrical measurement / test flow block	I	P	Reduction of final testing. PCN required for dedicated final test reductions for sensitive parameters.	e. g. elimination of High-voltage measurement	C		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	Characterisation depends on impact of final test flow.
INDUCTORS		LOGISTICS / CAPACITY / TESTING - Q-GATE																																											
INDUCTORS	PAS-IND-QG-01	Change of test coverage used by the supplier to ensure data sheet compliance (e.g., elimination/addition of electrical measurement/test flow block, relaxation/enhancement of monitoring procedure or sampling)	-	P	Change of test coverage.	e.g. change from 100% to sample inspection e. g. test flow block, reduction from three to two temperature measurements e.g. change in burn in/run in process.	C		-	●	-	-	-	-	-	-	-	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	R (electr. funct.): test coverage. R (reliability) only for change in burn in process.
CERAMIC / TANTALUM		CERAMIC / TANTALUM																																											
CERAMIC / TANTALUM		ANY																																											
CERAMIC / TANTALUM	PAS-CER-AN-01	Any change with impact on agreed upon technical contractual agreements	P	P	Intended to be used if no other type of change is applicable but the change affects agreed technical contractual agreements	Not relevant for technical evaluation.	*		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-AN-02	Any change with impact on processability/manufacturabiliy at customer, which is not covered in the matrix below.	P	P		Technical interface means component terminals.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	-	
CERAMIC / TANTALUM		DATASHEET																																											
CERAMIC / TANTALUM	PAS-CER-DS-01	Change of datasheet parameters/electrical specification (min./max./typ. values) and / or AC/DC specification	P	P	Change of application relevant information **Not included:** Editorial changes.	e.g. tighten of electrical parameter distribution	A	Risk assessment depending on change for each application.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-DS-02	Correction of data sheet or issue of errata	I	I	No technical change of product, process or test. New description of behavior which was not specified before or which is different from initial specification. Please indicate clearly, that Infonote contains this type of change! Assessment in application required!!	e.g. data sheet correction because of new information about component behavior	A		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-DS-03	Specification of additional parameters	I	P	Description of a new not previously covered parameter. No technical change of the product. **(I):** no influence **(P):** Risk assessment depending on change for each application to provide evidence of additional parametes (stat. evaluation)	e.g. adding new (tested) parameter.	A		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

CERAMIC / TANTALUM		**MATERIAL**																																											
CERAMIC / TANTALUM	PAS-CER-MA-01	Change of material composition - Ceramic Binder	P	P	Binder material (ceramic)		C		-	●	●	-	●	●	-	-	-	-	-	-	-	-	●	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-MA-02	Change of material composition - Tantalum Binder	P	P	Binder material (tantal)	e.g. change from wax 1 to wax 2	C		-	●	●	-	●	●	-	-	-	-	-	-	-	-	●	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-MA-03	Change of material composition - Dielectric	P	P	Dielectric change (ceramic only)	e.g. change from ceramic A into ceramic B	C		-	●	●	●	●	●	-	●	●	-	-	●	●	●	●	-	●	●	-	B	-	C	-	●	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-MA-04	Change of material composition - Electrode Attach	P	P	Electrode attach (only tantal, glue, carbon, Ag)	e.g. change of Ag particle size in conductive adhesive	C		-	●	●	●	●	-	-	-	●	-	-	-	-	-	-	C	●	-	-	B	-	C	●	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-MA-05	Change of material composition - Electrode Material	P	P	Electrode Material (only ceramic, inner elctrode)	e.g. change from spehric to flake shape (Ni paste)	C		-	●	●	●	●	●	-	●	●	-	-	●	●	-	●	-	●	●	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-MA-06	Change of material composition - Encapsulation	P	P	Encapsulation	e.g. change from epoxy1 into epoxy2	C		-	●	●	-	●	-	●	●	-	●	●	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Check whether AOI at Tier 1 can be affected
CERAMIC / TANTALUM	PAS-CER-MA-07	Change of material composition - Lead material / Termination	P	P	Lead material / Termination	e.g. change from SnPb to pure Sn	C		-	●	●	-	●	●	-	-	●	●	-	●	-	-	●	●	-	-	●	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-MA-08	Change of supplier of material	-	P	Change to a new or additional material supplier at component manufacturer.	e.g. for 2nd source purpose	C		-	●	●	●	●	●	●	●	●	-	-	●	●	●	●	●	●	●	●	B	-	●	●	C	-	-	-	-	-	-	-	-	-	-	-	@●	Assumption material specification remains unchanged. Otherwise see change of material.
CERAMIC / TANTALUM		**DESIGN**																																											
CERAMIC / TANTALUM	PAS-CER-DE-01	Changes of termination, surface finish, shape, color, appearance or dimension structure - Lead Diameter	I	P	Lead diameter	e.g. change from 0.8mm into 0.6mm	B		-	●	-	-	●	-	●	●	●	●	●	●	-	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-DE-02	Changes of termination, surface finish, shape, color, appearance or dimension structure - Termination Area	I	P	Termination area	e.g. change in width of termination from 0.1 -0.3mm into 0.2 - 0.4 mm	B		-	●	-	●	-	-	●	-	-	●	●	-	-	-	●	-	-	-	-	-	-	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-DE-03	Changes of termination, surface finish, shape, color, appearance or dimension structure - Termination Interface	I	P	Terminal interface	e.g. additional layer in termination	B		-	●	-	●	●	●	●	●	●	-	-	●	-	●	●	●	-	-	-	B	-	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-DE-04	Changes of inner construction - Electrode Thickness	-	P	Electrode thickness (ceramic only)	e.g. Ni layer change from 2.5µm into 3.5µm	C		-	●	-	●	●	●	-	-	●	-	●	-	-	●	●	-	●	●	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-DE-05	Changes of inner construction - Layer Thickness	-	P	Layer thickness (dielectric thickness)	e.g. Ceramic layer thickness changes from 3µm into 5µm.	C		-	●	-	●	●	●	-	●	●	-	●	●	-	●	-	-	●	●	-	B	-	-	-	C	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-DE-06	Changes of inner construction - Number of Layers	-	P	Number of layers (ceramic only). Allways in combination with PAS-CER-DE-05.	see also layer thickness	C		-	●	-	-	C	C	-	C	C	-	C	-	-	C	-	-	C	C	-	B,C	-	-	-	C	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM		**PROCESS**																																											
CERAMIC / TANTALUM	PAS-CER-PR-01	Changes in process technology or manufacturing methods - Dicing	-	P	Change of dicing	e.g. change from cutting to sawing	C		●	●	-	●	●	-	●	●	-	●	●	-	●	●	-	-	-	-	-	B	-	-	-	C	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-PR-02	Changes in process technology or manufacturing methods - Electrode apply	-	P	Electrode apply (dielectric layer process)	e.g. change from wet to dry process	C		●	●	-	C	-	-	-	C	-	-	-	-	-	-	-	C	C	C	-	B,C	-	C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-PR-03	Changes in process technology or manufacturing methods - Firing	-	P	Change of firing profile	e.g. seperation of decarbonization and firing profile.	C		●	●	-	-	●	●	-	-	●	-	-	-	-	-	-	-	●	●	-	B	-	-	-	C	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-PR-04	Changes in process technology or manufacturing methods - Lamination	-	P	Change of lamination / press techinque	e.g. standard pressing to iso static pressing.	C		●	●	-	-	-	●	-	●	-	-	-	-	-	-	-	●	●	-	-	B	-	●	-	C	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-PR-05	Changes in process technology or manufacturing methods - Particle Size	-	P	Change of powder particle size. Allways in combination with PAS-CER-MA-03.	e.g. change D50 from 0.5µm into 0.4µm	C		●	●	-	-	●	-	-	●	-	-	-	-	-	-	-	●	-	●	-	B	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-PR-06	Changes in process technology or manufacturing methods - Screening/Printing	-	P	Change of screening / printing	e.g. change from screen printing into offset printing	C		●	●	-	-	-	-	-	-	C	-	-	-	-	C	-	-	-	C	-	B,C	-	-	-	C	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-PR-07	Changes in process technology or manufacturing methods - Termination	-	P	Change for termination preparation like plating or apply of termination base layer.	e.g. change in plating technology (final termination) e.g. change from dip in paste to platimg (apply)	B		●	●	-	●	●	●	●	●	●	●	●	●	●	●	●	●	-	-	●	B	-	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-PR-08	Process integrity: tuning within specification	-	P	Variation within process specification.	e.g. process control	C		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM		**PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS**																																											
CERAMIC / TANTALUM	PAS-CER-PN-01	Packing / shipping specification change (loosening of tolerances)	P	P	Change of packing specification.	e.g. number of pieces on reel.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-PN-02	Dry pack requirements change	P	P	Change of drypack requirements.	e.g. change of MSL e.g. change in dry pack assurance (HIC, MBB)	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-PN-03	Change of carrier (tray, reel)	P	P	Change of carrier	e.g. change by material e.g. change by geometry.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM		**PACKING / SHIPPING - VISUAL INSPECTION**																																											
CERAMIC / TANTALUM	PAS-CER-PV-01	Change of labelling	I	P	Change of labelling, also on reel.	**(I)** e.g. additional information (RoHS stamp) **(P)** e.g. change of customer specific information	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-PV-02	Change of product marking	I	P	Marking on device.	e.g. change of content of marking e.g. change of method of marking e.g. change of appearance of marking	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM	PAS-CER-PV-03	Change of packing/shipping specification	P	P	Change in packing specification which does not described a change of dimensions or material of the packing.	e.g. change of documentation in packing specification	*		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CERAMIC / TANTALUM		**LOGISTICS / CAPACITY / TESTING - EQUIPMEMENT**																																											
CERAMIC / TANTALUM	PAS-CER-EQ-01	Production from a new equipment/tool which uses a different technology or which due to its unique form or function can be expected to influence the integrity of the final product	P	P	Change in process technique which is not already covered above. **Note:** Changes affecting the product not covered by the table require also a PCN.	e.g. change from wet to dry technology.	C		●	●	-	-	●	-	●	●	●	-	●	A	-	-	●	-	-	●	●	B	-	-	-	C	-	-	-	-	-	-	-	-	-	-	-	@●	Test effort depends on final risk assessment. Performance test according to affected process change.
CERAMIC / TANTALUM	PAS-CER-EQ-02	Production from a new equipment/tool which uses the same basic technology (replacement equipment or extension of existing equipment pool)	-	P	PCN required for dedicated equipment for sensitive component production.	e.g. elimination of manual handling processes	C		●	●	-	-	●	-	●	●	●	-	●	A	-	-	●	-	-	●	●	B	-	-	-	C	-	-	-	-	-	-	-	-	-	-	-	@●	Test effort depends on final risk assessment. Performance test according to affected process change.
CERAMIC / TANTALUM	PAS-CER-EQ-03	Change in final test equipment type that uses a different technology	P	P	Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	C		●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	Gage R&R / delta correlation
CERAMIC / TANTALUM		**LOGISTICS / CAPACITY / TESTING - PROCESS FLOW**																																											
CERAMIC / TANTALUM	PAS-CER-PF-01	Manufacturing site transfer or movement of a part of production process to a different location/site	P	P	Change of manufacturing site. Includes transfer as well as additional site. **Note**: Reorganization inside one plant/site is not affected!	e.g. movement or transfer of manufacturing site or process step(s) to a different location/site. e.g. dual source / fab strategy	B		●	●	-	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	B	-	●	●	C	-	-	-	-	-	-	-	-	-	-	@●	@●	
CERAMIC / TANTALUM	PAS-CER-PF-02	Elimination or addition of a manufacturing process step	-	P	Change of manufacturing process sequence.	e.g. washing / cleaning process e.g. change of order of processes	C		●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	Characterisation depends on impact of production flow.
CERAMIC / TANTALUM		**LOGISTICS / CAPACITY / TESTING - Q-GATE**																																											
CERAMIC / TANTALUM	PAS-CER-QG-01	Change of test coverage used by the supplier to ensure data sheet compliance (e.g., elimination/addition of electrical measurement/test flow block, relaxation/enhancement of monitoring procedure or sampling)	-	P	Change of test coverage.	e.g. change from 100% to sample inspection e. g. test flow block, reduction from three to two temperature measurements e.g. change in burn in/run in process.	C		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	R (electr. funct.): test coverage. R (reliability) only for change in burn in process.
Film capacitors		**FILM CAPACITORS**																																											
Film capacitors		**ANY**																																											
Film capacitors	PAS-FLM-AN-01	Any change with impact on agreed upon technical contractual agreements	P	P	Intended to be used if no other type of change is applicable but the change affects agreed technical contractual agreements.	Not relevant for technical evaluation.	*		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors	PAS-FLM-AN-02	Any change with impact on processability/manufacturabiliy at customer, which is not covered in the matrix below.	P	P		Technical interface means component terminals.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	-	
Film capacitors		**DATASHEET**																																											
Film capacitors	PAS-FLM-DS-01	Change of datasheet parameters/electrical specification (min./max./typ. values) and / or AC/DC specification	P	P	Change of application relevant information **Not included:** Editorial changes.	e.g. tighten of electrical parameter distribution	A	Risk assessment depending on change for each application.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors	PAS-FLM-DS-02	Correction of data sheet or issue of errata	I	I	No technical change of product, process or test. New description of behavior which was not specified before or which is different from initial specification. Please indicate clearly, that Infonote contains this type of change! Assessment in application required!!	e.g. data sheet correction because of new information about component behavior	A		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors	PAS-FLM-DS-03	Specification of additional parameters	I	P	Description of a new not previously covered parameter. No technical change of the product. **(I):** no influence **(P):** Risk assessment depending on change for each application to provide evidence of additional parametes (stat. evaluation)	e.g. adding new (tested) parameter.	A		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors		**MATERIAL**																																											
Film capacitors	PAS-FLM-MA-01	Change of material composition - Sealing Compound	P	P	Typicaly change within epoxy **or** PU sealing without effect to mechanical properties. **Note:** Change from epoxy sealing into PU sealing (both direction) will lead to generate a new product.	e.g. change of epoxy or PU composition	C	**A:** in combination with **PAS-FLM-DS-01** or if change of sealing compound with effect to mechanical properties.	-	●	●	●	●	-	●	●	●	●	●	@●	●	●	●	-	●	-	-	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Consider vibration in application
Film capacitors	PAS-FLM-MA-02	Change of material composition - Package	P	P	Change material of package	Change material of package, e.g. change from PBT to PPS e.g. change of glas fiber ratio	B		-	●	●	-	●	-	-	●	●	●	●	●	@●	●	●	-	-	-	●	-	@●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Consider AOI and processability
Film capacitors	PAS-FLM-MA-03	Change of material composition - Lead/Termination	P	P	Change of Lead/Termination **Note:** If change of lead frame material leads to an ESR change, than change of data sheet (PAS-FLM-DS-01) has to be respected.	e.g. change of basis material from Cu to Fe e.g. change of finishing from SnPb to Sn	B	**A:** in combination with **PAS-FLM-DS-01**	-	●	●	-	-	-	●	-	-	-	●	●	-	●	-	●	-	-	●	B	-	●	●	-	-	-	-	-	-	-	-	-	-	-	@●	-	Change of base material: Consider ESR, high frequency parameter
Film capacitors	PAS-FLM-MA-04	Change of material composition - Metal Spray (Schoop)	P	P	Change of Metal Spray (Schoop): Use different material for metal spray process for boxed and naked types	e.g. from Zn to Al	C	**B**: for naked SMD	-	●	●	-	@●	-	@●	-	@●	-	-	@●	-	@●	@●	-	-	-	@●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Consider ESR. Solderability Test for naked SMD components.
Film capacitors	PAS-FLM-MA-05	Change of material composition - Film	P	P	Change of film material for boxed and naked types	e.g. change of additives (<1%) of film composition (same raw material)	C	**B**: for naked SMD	-	●	●	-	@●	-	-	@●	@●	@●	@●	-	-	-	-	@●	-	-	-	@●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	
Film capacitors	PAS-FLM-MA-06	Change of material composition - Metal Foil	P	P	Change of metal foil for inner electrode	e.g. change from Al to Al-Zn alloy	C		-	●	●	-	@●	-	-	@●	@●	@●	-	-	-	-	-	-	-	-	-	@●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	
Film capacitors	PAS-FLM-MA-07	Change of supplier of material	-	P	Change to a new or additional material supplier at component manufacturer which are described above.	e.g. for 2nd source purpose	C	Check if other **PAS-FLM-MA** is affected	-	●	●	●	●	-	●	-	●	-	-	●	●	-	●	●	●	-	●	-	●	-	●	-	-	-	-	-	-	-	-	-	-	-	-	@●	Assumption material specification remains unchanged. Otherwise see change of material.
Film capacitors		**DESIGN**																																											
Film capacitors	PAS-FLM-DE-01	Changes of termination, surface finish, shape, color, appearance or dimension structure - Lead Diameter / Thickness	I	P	Change of lead diameter thickness	e.g. change lead diameter from 0.5 to 0.4 mm e.g. change of thickness of terminal	B		-	●	-	-	@●	-	-	-	-	@●	@●	@●	-	@●	@●	-	-	-	-	@B	-	@●	@●	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors	PAS-FLM-DE-02	Changes of termination, surface finish, shape, color, appearance or dimension structure - Termination Area	I	P	Changes of termination area are changes which are affecting the area for connection of component and PCB	e.g. change of termination layer thickness e.g. change in termination dimensions / shape	B		-	●	-	-	@●	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	-	-	@●	@●	-	-	-	-	-	-	-	-	-	-	-	@●	-	
Film capacitors	PAS-FLM-DE-03	Changes of inner construction - Inner Connection	-	P	Change of inner connection	e.g. change from soldered connection to welded connection	C		-	●	-	-	@●	-	-	-	@●	@●	-	@●	-	@●	@●	@●	-	-	-	@●	-	@●	@●	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors	PAS-FLM-DE-04	Changes of termination, surface finish, shape, color, appearance or dimension structure - Appearance	I	P	Change of appearance. **(I):** Change in appeareance without impact on product integrity. **(P):** Change in appeareance with impact on product integrity. **Note:** Marking on device is defined as seperate change (PAS-FLM-PV-02).	e.g. change or adding of color on component	B	Check if **MATERIAL** is affected.	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors	PAS-FLM-DE-05	Changes of inner construction - Film/Foil	-	P	Change of film or foil design	e.g. change to a different foil supplier.	C	**A:** in combination with **PAS-FLM-DS-01**	-	●	-	-	●	-	-	@●	●	-	-	-	-	-	-	-	-	●	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	

Film capacitors	PAS-FLM-DE-06	Changes of inner construction - Insulation System	-	P	Change of inner insulation to protect winding element against housing.	e.g. change of potting material e.g. change of number of inner insulation layers (depending of insulation material thickness)	C		-	●	-	-	●	-	-	-	●	-	-	-	-	-	-	-	-	●	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	
Film capacitors	PAS-FLM-DE-07	Changes of termination, surface finish, shape, color, appearance or dimension structure - Package	I	P	Change of packaging	e.g. change of dimension or shape e.g. change of surface	B		-	●	-	-	@●	-	@●	-	-	@●	@●	-	@●	@●	@●	-	-	-	-	-	@●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors		**PROCESS**																																											
Film capacitors	PAS-FLM-PR-01	Changes in process technology or manufacturing methods - Package	-	P	Change of resin filling or hardening process (relevant for boxed types only)	e.g. change in resin filling process (mixing, sequences, potting, …) e.g. change in hardening process (temperature, time, …)	C		●	●	-	●	●	-	-	●	●	●	-	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors	PAS-FLM-PR-02	Changes in process technology or manufacturing methods - Terminal Attach	-	P	Change Terminal Attach Process to winding element for boxed and nacked types	e.g. spraying and / or galvanic process, e.g. welding / soldering	C	**B**: for naked SMD	●	●	-	-	●	-	●	-	●	-	-	●	●	-	-	-	-	-	-	B	-	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	Consider ESR. Solderability Test for naked SMD components.
Film capacitors	PAS-FLM-PR-03	Changes in process technology or manufacturing methods - Winding	-	P	Change of winding, flattening or tempering process	e.g. change of tempering temperature	C		●	●	-	●	-	-	-	@●	●	-	-	-	-	-	-	-	-	●	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors	PAS-FLM-PR-04	Process integrity: tuning within specification	-	P	Variation within process specification.	e.g. process control	C		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors		**PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS**																																											
Film capacitors	PAS-FLM-PN-01	Packing / shipping specification change (loosening of tolerances)	P	P	Change of packing specification.	e.g. number of pieces on reel.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors	PAS-FLM-PN-02	Dry pack requirements change	P	P	Change of drypack requirements.	e.g. change of MSL e.g. change in dry pack assurance (HIC, MBB)	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors	PAS-FLM-PN-03	Change of carrier (tray, reel)	P	P	Change of carrier	e.g. change by material e.g. change by geometry.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors		**PACKING / SHIPPING - VISUAL INSPECTION**																																											
Film capacitors	PAS-FLM-PV-01	Change of labelling	I	P	Change of labelling, also on reel.	**(I)** e.g. additional information (RoHS stamp) **(P)** e.g. change of customer specific information	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors	PAS-FLM-PV-02	Change of product marking	I	P	Marking on device.	e.g. change of content of marking e.g. change of method of marking e.g. change of appearance of marking	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors	PAS-FLM-PV-03	Change of packing/shipping specification	P	P	Change in packing specification which does not described a change of dimensions or material of the packing.	e.g. change of documentation in packing specification	*		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Film capacitors		**LOGISTICS / CAPACITY / TESTING - EQUIPEMEMENT**																																											
Film capacitors	PAS-FLM-EQ-01	Production from a new equipment/tool which uses a different technology or which due to its unique form or function can be expected to influence the integrity of the final product	P	P	Change in process technique which is not already covered above. **Note:** Changes affecting the product not covered by the table require also a PCN.	e.g. implementation of new machines	C		●	●	-	-	●	-	●	@●	●	@●	@●	●	-	-	-	-	●	●	-	B	-	-	●	-	-	-	-	-	-	-	-	-	-	-	-	@●	Test effort depends on final risk assessment. Performance test according to affected process change.
Film capacitors	PAS-FLM-EQ-02	Production from a new equipment/tool which uses the same basic technology (replacement equipment or extension of existing equipment pool)	-	P	PCN required for dedicated equipment for sensitive component production.	e.g. extension of existing machine capacity	C		●	●	-	-	●	-	●	@●	●	@●	@●	●	-	-	-	-	●	●	-	B	-	-	●	-	-	-	-	-	-	-	-	-	-	-	-	@●	Test effort depends on final risk assessment. Performance test according to affected process change.
Film capacitors	PAS-FLM-EQ-03	Change in final test equipment type that uses a different technology	P	P	Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	C		●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	Gage R&R / delta correlation
Film capacitors		**LOGISTICS / CAPACITY / TESTING - PROCESS FLOW**																																											
Film capacitors	PAS-FLM-PF-01	Manufacturing site transfer or movement of a part of production process to a different location/site	P	P	Change of manufacturing site. Includes transfer as well as additional site. **Note**: Reorganization inside one plant/site is not affected!	e.g. movement or transfer of manufacturing site or process step(s) to a different location/site. e.g. dual source / fab strategy	B		●	●	-	●	●	-	●	●	●	●	●	●	●	●	●	●	●	●	●	B	●	●	●	-	-	-	-	-	-	-	-	-	-	-	@●	@●	
Film capacitors	PAS-FLM-PF-02	Elimination or addition of a manufacturing process step	-	P	Change of manufacturing process sequence.	e.g. washing / cleaning process e.g. change of order of processes	C		●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	Characterisation depends on impact of production flow.
Film capacitors		**LOGISTICS / CAPACITY / TESTING - Q-GATE**																																											
Film capacitors	PAS-FLM-QG-01	Change of test coverage used by the supplier to ensure data sheet compliance (e.g., elimination/addition of electrical measurement/test flow block, relaxation/enhancement of monitoring procedure or sampling)	-	P	Change of test coverage.	e.g. change from 100% to sample inspection e.g. test flow block, reduction from three to two temperature measurements e.g. change in burn in/run in process.	C		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	R (electr. funct.): test coverage. R (reliability) only for change in burn in process.
QUARTZ CRYSTAL / SAW		**QUARTZ CRYSTAL / SAW**																																											
QUARTZ CRYSTAL / SAW		**ANY**																																											
QUARTZ CRYSTAL / SAW	PAS-QUA-AN-01	Any change with impact on agreed upon technical contractual agreements	P	P	Intended to be used if no other type of change is applicable but the change affects agreed technical contractual agreements.	Not relevant for technical evaluation.	*		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-AN-02	Any change with impact on processability/manufacturabiliy at customer, which is not covered in the matrix below.	P	P		Technical interface means component terminals.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@●	-	
QUARTZ CRYSTAL / SAW		**DATASHEET**																																											
QUARTZ CRYSTAL / SAW	PAS-QUA-DS-01	Change of datasheet parameters/electrical specification (min./max./typ. values) and / or AC/DC specification	P	P	Change of application relevant information **Not included:** Editorial changes.	e.g. tighten of electrical parameter distribution	A	Risk assessment depending on change for each application.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-DS-02	Correction of data sheet or issue of errata	I	I	No technical change of product, process or test. New description of behavior which was not specified before or which is different from initial specification. Please indicate clearly, that Infonote contains this type of change! Assessment in application required!!	e.g. data sheet correction because of new information about component behavior	A		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-DS-03	Specification of additional parameters	I	P	Description of a new not previously covered parameter. No technical change of the product. **(I):** no influence **(P):** Risk assessment depending on change for each application to provide evidence of additional parametes (stat. evaluation)	e.g. adding new (tested) parameter.	A		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW		**MATERIAL**																																											
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-01	Change of material composition - Quartz Blank	P	P	A change of Quartz Blank is a very rare case. Mainly for SAW-Filter		A		-	●	●	●	●	-	-	-	●	-	-	-	-	●	●	-	●	-	-	B	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-02	Change of material composition - Base	P	P	Changing of the material of the base.	e.g. change from ceramic to epoxy	A		-	●	●	-	●	-	@●	●	-	●	●	-	●	●	●	@●	@●	-	-	-	@●	●	●	-	-	-	-	-	-	-	@●	-	-	-	-	-	C0 may be influenced Temperature expansion coefficient may change
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-03	Change of material composition - Lead / Termination	P	P	Change of Lead/Termination	e.g. change of plating finish. (eg:Au, AgPd,Sn)	B		-	●	●	-	●	-	-	-	-	●	●	●	●	-	●	●	-	-	●	B	-	●	●	-	-	-	-	-	@●	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-04	Change of material composition - Sealing	P	P	Change of Glass Seal	e.g. change to lead free glass	B		-	●	●	●	●	@●	●	●	●	●	-	●	●	●	●	●	●	-	-	B	-	●	●	-	-	-	-	-	@●	-	-	-	-	-	-	-	X-Ray inspection may be influenced when sealing is containing Pb
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-05	Change of material composition - Can / Cap	P	P	Changing of the material of the can/cap	e.g. change from metal to ceramic material	A		-	●	●	@●	●	-	@●	●	@●	●	●	-	●	●	●	@●	@●	-	-	@B	-	●	-	-	-	-	-	-	@●	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-06	Change of material composition - Blank Support	P	P	Change of Blank Support	e.g. change of glue (Silicone to Epoxy) e.g. change metal holders (old types)	C		-	●	●	@●	●	-	@Y	@Y	●	-	-	-	-	●	●	@●	●	-	-	B	-	●	-	-	-	-	-	-	@Y	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-07	Change of material composition - Overmold	P	P	Change of Overmold	e.g. change to green mold compound e.g. change of filler particles	B		-	●	●	●	●	@●	●	@●	@●	●	●	-	●	●	●	●	●	-	-	@B	●	●	●	-	-	-	-	-	@●	-	-	-	-	-	-	-	Electrical function affected in case of mechanical stress distribution change. AOI, wave soldering and board coating has to be assessed. MSL might be changed.
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-08	Change of material composition - Case Sealing	P	P	Change of Case Sealing. Change of material for seam welding Relevant for components with ceramic base and metall cap.	e.g. change from solder paste to adhesive glue	C -		-	●	●	●	●	-	@Y	●	-	●	-	-	●	●	●	●	●	-	-	B	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Impedance my be influenced.
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-09	Change of material composition - Electrode	P	P	Change of Electrode material on crystal blank.	e.g. change from Au to Ag	C		-	●	●	●	●	-	@Y	@Y	●	-	-	-	@Y	-	●	@●	●	-	-	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-10	Change of material composition - Insulator	P	P	Change of Insulator. Only for leaded types Not relevant for typical SMD.	e.g. Insulating plate under crystal e.g. Glass sealing for leads	B		-	●	●	●	●	@●	●	-	@●	●	●	-	●	-	●	●	●	-	-	B	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-11	Change of material composition - Marking	P	P	Change of marking material	e.g. change of ink e.g. chemical to environmental friendly	B		-	●	●	-	-	-	-	-	-	@●	-	-	@●	-	-	@●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AOI check necessary!
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-12	Change of supplier of material	-	P	Change to a new or additional material supplier at component manufacturer.	e.g. for 2nd source purpose	C		-	●	●	-	●	-	●	-	●	●	●	●	●	●	●	-	●	-	●	B	●	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	Assumption material specification remains unchanged. Otherwise see change of material.
QUARTZ CRYSTAL / SAW		**DESIGN**																																											
QUARTZ CRYSTAL / SAW	PAS-QUA-DE-01	Changes of termination, surface finish, shape, color, appearance or dimension structure - Base	I	P	Change of Base design	e.g. due to miniaturization purpose.	B		-	●	-	●	●	-	@●	●	-	●	●	●	@●	●	●	@●	●	-	-	-	@●	●	●	-	-	-	-	-	-	-	@●	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-DE-02	Changes of termination, surface finish, shape, color, appearance or dimension structure - Lead / Termination	I	P	Change of Lead/Termination design. Change geometry or terminal pad or lead form	e.g. change lead design to improve reliability.	B		-	●	-	-	●	-	-	-	-	●	●	●	-	●	●	●	●	-	●	B	-	●	●	-	-	-	-	-	@●	-	-	-	-	-	-	-	C0 may be influenced Reliabiliy of solder joints may be affected
QUARTZ CRYSTAL / SAW	PAS-QUA-DE-03	Changes of termination, surface finish, shape, color, appearance or dimension structure - Can / Cap	I	P	Change of Can/Cap design	e.g. due to miniaturization purpose.	A		-	●	-	@●	●	@●	●	●	-	●	●	-	@●	●	●	@●	●	-	-	B	-	●	-	-	-	-	-	-	@●	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-DE-04	Changes of termination, surface finish, shape, color, appearance or dimension structure - Package	I	P	Change of Package (Molded). Change the design of the package. Not relevant for typical SMD.	e.g. change from welded device to glued device (case sealing)	B		-	●	-	@●	●	@●	●	@●	@●	●	●	●	●	●	●	●	●	-	-	B	●	●	●	-	-	-	-	-	@●	-	-	-	-	-	-	-	Electrical function affected in case of mechanical stress distribution change. AOI, wave soldering and board coating has to be assessed. MSL might be changed.
QUARTZ CRYSTAL / SAW	PAS-QUA-DE-05	Changes of termination, surface finish, shape, color, appearance or dimension structure - Insulator	I	P	Change of Insulator design. Only for leaded types (old technology) Not relevant for typical SMD.		B		-	●	-	@●	@●	@●	@●	-	@●	●	●	-	●	-	@●	@●	@●	-	-	@B	-	@●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-DE-06	Changes of inner construction - Quartz Blank	-	P	Change of Quartz Blank design	e.g. change dimension of blank, add phase, electrode design, …	C		-	●	-	-	●	-	-	-	@●	-	-	-	-	●	●	-	@●	-	-	B	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-DE-07	Changes of inner construction - Blank Support	-	P	Change of Blank Support design	e.g. change design of glue shape e.g. change design of metall supporter	C		-	●	-	@●	●	-	@Y	@Y	●	-	-	-	-	●	●	@●	●	-	-	B	-	●	-	-	-	-	-	-	@Y	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW		**PROCESS**																																											
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-01	Changes in process technology or manufacturing methods - Quartz Blank	-	P	Change of Quartz Blank process	e.g. change of cutting or lapping technology	C		●	●	-	-	●	-	-	-	●	-	-	-	-	●	●	-	●	-	-	B	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-02	Changes in process technology or manufacturing methods - Blank Etching / Cleaning	-	P	Change of Blank Etch/Clean process Using different / new technology	e.g. change from liquid etching to plasma etching	C		●	●	-	-	-	-	-	-	-	-	-	-	-	-	@●	-	@●	-	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-03	Changes in process technology or manufacturing methods - Electrode Formation	-	P	Change of Electrode Formation process	e.g. change from evaporation to sputtering	C		●	●	-	-	●	-	-	-	●	-	-	-	-	-	●	-	@●	-	-	B	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-04	Changes in process technology or manufacturing methods - Trimming	-	P	Change of Auto Trim process (Method of final frequency tuning)	e.g. change from evaporation to ion beam	C		●	●	-	-	-	-	-	-	-	-	-	-	-	●	●	-	@●	-	-	B	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-05	Changes in process technology or manufacturing methods - Bonding / Annealing	-	P	Change of Blank bonding / annealing process. Change of method how apply conductive material to base or blank		C		●	●	-	●	●	@●	@Y	@Y	●	-	-	-	-	●	●	-	●	-	-	B	-	●	-	-	-	-	-	-	@Y	-	-	-	-	-	-	-	

QUARTZ CRYSTAL / SAW	PAS-QUA-PR-06	Changes in process technology or manufacturing methods - Can / Cap Attaching	-	P	Change of Cap/Can attaching process	e.g. change of the sealing method e.g. change from batch oven to reflow oven	C		•	•	-	•	•	@•	@Y	•	•	•	•	-	-	•	•	-	•	-	-	B	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-07	Changes in process technology or manufacturing methods - Molding	-	P	Change of Overmolding process. Not relevant for typical SMD.	e.g. change of overmold process parameter	C		•	•	-	@•	•	@•	•	@•	@•	•	•	@•	-	•	•	-	•	-	-	B	•	•	•	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-08	Changes in process technology or manufacturing methods - Marking	-	P	Change of Marking process	e.g. change from inked marking to laser marking e.g. marking of pin 1 e.g. change of appearance (additional marking)	B		•	•	-	-	-	-	-	-	-	•	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	-	-	-	-	-	-	-	-	AOI check necessary!
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-09	Changes in process technology or manufacturing methods - Aging	-	P	Change of Aging process. Typically no aging done on quartz crystals.	If aging is done: e.g. change of times or temperatures	C		•	•	-	@•	-	-	-	-	-	-	-	-	-	•	•	-	•	-	-	B	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-10	Process integrity: tuning within specification	-	P	Variation within process specification.	e.g. process control	C		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW		**PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS**																																											
QUARTZ CRYSTAL / SAW	PAS-QUA-PN-01	Packing / shipping specification change (loosening of tolerances)	P	P	Change of packing specification.	e.g. number of pieces on reel.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-PN-02	Dry pack requirements change	P	P	Change of drypack requirements.	e.g. change of MSL e.g. change in dry pack assurance (HIC, MBB)	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-PN-03	Change of carrier (tray, reel)	P	P	Change of carrier	e.g. change by material e.g. change by geometry.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW		**PACKING / SHIPPING - VISUAL INSPECTION**																																											
QUARTZ CRYSTAL / SAW	PAS-QUA-PV-01	Change of labelling	I	P	Change of labelling, also on reel.	**(I)** e.g. additional information (RoHS stamp) **(P)** e.g. change of customer specific information	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-PV-02	Change of product marking	I	P	Marking on device.	e.g. change of content of marking e.g. change of method of marking e.g. change of appearance of marking	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-PV-03	Change of packing/shipping specification	P	P	Change in packing specification which does not described a change of dimensions or material of the packing.	e.g. change of documentation in packing specification	*		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUARTZ CRYSTAL / SAW		**LOGISTICS / CAPACITY / TESTING - EQUIPMEMENT**																																											
QUARTZ CRYSTAL / SAW	PAS-QUA-EQ-01	Production from a new equipment/tool which uses a different technology or which due to its unique form or function can be expected to influence the integrity of the final product	P	P	Change in process technique which is not already covered above. **Note:** Changes affecting the product not covered by the table require also a PCN.	e. g. new equipment supplier with different process concept	C		•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	Test effort depends on final risk assessment. Performance test according to affected process change.
QUARTZ CRYSTAL / SAW	PAS-QUA-EQ-02	Production from a new equipment/tool which uses the same basic technology (replacement equipment or extension of existing equipment pool)	-	P	PCN required for dedicated equipment for sensitive component production.	e.g. additional equipment to increase production capacity e.g. replacement of same equipment	C		•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	Test effort depends on final risk assessment. Performance test according to affected process change.
QUARTZ CRYSTAL / SAW	PAS-QUA-EQ-03	Change in final test equipment type that uses a different technology	P	P	Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	C		•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	Gage R&R / delta correlation
QUARTZ CRYSTAL / SAW		**LOGISTICS / CAPACITY / TESTING - PROCESS FLOW**																																											
QUARTZ CRYSTAL / SAW	PAS-QUA-PF-01	Manufacturing site transfer or movement of a part of production process to a different location/site	P	P	Change of manufacturing site. Includes transfer as well as additional site. **Note**: Reorganization inside one plant/site is not affected!	e.g. movement or transfer of manufacturing site or process step(s) to a different location/site. e.g. dual source / fab strategy	B		•	•	-	•	•	-	•	•	•	•	•	•	•	•	•	-	•	B	•	•	•	-	-	-	-	-	-	-	-	-	-	-	@•	@•	
QUARTZ CRYSTAL / SAW	PAS-QUA-PF-02	Elimination or addition of a manufacturing process step	-	P	Change of manufacturing process sequence.	e.g. washing / cleaning process e.g. change of order of processes	C		•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	Characterisation depends on impact of production flow.
QUARTZ CRYSTAL / SAW		**LOGISTICS / CAPACITY / TESTING - Q-GATE**																																											
QUARTZ CRYSTAL / SAW	QUA-QG-01	Change of test coverage used by the supplier to ensure data sheet compliance (e.g., elimination/addition of electrical measurement/test flow block, relaxation/enhancement of monitoring procedure or sampling)	-	P	Change of test coverage.	e.g. change from 100% to sample inspection e. g. test flow block, reduction from three to two temperature measurements e.g. change in burn in/run in process.	C		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	R (electr. funct.): test coverage. R (reliability) only for change in burn in process.
Al-Cap		**ALUMIUM ELECTROLYTIC CAPACITORS**																																											
Al-Cap		**ANY**																																											
Al-Cap	PAS-ALU-AN-01	Any change with impact on agreed upon technical contractual agreements	P	P	Intended to be used if no other type of change is applicable but the change affects agreed technical contractual agreements	Not relevant for technical evaluation.	*		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap	PAS-ALU-AN-02	Any change with impact on processability/manufacturabiliy at customer, which is not covered in the matrix below.	P	P		Technical interface means component terminals. See *processability on board level.*	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	-	
Al-Cap		**DATASHEET**																																											
Al-Cap	PAS-ALU-DS-01	Change of datasheet parameters/electrical specification (min./max./typ. values) and / or AC/DC specification	P	P	Change of application relevant information **Not included:** Editorial changes.	e.g. tighten of electrical parameter distribution	A	Risk assessment depending on change for each application.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap	PAS-ALU-DS-02	Correction of data sheet or issue of errata	I	I	No technical change of product, process or test. New description of behavior which was not specified before or which is different from initial specification. Please indicate clearly, that Infonote contains this type of change! Assessment in application required!!	e.g. data sheet correction because of new information about component behavior	A		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap	PAS-ALU-DS-03	Specification of additional parameters	I	P	Description of a new not previously covered parameter. No technical change of the product. **(I):** no influence **(P):** Risk assessment depending on change for each application to provide evidence of additional parametes (stat. evaluation)	e.g. adding new (tested) parameter.	A		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap		**MATERIAL**																																											
Al-Cap	PAS-ALU-MA-01	Change of material composition - Housing	P	P	Change of housing	e.g. change Al alloy for housing	C	**B:** only if a cap holder holds the Capacitor body by pressing.	-	•	•	-	•	-	•	-	-	-	•	-	-	•	@•	-	•	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap	PAS-ALU-MA-02	Change of material composition - Sealing	P	P	Change of sealing	e.g. change of rubber compound e.g. change of sealing disc material (axial, Snap in)	C	**B:** in case of external surface of sealing is changed. Evaluation only, if capacitor is glued	-	•	•	-	•	-	•	•	•	•	•	-	•	-	@•	@S	•	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap	PAS-ALU-MA-03	Change of material composition - External Insulation	P	P	Change of external insulation / sleeving	e.g. change from PVC into PET e.g. change of color	C	**B:** Only for glued capacitors.	-	•	•	@•	•	-	•	@•	•	•	•	-	•	-	-	@S	•	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Biased Humidity test can be done without applying voltage.
Al-Cap	PAS-ALU-MA-04	Change of material composition - Lead / Termination	P	P	Change of lead or outer termination.	e.g. change of leadframe from iron into copper e.g. change of leadframe finish from tin/lead into tin	B		-	•	•	-	-	-	-	-	-	-	-	•	-	-	•	•	-	-	•	B	-	•	•	-	-	-	-	-	-	-	-	-	-	-	@•	-	
Al-Cap	PAS-ALU-MA-05	Change of material composition - Internal Insulation / Paper	P	P	Change of paper type / internal insulation	e.g. change of paper thickness 50 µm to 40µm	C	**A:** Only if impedance increase (delta characterization). Check if datasheet is affected (**PAS-ALU-DS-01**).	-	•	•	-	•	-	-	-	•	-	-	-	-	-	-	-	-	•	-	B	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	@•	
Al-Cap	PAS-ALU-MA-06	Change of material composition - Electrolyte	P	P	Change of electrolyte	e.g. change in formulation	C	**A:** Only if impedance increase (delta characterization). Check if datasheet is affected (**PAS-ALU-DS-01**).	-	•	•	•	•	-	-	-	•	-	-	-	-	-	-	-	•	•	-	B	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	@•	
Al-Cap	PAS-ALU-MA-07	Change of material composition - Tape Material	P	P	Change of closing tape material	e.g. change of glue or basis material	C		-	•	•	-	@•	-	-	-	@•	-	-	-	-	-	@•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap	PAS-ALU-MA-08	Change of material composition - Base Plate	P	P	Change of base plate material	e.g. change of used plastic material	B		-	•	•	-	@•	-	-	-	-	-	-	-	-	-	@•	@•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap	PAS-ALU-MA-09	Change of supplier of material	-	P	Change to a new or additional material supplier at component manufacturer.	e.g. for 2nd source purpose	C		-	•	•	•	•	-	•	•	-	-	-	•	•	•	•	•	•	-	•	B	•	•	•	-	-	-	-	-	-	-	-	-	-	-	-	@•	Test effort depends on final risk assessment. Performance test according to affected material. Assumption material specification remains unchanged. Otherwise see change of material.
Al-Cap		**DESIGN**																																											
Al-Cap	PAS-ALU-DE-01	Changes of termination, surface finish, shape, color, appearance or dimension structure - Wire Diameter	I	P	Change of wire diameter	e.g. change from 0.8 into 0.6 mm wire diameter.	B		-	•	-	-	-	-	-	-	-	-	-	•	-	-	•	-	-	-	•	B	-	•	•	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap	PAS-ALU-DE-02	Changes of termination, surface finish, shape, color, appearance or dimension structure - Termination	I	P	Change of termination appearance For welded Al capacitors only.	e.g. change from matt tin into bright tin.	B		-	•	-	-	-	-	-	-	-	-	-	•	-	-	•	-	-	-	•	B	-	•	•	-	-	-	-	-	-	-	-	-	-	-	@•	-	
Al-Cap	PAS-ALU-DE-03	Changes of termination, surface finish, shape, color, appearance or dimension structure - Appearance	I	P	Change of appearance **Note:** Marking on device is defined as seperate change (PAS-ALU-PV-02).	e.g. change of color/appearance e.g. change of safety vent shape	B		-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap	PAS-ALU-DE-04	Changes of termination, surface finish, shape, color, appearance or dimension structure - Rubber Sealing	I	P	Change of rubber sealing stand-off shape (for radial)	e.g. change of profile / design	A		-	•	-	-	-	-	-	-	-	-	@•	-	-	-	@•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap	PAS-ALU-DE-05	Changes of inner construction - Aluminum Foil	-	P	Change of Al foil width	e.g. change of width	C		-	•	-	-	•	-	-	-	•	-	-	-	-	-	@•	-	-	•	-	B	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	@•	
Al-Cap	PAS-ALU-DE-06	Changes of inner construction - Seperator	-	P	Change of seperator width	e.g. change of width	C		-	•	-	-	•	-	-	-	•	-	-	-	-	-	@•	-	-	•	-	B	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-	
Al-Cap	PAS-ALU-DE-07	Changes of inner construction - Seperator Density	-	P	Change of seperator density	e.g. change of seperator density/resistivity	C		-	•	-	-	•	-	-	-	•	-	-	-	-	-	-	-	-	•	-	B	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	@•	
Al-Cap	PAS-ALU-DE-08	Changes of inner construction - Inner Connection	-	P	Change of inner connection	e.g. change of shape/dimension	C		-	•	-	-	@•	-	-	-	-	-	-	@•	-	@•	@•	@•	-	-	-	@B	-	@•	@•	-	-	-	@•	-	-	-	-	-	-	-	-	-	Terminal Strength (11) not for axial components without paddle tabs.
Al-Cap	PAS-ALU-DE-09	Changes of inner construction - Closing Tape	-	P	Change of closing tape	e.g. change of dimension	C		-	•	-	@•	-	@•	-	-	-	-	-	-	-	-	@•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap	PAS-ALU-DE-10	Changes of inner construction - Foil	-	P	Change of foil type	e.g. change of etching level e.g. change of thickness	C		-	•	-	@•	•	-	-	-	•	-	-	-	-	-	-	-	-	-	-	B	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	@•	
Al-Cap		**PROCESS**																																											
Al-Cap	PAS-ALU-PR-01	Changes in process technology or manufacturing methods - Terminal Attach	-	P	Change of terminal attach process	e.g. change of stitching / welding layout	C		•	•	-	-	•	-	-	-	-	-	-	•	-	•	@•	•	@-	-	-	B	-	•	•	-	-	-	-	-	-	-	-	-	-	-	-	-	Terminal Strength (11) and Vibration (14) not for axial components without paddle tabs.
Al-Cap	PAS-ALU-PR-02	Changes in process technology or manufacturing methods - Winding	-	P	Change of winding process	e.g. change of material disposition	B	**A:** only for HV application	•	•	-	-	•	-	-	-	•	-	-	-	-	-	•	-	-	-	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	
Al-Cap	PAS-ALU-PR-03	Changes in process technology or manufacturing methods - Impregnation	-	P	Change of impregantion	e.g. change of bulk process into individual impregnation	C		•	•	-	•	•	-	-	-	•	-	-	-	-	-	-	-	-	•	-	B	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	@•	Surge voltage test for high voltage components only.
Al-Cap	PAS-ALU-PR-04	Changes in process technology or manufacturing methods - Assembly	-	P	Change of assembly process	e.g. change of sealing method e.g. change of assembly process sequence	C		•	•	-	-	@•	-	-	-	-	-	@•	-	-	-	@•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	R: Depends on process change
Al-Cap	PAS-ALU-PR-05	Changes in process technology or manufacturing methods - Aging / Testing	-	P	Change of aging/testing process	e.g. change of timing, voltage or temperature of process	C		•	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	R: Depends on process change
Al-Cap	PAS-ALU-PR-06	Changes in process technology or manufacturing methods - Trim & Form Leaded	-	P	Change of trim & form process (leaded)	e.g. change of tooling shape or bending procedure	B		•	•	-	-	-	-	-	-	-	-	@•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Solderability may be influenced
Al-Cap	PAS-ALU-PR-07	Changes in process technology or manufacturing methods - Trim & Form SMD	-	P	Change of trim & form process (SMD)	e.g. change of tooling shape or bending procedure	B		•	•	-	-	-	-	-	-	-	-	@•	-	-	-	@•	-	-	-	@•	-	-	@•	@•	-	-	-	-	-	-	-	-	-	-	-	-	-	Solderability may be influenced
Al-Cap	PAS-ALU-PR-08	Process integrity: tuning within specification	-	P	Variation within process specification.	e.g. process control	C		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap		**PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS**																																											
Al-Cap	PAS-ALU-PN-01	Packing / shipping specification change (loosening of tolerances)	P	P	Change of packing specification.	e.g. number of pieces on reel.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap	PAS-ALU-PN-02	Dry pack requirements change	P	P	Change of drypack requirements.	e.g. change of MSL e.g. change in dry pack assurance (HIC, MBB)	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap	PAS-ALU-PN-03	Change of carrier (tray, reel)	P	P	Change of carrier	e.g. change by material e.g. change by geometry.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap		**PACKING / SHIPPING - VISUAL INSPECTION**																																											
Al-Cap	PAS-ALU-PV-01	Change of labelling	I	P	Change of labelling, also on reel.	**(I)** e.g. additional information (RoHS stamp) **(P)** e.g. change of customer specific information	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Al-Cap	PAS-ALU-PV-02	Change of product marking	I	P	Marking on device.	e.g. change of content of marking e.g. change of method of marking e.g. change of appearance of marking	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap	PAS-ALU-PV-03	Change of packing/shipping specification	P	P	Change in packing specification which does not described a change of dimensions or material of the packing.	e.g. change of documentation in packing specification	*		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Cap		**LOGISTICS / CAPACITY / TESTING - EQUIPEMEMENT**																																											
Al-Cap	PAS-ALU-EQ-01	Production from a new equipment/tool which uses a different technology or which due to its unique form or function can be expected to influence the integrity of the final product	P	P	Change in process technique which is not already covered above. **Note:** Changes affecting the product not covered by the table require also a PCN.	e. g. new equipment supplier with different process concept	C		•	•	-	-	•	-	-	-	•	-	•	•	-	•	•	-	-	•	-	B	-	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-	@•	Test effort depends on final risk assessment. Performance test according to affected process change.
Al-Cap	PAS-ALU-EQ-02	Production from a new equipment/tool which uses the same basic technology (replacement equipment or extension of existing equipment pool)	-	P	PCN required for dedicated equipment for sensitive component production.	e.g. additional equipment to increase production capacity e.g. replacement of same equipment	C		•	•	-	-	•	-	-	-	•	-	•	•	-	•	•	-	-	•	-	B	-	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-	@•	Test effort depends on final risk assessment. Performance test according to affected process change.
Al-Cap	PAS-ALU-EQ-03	Change in final test equipment type that uses a different technology	P	P	Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	C		•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	Gage R&R / delta correlation
Al-Cap		**LOGISTICS / CAPACITY / TESTING - PROCESS FLOW**																																											
Al-Cap	PAS-ALU-PF-01	Manufacturing site transfer or movement of a part of production process to a different location/site	P	P	Change of manufacturing site. Includes transfer as well as additional site. **Note**: Reorganization inside one plant/site is not affected!	e.g. movement or transfer of manufacturing site or process step(s) to a different location/site. e.g. dual source / fab strategy	B		•	•	-	•	•	@•	•	•	•	•	•	•	•	•	•	•	•	•	•	B	•	•	•	-	-	-	•	-	-	-	-	-	-	-	@•	@•	
Al-Cap	PAS-ALU-PF-02	Elimination or addition of a manufacturing process step	-	P	Change of manufacturing process sequence.	e.g. washing / cleaning process e.g. change of order of processes	C		•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	Characterisation depends on impact of production flow.
Al-Cap	PAS-ALU-PF-03	Elimination of final electrical measurement / test flow block	I	P	Reduction of final testing. PCN required for dedicated final test reductions for sensitive parameters.	e.g. elemination of additional impedance control	C		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	Characterisation depends on impact of final test flow.
Al-Cap		**LOGISTICS / CAPACITY / TESTING - Q-GATE**																																											
Al-Cap	PAS-ALU-QG-01	Change of test coverage used by the supplier to ensure data sheet compliance (e.g., elimination/addition of electrical measurement/test flow block, relaxation/enhancement of monitoring procedure or sampling)	-	P	Change of test coverage.	e.g. change from 100% to sample inspection e. g. test flow block, reduction from three to two temperature measurements e.g. change in burn in/run in process.	C		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	R (electr. funct.): test coverage. R (reliability) only for change in burn in process.
NTC		**NTC**																																											
NTC		**ANY**																																											
NTC	PAS-NTC-AN-01	Any change with impact on agreed upon technical contractual agreements	P	P	Intended to be used if no other type of change is applicable but the change affects agreed technical contractual agreements.	Not relevant for technical evaluation.	*		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC	PAS-NTC-AN-02	Any change with impact on processability/manufacturability at customer, which is not covered in the matrix below.	P	P		Technical interface means component terminals.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	-	
NTC		**DATASHEET**																																											
NTC	PAS-NTC-DS-01	Change of datasheet parameters/electrical specification (min./max./typ. values) and / or AC/DC specification	P	P	Change of application relevant information **Not included:** Editorial changes.	e.g. tighten of electrical parameter distribution	A	Risk assessment depending on change for each application.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC	PAS-NTC-DS-02	Correction of data sheet or issue of errata	I	I	No technical change of product, process or test. New description of behavior which was not specified before or which is different from initial specification. Please indicate clearly, that Infonote contains this type of change! Assessment in application required!!	e.g. data sheet correction because of new information about component behavior	A		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC	PAS-NTC-DS-03	Specification of additional parameters	I	P	Description of a new not previously covered parameter. No technical change of the product. **(I):** no influence **(P):** Risk assessment depending on change for each application to provide evidence of additional parametes (stat. evaluation)	e.g. adding new (tested) parameter.	A		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC		**MATERIAL**																																											
NTC	PAS-NTC-MA-01	Change of material composition - Ceramic Binder	P	P	Change of Binder Material to bind ceramics.		C		-	•	•	-	-	-	-	-	-	-	-	-	-	@•	-	@•	@•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC	PAS-NTC-MA-02	Change of material composition - Ceramic	P	P	Change of ceramic composition	e.g. changes in additives amount	C		-	•	•	-	-	-	-	-	-	-	-	-	-	•	-	•	•	-	•	@B	•	@S	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	Parameter analyse only necessary if an anticipated impact on electrical performance. S = SMD device only
NTC	PAS-NTC-MA-03	Change of material composition - Inner Electrode	P	P	Change of inner electrode material (ink material). Valid in case of multilayer structures only.	e.g. change from AgPt material to AgPd material	C		-	•	•	•	•	-	-	•	•	-	-	-	-	-	-	-	-	•	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	
NTC	PAS-NTC-MA-04	Change of material composition - Encapsulation	P	P	Change of encapsulation material.	e.g. change of coating e.g. change of additives in an insulation.	B	**A:** Risk assessment on application level, if interaction with other material expected.	-	•	•	•	•	-	•	-	-	-	-	-	-	-	-	@•	•	-	-	@B	@•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	Parameter analyse only necessary if an anticipated impact on electrical performance.
NTC	PAS-NTC-MA-05	Change of material composition - Lead material / Termination	P	P	Change of lead or outer termination. Change of lead (finish) material, termination material or attachment material.	e.g. change from SnPb to pure Sn	B	Risk assessment needed to evaluate compatibility of soldering process.	-	•	•	-	-	-	@•	@•	@•	-	-	@•	-	@•	-	-	-	@•	@•	@B	-	@•	@•	-	-	-	-	-	-	-	-	-	-	-	-	@•	
NTC	PAS-NTC-MA-06	Change of supplier of material	-	P	Change to a new or additional material supplier at component manufacturer.	e.g. for 2nd source purpose	C		-	•	•	-	•	-	•	-	•	-	-	•	•	-	-	•	•	-	•	B	•	•	•	-	-	-	-	-	-	-	-	-	-	-	-	@•	Assumption material specification remains unchanged. Otherwise see change of material.
NTC		**DESIGN**																																											
NTC	PAS-NTC-DE-01	Changes of termination, surface finish, shape, color, appearance or dimension structure - Lead Diameter	I	P	Change of lead diameter	e.g. change lead diameter from 0.5 to 0.4 mm	B		-	•	-	-	-	-	@•	-	-	@•	@•	@•	-	-	-	-	-	-	-	@B	-	@•	@•	-	-	-	-	-	-	-	-	-	-	-	-	@•	
NTC	PAS-NTC-DE-02	Changes of termination, surface finish, shape, color, appearance or dimension structure - Termination Area	I	P	Change of termination area	e.g. change of termination layer thickness e.g. change in termination dimensions	B		-	•	-	-	-	-	@•	-	-	@•	@•	-	-	-	-	-	-	-	@•	@B	-	@•	@•	-	-	-	-	-	-	-	-	-	-	-	-	@•	SMD components only!
NTC	PAS-NTC-DE-03	Changes of termination, surface finish, shape, color, appearance or dimension structure - Internal Connection	I	P	Change of inner connection	e.g. change from soldered connection to welded connection	C		-	•	-	-	-	-	@•	@•	@•	-	-	@•	-	@•	-	-	-	@•	@•	@B	-	@•	@•	-	-	-	-	-	-	-	-	-	-	-	-	@•	
NTC	PAS-NTC-DE-04	Changes of termination, surface finish, shape, color, appearance or dimension structure - Appearance	I	P	Change of appearance. **Note:** Marking on device is defined as seperate change (PAS-FLM-PV-02).	e.g. change or adding of color on component Mainly in combination with other changes!	B		-	•	-	-	-	-	-	-	-	@•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC	PAS-NTC-DE-05	Changes of inner construction - Electrode	-	P	Change of electrode layer thickness or geometry. For multi-layer technology only.	e.g. change of electrode design	C		-	•	-	-	@•	@•	-	-	-	-	@•	-	-	-	-	@•	@•	-	-	-	-	@•	@•	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC	PAS-NTC-DE-06	Changes of inner construction - Layer Thickness	-	P	Change of ceramic layer thickness. For multi-layer technology only.	e.g. change from 1.5µm into 1.0µm	C		-	•	-	-	@•	@•	-	-	-	-	@•	-	-	-	-	@•	@•	-	-	-	-	@•	@•	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC	PAS-NTC-DE-07	Changes of inner construction - Number of Layers	-	P	Change of number of ceramic or electrode layers. For multi-layer technology only. Always in combination with PAS-NTC-DE-06.	see also layer thickness	C		-	•	-	-	@•	@•	-	-	-	-	@•	-	-	-	-	@•	@•	-	-	-	-	@•	@•	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC		**PROCESS**																																											
NTC	PAS-NTC-PR-01	Changes in process technology or manufacturing methods - Lamination	-	P	Change of lamination / press technique technology	e.g. stamp press to isostatic press	C		•	•	-	-	-	@•	-	@•	-	-	-	-	-	-	-	@•	@•	-	-	@B	-	@•	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	
NTC	PAS-NTC-PR-02	Changes in process technology or manufacturing methods - Firing	-	P	Change of firing / sintering profile	e.g. temperature and / or time and / or atmosphere. e.g. from tunnel to batch kiln.	C		•	•	-	-	@•	@•	-	-	@•	-	@•	-	-	-	-	-	@•	@•	-	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	
NTC	PAS-NTC-PR-03	Changes in process technology or manufacturing methods - Dicing	-	P	Change of dicing / slicing	e.g. change from cutting to sawing	C		•	•	-	@•	@•	-	@•	@•	-	@•	@•	-	@•	@•	-	-	-	-	-	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	
NTC	PAS-NTC-PR-04	Changes in process technology or manufacturing methods - Termination	-	P	Change for termination preparation like plating or apply of termination base layer.	e.g. change in plating technology (final termination) e.g. change from dip in paste to platimg (apply)	B		•	•	-	-	-	-	•	•	•	-	-	•	-	•	-	-	-	•	•	B	-	•	•	-	-	-	-	-	-	-	-	-	-	-	-	@•	
NTC	PAS-NTC-PR-05	Changes in process technology or manufacturing methods - Electrode apply	-	P	Change of electrode apply. For multi layer technology only.	e.g. change of inner electrode lay down method.	C		•	•	-	@•	-	-	-	@•	-	-	-	-	-	-	-	@•	@•	@•	-	@B	-	@•	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	
NTC	PAS-NTC-PR-06	Changes in process technology or manufacturing methods - Assembly	-	P	Change in assembly process for leaded or encapsulated devices.	e.g. soldering method for lead attach to element or coating / encapsulation process	B		•	•	-	•	•	-	-	-	-	•	•	-	•	-	•	•	-	-	•	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC	PAS-NTC-PR-07	Process integrity: tuning within specification	-	P	Variation within process specification.	e.g. process control	C		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC		**PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS**																																											
NTC	PAS-NTC-PN-01	Packing / shipping specification change (loosening of tolerances)	P	P	Change of packing specification.	e.g. number of pieces on reel.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC	PAS-NTC-PN-02	Dry pack requirements change	P	P	Change of drypack requirements.	e.g. change of MSL e.g. change in dry pack assurance (HIC, MBB)	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC	PAS-NTC-PN-03	Change of carrier (tray, reel)	P	P	Change of carrier	e.g. change by material e.g. change by geometry.	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC		**PACKING / SHIPPING - VISUAL INSPECTION**																																											
NTC	PAS-NTC-PV-01	Change of labelling	I	P	Change of labelling, also on reel.	**(I)** e.g. additional information (RoHS stamp) **(P)** e.g. change of customer specific information	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC	PAS-NTC-PV-02	Change of product marking	I	P	Marking on device.	e.g. change of content of marking e.g. change of method of marking e.g. change of appearance of marking	B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC	PAS-NTC-PV-03	Change of packing/shipping specification	P	P	Change in packing specification which does not described a change of dimensions or material of the packing.	e.g. change of documentation in packing specification	*		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NTC		**LOGISTICS / CAPACITY / TESTING - EQUIPEMEMENT**																																											
NTC	PAS-NTC-EQ-01	Production from a new equipment/tool which uses a different technology or which due to its unique form or function can be expected to influence the integrity of the final product	P	P	Change in process technique which is not already covered above. **Note:** Changes affecting the product not covered by the table require also a PCN.	e. g. change from wet to dry technology.	C		•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	Test effort depends on final risk assessment. Performance test according to affected process change.
NTC	PAS-NTC-EQ-02	Production from a new equipment/tool which uses the same basic technology (replacement equipment or extension of existing equipment pool)	-	P	PCN required for dedicated equipment for sensitive component production.	e.g. elimination of manual handling processes	C		•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	Test effort depends on final risk assessment. Performance test according to affected process change.
NTC	PAS-NTC-EQ-03	Change in final test equipment type that uses a different technology	P	P	Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	C		•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	Gage R&R / delta correlation
NTC		**LOGISTICS / CAPACITY / TESTING - PROCESS FLOW**																																											
NTC	PAS-NTC-PF-01	Manufacturing site transfer or movement of a part of production process to a different location/site	P	P	Change of manufacturing site. Includes transfer as well as additional site. **Note**: Reorganization inside one plant/site is not affected!	e.g. movement or transfer of manufacturing site or process step(s) to a different location/site. e.g. dual source / fab strategy	B		•	•	-	•	•	-	•	-	•	•	•	•	-	•	•	•	•	•	•	B	•	•	•	-	-	-	-	-	-	-	-	-	-	-	@•	@•	
NTC	PAS-NTC-PF-02	Elimination or addition of a manufacturing process step	-	P	Change of manufacturing process sequence.	e.g. washing / cleaning process e.g. change of order of processes	C		•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	@•	Characterisation depends on impact of production flow.
NTC		**LOGISTICS / CAPACITY / TESTING - Q-GATE**																																											

ADSG To UTL Test Transfer Correlation Report For LT8611

Project Owner	Yang Tong Jiang

PRODUCT INFORMATION

Part Name	LT8611
Package	QFN 3x5
Lead Count	24
Description	42V, 2.5A Synchronous Step-Down Regulator with Current Sense and 2.5µA Quiescent Current

PRODUCT TEST SITE TRANSFER CORRELATION

SETUP INFORMATION

Test Site	Tester	Handler ID	BOARD ID	CONTACTOR ID 1	CONTACTOR ID 2
ADSG	ETS364B	RASCO1000	LT8611 DIB#1	JTI D#5701	JTI D#5701
UTL	ETS364B	RASCO1000	LT8611 DIB#1	JTI D#5701	JTI D#5701

SUMMARY OF TEST RESULTS

Test all good units in ATE-Handler setup through three test temperatures

Test Site	Program	Temp	Lot ID	Qty In	Qty Out
ADSG	LT8611_03	25C	1000536.1	310	310
UTL	LT8611_03	25C	1000536.1	310	310

Test Site	Program	Temp	Lot ID	Qty In	Qty Out
ADSG	LT8611_03	125C	1000536.1	310	310
UTL	LT8611_03	125C	1000536.1	310	310

Test Site	Program	Temp	Lot ID	Qty In	Qty Out
ADSG	LT8611_03	-40C	1000536.1	310	310
UTL	LT8611_03	-40C	1000536.1	310	310

4. Test five fresh (untrimmed) units using QC program if necessary.**

Test Site	Program	Temp	Lot ID	Qty Out	Scraps
ADSG	N/A	N/A	N/A	N/A	N/A
UTL	LT8611IUDD	Ambient	1000536.1	0	5

CORRELATION RESULT

Test Flow	Number of Test	Result
25C Ambient	206	all passed
125C HOT temp	206	all passed
-40C Cold temp	206	all passed

LT8611_25C Analysis Data View Report

Test Number	Test Name	Units	Overall Correlation Result	Mean Diff%	Mean diff <5% limit range	Stdv Ratio	Sigma Spread Criteria <1.3	CpK	Cpk >1.67	Comments
10.0	VCC_cont	V	PASS		N/A		N/A	82.2615934	PASS	CpK greater than 1.67
10.1	VIN_cont	V	PASS		N/A		N/A	68.95381273	PASS	CpK greater than 1.67
10.2	SW_cont	V	PASS		N/A		N/A	10.83574079	PASS	CpK greater than 1.67
10.3	EN_cont	V	PASS		N/A		N/A	56.00301176	PASS	CpK greater than 1.67
10.8	SYNC_cont	V	PASS		N/A		N/A	35.73083527	PASS	CpK greater than 1.67
10.1	SS_cont	V	PASS		N/A		N/A	38.40180831	PASS	CpK greater than 1.67
10.12	RT_cont [18.2K to APU]	V	PASS		N/A		N/A	269.1120758	PASS	CpK greater than 1.67
10.13	PG_cont	V	PASS		N/A		N/A	47.44317236	PASS	CpK greater than 1.67
10.15	FB_cont	V	PASS		N/A		N/A	35.0110989	PASS	CpK greater than 1.67
10.17	BST_cont	V	PASS		N/A		N/A	63.98976171	PASS	CpK greater than 1.67
10.19	BIAS_cont	V	PASS		N/A		N/A	56.51777984	PASS	CpK greater than 1.67
10.21	IMON_cont	V	PASS		N/A		N/A	28.94800088	PASS	CpK greater than 1.67
10.23	CTRL_cont	V	PASS		N/A		N/A	30.39600678	PASS	CpK greater than 1.67
10.25	ISN_cont	V	PASS		N/A		N/A	42.77621318	PASS	CpK greater than 1.67
10.27	ISP_cont	V	PASS		N/A		N/A	45.20094965	PASS	CpK greater than 1.67
10.29	NC_cont	MOhm	PASS		N/A		N/A	20634.36225	PASS	CpK greater than 1.67
940	Vref_Trim_Check [Open Loop]	V	PASS		N/A		N/A	4.27857867	PASS	CpK greater than 1.67
950	** Post-BURN Vout [0.970V] Vin=6V	V	PASS		N/A		N/A	2.33184393	PASS	CpK greater than 1.67
950.1	Post-BURN Vout [0.970V] Vin=40V	V	PASS		N/A		N/A	14.15900012	PASS	CpK greater than 1.67
950.2	Post-BURN OSCF	KHz	PASS		N/A		N/A	13.49640421	PASS	CpK greater than 1.67
950.3	Post-BURN ILIM	mA	PASS		N/A		N/A	5.134546067	PASS	CpK greater than 1.67
950.4	Post-BURN V_IMON	V	PASS		N/A		N/A	8.217665753	PASS	CpK greater than 1.67
950.6	Vref_Trim_Check [Open Loop] [From T940.0]	V	PASS		N/A		N/A	15.12302649	PASS	CpK greater than 1.67
950.7	Delta_of_Vref [T940.0-T950.0]	mV	PASS		N/A		N/A	4.305824486	PASS	CpK greater than 1.67
1000	** Ivin_Sleep	uA	PASS		N/A		N/A	6.855451545	PASS	CpK greater than 1.67
1000.1	* Ien_Sleep	nA	PASS		N/A		N/A	170.8770701	PASS	CpK greater than 1.67
1000.2	Irt_Sleep	uA	PASS		N/A		N/A	82.14404288	PASS	CpK greater than 1.67
1000.3	Iss_Sleep	uA	PASS		N/A		N/A	107.7335038	PASS	CpK greater than 1.67
1000.4	Ictrl_Sleep	uA	PASS		N/A		N/A	117.6163446	PASS	CpK greater than 1.67
1000.5	Iisp_Sleep	uA	PASS		N/A		N/A	106.0866697	PASS	CpK greater than 1.67
1000.6	Iisn_Sleep	uA	PASS		N/A		N/A	97.84318125	PASS	CpK greater than 1.67
1000.7	* Ipg_Sleep	nA	PASS		N/A		N/A	28.77456783	PASS	CpK greater than 1.67
1000.8	Ibias_Sleep	uA	PASS		N/A		N/A	10.53880847	PASS	CpK greater than 1.67
1000.9	Iintvcc_Sleep [INTVCC=4.0V]	uA	PASS		N/A		N/A	7.054935208	PASS	CpK greater than 1.67
1000.12	Ibst_Sleep	uA	PASS		N/A		N/A	61.98928339	PASS	CpK greater than 1.67
1000.13	* Ivin_Sleep_with_SYNC	mA	PASS		N/A		N/A	1.797912329	PASS	CpK greater than 1.67
1100	Ivin_Sleep_ABS_MAX	uA	PASS		N/A		N/A	75.18807998	PASS	CpK greater than 1.67
1100.1	Ien_Sleep_ABS_MAX	uA	PASS		N/A		N/A	221.4230829	PASS	CpK greater than 1.67
1100.2	Iisp_Sleep_ABS_MAX	uA	PASS		N/A		N/A	198.364668	PASS	CpK greater than 1.67
1100.3	Iisn_Sleep_ABS_MAX	uA	PASS		N/A		N/A	240.9125634	PASS	CpK greater than 1.67
1100.4	Ipg_Sleep_ABS_MAX	uA	PASS		N/A		N/A	529.0105749	PASS	CpK greater than 1.67
1100.5	Imon_ABS_MAX	mA	PASS		N/A		N/A	224.0145775	PASS	CpK greater than 1.67
1200	** Ivin_Shutdown	uA	PASS		N/A		N/A	7.878928314	PASS	CpK greater than 1.67
1200.1	Irt_Shutdown	uA	PASS		N/A		N/A	15.30246208	PASS	CpK greater than 1.67
1200.2	Iss_Shutdown	mA	PASS		N/A		N/A	180.2785484	PASS	CpK greater than 1.67
1200.3	* Isync_Shutdown	nA	PASS		N/A		N/A	132.1695724	PASS	CpK greater than 1.67
1200.4	Ictrl_Shutdown	uA	PASS		N/A		N/A	106.3887011	PASS	CpK greater than 1.67
1200.5	Imon_Shutdown	uA	PASS		N/A		N/A	123.970603	PASS	CpK greater than 1.67
1200.6	Iisn_Shutdown	uA	PASS		N/A		N/A	11.1554007	PASS	CpK greater than 1.67
1200.7	Iisp_Shutdown	uA	PASS		N/A		N/A	10.96567933	PASS	CpK greater than 1.67
1200.8	* Ifb_Shutdown	nA	PASS		N/A		N/A	199.0580831	PASS	CpK greater than 1.67
1200.9	Ipg_Shutdown	mA	PASS		N/A		N/A	578.3132795	PASS	CpK greater than 1.67

1200.1	Ibias_Shutdown	uA	PASS		N/A		N/A	5.176788539	PASS	CpK greater than 1.67
1200.11	* SS_Pulldown_Resistance	Ohm	PASS		N/A		N/A	27.28831382	PASS	CpK greater than 1.67
1200.12	** PG_Pulldown_Resistance	Ohm	PASS		N/A		N/A	24.92872093	PASS	CpK greater than 1.67
1300	Ivin_Shutdown_ABS_MAX	uA	PASS		N/A		N/A	52.31539586	PASS	CpK greater than 1.67
1300.1	Iss_Shutdown_ABS_MAX	mA	PASS		N/A		N/A	26.25126872	PASS	CpK greater than 1.67
1300.2	Iisn_Shutdown_ABS_MAX	uA	PASS		N/A		N/A	186.7043882	PASS	CpK greater than 1.67
1300.3	Iisp_Shutdown_ABS_MAX	uA	PASS		N/A		N/A	123.6314973	PASS	CpK greater than 1.67
1300.4	Ipg_Shutdown_ABS_MAX	mA	PASS		N/A		N/A	8.806634384	PASS	CpK greater than 1.67
1300.5	Ibias_Shutdown_ABS_MAX	uA	PASS		N/A		N/A	6.497663639	PASS	CpK greater than 1.67
1300.6	Irt_Shutdown_ABS_MAX	uA	PASS		N/A		N/A	4.757308104	PASS	CpK greater than 1.67
1400	* Top_FET_Isw	uA	PASS		N/A		N/A	3.842536012	PASS	CpK greater than 1.67
1500	* Bot_FET_Leakage	uA	PASS		N/A		N/A	2.906756877	PASS	CpK greater than 1.67
1500.1	Bot_FET_AbsMax_Leakage [Ibst]	uA	PASS		N/A		N/A	101.7422797	PASS	CpK greater than 1.67
1600	** Regulation_Light_Load_Ivin@1mA	uA	PASS		N/A		N/A	4.005181905	PASS	CpK greater than 1.67
1600.3	** Regulation_Light_Load_Ivin@100uA	uA	PASS		N/A		N/A	4.40603539	PASS	CpK greater than 1.67
1600.7	Regulation_Light_Load_Ivin@1mA [Vout=7V]	uA	PASS		N/A		N/A	3.063369778	PASS	CpK greater than 1.67
1600.8	Vout_1mA [Vout-7V]	V	PASS		N/A		N/A	40.04250707	PASS	CpK greater than 1.67
2000	Freq with RT=48uA	KHz	PASS		N/A		N/A	9.721885293	PASS	CpK greater than 1.67
2000.1	RegulationMode Sync=0V	V	PASS		N/A		N/A	6.242514994	PASS	CpK greater than 1.67
2000.2	** SW_Min_Ontime Sync=0V	nS	PASS		N/A		N/A	3.279002118	PASS	CpK greater than 1.67
2100	Freq with RT=48uA	KHz	PASS		N/A		N/A	9.703767686	PASS	CpK greater than 1.67
2100.1	RegulationMode Sync=3.3V	V	PASS		N/A		N/A	6.092293124	PASS	CpK greater than 1.67
2100.2	** SW_Min_Ontime Sync=3.3V	nS	PASS		N/A		N/A	2.745780091	PASS	CpK greater than 1.67
2200	* TopRDSon [Vin-Vsw]	Ohm	PASS		N/A		N/A	2.699787532	PASS	CpK greater than 1.67
2200.1	V_sw_out@1A before ramp [Debug only]	V	PASS		N/A		N/A	29.62414972	PASS	CpK greater than 1.67
2200.2	Slop_Comp_Ilim	mA	PASS		N/A		N/A	6.059505646	PASS	CpK greater than 1.67
2300	V_sw_out@1.5A before ramp [Debug only]	V	PASS		N/A		N/A	21.43924069	PASS	CpK greater than 1.67
2300.1	** Top_I_Lim	mA	PASS		N/A		N/A	3.366386388	PASS	CpK greater than 1.67
2300.2	Burst_I_Lim	mA	PASS		N/A		N/A	2.236102603	PASS	CpK greater than 1.67
2300.3	SYNC_I_Lim	mA	PASS		N/A		N/A	7.684902576	PASS	CpK greater than 1.67
2400	Vout [0.6A load] @Vin=6V	V	PASS		N/A		N/A	15.7809118	PASS	CpK greater than 1.67
2400.1	** Minimum Input VOltage [Min_Vin_UVLO]	V	PASS		N/A		N/A	2.454479245	PASS	CpK greater than 1.67
2400.2	Vout [0.6A load] Drop	V	PASS	3.89101184	PASS	0.968	PASS	0.828161574	N/A	tightened limits
2400.3	SW_Min_Ontime Sync=0V [Calc]	nS	PASS		N/A		N/A	16.9838382	PASS	CpK greater than 1.67
2400.4	SW_Min_Ontime Sync=3V [Calc]	nS	PASS		N/A		N/A	13.83906647	PASS	CpK greater than 1.67
2500	* BotRDSon [Pgnd-Vsw]	Ohm	PASS		N/A		N/A	2.999796152	PASS	CpK greater than 1.67
2500.1	BST pin Voltage thru 1K	V	PASS		N/A		N/A	405.2715175	PASS	CpK greater than 1.67
2500.2	Zero_cross_current	mA	PASS		N/A		N/A	2.679742915	PASS	CpK greater than 1.67
2600	** DA_Current_Limit [Bot_I_Lim]	mA	PASS		N/A		N/A	2.201635285	PASS	CpK greater than 1.67
2700	SW_Frequency	KHz	PASS		N/A		N/A	2.987595045	PASS	CpK greater than 1.67
2700.1	* Min_Off_Time	nS	PASS		N/A		N/A	2.509887405	PASS	CpK greater than 1.67
2700.2	W_duty_cycle	%	PASS		N/A		N/A	2.992350576	PASS	CpK greater than 1.67
2700.3	Dropout Voltage	V	PASS		N/A		N/A	3.102284034	PASS	CpK greater than 1.67
2800	* Vintvcc_0mA_no_bias	V	PASS		N/A		N/A	3.264437276	PASS	CpK greater than 1.67
2800.1	Vintvcc_20mA_no_bias	V	PASS		N/A		N/A	22.74922628	PASS	CpK greater than 1.67
2900	* Vintvcc_0mA_with_bias	V	PASS		N/A		N/A	12.1489637	PASS	CpK greater than 1.67
2900.1	Vintvcc_20mA_with_bias	V	PASS		N/A		N/A	15.05058051	PASS	CpK greater than 1.67
3000.1	Intvcc_Ilim_no_bias [Vccint=3V]	mA	PASS		N/A		N/A	13.97038926	PASS	CpK greater than 1.67
3100.1	Intvcc_Ilim_ABSMAX_no_bias [Vccint=3V]	mA	PASS		N/A		N/A	7.097514722	PASS	CpK greater than 1.67
3200.1	Intvcc_Ilim_with_bias [Vccint=3V]	mA	PASS		N/A		N/A	7.533574121	PASS	CpK greater than 1.67
3300.1	Intvcc_Ilim_ABSMAX_with_bias [Vccint=3V]	mA	PASS		N/A		N/A	7.896753994	PASS	CpK greater than 1.67
3400	Intvcc_BIAS_Threshold RampDown	V	PASS		N/A		N/A	4.297966596	PASS	CpK greater than 1.67
3400.1	Intvcc_BIAS_Threshold RampUp	V	PASS		N/A		N/A	2.715432363	PASS	CpK greater than 1.67
3400.2	Intvcc_BIAS_Threshold Hysteresis	V	PASS		N/A		N/A	440.2469454	PASS	CpK greater than 1.67
3500	Intvcc_Vin_Threshold RampDown	V	PASS		N/A		N/A	8.354033985	PASS	CpK greater than 1.67
3500.1	Intvcc_Vin_Threshold RampUp	V	PASS		N/A		N/A	7.778331659	PASS	CpK greater than 1.67
3500.2	Intvcc_Vin_Threshold Hysteresis	V	PASS		N/A		N/A	781.2821339	PASS	CpK greater than 1.67

3600	* Intvcc_UVLO_Threshold RampDown	V	PASS		N/A		N/A	2.544003977	PASS	CpK greater than 1.67
3600.1	Intvcc_UVLO_Threshold RampUp	V	PASS		N/A		N/A	8.269368692	PASS	CpK greater than 1.67
3600.2	Intvcc_UVLO_Threshold Hysteresis	V	PASS		N/A		N/A	42.0270166	PASS	CpK greater than 1.67
4000	EN_Threshold RampDown	V	PASS		N/A		N/A	33.38691626	PASS	CpK greater than 1.67
4000.1	** EN_Threshold RampUp	V	PASS		N/A		N/A	2.856684751	PASS	CpK greater than 1.67
4000.2	* EN_Threshold Hysteresis	V	PASS		N/A		N/A	11.62817187	PASS	CpK greater than 1.67
4100	PG_pin_Low_Threshold RampDown	V	PASS		N/A		N/A	33.29126783	PASS	CpK greater than 1.67
4100.1	PG_pin_Low_Threshold RampUp	V	PASS		N/A		N/A	34.09258373	PASS	CpK greater than 1.67
4100.2	* PG_pin_Low_Threshold Hysteresis	V	PASS		N/A		N/A	1327.080045	PASS	CpK greater than 1.67
4100.3	* PG Lower Threshold Offset from VFB	%	PASS		N/A		N/A	2.15530756	PASS	CpK greater than 1.67
4100.4	* PG Low Hysteresis	%	PASS		N/A		N/A	8.161593148	PASS	CpK greater than 1.67
4200	PG_pin_High_Threshold RampDown	V	PASS		N/A		N/A	44.51557857	PASS	CpK greater than 1.67
4200.1	PG_pin_High_Threshold RampUp	V	PASS		N/A		N/A	45.616654	PASS	CpK greater than 1.67
4200.2	* PG_pin_High_Threshold Hysteresis	V	PASS		N/A		N/A	1316.267205	PASS	CpK greater than 1.67
4200.3	* PG Upper Threshold Offset from VFB	%	PASS	0.219645446	PASS	1.032	PASS	1.663579419	N/A	tightened limits
4200.4	* PG Hi Hysteresis	%	PASS		N/A		N/A	8.982278174	PASS	CpK greater than 1.67
4300	* SYNC_Threshold RampDown	V	PASS		N/A		N/A	6.489734525	PASS	CpK greater than 1.67
4300.1	* SYNC_Threshold RampUp	V	PASS		N/A		N/A	10.08526657	PASS	CpK greater than 1.67
4300.2	SYN_Threshold Hysteresis	V	PASS		N/A		N/A	23.42539663	PASS	CpK greater than 1.67
4500	Feedback Reference Voltage [Vin=12V, ILoad=0.5A	V	PASS		N/A		N/A	116.5485431	PASS	CpK greater than 1.67
4500.1	Reference Voltage [Vin=4V, ILoad=0.5A]	V	PASS		N/A		N/A	113.0266932	PASS	CpK greater than 1.67
4500.2	Reference Voltage [Vin=40V, ILoad=0.5A]	V	PASS		N/A		N/A	120.856449	PASS	CpK greater than 1.67
4500.3	** Feedback Voltage Line Regulation	%/V	PASS		N/A		N/A	6.772862465	PASS	CpK greater than 1.67
4500.4	Reference Voltage [Vin=12V, ILoad=0.1A]	V	PASS		N/A		N/A	115.3706941	PASS	CpK greater than 1.67
4500.5	Reference Voltage [Vin=12V, ILoad=2.5A]	V	PASS		N/A		N/A	32.42423242	PASS	CpK greater than 1.67
4500.6	Feedback Voltage Load Regulation	%	PASS		N/A		N/A	17.39104471	PASS	CpK greater than 1.67
4800	* BIAS_pin_Current_Consumption	mA	PASS		N/A		N/A	10.51020107	PASS	CpK greater than 1.67
4900	Regulating_with_SS	V	PASS		N/A		N/A	8.316608797	PASS	CpK greater than 1.67
5000	** SS_Pin_Current	uA	PASS		N/A		N/A	4.3491845	PASS	CpK greater than 1.67
5100	** Datasheet_Osc_High [Rt=18.2K]	KHz	PASS		N/A		N/A	2.437066998	PASS	CpK greater than 1.67
5100.1	I_Vin_Rt18K	mA	PASS		N/A		N/A	181.8549234	PASS	CpK greater than 1.67
5100.2	Vout_Rt18K	V	PASS		N/A		N/A	92.38058967	PASS	CpK greater than 1.67
5100.3	Efficiency_Rt18K		PASS		N/A		N/A	17.17864507	PASS	CpK greater than 1.67
5200	** Datasheet_Osc_Low [Rt=60.4K]	KHz	PASS		N/A		N/A	7.898902813	PASS	CpK greater than 1.67
5200.1	I_Vin_Rt60K	mA	PASS		N/A		N/A	185.4644973	PASS	CpK greater than 1.67
5200.2	Vout_Rt60K	V	PASS		N/A		N/A	92.52074417	PASS	CpK greater than 1.67
5200.3	Efficiency_Rt60K		PASS		N/A		N/A	12.93172953	PASS	CpK greater than 1.67
5300	SYNC_Frequency [Sync=1MHz]	KHz	PASS		N/A		N/A	186.0933216	PASS	CpK greater than 1.67
5300.1	SYNC_Frequency [Sync=2.2MHz]	KHz	PASS		N/A		N/A	81.07450682	PASS	CpK greater than 1.67
5300.2	SYNC_Frequency [Sync=200KHz]	KHz	PASS		N/A		N/A	17.8884953	PASS	CpK greater than 1.67
5400	** Datasheet_Osc_Low [Rt=221K]	KHz	PASS		N/A		N/A	2.927320808	PASS	CpK greater than 1.67
5400.1	Osc_Low [Rt=3.8uA]	KHz	PASS		N/A		N/A	15.08659508	PASS	CpK greater than 1.67
5400.2	Osc_Med_Hi [Rt=24uA]	KHz	PASS		N/A		N/A	2.132280992	PASS	CpK greater than 1.67
5400.3	Rt_Voltage_Hi [Rt=18.2K//60.4K=13.986K]	V	PASS		N/A		N/A	28.02125734	PASS	CpK greater than 1.67
5400.4	Rt_Voltage_Hi + 13.986K*0.024uA [Calc]	V	PASS		N/A		N/A	20.35839169	PASS	CpK greater than 1.67
5500	Frequency_Foldback	KHz	PASS		N/A		N/A	3.18392347	PASS	CpK greater than 1.67
5500.1	Rt_Voltage_Lo [Rt=18.2K//60.4K=13.986K]	V	PASS		N/A		N/A	26.10877077	PASS	CpK greater than 1.67
5500.2	Rt_Voltage_Lo + 13.986K*0.024uA [Calc]	V	PASS		N/A		N/A	18.89963087	PASS	CpK greater than 1.67
5600	SS_Threshold_to_stop_charging	V	PASS		N/A		N/A	25.49238544	PASS	CpK greater than 1.67
5700	PG_High_SW_Pulldown_Current	mA	PASS		N/A		N/A	17.76852225	PASS	CpK greater than 1.67
5800	SW voltage [BST=10V]	V	PASS		N/A		N/A	42.15825584	PASS	CpK greater than 1.67
5800.1	BST voltage part switching	V	PASS		N/A		N/A	2.14111E+13	PASS	CpK greater than 1.67
5800.2	BST_OK_Threshold [BST-SW]	V	PASS		N/A		N/A	17.94026904	PASS	CpK greater than 1.67
6900	** IMON ABS MAX CM [ISP-ISN=50mV]	V	PASS		N/A		N/A	10.68086037	PASS	CpK greater than 1.67
6900.1	** IMON ABS MAX CM [ISP-ISN=10mV]	V	PASS		N/A		N/A	2.779762425	PASS	CpK greater than 1.67
6900.2	** IMON ABS MAX CM [ISP-ISN=0mV]	V	PASS		N/A		N/A	3.889639753	PASS	CpK greater than 1.67
6900.3	** Isense Voltage ABS MAX CM [CTRL=0.2V]	mV	PASS		N/A		N/A	2.976487271	PASS	CpK greater than 1.67

6900.4	** Isense Voltage ABS MAX CM [CTRL=0.8V]	mV	PASS		N/A		N/A	3.337769827	PASS	CpK greater than 1.67
6900.5	** Isense Voltage ABS MAX CM [CTRL=1.5V]	mV	PASS		N/A		N/A	3.736442968	PASS	CpK greater than 1.67
7000	Vout Current [Rsen=50mOhm] [Ctrl=0.2V]	mA	PASS		N/A		N/A	6.757618272	PASS	CpK greater than 1.67
7000.1	Vout Current [Rsen=50mOhm] [Ctrl=0.8V]	mA	PASS	0.616179032	PASS	0.984	PASS	0.692839669	N/A	tightened limits
7000.2	Vout Current [Rsen=50mOhm] [Ctrl=1.5V]	mA	PASS		N/A		N/A	11.84916246	PASS	CpK greater than 1.67
7000.3	** Isense Voltage High CM [Ctrl=0.2V ISP_RampDn	mV	PASS		N/A		N/A	3.351492642	PASS	CpK greater than 1.67
7000.4	** Isense Voltage High CM [Ctrl=0.8V ISP_RampDn	mV	PASS		N/A		N/A	3.745516194	PASS	CpK greater than 1.67
7000.5	** Isense Voltage High CM [Ctrl=1.5V ISP_RampDn	mV	PASS		N/A		N/A	2.935994372	PASS	CpK greater than 1.67
7000.7	** IMON High CM [ISN=3.3V,ISP=3.35V]	V	PASS		N/A		N/A	2.365954971	PASS	CpK greater than 1.67
7000.8	** IMON High CM [ISN=3.3V,ISP=3.31V]	V	PASS		N/A		N/A	2.621556678	PASS	CpK greater than 1.67
7000.9	IMON High CM [ISN=3.3V,ISP=3.3V]	V	PASS		N/A		N/A	3.952017915	PASS	CpK greater than 1.67
7000.1	IMON Source Current [ISP-ISN=50mV]	mA	PASS		N/A		N/A	5.324152781	PASS	CpK greater than 1.67
7000.11	IMON Sink Current [ISP-ISN=50mV]	mA	PASS		N/A		N/A	8.42683168	PASS	CpK greater than 1.67
7000.12	IMON Source Current [ISP-ISN=10mV]	mA	PASS		N/A		N/A	6.512447964	PASS	CpK greater than 1.67
7000.13	IMON Sink Current [ISP-ISN=10mV]	mA	PASS		N/A		N/A	6.649624729	PASS	CpK greater than 1.67
7000.14	Vout Current [Rsen=50mOhm] [Ctrl=0.2V]	mA	PASS		N/A		N/A	3.025958886	PASS	CpK greater than 1.67
7000.17	** Isense Voltage Low CM [Ctrl=0.2V ISP_RampDn]	mV	PASS		N/A		N/A	3.262651221	PASS	CpK greater than 1.67
7000.18	** Isense Voltage Low CM [Ctrl=0.8V ISP_RampDn]	mV	PASS		N/A		N/A	2.546107077	PASS	CpK greater than 1.67
7000.19	** Isense Voltage Low CM [Ctrl=1.5V ISP_RampDn]	mV	PASS		N/A		N/A	2.263694105	PASS	CpK greater than 1.67
7000.21	** IMON Lo CM [ISN=0V,ISP=50mV]	V	PASS		N/A		N/A	2.301824177	PASS	CpK greater than 1.67
7000.22	** IMON Lo CM [ISN=0V,ISP=10mV]	V	PASS		N/A		N/A	4.181018945	PASS	CpK greater than 1.67
7000.23	IMON Lo CM [ISN=0V,ISP= 0mV]	V	PASS		N/A		N/A	6.944013647	PASS	CpK greater than 1.67
7000.24	* CTRL pin Current [CTRL=1.5V]	uA	PASS		N/A		N/A	1.93142318	PASS	CpK greater than 1.67
7000.25	** ISN Current 0mVsen High CM	uA	PASS		N/A		N/A	16.32174347	PASS	CpK greater than 1.67
7000.26	** ISP Current 0mVsen High CM	uA	PASS		N/A		N/A	73.73197368	PASS	CpK greater than 1.67
7000.27	** ISN Current 50mVsen High CM	uA	PASS		N/A		N/A	4.529809151	PASS	CpK greater than 1.67
7000.28	** ISP Current 50mVsen High CM	uA	PASS		N/A		N/A	11.05503411	PASS	CpK greater than 1.67
7000.29	** ISN Current 0mVsen Low CM	uA	PASS		N/A		N/A	72.88985213	PASS	CpK greater than 1.67
7000.3	** ISP Current 0mVsen Low CM	uA	PASS		N/A		N/A	1392.031577	PASS	CpK greater than 1.67
7000.31	** ISN Current 50mVsen Low CM	uA	PASS		N/A		N/A	25.84562263	PASS	CpK greater than 1.67
7000.32	** ISP Current 50mVsen Low CM	uA	PASS		N/A		N/A	1135.464248	PASS	CpK greater than 1.67
7000.36	Com Mode Thresholds ISN&ISP RampUp	V	PASS		N/A		N/A	12.89487271	PASS	CpK greater than 1.67
7000.37	Com Mode Thresholds ISN&ISP RampDn	V	PASS		N/A		N/A	9.49504806	PASS	CpK greater than 1.67
7000.38	Com Mode Thresholds_Hyst	V	PASS		N/A		N/A	18.08011754	PASS	CpK greater than 1.67
9000	VCC_cont Damage Check	V	PASS		N/A		N/A	43.61321085	PASS	CpK greater than 1.67
9000.1	VIN_cont Danage Check	V	PASS		N/A		N/A	39.17482311	PASS	CpK greater than 1.67
9000.2	SW_cont Damage Check	V	PASS		N/A		N/A	10.21768538	PASS	CpK greater than 1.67
9000.3	Vin_current Damage Check	uA	PASS		N/A		N/A	18.86284624	PASS	CpK greater than 1.67
9000.4	Vbst_leakage Damage Check	uA	PASS		N/A		N/A	9.989435027	PASS	CpK greater than 1.67
9000.5	Vcc_leakage Damage Check	uA	PASS		N/A		N/A	2.388892654	PASS	CpK greater than 1.67

LT8611_125CA Analysis Data View Report

Test Number	Test Name	Units	Overall Correlation Result	Mean Diff%	Mean diff <5% limit range	Stdv Ratio	Sigma Spread Criteria <1.3	CpK	Cpk >1.67	Annotations
10.0	VCC_cont	V	PASS		NA		NA	18.68104952	PASS	Cpk greater than 1.67
10.1	VIN_cont	V	PASS		NA		NA	23.86602197	PASS	Cpk greater than 1.67
10.2	SW_cont	V	PASS		NA		NA	6.266339288	PASS	Cpk greater than 1.67
10.3	EN_cont	V	PASS		NA		NA	34.23058737	PASS	Cpk greater than 1.67
10.8	SYNC_cont	V	PASS		NA		NA	31.73860675	PASS	Cpk greater than 1.67
10.1	SS_cont	V	PASS		NA		NA	32.57432862	PASS	Cpk greater than 1.67
10.12	RT_cont [18.2K to APU]	V	PASS		NA		NA	93.27891271	PASS	Cpk greater than 1.67
10.13	PG_cont	V	PASS		NA		NA	33.4049991	PASS	Cpk greater than 1.67
10.15	FB_cont	V	PASS		NA		NA	30.90996362	PASS	Cpk greater than 1.67
10.17	BST_cont	V	PASS		NA		NA	20.99782437	PASS	Cpk greater than 1.67
10.19	BIAS_cont	V	PASS		NA		NA	30.86492395	PASS	Cpk greater than 1.67
10.21	IMON_cont	V	PASS		NA		NA	30.92295572	PASS	Cpk greater than 1.67
10.23	CTRL_cont	V	PASS		NA		NA	30.37164891	PASS	Cpk greater than 1.67
10.25	ISN_cont	V	PASS		NA		NA	33.415691	PASS	Cpk greater than 1.67
10.27	ISP_cont	V	PASS		NA		NA	33.71170554	PASS	Cpk greater than 1.67
10.29	NC_cont	MOhm	PASS		NA		NA	791.6279457	PASS	Cpk greater than 1.67
940	Vref_Trim_Check [Open Loop]	V	PASS		NA		NA	2.831877536	PASS	Cpk greater than 1.67
950	** Post-BURN Vout [0.970V] Vin=6V	V	PASS		NA		NA	2.309639677	PASS	Cpk greater than 1.67
950.1	Post-BURN Vout [0.970V] Vin=40V	V	PASS		NA		NA	3.198961845	PASS	Cpk greater than 1.67
950.2	Post-BURN OSCF	KHz	PASS		NA		NA	6.435893949	PASS	Cpk greater than 1.67
950.3	Post-BURN ILIM	mA	PASS		NA		NA	5.729927718	PASS	Cpk greater than 1.67
950.4	Post-BURN V_IMON	V	PASS		NA		NA	6.795784962	PASS	Cpk greater than 1.67
950.6	Vref_Trim_Check [Open Loop] [From T940.0]	V	PASS		NA		NA	3.001631386	PASS	Cpk greater than 1.67
950.7	Delta_of_Vref [T940.0-T950.0]	mV	PASS		NA		NA	5.519490817	PASS	Cpk greater than 1.67
1000	** Ivin_Sleep	uA	PASS		NA		NA	8.471383297	PASS	Cpk greater than 1.67
1000.1	* Ien_Sleep	nA	PASS		NA		NA	96.89160327	PASS	Cpk greater than 1.67
1000.2	Irt_Sleep	uA	PASS		NA		NA	129.4594802	PASS	Cpk greater than 1.67
1000.3	Iss_Sleep	uA	PASS		NA		NA	118.8077541	PASS	Cpk greater than 1.67
1000.4	Ictrl_Sleep	uA	PASS		NA		NA	144.4859785	PASS	Cpk greater than 1.67
1000.5	Iisp_Sleep	uA	PASS		NA		NA	120.9580407	PASS	Cpk greater than 1.67
1000.6	Iisn_Sleep	uA	PASS		NA		NA	112.1732901	PASS	Cpk greater than 1.67
1000.7	* Ipg_Sleep	nA	PASS		NA		NA	71.9406685	PASS	Cpk greater than 1.67
1000.8	Ibias_Sleep	uA	PASS		NA		NA	32.07801092	PASS	Cpk greater than 1.67
1000.9	Iintvcc_Sleep [INTVCC=4.0V]	uA	PASS		NA		NA	8.444700536	PASS	Cpk greater than 1.67
1000.12	Ibst_Sleep	uA	PASS		NA		NA	9.491193525	PASS	Cpk greater than 1.67
1000.13	* Ivin_Sleep_with_SYNC	mA	PASS		NA		NA	1.712123451	PASS	Cpk greater than 1.67
1100.0	Ivin_Sleep_ABS_MAX	uA	PASS		NA		NA	132.0112528	PASS	Cpk greater than 1.67
1100.1	Ien_Sleep_ABS_MAX	uA	PASS		NA		NA	269.0778074	PASS	Cpk greater than 1.67
1100.2	Iisp_Sleep_ABS_MAX	uA	PASS		NA		NA	236.8246535	PASS	Cpk greater than 1.67
1100.3	Iisn_Sleep_ABS_MAX	uA	PASS		NA		NA	239.2318041	PASS	Cpk greater than 1.67
1100.4	Ipg_Sleep_ABS_MAX	uA	PASS		NA		NA	381.7874018	PASS	Cpk greater than 1.67
1100.5	Imon_ABS_MAX	mA	PASS		NA		NA	178.4795931	PASS	Cpk greater than 1.67
1200	** Ivin_Shutdown	uA	PASS		NA		NA	8.410845038	PASS	Cpk greater than 1.67
1200.1	Irt_Shutdown	uA	PASS		NA		NA	128.917458	PASS	Cpk greater than 1.67
1200.2	Iss_Shutdown	mA	PASS		NA		NA	212.7771787	PASS	Cpk greater than 1.67
1200.3	* Isync_Shutdown	nA	PASS		NA		NA	234.4015557	PASS	Cpk greater than 1.67
1200.4	Ictrl_Shutdown	uA	PASS		NA		NA	135.4994657	PASS	Cpk greater than 1.67
1200.5	Imon_Shutdown	uA	PASS		NA		NA	126.1642995	PASS	Cpk greater than 1.67
1200.6	Iisn_Shutdown	uA	PASS		NA		NA	12.9980658	PASS	Cpk greater than 1.67
1200.7	Iisp_Shutdown	uA	PASS		NA		NA	13.31193768	PASS	Cpk greater than 1.67
1200.8	* Ifb_Shutdown	nA	PASS		NA		NA	91.24336906	PASS	Cpk greater than 1.67

1200.9	Ipg_Shutdown	mA	PASS		NA		NA	873.5931744	PASS	Cpk greater than 1.67
1200.1	Ibias_Shutdown	uA	PASS		NA		NA	37.49688292	PASS	Cpk greater than 1.67
1200.11	* SS_Pulldown_Resistance	Ohm	PASS		NA		NA	27.82937659	PASS	Cpk greater than 1.67
1200.12	** PG_Pulldown_Resistance	Ohm	PASS		NA		NA	33.42847863	PASS	Cpk greater than 1.67
1300	Ivin_Shutdown_ABS_MAX	uA	PASS		NA		NA	37.64671408	PASS	Cpk greater than 1.67
1300.1	Iss_Shutdown_ABS_MAX	mA	PASS		NA		NA	21.93653122	PASS	Cpk greater than 1.67
1300.2	Iisn_Shutdown_ABS_MAX	uA	PASS		NA		NA	192.5655036	PASS	Cpk greater than 1.67
1300.3	Iisp_Shutdown_ABS_MAX	uA	PASS		NA		NA	110.6758409	PASS	Cpk greater than 1.67
1300.4	Ipg_Shutdown_ABS_MAX	mA	PASS		NA		NA	13.33687285	PASS	Cpk greater than 1.67
1300.5	Ibias_Shutdown_ABS_MAX	uA	PASS		NA		NA	14.64426162	PASS	Cpk greater than 1.67
1300.6	Irt_Shutdown_ABS_MAX	uA	PASS		NA		NA	3.393251891	PASS	Cpk greater than 1.67
1400	* Top_FET_Isw	uA	PASS		NA		NA	54.41050752	PASS	Cpk greater than 1.67
1500	* Bot_FET_Leakage	uA	PASS		NA		NA	40.77441404	PASS	Cpk greater than 1.67
1500.1	Bot_FET_AbsMax_Leakage [Ibst]	uA	PASS		NA		NA	165.7842369	PASS	Cpk greater than 1.67
1600	** Regulation_Light_Load_Ivin@1mA	uA	PASS		NA		NA	7.949489752	PASS	Cpk greater than 1.67
1600.3	** Regulation_Light_Load_Ivin@100uA	uA	PASS		NA		NA	8.001612326	PASS	Cpk greater than 1.67
1600.7	Regulation_Light_Load_Ivin@1mA [Vout=7V]	uA	PASS		NA		NA	8.26056906	PASS	Cpk greater than 1.67
1600.8	Vout_1mA [Vout-7V]	V	PASS		NA		NA	18.87436839	PASS	Cpk greater than 1.67
2000	Freq with RT=48uA	KHz	PASS		NA		NA	8.579898462	PASS	Cpk greater than 1.67
2000.1	RegulationMode Sync=0V	V	PASS		NA		NA	5.280886329	PASS	Cpk greater than 1.67
2000.2	** SW_Min_Ontime Sync=0V	nS	PASS		NA		NA	5.864785175	PASS	Cpk greater than 1.67
2100	Freq with RT=48uA	KHz	PASS		NA		NA	8.566454452	PASS	Cpk greater than 1.67
2100.1	RegulationMode Sync=3.3V	V	PASS		NA		NA	4.186927733	PASS	Cpk greater than 1.67
2100.2	** SW_Min_Ontime Sync=3.3V	nS	PASS		NA		NA	3.907814522	PASS	Cpk greater than 1.67
2200	* TopRDSon [Vin-Vsw]	Ohm	PASS		NA		NA	5.454228828	PASS	Cpk greater than 1.67
2200.1	V_sw_out@1A before ramp [Debug only]	V	PASS		NA		NA	29.43994077	PASS	Cpk greater than 1.67
2200.2	Slop_Comp_Ilim	mA	PASS		NA		NA	7.083799193	PASS	Cpk greater than 1.67
2300	V_sw_out@1.5A before ramp [Debug only]	V	PASS		NA		NA	23.22281431	PASS	Cpk greater than 1.67
2300.1	** Top_I_Lim	mA	PASS		NA		NA	6.969662048	PASS	Cpk greater than 1.67
2300.2	Burst_I_Lim	mA	PASS		NA		NA	3.523547798	PASS	Cpk greater than 1.67
2300.3	SYNC_I_Lim	mA	PASS	3.155078418	PASS	0.679872354	PASS	1.36649608	NA	tightened limits
2400	Vout [0.6A load] @Vin=6V	V	PASS		NA		NA	15.81975636	PASS	Cpk greater than 1.67
2400.1	** Minimum Input VOltage [Min_Vin_UVLO]	V	PASS		NA		NA	10.62163012	PASS	Cpk greater than 1.67
2400.2	Vout [0.6A load] Drop	V	PASS	2.524365962	PASS	0.956122115	PASS	1.353366107	NA	tightened limits
2400.3	SW_Min_Ontime Sync=0V [Calc]	nS	PASS		NA		NA	18.69741397	PASS	Cpk greater than 1.67
2400.4	SW_Min_Ontime Sync=3V [Calc]	nS	PASS		NA		NA	11.45074552	PASS	Cpk greater than 1.67
2500	* BotRDSon [Pgnd-Vsw]	Ohm	PASS		NA		NA	8.066459992	PASS	Cpk greater than 1.67
2500.1	BST pin Voltage thru 1K	V	PASS		NA		NA	394.0361798	PASS	Cpk greater than 1.67
2500.2	Zero_cross_current	mA	PASS		NA		NA	3.564885673	PASS	Cpk greater than 1.67
2600	** DA_Current_Limit [Bot_I_Lim]	mA	PASS		NA		NA	3.102645322	PASS	Cpk greater than 1.67
2700	SW_Frequency	KHz	PASS		NA		NA	3.504118965	PASS	Cpk greater than 1.67
2700.1	* Min_Off_Time	nS	PASS		NA		NA	4.174989148	PASS	Cpk greater than 1.67
2700.2	W_duty_cycle	%	PASS		NA		NA	3.254608992	PASS	Cpk greater than 1.67
2700.3	Dropout Voltage	V	PASS		NA		NA	1.697502829	PASS	Cpk greater than 1.67
2800	* Vintvcc_0mA_no_bias	V	PASS		NA		NA	3.298146149	PASS	Cpk greater than 1.67
2800.1	Vintvcc_20mA_no_bias	V	PASS		NA		NA	14.26222138	PASS	Cpk greater than 1.67
2900	* Vintvcc_0mA_with_bias	V	PASS		NA		NA	6.344243422	PASS	Cpk greater than 1.67
2900.1	Vintvcc_20mA_with_bias	V	PASS		NA		NA	9.334347285	PASS	Cpk greater than 1.67
3000.1	Intvcc_Ilim_no_bias [Vccint=3V]	mA	PASS		NA		NA	10.0291581	PASS	Cpk greater than 1.67
3100.1	Intvcc_Ilim_ABSMAX_no_bias [Vccint=3V]	mA	PASS		NA		NA	6.770977539	PASS	Cpk greater than 1.67
3200.1	Intvcc_Ilim_with_bias [Vccint=3V]	mA	PASS		NA		NA	6.377839143	PASS	Cpk greater than 1.67
3300.1	Intvcc_Ilim_ABSMAX_with_bias [Vccint=3V]	mA	PASS		NA		NA	23.67274483	PASS	Cpk greater than 1.67
3400	Intvcc_BIAS_Threshold RampDown	V	PASS		NA		NA	3.445054684	PASS	Cpk greater than 1.67
3400.1	Intvcc_BIAS_Threshold RampUp	V	PASS		NA		NA	2.4896277	PASS	Cpk greater than 1.67
3400.2	Intvcc_BIAS_Threshold Hysteresis	V	PASS		NA		NA	335.2074529	PASS	Cpk greater than 1.67
3500	Intvcc_Vin_Threshold RampDown	V	PASS		NA		NA	9.463173646	PASS	Cpk greater than 1.67

3500.1	Intvcc_Vin_Threshold RampUp	V	PASS		NA		NA	9.207066264	PASS	Cpk greater than 1.67
3500.2	Intvcc_Vin_Threshold Hysteresis	V	PASS		NA		NA	699.2767495	PASS	Cpk greater than 1.67
3600	* Intvcc_UVLO_Threshold RampDown	V	PASS		NA		NA	4.855015526	PASS	Cpk greater than 1.67
3600.1	Intvcc_UVLO_Threshold RampUp	V	PASS		NA		NA	11.6303389	PASS	Cpk greater than 1.67
3600.2	Intvcc_UVLO_Threshold Hysteresis	V	PASS		NA		NA	54.73189904	PASS	Cpk greater than 1.67
4000	EN_Threshold RampDown	V	PASS		NA		NA	31.61489148	PASS	Cpk greater than 1.67
4000.1	** EN_Threshold RampUp	V	PASS		NA		NA	2.928357159	PASS	Cpk greater than 1.67
4000.2	* EN_Threshold Hysteresis	V	PASS		NA		NA	14.0128833	PASS	Cpk greater than 1.67
4100	PG_pin_Low_Threshold RampDown	V	PASS		NA		NA	28.65164085	PASS	Cpk greater than 1.67
4100.1	PG_pin_Low_Threshold RampUp	V	PASS		NA		NA	29.77398434	PASS	Cpk greater than 1.67
4100.2	* PG_pin_Low_Threshold Hysteresis	V	PASS		NA		NA	1581.439812	PASS	Cpk greater than 1.67
4100.3	* PG Lower Threshold Offset from VFB	%	PASS		NA		NA	2.201713275	PASS	Cpk greater than 1.67
4100.4	* PG Low Hysteresis	%	PASS		NA		NA	10.09511314	PASS	Cpk greater than 1.67
4200	PG_pin_High_Threshold RampDown	V	PASS		NA		NA	38.4777137	PASS	Cpk greater than 1.67
4200.1	PG_pin_High_Threshold RampUp	V	PASS		NA		NA	39.50515184	PASS	Cpk greater than 1.67
4200.2	* PG_pin_High_Threshold Hysteresis	V	PASS		NA		NA	1613.086262	PASS	Cpk greater than 1.67
4200.3	* PG Upper Threshold Offset from VFB	%	PASS		NA		NA	1.700980381	PASS	Cpk greater than 1.67
4200.4	* PG Hi Hysteresis	%	PASS		NA		NA	10.76543153	PASS	Cpk greater than 1.67
4300	* SYNC_Threshold RampDown	V	PASS		NA		NA	14.82540518	PASS	Cpk greater than 1.67
4300.1	* SYNC_Threshold RampUp	V	PASS		NA		NA	12.33066594	PASS	Cpk greater than 1.67
4300.2	SYN_Threshold Hysteresis	V	PASS		NA		NA	24.78855039	PASS	Cpk greater than 1.67
4500	Feedback Reference Voltage [Vin=12V, ILoad=0.5A]	V	PASS		NA		NA	29.82206684	PASS	Cpk greater than 1.67
4500.1	Reference Voltage [Vin=4V, ILoad=0.5A]	V	PASS		NA		NA	29.72085623	PASS	Cpk greater than 1.67
4500.2	Reference Voltage [Vin=40V, ILoad=0.5A]	V	PASS		NA		NA	29.7134784	PASS	Cpk greater than 1.67
4500.3	** Feedback Voltage Line Regulation	%/V	PASS		NA		NA	10.40277471	PASS	Cpk greater than 1.67
4500.4	Reference Voltage [Vin=12V, ILoad=0.1A]	V	PASS		NA		NA	29.38278608	PASS	Cpk greater than 1.67
4500.5	Reference Voltage [Vin=12V, ILoad=2.5A]	V	PASS		NA		NA	15.53733607	PASS	Cpk greater than 1.67
4500.6	Feedback Voltage Load Regulation	%	PASS		NA		NA	9.651334091	PASS	Cpk greater than 1.67
4800	* BIAS_pin_Current_Consumption	mA	PASS		NA		NA	16.17331086	PASS	Cpk greater than 1.67
4900	Regulating_with_SS	V	PASS		NA		NA	8.392816318	PASS	Cpk greater than 1.67
5000	** SS_Pin_Current	uA	PASS		NA		NA	4.428651916	PASS	Cpk greater than 1.67
5100	** Datasheet_Osc_High [Rt=18.2K]	KHz	PASS		NA		NA	2.120315028	PASS	Cpk greater than 1.67
5100.1	I_Vin_Rt18K	mA	PASS		NA		NA	95.91516372	PASS	Cpk greater than 1.67
5100.2	Vout_Rt18K	V	PASS		NA		NA	80.86484144	PASS	Cpk greater than 1.67
5100.3	Efficiency_Rt18K		PASS		NA		NA	18.75000852	PASS	Cpk greater than 1.67
5200	** Datasheet_Osc_Low [Rt=60.4K]	KHz	PASS		NA		NA	3.928105144	PASS	Cpk greater than 1.67
5200.1	I_Vin_Rt60K	mA	PASS		NA		NA	113.5695354	PASS	Cpk greater than 1.67
5200.2	Vout_Rt60K	V	PASS		NA		NA	80.30820346	PASS	Cpk greater than 1.67
5200.3	Efficiency_Rt60K		PASS		NA		NA	16.09326497	PASS	Cpk greater than 1.67
5300	SYNC_Frequency [Sync=1MHz]	KHz	PASS		NA		NA	277.8556431	PASS	Cpk greater than 1.67
5300.1	SYNC_Frequency [Sync=2.2MHz]	KHz	PASS		NA		NA	190.5260783	PASS	Cpk greater than 1.67
5300.2	SYNC_Frequency [Sync=200KHz]	KHz	PASS		NA		NA	5053.042931	PASS	Cpk greater than 1.67
5400	** Datasheet_Osc_Low [Rt=221K]	KHz	PASS		NA		NA	4.365517537	PASS	Cpk greater than 1.67
5400.1	Osc_Low [Rt=3.8uA]	KHz	PASS		NA		NA	19.55861526	PASS	Cpk greater than 1.67
5400.2	Osc_Med_Hi [Rt=24uA]	KHz	PASS		NA		NA	4.200735536	PASS	Cpk greater than 1.67
5400.3	Rt_Voltage_Hi [Rt=18.2K//60.4K=13.986K]	V	PASS		NA		NA	26.49412206	PASS	Cpk greater than 1.67
5400.4	Rt_Voltage_Hi + 13.986K*0.024uA [Calc]	V	PASS		NA		NA	19.26020413	PASS	Cpk greater than 1.67
5500	Frequency_Foldback	KHz	PASS		NA		NA	3.629584601	PASS	Cpk greater than 1.67
5500.1	Rt_Voltage_Lo [Rt=18.2K//60.4K=13.986K]	V	PASS		NA		NA	25.93971996	PASS	Cpk greater than 1.67
5500.2	Rt_Voltage_Lo + 13.986K*0.024uA [Calc]	V	PASS		NA		NA	18.84498423	PASS	Cpk greater than 1.67
5600	SS_Threshold_to_stop_charging	V	PASS		NA		NA	17.28364008	PASS	Cpk greater than 1.67
5700	PG_High_SW_Pulldown_Current	mA	PASS		NA		NA	14.82751615	PASS	Cpk greater than 1.67
5800	SW voltage [BST=10V]	V	PASS		NA		NA	34.41726994	PASS	Cpk greater than 1.67
5800.1	BST voltage part switching	V	PASS		NA		NA	8.665934469	PASS	Cpk greater than 1.67
5800.2	BST_OK_Threshold [BST-SW]	V	PASS		NA		NA	4.586420039	PASS	Cpk greater than 1.67
6900	** IMON ABS MAX CM [ISP-ISN=50mV]	V	PASS		NA		NA	10.27838242	PASS	Cpk greater than 1.67

6900.1	** IMON ABS MAX CM [ISP-ISN=10mV]	V	PASS		NA		NA	5.140779549	PASS	Cpk greater than 1.67
6900.2	** IMON ABS MAX CM [ISP-ISN=0mV]	V	PASS		NA		NA	8.396377277	PASS	Cpk greater than 1.67
6900.3	** Isense Voltage ABS MAX CM [CTRL=0.2V]	mV	PASS		NA		NA	4.120430981	PASS	Cpk greater than 1.67
6900.4	** Isense Voltage ABS MAX CM [CTRL=0.8V]	mV	PASS		NA		NA	5.679165461	PASS	Cpk greater than 1.67
6900.5	** Isense Voltage ABS MAX CM [CTRL=1.5V]	mV	PASS		NA		NA	9.070376451	PASS	Cpk greater than 1.67
7000	Vout Current [Rsen=50mOhm] [Ctrl=0.2V]	mA	PASS		NA		NA	6.985706005	PASS	Cpk greater than 1.67
7000.1	Vout Current [Rsen=50mOhm] [Ctrl=0.8V]	mA	PASS	2.115389547	PASS	0.624689729	PASS	0.833650278	NA	tightened limits
7000.2	Vout Current [Rsen=50mOhm] [Ctrl=1.5V]	mA	PASS		NA		NA	9.38626567	PASS	Cpk greater than 1.67
7000.3	** Isense Voltage High CM [Ctrl=0.2V ISP_RampDn]	mV	PASS		NA		NA	3.428680811	PASS	Cpk greater than 1.67
7000.4	** Isense Voltage High CM [Ctrl=0.8V ISP_RampDn]	mV	PASS		NA		NA	3.924894988	PASS	Cpk greater than 1.67
7000.5	** Isense Voltage High CM [Ctrl=1.5V ISP_RampDn]	mV	PASS		NA		NA	2.297003114	PASS	Cpk greater than 1.67
7000.7	** IMON High CM [ISN=3.3V,ISP=3.35V]	V	PASS		NA		NA	2.104437011	PASS	Cpk greater than 1.67
7000.8	** IMON High CM [ISN=3.3V,ISP=3.31V]	V	PASS		NA		NA	3.157830107	PASS	Cpk greater than 1.67
7000.9	IMON High CM [ISN=3.3V,ISP=3.3V]	V	PASS		NA		NA	7.502909177	PASS	Cpk greater than 1.67
7000.1	IMON Source Current [ISP-ISN=50mV]	mA	PASS		NA		NA	24.68044754	PASS	Cpk greater than 1.67
7000.11	IMON Sink Current [ISP-ISN=50mV]	mA	PASS		NA		NA	24.71721626	PASS	Cpk greater than 1.67
7000.12	IMON Source Current [ISP-ISN=10mV]	mA	PASS		NA		NA	8.280094158	PASS	Cpk greater than 1.67
7000.13	IMON Sink Current [ISP-ISN=10mV]	mA	PASS		NA		NA	8.261085163	PASS	Cpk greater than 1.67
7000.14	Vout Current [Rsen=50mOhm] [Ctrl=0.2V]	mA	PASS		NA		NA	3.354886602	PASS	Cpk greater than 1.67
7000.17	** Isense Voltage Low CM [Ctrl=0.2V ISP_RampDn]	mV	PASS		NA		NA	3.729602767	PASS	Cpk greater than 1.67
7000.18	** Isense Voltage Low CM [Ctrl=0.8V ISP_RampDn]	mV	PASS		NA		NA	2.919266778	PASS	Cpk greater than 1.67
7000.19	** Isense Voltage Low CM [Ctrl=1.5V ISP_RampDn]	mV	PASS		NA		NA	2.649329805	PASS	Cpk greater than 1.67
7000.21	** IMON Lo CM [ISN=0V,ISP=50mV]	V	PASS		NA		NA	2.519549435	PASS	Cpk greater than 1.67
7000.22	** IMON Lo CM [ISN=0V,ISP=10mV]	V	PASS		NA		NA	4.287492124	PASS	Cpk greater than 1.67
7000.23	IMON Lo CM [ISN=0V,ISP= 0mV]	V	PASS		NA		NA	11.26652808	PASS	Cpk greater than 1.67
7000.24	* CTRL pin Current [CTRL=1.5V]	uA	PASS		NA		NA	4.671729874	PASS	Cpk greater than 1.67
7000.25	** ISN Current 0mVsen High CM	uA	PASS		NA		NA	17.11288906	PASS	Cpk greater than 1.67
7000.26	** ISP Current 0mVsen High CM	uA	PASS		NA		NA	72.34623552	PASS	Cpk greater than 1.67
7000.27	** ISN Current 50mVsen High CM	uA	PASS		NA		NA	5.098019624	PASS	Cpk greater than 1.67
7000.28	** ISP Current 50mVsen High CM	uA	PASS		NA		NA	10.56069911	PASS	Cpk greater than 1.67
7000.29	** ISN Current 0mVsen Low CM	uA	PASS		NA		NA	71.06155985	PASS	Cpk greater than 1.67
7000.3	** ISP Current 0mVsen Low CM	uA	PASS		NA		NA	1328.289903	PASS	Cpk greater than 1.67
7000.31	** ISN Current 50mVsen Low CM	uA	PASS		NA		NA	28.08030741	PASS	Cpk greater than 1.67
7000.32	** ISP Current 50mVsen Low CM	uA	PASS		NA		NA	1478.642546	PASS	Cpk greater than 1.67
7000.36	Com Mode Thresholds ISN&ISP RampUp	V	PASS		NA		NA	14.19200568	PASS	Cpk greater than 1.67
7000.37	Com Mode Thresholds ISN&ISP RampDn	V	PASS		NA		NA	10.33234767	PASS	Cpk greater than 1.67
7000.38	Com Mode Thresholds_Hyst	V	PASS		NA		NA	18.45084617	PASS	Cpk greater than 1.67
9000	VCC_cont Damage Check	V	PASS		NA		NA	21.6656741	PASS	Cpk greater than 1.67
9000.1	VIN_cont Danage Check	V	PASS		NA		NA	27.10613713	PASS	Cpk greater than 1.67
9000.2	SW_cont Damage Check	V	PASS		NA		NA	6.651117145	PASS	Cpk greater than 1.67
9000.3	Vin_current Damage Check	uA	PASS		NA		NA	63.85132154	PASS	Cpk greater than 1.67
9000.4	Vbst_leakage Damage Check	uA	PASS		NA		NA	39.14480897	PASS	Cpk greater than 1.67
9000.5	Vcc_leakage Damage Check	uA	PASS		NA		NA	3.001667157	PASS	Cpk greater than 1.67

LT8611_-40C_QA Analysis Data View Report

Test Number	Test Name	Units	Overall Correlation Result	Mean Diff%	Mean diff <5% limit range	Stdv Ratio	Sigma Spread Criteria <1.3	CpK	Cpk >1.67	Annotations
10	VCC_cont	V	PASS		N/A		N/A	47.3554444	PASS	
10.1	VIN_cont	V	PASS		N/A		N/A	48.13570841	PASS	
10.2	SW_cont	V	PASS		N/A		N/A	14.21105131	PASS	
10.3	EN_cont	V	PASS		N/A		N/A	29.55280177	PASS	
10.8	SYNC_cont	V	PASS		N/A		N/A	16.0422588	PASS	
10.1	SS_cont	V	PASS		N/A		N/A	23.7589948	PASS	
10.12	RT_cont [18.2K to APU]	V	PASS		N/A		N/A	221.9725064	PASS	
10.13	PG_cont	V	PASS		N/A		N/A	39.78594944	PASS	
10.15	FB_cont	V	PASS		N/A		N/A	16.48141508	PASS	
10.17	BST_cont	V	PASS		N/A		N/A	80.6006564	PASS	
10.19	BIAS_cont	V	PASS		N/A		N/A	37.54005361	PASS	
10.21	IMON_cont	V	PASS		N/A		N/A	14.31651201	PASS	
10.23	CTRL_cont	V	PASS		N/A		N/A	15.90484181	PASS	
10.25	ISN_cont	V	PASS		N/A		N/A	32.93284395	PASS	
10.27	ISP_cont	V	PASS		N/A		N/A	38.92906001	PASS	
10.29	NC_cont	MOhm	PASS		N/A		N/A	793.5909058	PASS	
940	Vref_Trim_Check [Open Loop]	V	PASS		N/A		N/A	2.683925049	PASS	
950	** Post-BURN Vout [0.970V] Vin=6V	V	PASS		N/A		N/A	2.071687261	PASS	
950.1	Post-BURN Vout [0.970V] Vin=40V	V	PASS		N/A		N/A	3.037651952	PASS	
950.2	Post-BURN OSCF	KHz	PASS		N/A		N/A	5.34667494	PASS	
950.3	Post-BURN ILIM	mA	PASS		N/A		N/A	4.701430546	PASS	
950.4	Post-BURN V_IMON	V	PASS		N/A		N/A	5.621620732	PASS	
950.6	Vref_Trim_Check [Open Loop] [From T940.0]	V	PASS		N/A		N/A	2.866926646	PASS	
950.7	Delta_of_Vref [T940.0-T950.0]	mV	PASS		N/A		N/A	6.859592604	PASS	
1000	** Ivin_Sleep	uA	PASS		N/A		N/A	6.193351491	PASS	
1000.1	* Ien_Sleep	nA	PASS		N/A		N/A	219.8346893	PASS	
1000.2	Irt_Sleep	uA	PASS		N/A		N/A	135.5088768	PASS	
1000.3	Iss_Sleep	uA	PASS		N/A		N/A	120.6736881	PASS	
1000.4	Ictrl_Sleep	uA	PASS		N/A		N/A	137.4244114	PASS	
1000.5	Iisp_Sleep	uA	PASS		N/A		N/A	112.1747006	PASS	
1000.6	Iisn_Sleep	uA	PASS		N/A		N/A	110.5546318	PASS	
1000.7	* Ipg_Sleep	nA	PASS		N/A		N/A	50.88851383	PASS	
1000.8	Ibias_Sleep	uA	PASS		N/A		N/A	37.07110563	PASS	
1000.9	Iintvcc_Sleep [INTVCC=4.0V]	uA	PASS		N/A		N/A	10.09099819	PASS	
1000.12	Ibst_Sleep	uA	PASS		N/A		N/A	16.94868963	PASS	
1000.13	* Ivin_Sleep_with_SYNC	mA	PASS	1.621846286	PASS	0.981383917	PASS	1.305045722	N/A	
1100	Ivin_Sleep_ABS_MAX	uA	PASS		N/A		N/A	154.9537706	PASS	
1100.1	Ien_Sleep_ABS_MAX	uA	PASS		N/A		N/A	253.9415392	PASS	
1100.2	Iisp_Sleep_ABS_MAX	uA	PASS		N/A		N/A	232.5703257	PASS	
1100.3	Iisn_Sleep_ABS_MAX	uA	PASS		N/A		N/A	253.5599545	PASS	
1100.4	Ipg_Sleep_ABS_MAX	uA	PASS		N/A		N/A	387.3663653	PASS	
1100.5	Imon_ABS_MAX	mA	PASS		N/A		N/A	167.7177395	PASS	
1200	** Ivin_Shutdown	uA	PASS		N/A		N/A	5.954247028	PASS	
1200.1	Irt_Shutdown	uA	PASS		N/A		N/A	141.8806681	PASS	
1200.2	Iss_Shutdown	mA	PASS		N/A		N/A	163.3492153	PASS	
1200.3	* Isync_Shutdown	nA	PASS		N/A		N/A	493.4505269	PASS	
1200.4	Ictrl_Shutdown	uA	PASS		N/A		N/A	131.9083388	PASS	
1200.5	Imon_Shutdown	uA	PASS		N/A		N/A	89.05602	PASS	
1200.6	Iisn_Shutdown	uA	PASS		N/A		N/A	12.40135501	PASS	
1200.7	Iisp_Shutdown	uA	PASS		N/A		N/A	14.074842	PASS	
1200.8	* Ifb_Shutdown	nA	PASS		N/A		N/A	124.9428224	PASS	
1200.9	Ipg_Shutdown	mA	PASS		N/A		N/A	493.397587	PASS	
1200.1	Ibias_Shutdown	uA	PASS		N/A		N/A	40.0177361	PASS	
1200.11	* SS_Pulldown_Resistance	Ohm	PASS		N/A		N/A	29.96741478	PASS	

1200.12	** PG_Pulldown_Resistance	Ohm	PASS		N/A		N/A	24.05171697	PASS	
1300	Ivin_Shutdown_ABS_MAX	uA	PASS		N/A		N/A	49.532422	PASS	
1300.1	Iss_Shutdown_ABS_MAX	mA	PASS		N/A		N/A	23.65583948	PASS	
1300.2	Iisn_Shutdown_ABS_MAX	uA	PASS		N/A		N/A	136.7085433	PASS	
1300.3	Iisp_Shutdown_ABS_MAX	uA	PASS		N/A		N/A	100.3887731	PASS	
1300.4	Ipg_Shutdown_ABS_MAX	mA	PASS		N/A		N/A	6.246849101	PASS	
1300.5	Ibias_Shutdown_ABS_MAX	uA	PASS		N/A		N/A	12.90165571	PASS	
1300.6	Irt_Shutdown_ABS_MAX	uA	PASS		N/A		N/A	5.054116991	PASS	
1400	* Top_FET_Isw	uA	PASS		N/A		N/A	69.00201208	PASS	
1500	* Bot_FET_Leakage	uA	PASS		N/A		N/A	55.33808364	PASS	
1500.1	Bot_FET_AbsMax_Leakage [Ibst]	uA	PASS		N/A		N/A	166.2310879	PASS	
1600	** Regulation_Light_Load_Ivin@1mA	uA	PASS		N/A		N/A	2.005816047	PASS	
1600.3	** Regulation_Light_Load_Ivin@100uA	uA	PASS		N/A		N/A	3.17292849	PASS	
1600.7	Regulation_Light_Load_Ivin@1mA [Vout=7V]	uA	PASS		N/A		N/A	2.373631883	PASS	
1600.8	Vout_1mA [Vout-7V]	V	PASS		N/A		N/A	20.73366558	PASS	
2000	Freq with RT=48uA	KHz	PASS		N/A		N/A	9.534816115	PASS	
2000.1	RegulationMode Sync=0V	V	PASS		N/A		N/A	6.354202163	PASS	
2000.2	** SW_Min_Ontime Sync=0V	nS	PASS		N/A		N/A	2.371763379	PASS	
2100	Freq with RT=48uA	KHz	PASS		N/A		N/A	9.52239964	PASS	
2100.1	RegulationMode Sync=3.3V	V	PASS		N/A		N/A	6.56069803	PASS	
2100.2	** SW_Min_Ontime Sync=3.3V	nS	PASS		N/A		N/A	4.795987651	PASS	
2200	* TopRDSon [Vin-Vsw]	Ohm	PASS		N/A		N/A	3.249703362	PASS	
2200.1	V_sw_out@1A before ramp [Debug only]	V	PASS		N/A		N/A	37.21269867	PASS	
2200.2	Slop_Comp_Ilim	mA	PASS		N/A		N/A	5.956091449	PASS	
2300	V_sw_out@1.5A before ramp [Debug only]	V	PASS		N/A		N/A	17.16699372	PASS	
2300.1	** Top_I_Lim	mA	PASS		N/A		N/A	3.971375525	PASS	
2300.2	Burst_I_Lim	mA	PASS		N/A		N/A	1.804998173	PASS	
2300.3	SYNC_I_Lim	mA	PASS		N/A		N/A	8.037436692	PASS	
2400	Vout [0.6A load] @Vin=6V	V	PASS		N/A		N/A	11.3308567	PASS	
2400.1	** Minimum Input VOltage [Min_Vin_UVLO]	V	PASS		N/A		N/A	3.206094461	PASS	
2400.2	Vout [0.6A load] Drop	V	PASS	3.64791463	PASS	1.027102425	PASS	0.785243475	N/A	
2400.3	SW_Min_Ontime Sync=0V [Calc]	nS	PASS		N/A		N/A	14.14854278	PASS	
2400.4	SW_Min_Ontime Sync=3V [Calc]	nS	PASS		N/A		N/A	15.02733203	PASS	
2500	* BotRDSon [Pgnd-Vsw]	Ohm	PASS		N/A		N/A	3.277571204	PASS	
2500.1	BST pin Voltage thru 1K	V	PASS		N/A		N/A	294.5417104	PASS	
2500.2	Zero_cross_current	mA	PASS		N/A		N/A	2.070723166	PASS	
2600	** DA_Current_Limit [Bot_I_Lim]	mA	PASS	1.191520594	PASS	1.056133794	PASS	1.201615638	N/A	
2700	SW_Frequency	KHz	PASS		N/A		N/A	2.406890704	PASS	
2700.1	* Min_Off_Time	nS	PASS		N/A		N/A	3.642286348	PASS	
2700.2	W_duty_cycle	%	PASS		N/A		N/A	2.629750922	PASS	
2700.3	Dropout Voltage	V	PASS		N/A		N/A	2.986270354	PASS	
2800	* Vintvcc_0mA_no_bias	V	PASS		N/A		N/A	3.306412293	PASS	
2800.1	Vintvcc_20mA_no_bias	V	PASS		N/A		N/A	22.70527675	PASS	
2900	* Vintvcc_0mA_with_bias	V	PASS		N/A		N/A	14.30519681	PASS	
2900.1	Vintvcc_20mA_with_bias	V	PASS		N/A		N/A	9.022710886	PASS	
3000.1	Intvcc_Ilim_no_bias [Vccint=3V]	mA	PASS		N/A		N/A	12.35429383	PASS	
3100.1	Intvcc_Ilim_ABSMAX_no_bias [Vccint=3V]	mA	PASS		N/A		N/A	7.129841702	PASS	
3200.1	Intvcc_Ilim_with_bias [Vccint=3V]	mA	PASS		N/A		N/A	7.342985575	PASS	
3300.1	Intvcc_Ilim_ABSMAX_with_bias [Vccint=3V]	mA	PASS		N/A		N/A	18.4684145	PASS	
3400	Intvcc_BIAS_Threshold RampDown	V	PASS		N/A		N/A	4.231665205	PASS	
3400.1	Intvcc_BIAS_Threshold RampUp	V	PASS		N/A		N/A	2.646550459	PASS	
3400.2	Intvcc_BIAS_Threshold Hysteresis	V	PASS		N/A		N/A	280.1459868	PASS	
3500	Intvcc_Vin_Threshold RampDown	V	PASS		N/A		N/A	7.599877641	PASS	
3500.1	Intvcc_Vin_Threshold RampUp	V	PASS		N/A		N/A	7.077784857	PASS	
3500.2	Intvcc_Vin_Threshold Hysteresis	V	PASS		N/A		N/A	936.563655	PASS	
3600	* Intvcc_UVLO_Threshold RampDown	V	PASS		N/A		N/A	2.517287255	PASS	
3600.1	Intvcc_UVLO_Threshold RampUp	V	PASS		N/A		N/A	8.036863254	PASS	
3600.2	Intvcc_UVLO_Threshold Hysteresis	V	PASS		N/A		N/A	50.05394006	PASS	
4000	EN_Threshold RampDown	V	PASS		N/A		N/A	30.55638413	PASS	

4000.1	** EN_Threshold RampUp	V	PASS		N/A		N/A	3.153753163	PASS	
4000.2	* EN_Threshold Hysteresis	V	PASS		N/A		N/A	11.25959282	PASS	
4100	PG_pin_Low_Threshold RampDown	V	PASS		N/A		N/A	28.05050612	PASS	
4100.1	PG_pin_Low_Threshold RampUp	V	PASS		N/A		N/A	29.21149432	PASS	
4100.2	* PG_pin_Low_Threshold Hysteresis	V	PASS		N/A		N/A	1147.736224	PASS	
4100.3	* PG Lower Threshold Offset from VFB	%	PASS		N/A		N/A	1.912047142	PASS	
4100.4	* PG Low Hysteresis	%	PASS		N/A		N/A	8.12841587	PASS	
4200	PG_pin_High_Threshold RampDown	V	PASS		N/A		N/A	40.77059208	PASS	
4200.1	PG_pin_High_Threshold RampUp	V	PASS		N/A		N/A	41.46706291	PASS	
4200.2	* PG_pin_High_Threshold Hysteresis	V	PASS		N/A		N/A	1276.242225	PASS	
4200.3	* PG Upper Threshold Offset from VFB	%	PASS		N/A		N/A	1.724937041	PASS	
4200.4	* PG Hi Hysteresis	%	PASS		N/A		N/A	8.81228132	PASS	
4300	* SYNC_Threshold RampDown	V	PASS		N/A		N/A	14.64235933	PASS	
4300.1	* SYNC_Threshold RampUp	V	PASS		N/A		N/A	10.66399327	PASS	
4300.2	SYN_Threshold Hysteresis	V	PASS		N/A		N/A	20.75576504	PASS	
4500	Feedback Reference Voltage [Vin=12V, ILoad=0.5A]	V	PASS		N/A		N/A	32.61493787	PASS	
4500.1	Reference Voltage [Vin=4V, ILoad=0.5A]	V	PASS		N/A		N/A	32.02738736	PASS	
4500.2	Reference Voltage [Vin=40V, ILoad=0.5A]	V	PASS		N/A		N/A	32.19429133	PASS	
4500.3	** Feedback Voltage Line Regulation	%/V	PASS		N/A		N/A	10.97785893	PASS	
4500.4	Reference Voltage [Vin=12V, ILoad=0.1A]	V	PASS		N/A		N/A	32.12067816	PASS	
4500.5	Reference Voltage [Vin=12V, ILoad=2.5A]	V	PASS		N/A		N/A	22.47560271	PASS	
4500.6	Feedback Voltage Load Regulation	%	PASS		N/A		N/A	18.68951082	PASS	
4800	* BIAS_pin_Current_Consumption	mA	PASS		N/A		N/A	14.747264	PASS	
4900	Regulating_with_SS	V	PASS		N/A		N/A	7.797699709	PASS	
5000	** SS_Pin_Current	uA	PASS		N/A		N/A	3.603761239	PASS	
5100	** Datasheet_Osc_High [Rt=18.2K]	KHz	PASS		N/A		N/A	2.164836709	PASS	
5100.1	I_Vin_Rt18K	mA	PASS		N/A		N/A	118.151124	PASS	
5100.2	Vout_Rt18K	V	PASS		N/A		N/A	57.0278549	PASS	
5100.3	Efficiency_Rt18K		PASS		N/A		N/A	10.01352015	PASS	
5200	** Datasheet_Osc_Low [Rt=60.4K]	KHz	PASS		N/A		N/A	3.889197909	PASS	
5200.1	I_Vin_Rt60K	mA	PASS		N/A		N/A	112.4514488	PASS	
5200.2	Vout_Rt60K	V	PASS		N/A		N/A	57.00522677	PASS	
5200.3	Efficiency_Rt60K		PASS		N/A		N/A	7.810263022	PASS	
5300	SYNC_Frequency [Sync=1MHz]	KHz	PASS		N/A		N/A	282.998486	PASS	
5300.1	SYNC_Frequency [Sync=2.2MHz]	KHz	PASS		N/A		N/A	156.4127888	PASS	
5300.2	SYNC_Frequency [Sync=200KHz]	KHz	PASS		N/A		N/A	1466.674751	PASS	
5400	** Datasheet_Osc_Low [Rt=221K]	KHz	PASS		N/A		N/A	2.39600072	PASS	
5400.1	Osc_Low [Rt=3.8uA]	KHz	PASS		N/A		N/A	12.31762004	PASS	
5400.2	Osc_Med_Hi [Rt=24uA]	KHz	PASS		N/A		N/A	5.349672728	PASS	
5400.3	Rt_Voltage_Hi [Rt=18.2K//60.4K=13.986K]	V	PASS		N/A		N/A	25.93269498	PASS	
5400.4	Rt_Voltage_Hi + 13.986K*0.024uA [Calc]	V	PASS		N/A		N/A	19.10928864	PASS	
5500	Frequency_Foldback	KHz	PASS		N/A		N/A	2.903794718	PASS	
5500.1	Rt_Voltage_Lo [Rt=18.2K//60.4K=13.986K]	V	PASS		N/A		N/A	25.14836067	PASS	
5500.2	Rt_Voltage_Lo + 13.986K*0.024uA [Calc]	V	PASS		N/A		N/A	18.62539318	PASS	
5600	SS_Threshold_to_stop_charging	V	PASS		N/A		N/A	28.45734584	PASS	
5700	PG_High_SW_Pulldown_Current	mA	PASS		N/A		N/A	18.50615457	PASS	
5800	SW voltage [BST=10V]	V	PASS		N/A		N/A	35.29251706	PASS	
5800.1	BST voltage part switching	V	PASS		N/A		N/A	25.13255494	PASS	
5800.2	BST_OK_Threshold [BST-SW]	V	PASS		N/A		N/A	11.7416352	PASS	
6900	** IMON ABS MAX CM [ISP-ISN=50mV]	V	PASS		N/A		N/A	11.00288466	PASS	
6900.1	** IMON ABS MAX CM [ISP-ISN=10mV]	V	PASS		N/A		N/A	4.31766726	PASS	
6900.2	** IMON ABS MAX CM [ISP-ISN=0mV]	V	PASS		N/A		N/A	3.157551705	PASS	
6900.3	** Isense Voltage ABS MAX CM [CTRL=0.2V]	mV	PASS		N/A		N/A	3.5439596	PASS	
6900.4	** Isense Voltage ABS MAX CM [CTRL=0.8V]	mV	PASS		N/A		N/A	5.895484274	PASS	
6900.5	** Isense Voltage ABS MAX CM [CTRL=1.5V]	mV	PASS		N/A		N/A	10.05791972	PASS	
7000	Vout Current [Rsen=50mOhm] [Ctrl=0.2V]	mA	PASS		N/A		N/A	5.053964883	PASS	
7000.1	Vout Current [Rsen=50mOhm] [Ctrl=0.8V]	mA	PASS	3.698532452	PASS	1.170491404	PASS	0.694390295	N/A	
7000.2	Vout Current [Rsen=50mOhm] [Ctrl=1.5V]	mA	PASS		N/A		N/A	10.15845696	PASS	
7000.3	** Isense Voltage High CM [Ctrl=0.2V ISP_RampDn]	mV	PASS		N/A		N/A	2.591112515	PASS	

7000.4	** Isense Voltage High CM [Ctrl=0.8V ISP_RampDn]	mV	PASS		N/A		N/A	2.889629202	PASS	
7000.5	** Isense Voltage High CM [Ctrl=1.5V ISP_RampDn]	mV	PASS		N/A		N/A	1.867985179	PASS	
7000.7	** IMON High CM [ISN=3.3V,ISP=3.35V]	V	PASS		N/A		N/A	2.169678675	PASS	
7000.8	** IMON High CM [ISN=3.3V,ISP=3.31V]	V	PASS		N/A		N/A	2.487348776	PASS	
7000.9	IMON High CM [ISN=3.3V,ISP=3.3V]	V	PASS		N/A		N/A	3.476167	PASS	
7000.1	IMON Source Current [ISP-ISN=50mV]	mA	PASS		N/A		N/A	2.693619563	PASS	
7000.11	IMON Sink Current [ISP-ISN=50mV]	mA	PASS		N/A		N/A	3.286718931	PASS	
7000.12	IMON Source Current [ISP-ISN=10mV]	mA	PASS		N/A		N/A	5.744644897	PASS	
7000.13	IMON Sink Current [ISP-ISN=10mV]	mA	PASS		N/A		N/A	5.721383481	PASS	
7000.14	Vout Current [Rsen=50mOhm] [Ctrl=0.2V]	mA	PASS		N/A		N/A	2.641039502	PASS	
7000.17	** Isense Voltage Low CM [Ctrl=0.2V ISP_RampDn]	mV	PASS		N/A		N/A	3.799892	PASS	
7000.18	** Isense Voltage Low CM [Ctrl=0.8V ISP_RampDn]	mV	PASS		N/A		N/A	2.409934488	PASS	
7000.19	** Isense Voltage Low CM [Ctrl=1.5V ISP_RampDn]	mV	PASS		N/A		N/A	2.017968901	PASS	
7000.21	** IMON Lo CM [ISN=0V,ISP=50mV]	V	PASS		N/A		N/A	2.243488283	PASS	
7000.22	** IMON Lo CM [ISN=0V,ISP=10mV]	V	PASS		N/A		N/A	4.082852081	PASS	
7000.23	IMON Lo CM [ISN=0V,ISP= 0mV]	V	PASS		N/A		N/A	7.462044913	PASS	
7000.24	* CTRL pin Current [CTRL=1.5V]	uA	PASS		N/A		N/A	3.531423432	PASS	
7000.25	** ISN Current 0mVsen High CM	uA	PASS		N/A		N/A	19.18554719	PASS	
7000.26	** ISP Current 0mVsen High CM	uA	PASS		N/A		N/A	84.47092797	PASS	
7000.27	** ISN Current 50mVsen High CM	uA	PASS		N/A		N/A	4.27465034	PASS	
7000.28	** ISP Current 50mVsen High CM	uA	PASS		N/A		N/A	12.99998494	PASS	
7000.29	** ISN Current 0mVsen Low CM	uA	PASS		N/A		N/A	85.46741152	PASS	
7000.3	** ISP Current 0mVsen Low CM	uA	PASS		N/A		N/A	1305.528519	PASS	
7000.31	** ISN Current 50mVsen Low CM	uA	PASS		N/A		N/A	23.16442155	PASS	
7000.32	** ISP Current 50mVsen Low CM	uA	PASS		N/A		N/A	747.039071	PASS	
7000.36	Com Mode Thresholds ISN&ISP RampUp	V	PASS		N/A		N/A	10.40696617	PASS	
7000.37	Com Mode Thresholds ISN&ISP RampDn	V	PASS		N/A		N/A	7.422052489	PASS	
7000.38	Com Mode Thresholds_Hyst	V	PASS		N/A		N/A	24.13861959	PASS	
9000	VCC_cont Damage Check	V	PASS		N/A		N/A	53.96445379	PASS	
9000.1	VIN_cont Danage Check	V	PASS		N/A		N/A	54.2448282	PASS	
9000.2	SW_cont Damage Check	V	PASS		N/A		N/A	13.22961488	PASS	
9000.3	Vin_current Damage Check	uA	PASS		N/A		N/A	4.852185179	PASS	
9000.4	Vbst_leakage Damage Check	uA	PASS		N/A		N/A	39.97893108	PASS	
9000.5	Vcc_leakage Damage Check	uA	PASS		N/A		N/A	4.481396967	PASS	

ADSG To UTL Test Transfer Correlation Report For LT8614

PRODUCT INFORMATION

Part Name	LT8614
Package	QFN3x4
Lead Count	18
Description	42V, 4A Synchronous Step-Down Silent Switcher with 2.5µA Quiescent Current

PRODUCT TEST SITE TRANSFER CORRELATION

SETUP INFORMATION

Test Site	Tester ID	Handler ID	BOARD ID	CONTACTOR ID 1	CONTACTOR ID 2
ADSG	ETS364B	RASCO1000	LT8614 DIB#2	JTI D#9037	JTI D#9037
UTL	ETS364B	RASCO1000	LT8614 DIB#2	JTI D#9037	JTI D#9037

SUMMARY OF TEST RESULTS

Test all good units in ATE-Handler setup through three test temperatures

Test Site	Program	Temp	Lot ID	Qty In	Qty Out
ADSG	LT8614_03	25C	1012692.1	310	310
UTL	LT8614_03	25C	1012692.1	310	310

Test Site	Program	Temp	Lot ID	Qty In	Qty Out
ADSG	LT8614_03	125C	1012692.1	310	310
UTL	LT8614_03	125C	1012692.1	310	310

Test Site	Program	Temp	Lot ID	Qty In	Qty Out
ADSG	LT8614_03	-40C	1012692.1	310	310
UTL	LT8614_03	-40C	1012692.1	310	310

CORRELATION RESULT

Test Flow	Number of Test	Result
25C Ambient	153	all passed
125C HOT temp	153	all passed
-40C Cold temp	153	all passed

LT8614_25C Analysis Data View Report

Test Number	Test Name	Units	Overall Correlation Result	Mean Diff	Mean diff <5% limit range	Stdv Ratio	Sigma Spread Criteria <1.3	Cpk Result	Cpk >1.67	Comments
20.0	VCC_cont	V	PASS		NA		NA	106.6299165	PASS	CpK greater than 1.67
20.1	VIN_cont	V	PASS		NA		NA	108.7498268	PASS	CpK greater than 1.67
20.2	SW_cont	V	PASS		NA		NA	12.23424169	PASS	CpK greater than 1.67
20.3	EN_cont @-100uA	V	PASS		NA		NA	96.10203563	PASS	CpK greater than 1.67
20.4	SYNC_cont	V	PASS		NA		NA	31.9173075	PASS	CpK greater than 1.67
20.5	SS_cont	V	PASS		NA		NA	39.20374345	PASS	CpK greater than 1.67
20.6	RT_cont [18.2K to APU]	V	PASS		NA		NA	259.3977126	PASS	CpK greater than 1.67
20.7	PG_cont	V	PASS		NA		NA	65.68781446	PASS	CpK greater than 1.67
20.8	FB_cont	V	PASS		NA		NA	28.78614914	PASS	CpK greater than 1.67
20.9	BST_cont	V	PASS		NA		NA	102.2448733	PASS	CpK greater than 1.67
20.1	BIAS_cont	V	PASS		NA		NA	71.04652678	PASS	CpK greater than 1.67
940	Vref_Trim_Check [Open Loop]	V	PASS		NA		NA	5.282206043	PASS	CpK greater than 1.67
950	*** Post-BURN Vout [0.970V] Vin=6V	V	PASS		NA		NA	4.077188023	PASS	CpK greater than 1.67
950.1	Post-BURN Vout [0.970V] Vin=40V	V	PASS		NA		NA	17.41145422	PASS	CpK greater than 1.67
950.2	Post-BURN OSCF	KHz	PASS		NA		NA	11.71012949	PASS	CpK greater than 1.67
950.6	Vref_Trim_Check [Open Loop] [From T940.0]	V	PASS		NA		NA	12.97156468	PASS	CpK greater than 1.67
950.7	Delta_of_Vref [T940.0-T950.0]	mV	PASS		NA		NA	2.434571445	PASS	CpK greater than 1.67
1000	** Ivin_Sleep	uA	PASS		NA		NA	7.074213702	PASS	CpK greater than 1.67
1000.1	* Ien_Sleep	nA	PASS		NA		NA	675.7467841	PASS	CpK greater than 1.67
1000.2	Irt_Sleep	uA	PASS		NA		NA	88.87750728	PASS	CpK greater than 1.67
1000.3	Iss_Sleep	uA	PASS		NA		NA	109.3680764	PASS	CpK greater than 1.67
1000.7	* Ipg_Sleep	nA	PASS		NA		NA	10.78896523	PASS	CpK greater than 1.67
1000.8	Ibias_Sleep	uA	PASS		NA		NA	27.59480729	PASS	CpK greater than 1.67
1000.9	Iintvcc_Sleep [INTVCC=4.0V]	uA	PASS		NA		NA	9.620820818	PASS	CpK greater than 1.67
1000.1	Iintvcc_Sleep [INTVCC=3.3V]	uA	PASS		NA		NA	26.01798075	PASS	CpK greater than 1.67
1000.11	Iintvcc_Sleep [INTVCC=2.8V]	uA	PASS		NA		NA	34.64700028	PASS	CpK greater than 1.67
1000.12	Ibst_Sleep	uA	PASS		NA		NA	14.23793918	PASS	CpK greater than 1.67
1000.13	** Ivin_Sleep_with_SYNC	mA	PASS		NA		NA	9.681276299	PASS	CpK greater than 1.67
1100	Ivin_Sleep_ABS_MAX	uA	PASS		NA		NA	93.01527944	PASS	CpK greater than 1.67
1100.1	Ien_Sleep_ABS_MAX	uA	PASS		NA		NA	256.1989847	PASS	CpK greater than 1.67
1100.4	Ipg_Sleep_ABS_MAX	uA	PASS		NA		NA	487.1420615	PASS	CpK greater than 1.67
1200	** Ivin_Shutdown	uA	PASS		NA		NA	6.730636731	PASS	CpK greater than 1.67
1200.1	Irt_Shutdown	uA	PASS		NA		NA	92.59838324	PASS	CpK greater than 1.67
1200.2	Iss_Shutdown	mA	PASS		NA		NA	249.4857929	PASS	CpK greater than 1.67
1200.3	* Isync_Shutdown	nA	PASS		NA		NA	134.653325	PASS	CpK greater than 1.67
1200.8	* Ifb_Shutdown	nA	PASS		NA		NA	207.2782159	PASS	CpK greater than 1.67
1200.9	Ipg_Shutdown	mA	PASS		NA		NA	588.6143962	PASS	CpK greater than 1.67
1200.1	Ibias_Shutdown	uA	PASS		NA		NA	33.81858112	PASS	CpK greater than 1.67
1200.11	* SS_Pulldown_Resistance	Ohm	PASS		NA		NA	42.93129038	PASS	CpK greater than 1.67
1200.12	** PG_Pulldown_Resistance	Ohm	PASS		NA		NA	25.38994116	PASS	CpK greater than 1.67
1300	Ivin_Shutdown_ABS_MAX	uA	PASS		NA		NA	73.22212557	PASS	CpK greater than 1.67
1300.1	Iss_Shutdown_ABS_MAX	mA	PASS		NA		NA	18.43323076	PASS	CpK greater than 1.67
1300.4	Ipg_Shutdown_ABS_MAX	mA	PASS		NA		NA	3.363861847	PASS	CpK greater than 1.67
1300.5	Ibias_Shutdown_ABS_MAX	uA	PASS		NA		NA	11.88387574	PASS	CpK greater than 1.67
1300.6	Irt_Shutdown_ABS_MAX	uA	PASS		NA		NA	7.260396011	PASS	CpK greater than 1.67
1400	* Top_FET_Isw	uA	PASS		NA		NA	22.37268465	PASS	CpK greater than 1.67
1500	* Bot_FET_Leakage	uA	PASS		NA		NA	24.09141353	PASS	CpK greater than 1.67
1500.1	Bot_FET_AbsMax_Leakage [Ibst]	uA	PASS		NA		NA	184.2852316	PASS	CpK greater than 1.67
1600	** Regulation_Light_Load_Ivin@1mA	uA	PASS		NA		NA	6.780879164	PASS	CpK greater than 1.67
1600.3	** Regulation_Light_Load_Ivin@100uA	uA	PASS		NA		NA	3.133478066	PASS	CpK greater than 1.67
1700	Regulation_Mode_Short_Circuit	mA	PASS		NA		NA	3.316900303	PASS	CpK greater than 1.67
2000	Freq with RT=48uA	KHz	PASS		NA		NA	9.479815097	PASS	CpK greater than 1.67

2000.1	RegulationMode Sync=0V	V	PASS		NA		NA	5.335613126	PASS	CpK greater than 1.67
2000.2	** SW_Min_Ontime Sync=0V	nS	PASS		NA		NA	8.548768277	PASS	CpK greater than 1.67
2100	Freq with RT=48uA	KHz	PASS		NA		NA	9.461620209	PASS	CpK greater than 1.67
2100.1	RegulationMode Sync=3.3V	V	PASS		NA		NA	2.647588126	PASS	CpK greater than 1.67
2100.2	** SW_Min_Ontime Sync=3.3V	nS	PASS		NA		NA	6.698810126	PASS	CpK greater than 1.67
2200	* TopRDSon [Vin-Vsw]	Ohm	PASS		NA		NA	5.917170068	PASS	CpK greater than 1.67
2200.1	V_sw_out@1A before ramp [Debug only]	V	PASS		NA		NA	208.0135919	PASS	CpK greater than 1.67
2200.2	Slop_Comp_Ilim	mA	PASS		NA		NA	5.005209199	PASS	CpK greater than 1.67
2300	V_sw_out@1.5A before ramp [Debug only]	V	PASS		NA		NA	149.4490354	PASS	CpK greater than 1.67
2300.1	** Top_I_Lim	mA	PASS		NA		NA	4.911367489	PASS	CpK greater than 1.67
2300.2	Burst_I_Lim	mA	PASS		NA		NA	2.944405427	PASS	CpK greater than 1.67
2300.3	SYNC_I_Lim	mA	PASS		NA		NA	2.469425874	PASS	CpK greater than 1.67
2400	Vout [0.6A load] @Vin=6V	V	PASS		NA		NA	21.22715921	PASS	CpK greater than 1.67
2400.1	** Minimum Input VOltage [Min_Vin_UVLO]	V	PASS		NA		NA	2.628097838	PASS	CpK greater than 1.67
2400.2	Vout [0.6A load] Drop	V	PASS	0.039814324	PASS	1.024654314	PASS	1.211841094	NA	Tightened limits
2400.3	SW_Min_Ontime Sync=0V [Calc]	nS	PASS		NA		NA	19.68341708	PASS	CpK greater than 1.67
2400.4	SW_Min_Ontime Sync=3V [Calc]	nS	PASS		NA		NA	14.1995572	PASS	CpK greater than 1.67
2500	* BotRDSon [Pgnd-Vsw]	Ohm	PASS		NA		NA	3.01249868	PASS	CpK greater than 1.67
2500.1	BST pin Voltage thru 1K	V	PASS		NA		NA	258.4358159	PASS	CpK greater than 1.67
2500.2	Zero_cross_current	mA	PASS	4.489099339	PASS	0.971166481	PASS	1.369721773	NA	Tightened limits
2600	** DA_Current_Limit [Bot_I_Lim]	mA	PASS		NA		NA	6.430150003	PASS	CpK greater than 1.67
2700	SW_Frequency	KHz	PASS		NA		NA	3.332868696	PASS	CpK greater than 1.67
2700.1	* Min_Off_Time	nS	PASS		NA		NA	3.844402606	PASS	CpK greater than 1.67
2700.2	W_duty_cycle	%	PASS		NA		NA	3.31424658	PASS	CpK greater than 1.67
2700.3	Dropout Voltage	V	PASS		NA		NA	7.41667336	PASS	CpK greater than 1.67
2800	* Vintvcc_0mA_no_bias	V	PASS		NA		NA	3.337454304	PASS	CpK greater than 1.67
2800.1	Vintvcc_20mA_no_bias	V	PASS		NA		NA	19.44970197	PASS	CpK greater than 1.67
2900	* Vintvcc_0mA_with_bias	V	PASS		NA		NA	15.53662776	PASS	CpK greater than 1.67
2900.1	Vintvcc_20mA_with_bias	V	PASS		NA		NA	17.34439882	PASS	CpK greater than 1.67
3000	Intvcc_Ilim_no_bias [Vccint=0V]	mA	PASS		NA		NA	2.783760538	PASS	CpK greater than 1.67
3000.1	Intvcc_Ilim_no_bias [Vccint=3V]	mA	PASS		NA		NA	2.133110896	PASS	CpK greater than 1.67
3100	Intvcc_Ilim_ABSMAX_no_bias [Vccint=0V]	mA	PASS		NA		NA	3.333540413	PASS	CpK greater than 1.67
3100.1	Intvcc_Ilim_ABSMAX_no_bias [Vccint=3V]	mA	PASS		NA		NA	3.100988782	PASS	CpK greater than 1.67
3200	Intvcc_Ilim_with_bias [Vccint=0V]	mA	PASS		NA		NA	2.880490684	PASS	CpK greater than 1.67
3200.1	Intvcc_Ilim_with_bias [Vccint=3V]	mA	PASS		NA		NA	3.366842023	PASS	CpK greater than 1.67
3300	Intvcc_Ilim_ABSMAX_with_bias [Vccint=0V]	mA	PASS		NA		NA	32.80774692	PASS	CpK greater than 1.67
3300.1	Intvcc_Ilim_ABSMAX_with_bias [Vccint=3V]	mA	PASS		NA		NA	5.666014058	PASS	CpK greater than 1.67
3400	Intvcc_BIAS_Threshold RampDown	V	PASS		NA		NA	3.52310208	PASS	CpK greater than 1.67
3400.1	Intvcc_BIAS_Threshold RampUp	V	PASS		NA		NA	2.516347085	PASS	CpK greater than 1.67
3400.2	Intvcc_BIAS_Threshold Hysteresis	V	PASS		NA		NA	381.7223888	PASS	CpK greater than 1.67
3500	Intvcc_Vin_Threshold RampDown	V	PASS		NA		NA	3.605317264	PASS	CpK greater than 1.67
3500.1	Intvcc_Vin_Threshold RampUp	V	PASS		NA		NA	3.090658017	PASS	CpK greater than 1.67
3500.2	Intvcc_Vin_Threshold Hysteresis	V	PASS		NA		NA	17.95177346	PASS	CpK greater than 1.67
3600	* Intvcc_UVLO_Threshold RampDown	V	PASS		NA		NA	3.633643544	PASS	CpK greater than 1.67
3600.1	Intvcc_UVLO_Threshold RampUp	V	PASS		NA		NA	13.67932657	PASS	CpK greater than 1.67
3600.2	Intvcc_UVLO_Threshold Hysteresis	V	PASS		NA		NA	64.67665922	PASS	CpK greater than 1.67
4000	EN_Threshold RampDown	V	PASS		NA		NA	11.73861508	PASS	CpK greater than 1.67
4000.1	** EN_Threshold RampUp	V	PASS		NA		NA	2.464232396	PASS	CpK greater than 1.67
4000.2	* EN_Threshold Hysteresis	V	PASS		NA		NA	14.73105987	PASS	CpK greater than 1.67
4100	PG_pin_Low_Threshold RampDown	V	PASS		NA		NA	3.927900209	PASS	CpK greater than 1.67
4100.1	PG_pin_Low_Threshold RampUp	V	PASS		NA		NA	3.666435156	PASS	CpK greater than 1.67
4100.2	PG_pin_Low_Threshold Hysteresis	V	PASS		NA		NA	229.6532592	PASS	CpK greater than 1.67
4100.3	* PG Lower Threshold Offset from VFB	%	PASS		NA		NA	2.05526599	PASS	CpK greater than 1.67
4100.4	* PG Low Hysteresis	%	PASS		NA		NA	7.851510133	PASS	CpK greater than 1.67
4200	PG_pin_High_Threshold RampDown	V	PASS		NA		NA	3.424989862	PASS	CpK greater than 1.67
4200.1	PG_pin_High_Threshold RampUp	V	PASS		NA		NA	4.879839544	PASS	CpK greater than 1.67
4200.2	PG_pin_High_Threshold Hysteresis	V	PASS		NA		NA	238.2220203	PASS	CpK greater than 1.67

4200.3	* PG Upper Threshold Offset from VFB	%	PASS		NA		NA	1.791010609	PASS	CpK greater than 1.67
4200.4	* PG Hi Hysteresis	%	PASS		NA		NA	7.61402837	PASS	CpK greater than 1.67
4300	* SYNC_Threshold RampDown	V	PASS		NA		NA	6.082033832	PASS	CpK greater than 1.67
4300.1	* SYNC_Threshold RampUp	V	PASS		NA		NA	8.130710051	PASS	CpK greater than 1.67
4300.2	SYN_Threshold Hysteresis	V	PASS		NA		NA	22.66848193	PASS	CpK greater than 1.67
4500	Feedback Reference Voltage [Vin=12V, ILoad=0.5A	V	PASS		NA		NA	16.44147763	PASS	CpK greater than 1.67
4500.1	Reference Voltage [Vin=4V, ILoad=0.5A]	V	PASS		NA		NA	17.09499827	PASS	CpK greater than 1.67
4500.2	Reference Voltage [Vin=40V, ILoad=0.5A]	V	PASS		NA		NA	14.4775746	PASS	CpK greater than 1.67
4500.3	** Feedback Voltage Line Regulation	%/V	PASS		NA		NA	5.605926147	PASS	CpK greater than 1.67
4500.4	Reference Voltage [Vin=12V, ILoad=0.1A]	V	PASS		NA		NA	119.1107016	PASS	CpK greater than 1.67
4500.5	Reference Voltage [Vin=12V, ILoad=2.5A]	V	PASS		NA		NA	107.1725861	PASS	CpK greater than 1.67
4500.6	Feedback Voltage Load Regulation	%	PASS		NA		NA	89.84002396	PASS	CpK greater than 1.67
4500.7	Delta Vref (Vin=6V - Vin=4V)	mV	PASS		NA		NA	5.168104511	PASS	CpK greater than 1.67
4500.8	Delta Vref (Vin=6V - Vin=40V)	mV	PASS		NA		NA	3.41847278	PASS	CpK greater than 1.67
4800	* BIAS_pin_Current_Consumption	mA	PASS		NA		NA	12.80085421	PASS	CpK greater than 1.67
4900	Regulating_with_SS	V	PASS		NA		NA	8.522804134	PASS	CpK greater than 1.67
5000	** SS_Pin_Current	uA	PASS		NA		NA	2.166375035	PASS	CpK greater than 1.67
5100	** Datasheet_Osc_High [Rt=18.2K]	KHz	PASS		NA		NA	2.492782189	PASS	CpK greater than 1.67
5100.1	I_Vin_Rt18K	mA	PASS		NA		NA	258.1016933	PASS	CpK greater than 1.67
5100.2	Vout_Rt18K	V	PASS		NA		NA	137.692082	PASS	CpK greater than 1.67
5100.3	Efficiency_Rt18K		PASS		NA		NA	20.96179746	PASS	CpK greater than 1.67
5200	** Datasheet_Osc_Low [Rt=60.4K]	KHz	PASS		NA		NA	6.065938648	PASS	CpK greater than 1.67
5200.1	I_Vin_Rt60K	mA	PASS		NA		NA	263.1901444	PASS	CpK greater than 1.67
5200.2	Vout_Rt60K	V	PASS		NA		NA	139.5051254	PASS	CpK greater than 1.67
5200.3	Efficiency_Rt60K		PASS		NA		NA	14.19589753	PASS	CpK greater than 1.67
5300	SYNC_Frequency [Sync=1MHz]	KHz	PASS		NA		NA	314.5746242	PASS	CpK greater than 1.67
5300.1	SYNC_Frequency [Sync=3.1MHz]	KHz	PASS		NA		NA	81.34813055	PASS	CpK greater than 1.67
5300.2	SYNC_Frequency [Sync=200KHz]	KHz	PASS		NA		NA	57.49870155	PASS	CpK greater than 1.67
5400	** Datasheet_Osc_Low [Rt=221K]	KHz	PASS		NA		NA	2.799224146	PASS	CpK greater than 1.67
5400.1	Osc_Low [Rt=3.8uA]	KHz	PASS		NA		NA	14.93577433	PASS	CpK greater than 1.67
5400.2	Osc_Med_Hi [Rt=24uA]	KHz	PASS		NA		NA	2.126012179	PASS	CpK greater than 1.67
5400.3	Rt_Voltage_Hi [Rt=18.2K//60.4K=13.986K]	V	PASS		NA		NA	27.12908111	PASS	CpK greater than 1.67
5400.4	Rt_Voltage_Hi + 13.986K*0.024uA [Calc]	V	PASS		NA		NA	19.54137422	PASS	CpK greater than 1.67
5500	Frequency_Foldback	KHz	PASS		NA		NA	3.458466515	PASS	CpK greater than 1.67
5500.1	Rt_Voltage_Lo [Rt=18.2K//60.4K=13.986K]	V	PASS		NA		NA	43.92050364	PASS	CpK greater than 1.67
5500.2	Rt_Voltage_Lo + 13.986K*0.024uA [Calc]	V	PASS		NA		NA	18.46498387	PASS	CpK greater than 1.67
5600	SS_Threshold_to_stop_charging	V	PASS		NA		NA	24.73274818	PASS	CpK greater than 1.67
5700	PG_High_SW_Pulldown_Current	mA	PASS		NA		NA	29.21127346	PASS	CpK greater than 1.67
5800	SW voltage [BST=10V]	V	PASS		NA		NA	249.8181759	PASS	CpK greater than 1.67
5800.1	BST voltage part switching	V	PASS		NA		NA	15.0818726	PASS	CpK greater than 1.67
5800.2	BST_OK_Threshold [BST-SW]	V	PASS		NA		NA	6.782057145	PASS	CpK greater than 1.67
9000	VCC_cont Damage Check	V	PASS		NA		NA	78.80699869	PASS	CpK greater than 1.67
9000.1	VIN_cont Danage Check	V	PASS		NA		NA	60.836769	PASS	CpK greater than 1.67
9000.2	SW_cont Damag Check	V	PASS		NA		NA	13.21357832	PASS	CpK greater than 1.67

LT8614_125C_QA Analysis Data View Report

Test Number	Test Name	Units	Overall Correlation Result	Mean Diff	Mean diff <5% limit range	Sigma Spread Ratio	Sigma Spread Criteria <1.3	Cpk Value	Cpk >1.67	Annotations
20.0	VCC_cont	V	PASS		N/A		N/A	16.62301472	PASS	CpK greater than 1.67
20.1	VIN_cont	V	PASS		N/A		N/A	22.20309818	PASS	CpK greater than 1.67
20.2	SW_cont	V	PASS		N/A		N/A	6.323068753	PASS	CpK greater than 1.67
20.3	EN_cont @-100uA	V	PASS		N/A		N/A	14.46554758	PASS	CpK greater than 1.67
20.4	SYNC_cont	V	PASS		N/A		N/A	24.78709836	PASS	CpK greater than 1.67
20.5	SS_cont	V	PASS		N/A		N/A	26.08948375	PASS	CpK greater than 1.67
20.6	RT_cont [18.2K to APU]	V	PASS		N/A		N/A	62.75733837	PASS	CpK greater than 1.67
20.7	PG_cont	V	PASS		N/A		N/A	28.49258691	PASS	CpK greater than 1.67
20.8	FB_cont	V	PASS		N/A		N/A	24.10272793	PASS	CpK greater than 1.67
20.9	BST_cont	V	PASS		N/A		N/A	17.90502618	PASS	CpK greater than 1.67
20.1	BIAS_cont	V	PASS		N/A		N/A	28.47002707	PASS	CpK greater than 1.67
940	Vref_Trim_Check [Open Loop]	V	PASS		N/A		N/A	2.481808772	PASS	CpK greater than 1.67
950	*** Post-BURN Vout [0.970V] Vin=6V	V	PASS		N/A		N/A	1.739501495	PASS	CpK greater than 1.67
950.1	Post-BURN Vout [0.970V] Vin=40V	V	PASS		N/A		N/A	3.252087743	PASS	CpK greater than 1.67
950.2	Post-BURN OSCF	KHz	PASS		N/A		N/A	6.443491013	PASS	CpK greater than 1.67
950.6	Vref_Trim_Check [Open Loop] [From T940.0]	V	PASS		N/A		N/A	2.808987475	PASS	CpK greater than 1.67
950.7	Delta_of_Vref [T940.0-T950.0]	mV	PASS		N/A		N/A	4.674452713	PASS	CpK greater than 1.67
1000	** Ivin_Sleep	uA	PASS		N/A		N/A	9.630294904	PASS	CpK greater than 1.67
1000.1	* Ien_Sleep	nA	PASS		N/A		N/A	110.0945615	PASS	CpK greater than 1.67
1000.2	Irt_Sleep	uA	PASS		N/A		N/A	82.97896436	PASS	CpK greater than 1.67
1000.3	Iss_Sleep	uA	PASS		N/A		N/A	111.8952538	PASS	CpK greater than 1.67
1000.7	* Ipg_Sleep	nA	PASS		N/A		N/A	61.56777618	PASS	CpK greater than 1.67
1000.8	Ibias_Sleep	uA	PASS		N/A		N/A	8.469516148	PASS	CpK greater than 1.67
1000.9	Iintvcc_Sleep [INTVCC=4.0V]	uA	PASS		N/A		N/A	7.777488833	PASS	CpK greater than 1.67
1000.1	Iintvcc_Sleep [INTVCC=3.3V]	uA	PASS		N/A		N/A	25.11006232	PASS	CpK greater than 1.67
1000.11	Iintvcc_Sleep [INTVCC=2.8V]	uA	PASS		N/A		N/A	35.65305123	PASS	CpK greater than 1.67
1000.12	Ibst_Sleep	uA	PASS		N/A		N/A	7.112419172	PASS	CpK greater than 1.67
1000.13	** Ivin_Sleep_with_SYNC	mA	PASS		N/A		N/A	16.80430471	PASS	CpK greater than 1.67
1100	Ivin_Sleep_ABS_MAX	uA	PASS		N/A		N/A	153.9681706	PASS	CpK greater than 1.67
1100.1	Ien_Sleep_ABS_MAX	uA	PASS		N/A		N/A	276.6095707	PASS	CpK greater than 1.67
1100.4	Ipg_Sleep_ABS_MAX	uA	PASS		N/A		N/A	494.6588627	PASS	CpK greater than 1.67
1200	** Ivin_Shutdown	uA	PASS		N/A		N/A	8.922680118	PASS	CpK greater than 1.67
1200.1	Irt_Shutdown	uA	PASS		N/A		N/A	90.82112753	PASS	CpK greater than 1.67
1200.2	Iss_Shutdown	mA	PASS		N/A		N/A	250.6850256	PASS	CpK greater than 1.67
1200.3	* Isync_Shutdown	nA	PASS		N/A		N/A	479.731775	PASS	CpK greater than 1.67
1200.8	* Ifb_Shutdown	nA	PASS		N/A		N/A	414.2675626	PASS	CpK greater than 1.67
1200.9	Ipg_Shutdown	mA	PASS		N/A		N/A	476.7023467	PASS	CpK greater than 1.67
1200.1	Ibias_Shutdown	uA	PASS		N/A		N/A	8.401292031	PASS	CpK greater than 1.67
1200.11	* SS_Pulldown_Resistance	Ohm	PASS		N/A		N/A	38.3113145	PASS	CpK greater than 1.67
1200.12	** PG_Pulldown_Resistance	Ohm	PASS		N/A		N/A	17.70339227	PASS	CpK greater than 1.67
1300	Ivin_Shutdown_ABS_MAX	uA	PASS		N/A		N/A	35.70538524	PASS	CpK greater than 1.67
1300.1	Iss_Shutdown_ABS_MAX	mA	PASS		N/A		N/A	17.22603556	PASS	CpK greater than 1.67
1300.4	Ipg_Shutdown_ABS_MAX	mA	PASS		N/A		N/A	3.660380361	PASS	CpK greater than 1.67
1300.5	Ibias_Shutdown_ABS_MAX	uA	PASS		N/A		N/A	5.936013425	PASS	CpK greater than 1.67
1300.6	Irt_Shutdown_ABS_MAX	uA	PASS		N/A		N/A	7.955035159	PASS	CpK greater than 1.67
1400	* Top_FET_Isw	uA	PASS		N/A		N/A	41.5685587	PASS	CpK greater than 1.67
1500	* Bot_FET_Leakage	uA	PASS		N/A		N/A	44.51116199	PASS	CpK greater than 1.67
1500.1	Bot_FET_AbsMax_Leakage [Ibst]	uA	PASS		N/A		N/A	142.8911996	PASS	CpK greater than 1.67
1600	** Regulation_Light_Load_Ivin@1mA	uA	PASS		N/A		N/A	6.161350025	PASS	CpK greater than 1.67
1600.3	** Regulation_Light_Load_Ivin@100uA	uA	PASS		N/A		N/A	4.650014695	PASS	CpK greater than 1.67
1700	Regulation_Mode_Short_Circuit	mA	PASS		N/A		N/A	3.487144612	PASS	CpK greater than 1.67

2000	Freq with RT=48uA	KHz	PASS		N/A		N/A	7.988129456	PASS	CpK greater than 1.67
2000.1	RegulationMode Sync=0V	V	PASS		N/A		N/A	4.573350376	PASS	CpK greater than 1.67
2000.2	** SW_Min_Ontime Sync=0V	nS	PASS		N/A		N/A	11.42264904	PASS	CpK greater than 1.67
2100	Freq with RT=48uA	KHz	PASS		N/A		N/A	7.982071692	PASS	CpK greater than 1.67
2100.1	RegulationMode Sync=3.3V	V	PASS		N/A		N/A	1.905891613	PASS	CpK greater than 1.67
2100.2	** SW_Min_Ontime Sync=3.3V	nS	PASS		N/A		N/A	8.834423403	PASS	CpK greater than 1.67
2200	* TopRDSon [Vin-Vsw]	Ohm	PASS		N/A		N/A	5.611881238	PASS	CpK greater than 1.67
2200.1	V_sw_out@1A before ramp [Debug only]	V	PASS		N/A		N/A	105.6468533	PASS	CpK greater than 1.67
2200.2	Slop_Comp_Ilim	mA	PASS		N/A		N/A	7.504759542	PASS	CpK greater than 1.67
2300	V_sw_out@1.5A before ramp [Debug only]	V	PASS		N/A		N/A	75.29764067	PASS	CpK greater than 1.67
2300.1	** Top_I_Lim	mA	PASS		N/A		N/A	5.386243118	PASS	CpK greater than 1.67
2300.2	Burst_I_Lim	mA	PASS		N/A		N/A	4.080501866	PASS	CpK greater than 1.67
2300.3	SYNC_I_Lim	mA	PASS		N/A		N/A	2.958617666	PASS	CpK greater than 1.67
2400	Vout [0.6A load] @Vin=6V	V	PASS		N/A		N/A	6.775913503	PASS	CpK greater than 1.67
2400.1	** Minimum Input VOltage [Min_Vin_UVLO]	V	PASS		N/A		N/A	10.99009659	PASS	CpK greater than 1.67
2400.2	Vout [0.6A load] Drop	V	PASS	1.885022525	PASS	1.106	PASS	0.826200608	N/A	tightened limits
2400.3	SW_Min_Ontime Sync=0V [Calc]	nS	PASS		N/A		N/A	20.45100407	PASS	CpK greater than 1.67
2400.4	SW_Min_Ontime Sync=3V [Calc]	nS	PASS		N/A		N/A	15.24811008	PASS	CpK greater than 1.67
2500	* BotRDSon [Pgnd-Vsw]	Ohm	PASS		N/A		N/A	4.045040374	PASS	CpK greater than 1.67
2500.1	BST pin Voltage thru 1K	V	PASS		N/A		N/A	203.6062955	PASS	CpK greater than 1.67
2500.2	Zero_cross_current	mA	PASS		N/A		N/A	3.418477893	PASS	CpK greater than 1.67
2600	** DA_Current_Limit [Bot_I_Lim]	mA	PASS		N/A		N/A	4.728374079	PASS	CpK greater than 1.67
2700	SW_Frequency	KHz	PASS		N/A		N/A	3.920583192	PASS	CpK greater than 1.67
2700.1	* Min_Off_Time	nS	PASS		N/A		N/A	6.575557121	PASS	CpK greater than 1.67
2700.2	W_duty_cycle	%	PASS		N/A		N/A	3.819284211	PASS	CpK greater than 1.67
2700.3	Dropout Voltage	V	PASS		N/A		N/A	3.632168957	PASS	CpK greater than 1.67
2800	* Vintvcc_0mA_no_bias	V	PASS		N/A		N/A	3.257428598	PASS	CpK greater than 1.67
2800.1	Vintvcc_20mA_no_bias	V	PASS		N/A		N/A	10.56478429	PASS	CpK greater than 1.67
2900	* Vintvcc_0mA_with_bias	V	PASS		N/A		N/A	7.415065079	PASS	CpK greater than 1.67
2900.1	Vintvcc_20mA_with_bias	V	PASS		N/A		N/A	12.80900557	PASS	CpK greater than 1.67
3000	Intvcc_Ilim_no_bias [Vccint=0V]	mA	PASS		N/A		N/A	2.696037847	PASS	CpK greater than 1.67
3000.1	Intvcc_Ilim_no_bias [Vccint=3V]	mA	PASS		N/A		N/A	2.930103241	PASS	CpK greater than 1.67
3100	Intvcc_Ilim_ABSMAX_no_bias [Vccint=0V]	mA	PASS		N/A		N/A	3.303500094	PASS	CpK greater than 1.67
3100.1	Intvcc_Ilim_ABSMAX_no_bias [Vccint=3V]	mA	PASS		N/A		N/A	3.081268205	PASS	CpK greater than 1.67
3200	Intvcc_Ilim_with_bias [Vccint=0V]	mA	PASS		N/A		N/A	2.780647284	PASS	CpK greater than 1.67
3200.1	Intvcc_Ilim_with_bias [Vccint=3V]	mA	PASS		N/A		N/A	3.927415962	PASS	CpK greater than 1.67
3300	Intvcc_Ilim_ABSMAX_with_bias [Vccint=0V]	mA	PASS		N/A		N/A	33.32485627	PASS	CpK greater than 1.67
3300.1	Intvcc_Ilim_ABSMAX_with_bias [Vccint=3V]	mA	PASS		N/A		N/A	11.71361083	PASS	CpK greater than 1.67
3400	Intvcc_BIAS_Threshold RampDown	V	PASS		N/A		N/A	2.936402603	PASS	CpK greater than 1.67
3400.1	Intvcc_BIAS_Threshold RampUp	V	PASS		N/A		N/A	2.677056012	PASS	CpK greater than 1.67
3400.2	Intvcc_BIAS_Threshold Hysteresis	V	PASS		N/A		N/A	374.4531384	PASS	CpK greater than 1.67
3500	Intvcc_Vin_Threshold RampDown	V	PASS		N/A		N/A	8.283428898	PASS	CpK greater than 1.67
3500.1	Intvcc_Vin_Threshold RampUp	V	PASS		N/A		N/A	7.906993793	PASS	CpK greater than 1.67
3500.2	Intvcc_Vin_Threshold Hysteresis	V	PASS		N/A		N/A	814.7131298	PASS	CpK greater than 1.67
3600	* Intvcc_UVLO_Threshold RampDown	V	PASS		N/A		N/A	5.343421817	PASS	CpK greater than 1.67
3600.1	Intvcc_UVLO_Threshold RampUp	V	PASS		N/A		N/A	17.99180799	PASS	CpK greater than 1.67
3600.2	Intvcc_UVLO_Threshold Hysteresis	V	PASS		N/A		N/A	86.85390954	PASS	CpK greater than 1.67
4000	EN_Threshold RampDown	V	PASS		N/A		N/A	11.10055298	PASS	CpK greater than 1.67
4000.1	** EN_Threshold RampUp	V	PASS		N/A		N/A	2.549264157	PASS	CpK greater than 1.67
4000.2	* EN_Threshold Hysteresis	V	PASS		N/A		N/A	19.32681762	PASS	CpK greater than 1.67
4100	PG_pin_Low_Threshold RampDown	V	PASS		N/A		N/A	3.428064103	PASS	CpK greater than 1.67
4100.1	PG_pin_Low_Threshold RampUp	V	PASS		N/A		N/A	3.442908462	PASS	CpK greater than 1.67
4100.2	PG_pin_Low_Threshold Hysteresis	V	PASS		N/A		N/A	268.1775114	PASS	CpK greater than 1.67
4100.3	* PG Lower Threshold Offset from VFB	%	PASS		N/A		N/A	2.332501349	PASS	CpK greater than 1.67
4100.4	* PG Low Hysteresis	%	PASS		N/A		N/A	9.646439684	PASS	CpK greater than 1.67
4200	PG_pin_High_Threshold RampDown	V	PASS		N/A		N/A	2.806142253	PASS	CpK greater than 1.67

4200.1	PG_pin_High_Threshold RampUp	V	PASS		N/A		N/A	4.108298698	PASS	CpK greater than 1.67
4200.2	PG_pin_High_Threshold Hysteresis	V	PASS		N/A		N/A	257.2832772	PASS	CpK greater than 1.67
4200.3	* PG Upper Threshold Offset from VFB	%	PASS		N/A		N/A	1.907095529	PASS	CpK greater than 1.67
4200.4	* PG Hi Hysteresis	%	PASS		N/A		N/A	10.1545083	PASS	CpK greater than 1.67
4300	* SYNC_Threshold RampDown	V	PASS		N/A		N/A	11.28976289	PASS	CpK greater than 1.67
4300.1	* SYNC_Threshold RampUp	V	PASS		N/A		N/A	11.27156965	PASS	CpK greater than 1.67
4300.2	SYN_Threshold Hysteresis	V	PASS		N/A		N/A	23.31960236	PASS	CpK greater than 1.67
4500	Feedback Reference Voltage [Vin=12V, ILoad=0.5A	V	PASS		N/A		N/A	3.285069202	PASS	CpK greater than 1.67
4500.1	Reference Voltage [Vin=4V, ILoad=0.5A]	V	PASS		N/A		N/A	3.132739569	PASS	CpK greater than 1.67
4500.2	Reference Voltage [Vin=40V, ILoad=0.5A]	V	PASS		N/A		N/A	3.304933869	PASS	CpK greater than 1.67
4500.3	** Feedback Voltage Line Regulation	%/V	PASS		N/A		N/A	10.31230563	PASS	CpK greater than 1.67
4500.4	Reference Voltage [Vin=12V, ILoad=0.1A]	V	PASS		N/A		N/A	29.16927587	PASS	CpK greater than 1.67
4500.5	Reference Voltage [Vin=12V, ILoad=2.5A]	V	PASS		N/A		N/A	28.62600015	PASS	CpK greater than 1.67
4500.6	Feedback Voltage Load Regulation	%	PASS		N/A		N/A	262.7869239	PASS	CpK greater than 1.67
4500.7	Delta Vref (Vin=6V - Vin=4V)	mV	PASS		N/A		N/A	29.16493058	PASS	CpK greater than 1.67
4500.8	Delta Vref (Vin=6V - Vin=40V)	mV	PASS		N/A		N/A	19.59240424	PASS	CpK greater than 1.67
4800	* BIAS_pin_Current_Consumption	mA	PASS		N/A		N/A	15.41581825	PASS	CpK greater than 1.67
4900	Regulating_with_SS	V	PASS		N/A		N/A	8.458842253	PASS	CpK greater than 1.67
5000	** SS_Pin_Current	uA	PASS		N/A		N/A	2.636851248	PASS	CpK greater than 1.67
5100	** Datasheet_Osc_High [Rt=18.2K]	KHz	PASS		N/A		N/A	2.157286533	PASS	CpK greater than 1.67
5100.1	I_Vin_Rt18K	mA	PASS		N/A		N/A	101.0342795	PASS	CpK greater than 1.67
5100.2	Vout_Rt18K	V	PASS		N/A		N/A	38.05426931	PASS	CpK greater than 1.67
5100.3	Efficiency_Rt18K		PASS		N/A		N/A	8.001781918	PASS	CpK greater than 1.67
5200	** Datasheet_Osc_Low [Rt=60.4K]	KHz	PASS		N/A		N/A	3.624747738	PASS	CpK greater than 1.67
5200.1	I_Vin_Rt60K	mA	PASS		N/A		N/A	103.5460088	PASS	CpK greater than 1.67
5200.2	Vout_Rt60K	V	PASS		N/A		N/A	38.67394974	PASS	CpK greater than 1.67
5200.3	Efficiency_Rt60K		PASS		N/A		N/A	5.976539841	PASS	CpK greater than 1.67
5300	SYNC_Frequency [Sync=1MHz]	KHz	PASS		N/A		N/A	290.635567	PASS	CpK greater than 1.67
5300.1	SYNC_Frequency [Sync=3.1MHz]	KHz	PASS		N/A		N/A	80.54913383	PASS	CpK greater than 1.67
5300.2	SYNC_Frequency [Sync=200KHz]	KHz	PASS		N/A		N/A	55.26093843	PASS	CpK greater than 1.67
5400	** Datasheet_Osc_Low [Rt=221K]	KHz	PASS		N/A		N/A	4.546057895	PASS	CpK greater than 1.67
5400.1	Osc_Low [Rt=3.8uA]	KHz	PASS		N/A		N/A	19.25866447	PASS	CpK greater than 1.67
5400.2	Osc_Med_Hi [Rt=24uA]	KHz	PASS		N/A		N/A	5.37758534	PASS	CpK greater than 1.67
5400.3	Rt_Voltage_Hi [Rt=18.2K//60.4K=13.986K]	V	PASS		N/A		N/A	24.02353904	PASS	CpK greater than 1.67
5400.4	Rt_Voltage_Hi + 13.986K*0.024uA [Calc]	V	PASS		N/A		N/A	17.78303373	PASS	CpK greater than 1.67
5500	Frequency_Foldback	KHz	PASS		N/A		N/A	4.282053375	PASS	CpK greater than 1.67
5500.1	Rt_Voltage_Lo [Rt=18.2K//60.4K=13.986K]	V	PASS		N/A		N/A	44.74463591	PASS	CpK greater than 1.67
5500.2	Rt_Voltage_Lo + 13.986K*0.024uA [Calc]	V	PASS		N/A		N/A	18.57363072	PASS	CpK greater than 1.67
5600	SS_Threshold_to_stop_charging	V	PASS		N/A		N/A	22.72354817	PASS	CpK greater than 1.67
5700	PG_High_SW_Pulldown_Current	mA	PASS		N/A		N/A	19.42082605	PASS	CpK greater than 1.67
5800	SW voltage [BST=10V]	V	PASS		N/A		N/A	86.90482628	PASS	CpK greater than 1.67
5800.1	BST voltage part switching	V	PASS		N/A		N/A	18.68577464	PASS	CpK greater than 1.67
5800.2	BST_OK_Threshold [BST-SW]	V	PASS		N/A		N/A	6.835096501	PASS	CpK greater than 1.67
9000	VCC_cont Damage Check	V	PASS		N/A		N/A	21.21344736	PASS	CpK greater than 1.67
9000.1	VIN_cont Danage Check	V	PASS		N/A		N/A	20.7436691	PASS	CpK greater than 1.67
9000.2	SW_cont Damag Check	V	PASS		N/A		N/A	8.226235749	PASS	CpK greater than 1.67

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Test Number	Test Name	Units	Overall Correlation Result	Mean Diff	Mean diff <5% limit range	Stdv Ratio	Sigma Spread Criteria <1.3	Cpk Value	Cpk >1.67	Annotations
20.0	VCC_cont	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
20.1	VIN_cont	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
20.2	SW_cont	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
20.3	EN_cont @-100uA	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
20.4	SYNC_cont	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
20.5	SS_cont	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
20.6	RT_cont [18.2K to APU]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
20.7	PG_cont	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
20.8	FB_cont	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
20.9	BST_cont	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
20.1	BIAS_cont	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
940	Vref_Trim_Check [Open Loop]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
950	*** Post-BURN Vout [0.970V] Vin=6V	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
950.1	Post-BURN Vout [0.970V] Vin=40V	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
950.2	Post-BURN OSCF	KHz	PASS		N/A		N/A		PASS	CpK greater than 1.67
950.6	Vref_Trim_Check [Open Loop] [From T940.0]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
950.7	Delta_of_Vref [T940.0-T950.0]	mV	PASS		N/A		N/A		PASS	CpK greater than 1.67
1000	** Ivin_Sleep	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1000.1	* Ien_Sleep	nA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1000.2	Irt_Sleep	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1000.3	Iss_Sleep	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1000.7	* Ipg_Sleep	nA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1000.8	Ibias_Sleep	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1000.9	Iintvcc_Sleep [INTVCC=4.0V]	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1000.1	Iintvcc_Sleep [INTVCC=3.3V]	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1000.11	Iintvcc_Sleep [INTVCC=2.8V]	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1000.12	Ibst_Sleep	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1000.13	** Ivin_Sleep_with_SYNC	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1100	Ivin_Sleep_ABS_MAX	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1100.1	Ien_Sleep_ABS_MAX	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1100.4	Ipg_Sleep_ABS_MAX	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1200	** Ivin_Shutdown	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1200.1	Irt_Shutdown	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1200.2	Iss_Shutdown	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1200.3	* Isync_Shutdown	nA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1200.8	* Ifb_Shutdown	nA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1200.9	Ipg_Shutdown	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1200.1	Ibias_Shutdown	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1200.11	* SS_Pulldown_Resistance	Ohm	PASS		N/A		N/A		PASS	CpK greater than 1.67
1200.12	** PG_Pulldown_Resistance	Ohm	PASS		N/A		N/A		PASS	CpK greater than 1.67
1300	Ivin_Shutdown_ABS_MAX	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1300.1	Iss_Shutdown_ABS_MAX	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1300.4	Ipg_Shutdown_ABS_MAX	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1300.5	Ibias_Shutdown_ABS_MAX	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1300.6	Irt_Shutdown_ABS_MAX	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1400	* Top_FET_Isw	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1500	* Bot_FET_Leakage	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1500.1	Bot_FET_AbsMax_Leakage [Ibst]	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1600	** Regulation_Light_Load_Ivin@1mA	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1600.3	** Regulation_Light_Load_Ivin@100uA	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
1700	Regulation_Mode_Short_Circuit	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
2000	Freq with RT=48uA	KHz	PASS		N/A		N/A		PASS	CpK greater than 1.67

2000.1	RegulationMode Sync=0V	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
2000.2	** SW_Min_Ontime Sync=0V	nS	PASS		N/A		N/A		PASS	CpK greater than 1.67
2100	Freq with RT=48uA	KHz	PASS		N/A		N/A		PASS	CpK greater than 1.67
2100.1	RegulationMode Sync=3.3V	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
2100.2	** SW_Min_Ontime Sync=3.3V	nS	PASS		N/A		N/A		PASS	CpK greater than 1.67
2200	* TopRDSon [Vin-Vsw]	Ohm	PASS		N/A		N/A		PASS	CpK greater than 1.67
2200.1	V_sw_out@1A before ramp [Debug only]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
2200.2	Slop_Comp_Ilim	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
2300	V_sw_out@1.5A before ramp [Debug only]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
2300.1	** Top_I_Lim	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
2300.2	Burst_I_Lim	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
2300.3	SYNC_I_Lim	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
2400	Vout [0.6A load] @Vin=6V	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
2400.1	** Minimum Input VOltage [Min_Vin_UVLO]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
2400.2	Vout [0.6A load] Drop	V	PASS	0.776479067	PASS	1.043165299	PASS	1.126200848	N/A	tightened limits
2400.3	SW_Min_Ontime Sync=0V [Calc]	nS	PASS		N/A		N/A		PASS	CpK greater than 1.67
2400.4	SW_Min_Ontime Sync=3V [Calc]	nS	PASS		N/A		N/A		PASS	CpK greater than 1.67
2500	* BotRDSon [Pgnd-Vsw]	Ohm	PASS	1.81551557	PASS	1.149410262	PASS	0.12166657	N/A	tightened limits
2500.1	BST pin Voltage thru 1K	V	PASS	1.915489558	PASS	1.10906009	PASS	1.099938341	N/A	tightened limits
2500.2	Zero_cross_current	mA	PASS	2.142040069	PASS	0.956707273	PASS	1.154196161	N/A	tightened limits
2600	** DA_Current_Limit [Bot_I_Lim]	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
2700	SW_Frequency	KHz	PASS		N/A		N/A		PASS	CpK greater than 1.67
2700.1	* Min_Off_Time	nS	PASS		N/A		N/A		PASS	CpK greater than 1.67
2700.2	W_duty_cycle	%	PASS		N/A		N/A		PASS	CpK greater than 1.67
2700.3	Dropout Voltage	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
2800	* Vintvcc_0mA_no_bias	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
2800.1	Vintvcc_20mA_no_bias	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
2900	* Vintvcc_0mA_with_bias	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
2900.1	Vintvcc_20mA_with_bias	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
3000	Intvcc_Ilim_no_bias [Vccint=0V]	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
3000.1	Intvcc_Ilim_no_bias [Vccint=3V]	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
3100	Intvcc_Ilim_ABSMAX_no_bias [Vccint=0V]	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
3100.1	Intvcc_Ilim_ABSMAX_no_bias [Vccint=3V]	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
3200	Intvcc_Ilim_with_bias [Vccint=0V]	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
3200.1	Intvcc_Ilim_with_bias [Vccint=3V]	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
3300	Intvcc_Ilim_ABSMAX_with_bias [Vccint=0V]	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
3300.1	Intvcc_Ilim_ABSMAX_with_bias [Vccint=3V]	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
3400	Intvcc_BIAS_Threshold RampDown	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
3400.1	Intvcc_BIAS_Threshold RampUp	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
3400.2	Intvcc_BIAS_Threshold Hysteresis	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
3500	Intvcc_Vin_Threshold RampDown	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
3500.1	Intvcc_Vin_Threshold RampUp	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
3500.2	Intvcc_Vin_Threshold Hysteresis	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
3600	* Intvcc_UVLO_Threshold RampDown	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
3600.1	Intvcc_UVLO_Threshold RampUp	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
3600.2	Intvcc_UVLO_Threshold Hysteresis	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4000	EN_Threshold RampDown	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4000.1	** EN_Threshold RampUp	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4000.2	* EN_Threshold Hysteresis	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4100	PG_pin_Low_Threshold RampDown	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4100.1	PG_pin_Low_Threshold RampUp	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4100.2	PG_pin_Low_Threshold Hysteresis	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4100.3	* PG Lower Threshold Offset from VFB	%	PASS		N/A		N/A		PASS	CpK greater than 1.67
4100.4	* PG Low Hysteresis	%	PASS		N/A		N/A		PASS	CpK greater than 1.67
4200	PG_pin_High_Threshold RampDown	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4200.1	PG_pin_High_Threshold RampUp	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4200.2	PG_pin_High_Threshold Hysteresis	V	PASS		N/A		N/A		PASS	CpK greater than 1.67

4200.3	* PG Upper Threshold Offset from VFB	%	PASS		N/A		N/A		PASS	CpK greater than 1.67
4200.4	* PG Hi Hysteresis	%	PASS		N/A		N/A		PASS	CpK greater than 1.67
4300	* SYNC_Threshold RampDown	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4300.1	* SYNC_Threshold RampUp	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4300.2	SYN_Threshold Hysteresis	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4500	Feedback Reference Voltage [Vin=12V, ILoad=0.5A]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4500.1	Reference Voltage [Vin=4V, ILoad=0.5A]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4500.2	Reference Voltage [Vin=40V, ILoad=0.5A]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4500.3	** Feedback Voltage Line Regulation	%/V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4500.4	Reference Voltage [Vin=12V, ILoad=0.1A]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4500.5	Reference Voltage [Vin=12V, ILoad=2.5A]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
4500.6	Feedback Voltage Load Regulation	%	PASS		N/A		N/A		PASS	CpK greater than 1.67
4500.7	Delta Vref (Vin=6V - Vin=4V)	mV	PASS		N/A		N/A		PASS	CpK greater than 1.67
4500.8	Delta Vref (Vin=6V - Vin=40V)	mV	PASS		N/A		N/A		PASS	CpK greater than 1.67
4800	* BIAS_pin_Current_Consumption	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
4900	Regulating_with_SS	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
5000	** SS_Pin_Current	uA	PASS		N/A		N/A		PASS	CpK greater than 1.67
5100	** Datasheet_Osc_High [Rt=18.2K]	KHz	PASS		N/A		N/A		PASS	CpK greater than 1.67
5100.1	I_Vin_Rt18K	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
5100.2	Vout_Rt18K	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
5100.3	Efficiency_Rt18K		PASS		N/A		N/A		PASS	CpK greater than 1.67
5200	** Datasheet_Osc_Low [Rt=60.4K]	KHz	PASS		N/A		N/A		PASS	CpK greater than 1.67
5200.1	I_Vin_Rt60K	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
5200.2	Vout_Rt60K	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
5200.3	Efficiency_Rt60K		PASS		N/A		N/A		PASS	CpK greater than 1.67
5300	SYNC_Frequency [Sync=1MHz]	KHz	PASS		N/A		N/A		PASS	CpK greater than 1.67
5300.1	SYNC_Frequency [Sync=3.1MHz]	KHz	PASS		N/A		N/A		PASS	CpK greater than 1.67
5300.2	SYNC_Frequency [Sync=200KHz]	KHz	PASS		N/A		N/A		PASS	CpK greater than 1.67
5400	** Datasheet_Osc_Low [Rt=221K]	KHz	PASS		N/A		N/A		PASS	CpK greater than 1.67
5400.1	Osc_Low [Rt=3.8uA]	KHz	PASS		N/A		N/A		PASS	CpK greater than 1.67
5400.2	Osc_Med_Hi [Rt=24uA]	KHz	PASS		N/A		N/A		PASS	CpK greater than 1.67
5400.3	Rt_Voltage_Hi [Rt=18.2K//60.4K=13.986K]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
5400.4	Rt_Voltage_Hi + 13.986K*0.024uA [Calc]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
5500	Frequency_Foldback	KHz	PASS		N/A		N/A		PASS	CpK greater than 1.67
5500.1	Rt_Voltage_Lo [Rt=18.2K//60.4K=13.986K]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
5500.2	Rt_Voltage_Lo + 13.986K*0.024uA [Calc]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
5600	SS_Threshold_to_stop_charging	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
5700	PG_High_SW_Pulldown_Current	mA	PASS		N/A		N/A		PASS	CpK greater than 1.67
5800	SW voltage [BST=10V]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
5800.1	BST voltage part switching	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
5800.2	BST_OK_Threshold [BST-SW]	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
9000	VCC_cont Damage Check	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
9000.1	VIN_cont Danage Check	V	PASS		N/A		N/A		PASS	CpK greater than 1.67
9000.2	SW_cont Damag Check	V	PASS		N/A		N/A		PASS	CpK greater than 1.67

GAGE MSA STUDY

GAGE TYPE/NAME: TESTER ETS115/ETS116

CHARACTERISTIC MEASURED: TEST PARAMETER

PART MEASURED (FOR BIAS/LINEARITY): LTC8614

PART MEASURED (FOR GR&R STUDY): LTC8614

MSA DATE: Yr 2020

GAGE OWNER: UTAC Thailand

RESULT / COMMENT: PASS

SIGNATURE:

Test #	Test Name	Result GR&R	Result
95000000	*** Post-BURN Vout [0.970V] Vin=6V	4.980195	PASS
100000000	** Ivin_Sleep	1.8229312	PASS
100000001	* Ien_Sleep	1.431906	PASS
100000007	* Ipg_Sleep	4.201244	PASS
100000013	** Ivin_Sleep_with_SYNC	1.797112	PASS
120000000	** Ivin_Shutdown	1.730056	PASS
120000003	* Isync_Shutdown	0.755767	PASS
120000008	* Ifb_Shutdown	1.683225	PASS
120000011	* SS_Pulldown_Resistance	6.226861	PASS
120000012	** PG_Pulldown_Resistance	4.376655	PASS
140000000	* Top_FET_Isw	3.848640	PASS
150000000	* Bot_FET_Leakage	3.664196	PASS
160000000	** Regulation_Light_Load_Ivin@1mA	6.668205	PASS
160000003	** Regulation_Light_Load_Ivin@100uA	8.152861	PASS
200000002	** SW_Min_Ontime Sync=0V	5.488522	PASS
210000003	** SW_Min_Ontime Sync=3.3V	5.729720	PASS
220000000	* TopRDSon [Vin-Vsw]	8.741214	PASS
230000001	** Top_I_Lim	7.553578	PASS
240000001	** Minimum Input VOltage [Min_Vin_UVLO]	1.993776	PASS
250000000	* BotRDSon [Pgnd-Vsw]	8.415162	PASS
260000000	** DA_Current_Limit [Bot_I_Lim]	9.251783	PASS
270000001	* Min_Off_Time	2.935384	PASS
280000000	* Vintvcc_0mA_no_bias	5.744688	PASS
290000000	* Vintvcc_0mA_with_bias	1.527685	PASS
360000000	* Intvcc_UVLO_Threshold RampDown	4.478650	PASS
400000001	** EN_Threshold RampUp	5.129394	PASS
400000002	* EN_Threshold Hysteresis	5.687005	PASS
410000003	* PG Lower Threshold Offset from VFB	8.699416	PASS
410000004	* PG Low Hysteresis	5.222225	PASS
420000003	* PG Upper Threshold Offset from VFB	5.741519	PASS
420000004	* PG Hi Hysteresis	4.649508	PASS
430000000	* SYNC_Threshold RampDown	2.429610	PASS
430000001	* SYNC_Threshold RampUp	1.023551	PASS
450000003	** Feedback Voltage Line Regulation	5.561093	PASS
480000000	* BIAS_pin_Current_Consumption	1.082953	PASS
500000000	** SS_Pin_Current	1.123075	PASS
510000000	** Datasheet_Osc_High [Rt=18.2K]	1.629319	PASS
520000000	** Datasheet_Osc_Low [Rt=60.4K]	1.924119	PASS
540000000	** Datasheet_Osc_Low [Rt=221K]	0.831821	PASS