DeltaQualifikationsMatrix

Allgemeines

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. Verauß 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 Halbleiten (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-0104
- 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. In "Suppliers performed tests" dokumentiert der Bauelementehersteller die durchgeführten bzw. geplanten Tests.
- g) Falls von der Testempfehlung abgewichen wird, so sollten diese Abweichungen vom Bauelementehersteller 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 herangezoger werden wenn diese zu einem ähnlichen Bauelement bereits vorliegen (Generische Daten)
- "B: Board level". Die beschriebene Änderung hat möglicherweise Einfluss auf die Verarbeitharkei 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 f
 ür iede 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

Form provided by ZVEI - Revision 4.1 - November 2019

DeltaQualificationMatrix General

Kurze Produkt- und Technologiezyklen elektronischer Bauelemente sowie neue Umweltauflagen führen häufig zu 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 gualification 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-O104 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

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.

Worked on: lame, Function)	Carl Iwashita																									
	26/06/2020		Form provided by ZVEI - Revision 4.1 - Nove	mber 2019																						
PCN number:	PCN 20_0245																									
Signature:														Device	evaluat	ion										
grated circuits or	AEC-Q100 Revision H ·										MATERI	AL PERFO	RMANCE T	EST RES	JLTS (on ti	ne basis	of AEC-Q	100 Rev	ision H)					additional to AEC-Q10x		
below:					7		in	cludes ir	ntegrated	circuits	(e.g. ASI	Cs, µ-Con	troller, men	iories, vol	tage regula	ators, sn	art powe	device	is, logic d	devices	, analog o	devices,)	AEC-Q10X		
ļ	Assessment of Ingest on Supply Chain near-thing lobing aspects - contract and approxema. - contract and approxema in calculation of a container - the TML, function, and professionance, instability of container	Remaining risks within Supply Chain?			Evaluation leve A/ B / C	Further applicable conditions	dibhn sin choch) H		s Humidity Blass or blased MAST r Unblased MAST	s Cycling senture Cycling	rature Storage Life rature Operating Life	Auro Rate anno, Data Ratertion, and Operatio	Bear Mi	nensions Shear V	uton uting Cleinactic Binakubum njecton	as Temperature instability doe	inchange y Model schange		aktbullan stan selo Compatbility	Charao la riza lo n	eserente de la companya de la comp	8	er Vapor	"2-62, JEDEC JESCO01) rajyis control with change of ovice on r. of orderal distribution	Volucies - Clobe	Remarks
		Chain? No Yes	Understanding of semiconductors experts	Examples to explain	A Application level B Bounda vel C Component level - Not relevent for gualitic		s evaluation s evaluation s bee valuated by dataset a 5 C-Q100 Revision	rck of specification raw material only)	The Temperatu MC Autoclave c	TC Temperatu PTC PowerTem	Hrs. High Temp HTOL High Temp	ELFR Early LINF EDR NVM Endu	v sav v sav	PD Physical D SBS Solder Bell U Lead httpg	EM Electronig TODB Time Dapa HCI Hot Cantor	NBT1 Nogative B	HEM Electronic C	uu Latch up	ED Electrical D CHAR Characteric EMC Electromag	SC Short Crou	UF Load fee VECH HermatoP	DROP PadageD LT LBToque	DS De Shear WV internal Wa	Vitebor test (EC 6 009) Parameter J Comparison chana doriton	For OJ Wire Consider AE	
	ANY		Intended to be used if no other type of change is		•	1	YE COM	őē	A2 A3	A4 A5		B2 B3		C4 C5 C8	D1 D2 D3	D4 0	15 E2 E	5 E4	ES E7 E	9 E10 E	11 E12 G1-4	4 05 06 0	G7 G8			
			Intended to be used if no other type of change is applicable but the change affects agreed technical contractual accessments. Any change which is not covered in the matrix below, but risk assessment at customer is													-		-							-	
	Ry change with impact on processability/manufacturability at customer, which is not covered in the matrix below.	P P	below, but risk assessment at customer is recommended.		В												1.1.	1			· · ·					
		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 emata		No technical change of product, process or test. New description of builwater which was not apacified bulkno or which is different from initial apacification. Please indicate clearly, that infoncts contains this type of change!	e.g. Errata	٨		· · ·									•									-	
SEM-DS-03 S	Specification of additional parameters	I P	Description of a new not previously covered parameter. No technical change of the preduct. (0): Definition of new parameter which was not documented before. (P): Not known as airsign change. Only in combination with other changes.	(i): e.g. adding new leated parameter.	A		- e - e	•								-		-							-	
	besign	Ī	Any device relevant changes in design / lavout of																							
SEM-DE-01	Design changes in active elements. ')	P P	Any device milevant changes in design / layout of elements with effect on data sheet // 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	^	Please check if data aheet is affected (\$EM-DS-91).		ŀ	•	• м	• •	• D,J			D D D	DI	•••	•	•••	• •	•	F ·			-	
SEM-DE-02	Design changes in routing . ¹)		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 / actuded on component level. A: Il impact on electrical function is not excluded on component level. Please check if data sheet is affected (\$EM-D5-01).	••••	•		АМ						-		•	• • •	• •					-	
SEM-DE-03	Zie abrink ³)	P P	Shrink of active area. ¹) Not included: aswing street/kert/acribe line	Typical shrink of die.		Please check if change in process technology (SEM-PW-03) is also affected.	- e -	-	• •	- M	· •	• D,J			• • •	•	• • •	•	• • •	• •	• • •			• •	•	
SEM-DE-04	Pirmuse modification	I P	Integrated software by design or memory as defined by supplier. (I): Firmware modification or update without effect of hindional performances at the customer (bag fla). (P): Firmware modification or update with effect of functional performance at the customer.	(0: e.g. addition of Pienware opportunities (P): e.g. bog fix with impact on functional performance	A		•	-								-		-							-	
		РР	New water material.	e.g. different water material to currently released material (like change from EPI material into non-	с			•										-	• • •						•	Qualification effort acc. AEC-Q100: see diffusion/doping
X SEM-PW-02 7		РР		EP(material)	с	Impact on changes in SEM-PW-69 and/or SEM-EQ-91.	• •	·		е м		•	ЕЕ.			·	- Е Е		•							AEC-Q100: "For broad charges that involve multiple attributes (e.g., sit processes), refer to section A1.3 of this appendix and section 2.3 of Q1 for the selection of wont-case leat vehicles to cover all the possible per
SEM-PW-03 7	New final water thickness	P P	Change in final wafer thickness.	e.g. change in final chip/die thickness	с	A: If thermal conductivity is affected (ike MOSFET; IGBT, BGA package, stacked dex,) A: If impact on EMC or ESD behavior cannot be evaluated / excluded on component level.	•	-		Е М	- •	• •	EE-			•	- E E	E	•						•	
SEM-PW-04	Change of electrically active doping/implantation element	РР	Change in electrically active doping / implantation element resulting in a new technology.							- M		# -				•		•	• • •							
			element resulting in a new technology. Change of gate material and / or gate dielectric material.		A					• M																
	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 CrINIVAu to CrINIVAg	с	A: If thermal conductivity is affected (like MOSFET; IGBT, BGA package, stacked des,) A: If impact on EMC or ESD behavior cannot be evaluated / excluded on component level.	••••	•		• м	•					-	MN	•			н	1	н -	•	-	AEQ-Q100: Applicable to all amart power devices
SEM-PW-07		P P	internal lavera.	e. g. change from ASiCu to ACu e. g. change in over pad metalization	с		· · ·	-	• •	• M			• • •		• • •		• • •		• • •	•					•	
SEM-PW-08 P	New / drange 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	с	Change of intrinsic mechanical stress might influence electrical function.		•	• •	• M	• •	#,N D,J	•••			•	• • •	•	• • •						•	
SEM-PW-09	Change in precess technology not covered by any other type of change	P	influence the integrity of the final product.	(-): e.g. charge from wet to dry etching, e.g. charge from horizontal to vertical oven for oxidation (P): e.g. charge of layer thickness	A	Please also check changes described under EQUPMENT. Please check if change is described by specific type of change in this matrix.	•	·								-		-							•	Qualification effort depends on type of change.
SEM-PW-10	Process integrity: tuning within specification	P	Variation within process specification (-): If Auring within process specification does not influence the isolapity of the final product. (P): If remaining mix on product specification is anticipated.	(): e.g. process control	с	Please check if DATA SHEET is affected. Please check if SEM-PW-00 is affected.	• •	ŀ								-		-							-	
SEM-PW-11	Dange ef waler suppler.	P	(-): If no remaining risk in supply chain exist (P): If the change of wafer suppler can influence the integrity of the final product.		c	Not on component, tested on test structure (typical for IC). Interaction on component level for discrete components especial. In case of SOI substrate HP properties have to be qualified. Please check if SEM-PW-01 and SEM-05-01 is affected.	· · ·	·										-	®• · ·							Qualification for 1C & p-Controller difficult on product level. Characterization only on their directions. Supplier should perform a risk assessment if there is a technology de sequence gualification effort. Ref. 2010; the technology of the sequencing and the technology of technology of the section 947-3 of the sequencing and the technology of the selection of worst-cases least which is to cover all the possible po- for the selection of worst-cases least which is to cover all the possible po-
SEM-PW-12	Drange of specified wafer process sequence (delation and/or additional process atep)	P	(P): Risk for Supply chain (influence on product integrity)	(): e.g. change of cleaning process in water production (P): e.g. additional sinker implantation after standard implantation (to protect circuit against interference impulses).	с		- e - e	·								-		-							-	
× 850.9W-13	Nove all or parts of production to a different wafer fab alla.	р р	Water fab transition with additional changes (described above).	e.g. dual source / fab strategy	٨	Check if any other type of process change is applicable due to the transfer	• •	ŀ	• •	• м	• •	• J	• • •		• • •	•	• • •	·	• • •		н		н -	•	•	AEC-Q100: "For broad charges that involve multiple attributes (e.g., st processes), refer to section A1.3 of this appendix and section 2.3 of Q for the selection of worst-case test vehicles to cover all the possible pe
SEM-PW-14	Jihography	P	Includes transfer as well as additional also. Change a process stochicpa for lithographic process and material (-): If the change is process technology does not reflexers the inceptify of the first product. (P): If the change is process technology can influence the integrity of the first product.	(-): e.g. exchange of detect mask (P): e.g. change from E-beam process to X-ray process e.g. change from contact into projection mode	с	Please also check charges described under EQUIPMENT.	· ·	-	• .	• м		# ·	• • •			•		-	•					•	-	

		-		r	-							- 1 -	<u> </u>									_			_	-	_	
SEM-PW-15	Dede / Interlayer Dielectric	-	Change in process technique for oxide / interlaye delectic process (-): If the change in process technology data 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 EQUPMENT.		•		•	м -	• #,N	D,J	. . .			• •	• •	• •	••••	•			 	-	•	-	
	BARE DIE	+																	-								0.0	JR can only be performed on packaged test vehicles.
SEM-BD-01	New final water thickness	-	P Change in final wafer thickness.	Change in final chipidie thickness	٨		-	· ·	-			•••	-						EE	Ε •			• •	 	-	٠	- N	LFR can only be performed on packaged test vehicles. BTI was removed in deviation from the AEC-Q100 Matrix because there it is a combine per of change (Water Dimension/Thickness). NBTI is applicable for water dimension stress only.
SEM-BD-02	Change of top metallization or bond pad atack	Ρ	P Change in bondpads (incl. stack below), material, pad pitch, surface changes, layer thickness	e. g. change from ASiCu to ACu e. g. change in over pad metalization	в				-			• •	-							- •	• •	• •		 	-	-		
SEM-BD-03	New / change of backside metallization	Ρ	 pad pitch, surface changes, layer thickness Change of bottom layer of die (between die and lasedfarme). Change in process, material, or dimensions. 	e. g. change from Cr/NV/Au to Cr/NV/Ag	A							• -							мм	• •	• •			 	-	•	-	
SEM-BD-04	Change of wafer setup or number of possible good dies on wafer.	ı	Needed information for pick & place machine. (I): amount of possible good dies on water (P): influence on water setup and water mapping	(i): e.g. change from 350 to 240 good dies on water (P): e.g. information change for pick & place machine.	в				-				-											 	-		-	
SEM-BD-05	Change of optical appearance of wafer edge region (like imide coverage or edge exclusion)	÷	Selection of diss in wafer edge region which have full electrical functionality. (I): In case of valver edge is affected only (P): In case of single die is affected	(R: e.g. appearance of water edge (rounded instead of square) (P): e.g. polyimide as new costing on die	в		-		-				-											 	-	•	-	
SEM-BD-05	Die scribe or separation	ı	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 water	(6): 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.	в	Plasse check if SEM-BD-04 is affected.	+		-				-											 	-	-	-	
SEM-8D-07	Die Preparation / Clean	-	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.	в	Please check if SEM-BD-06 is affected.						• -	-											 			-	
SEM-BD-08	New / change of pass/vation or dis costing PROCESS - ASSEMBLY	Р	P Change of top layer on die.	e.g. addition of polyimide e.g. change of polyimide thickness	в		-		-			• #,N	D,J				• •	• •	• •	•••	• •	• •		 • •	-	•	÷	
SEM-PA-01	PROCESS - ASSEMBLY Change in critical dimensions of package	Р	P Change in dimensions of existing package.	e. g. changes in package dimensions (further development).	в			• •	•	•••	м •	• •		• • •	• • T	• •			• •			• •	L H	 нн	-			
SEM-PA-02	Change of leadframe base material		P New leadhance material in new composition.	e. g. charge from alloy42 to copper e. g. charge between two different copper alloys	в										• • •	• •						• •		 н	•		•	
SEM-PA-03	Orange in leadhane dimensiona	Р	Change in leadhanne dimensions which has impose to the specified electrical parameter acc. data P sheet or specification (e.g. heat sink, pin dimensions, die padde aux;) Not included: Variation within specification.	a. g. change in lead frame peometry	в	ESD investigations are only necessary if internal ground and power supply connection of leadname is affected. At I impact on EMC behavior cannot be evaluated / excluded on component level.	•				м -		-		• • •	• .						• .	LН	 	-		•	
SEM-PA-04	Change of lead frame finishing material / area (internal)	Р	P Change of surface material of die attach pad and accord bond area (e.g. influence in adhesion to mold compound, wedge bond reliability)	e. g. change from Ag flash to NP protection layer e. g. change from Ag spot to Au spot e. g. increase of silver plating area	c				•	• •	м •		-	- c •	•	• .							LН	 н	-	-	• Fc	or wire bond attends test: Pre-& Post-process change comparison to evaluate ccess change robustness (AEC-Q101).
SEM-PA-05	Change of lead and heat slug plating material/plating thickness (external)	Р	P Change in material and / or process resulting in a new technology (e.g. pure tn).	e.g. change in heat alug stack e.g. change from Sn into NiPd/Au	в				•	•••	м •		-	- с.	•	• •							L H	 н	-			
SEM-PA-05	Bump Material / Metal System (Internal)	Р	P Stack die or die to substrate (flip chip)	e.g. change of layer thickness e.g. change to Pb-free material e.g. change of copper pillars	с				•	• •	м •	• •											L -	 	-			
SEM-PA-07	Die attach material	P	P Change of die attach material and / or process reauting in a new technology (e.g. soft solder, spoxy, etc.)		с	A: If impact on EMC behavior cannot be evaluated / excluded on component level (if die attach has impact on electrical conductivity).	-	• •	•		м -	• -	-							- •		•	LН	 нн	-	•	•	
SEM-PA-08	Change of wire bording	Р	Material, diameter, change in bonding diagram and for change in process resulting in a new technology.	e.g. change from Au to Cu material e.g. change from Zigen 52 Jam diamater e.g. change from night to double bond e.g. change from stich bond to atlich on ball bond.	с	A: In case of bond diagram change and EMC cannot be evaluated on component level. Please also check changes described under 528-50-01.	•		•	• •	۹•			• •						- м		• .	• н	 	-	•	• 5 2 2 2 2	exempter Analysis: Strictly required only for Power devices. general: Ste audit for material change with impact on bondprocess (e.g. from Au to Co commended. IC-0100: "Yor brand changes that involve multiple attributes (e.g. ste, materials, costea), refer to action A1 of the approximation and section 22 of 000, which allows if the selection of wonsi-case test whiches to cover all the possible permutation."
SEM-PA-09	Substrate / Interposer	Р	P Change of BCA substrate	s.g. changes in routing	в	A: Impact on EMC behavior cannot be evaluated / excluded on component level. A: If impact on electrical function is not excluded on component level.			•	. .	м •	•		• • •	т						- @•		LН	 нн	-		•	
SEM-PA-10	Dia Overcaal / Underfil	-	Supporting layers for complian packages like flp chip and/or change in process resulting in a new technology. (-): If change does not influence the integrity of the finite product. (P): If impact on product integrity is anticipated.	(): e.g. charge of dispensing speed (P): e.g. charge of underfil material	с		•		•	• •	м •	• •	-											 • н	-	-	-	
SEM-PA-11	Dange if mild compound / encapsulation material	P	P Change of mold compound / encapsulation material.	e.g. change to green mold compound e.g. change of filer particles		B: impact on thermo-mechanical sitess caused by miamatch of mold compound, interconnecting technology and carrier is anticipantic graderic for Prome Directory (Control (1998)). A in case of high frequency algorith (> 2004) it housd be assessed if possible changes in permitability of mold compound could affect signal behavior (e.g. digital signal processor).	-		•	• •	м•				• • •	•							ц.	 	-		•	
SEM-PA-12	Change of hermetic sealing	Р	Affected areas are material and process of hermetic (e.g. ceramic) packages, capped de an asaled devices (e.g. pressure senacra)	d e.g. change of sealing material for RoHS	в	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		Change of marking on device and / or change in process examing an anew technology (P: If change does not influence the integrity of the final product. (P): If impact on product integrity is anticipated.	(b): e.g. change of appearance (additional making) (P): e.g. change from inked marking to laser making a.g. making of rin 1	в	ascricu conductive).			-				-	E	в									 				
SEM-PA-14	Change in process technology (e.g. ten and item, leadharing peparation	-	 (-): If the charge in process technology does not influence the integrity of the final product. (P): If the charge in process technology can influence the integrity of the final product. 		в	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	-	Variation within process specification (-): If turing within process specification does no refuence the integrity of the final product. (P): If impact on product specification is anticipated.	(): e.g. process control	с		-		-				-											 	-		-	
SEM-PA-16	Change of direct methodal supplier	-	Change of suppliers for direct materials which are used in assembly process (BCM). (-): 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 leadhame supplier with specific leadhame manufacturing technology	с	Please check if material is changed!	-		-				-											 	-		- s	as change of material.
SEM-PA-17	Change of specified-easembly 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	с		÷		-				-											 	-	-	- 0	ualification 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.	n.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	•	• •	•	• •	м -	•••		• •	•• т	• .				- •			LH	 нн	•	•		hisker tests have to be done on moviloring basis! 5C-Q100-Yer broad charges that incoke subjet attributes (sig., alle, materials, cosses), refer to action A1 of this appendix and action 2.2 of Q100, which allows if he selection of worst-case test vehicles to cover all the possible permutations. ¹
SEM-PA-19	Die scribe or separation	-	P (-): If the change in process from single water 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		•	• •	•	•••	м -		-											 	-	-	-	
SEM-PA-20	Die Preparation / Clean	-	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		÷	• •	•	• •	м -	• •		•••										 н·	-		-	
SEM-PA-21	Molding / Encapsulation process	-	Change in process technique for molding / encapsulation. (P): 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	с		- ÷	•	•	• •	м •	• •			• • •	•							ι.	 	-		-	

	PACKING/SHIPPING																									_	
SEM-PS-01	Packing/shipping specification charge P	Р	Packing/shipping specification change.		•												-	-							-	-	
SEM-PS-02	Dry pack requirements change P		Change of dry pack requirements (e.g. change of MSL)		•		1.1	1.1		-					 						 -	 				-	
SEM-PS-03	Change of carrier (tray, reel) P	Р	Change of carrier (tray, reel)		В																						
SEM-PS-04	Ounge of tabeling	Р	Change of labelling also on real. (I): Change of material label without impact on barcode. (P): Changes of material label information which affects data processing at customer.	(f) e.g. additional information (RoHS stamp) (P) e.g. change of defined nomenclature for data processing	в			-		-		-			 						 -	 			-		
	EQUIPMENT																										
SEM-EQ-01	Production from a new equipment/loof 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	Ρ	Change in process technique which is not already covered above.	Change from single wafer to batch process (e.g. over pad metalization) e.g. damber cutting (mechanical to laser cutting)	٨		- - -			-		-			 							 		-	-		Affected process change is to check.
SEM-EQ-02	Production from a new equipment/loci which uses the same basic technology (explacement equipment or estimation of existing equipment pool) without change of process.		PCN required for dedicated equipment for annality 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 declosaid equipment in case basic technology still need to be proven	с		· ·					-			 						 -	 				-	
SEM-EQ-03	Change in final test equipment type leading to a different test concept. P	Р	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 water test).		с		· · ·			-		-			 							 		-		-	Gage R&R / della correlation
	TEST FLOW																										
SEM-TF-01		Р	Tester transfer or relocation. Check impact on SEM-AN-01 Includes transfer as well as additional site.	Dual source strategy	с	Check if any other type of process change is applicable due to the transfer	•	-		-								-		- •	 -	 		-			Gage R&R / delta correlation
	Q-GATE																										
SEM-QG-01	Charge of the test coverage/stating process flow used by the applier to ensure data sheet complexes (ag, elimitational data of electrical measurementate flow block; with attractive block coverage of memory presidence or sampling)	Р	e.g. test flow block, reduction from three temperature measurements to two temperature measurements, change in turn in / run in process (-): It change dean not influence the integrity of the final product. (P): If impact on product integrity is anticipated.	(-): e.g. last implemented without customer requirement (P): e.g. eduction from three temperature measurements to two tempenture measurements e.g. change in burn in / run in process.	с		•														 -	 					Parameter Analysis: Delta constation * For "burn in" changes ELFR recommended
	Tests, which should be considered for the appropriate process change.				A		• •	-	• •	E,•	м -	•	J	E,• E,•	 	• •	• •	• E	• E,•	E,• •	 -	 н -	\rightarrow H			•	

Tests, which should be considered for the appropriate process change after selection of condition table.	
pliers performed tests (mark with an X for done or '0' for generic)	
son for exception of tests and/or usage of generic data:	
ne of the products use copper wink.	

-	Not required.	
-	Information Note required.	
Р	PCN required.	
	 Indicates that performance of that stress test should be considered for the process change. 	
	process change. mended additionally by ZVEI	
8 recom	CONDITIONS	
1.1	Only for peripheral routing	No
B	City for peripheral routing For symbol rework, new cure time, temp	×
č		
	If bond to leadlinger	×
D E	Design rule change Thickness only	×
E E		x
	MEMS element only	×
н 1	Hermetic only EPROM or EEPROM	×
11	Leaffree	x
M	For devices requiring PTC	×
N	Passivation and gate oxide Passivation and interlevel dielectric	×
P		×
9	Wire diameter decrease	x x x
	Only for Solder Ball SMD	x
	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:	Max Mustermann]	Form provided by 2582 - Revision 6.1 - November 2011																									
PCN number:																Device												
Signature:													MATERIA	PERFORM	MANCE TE	EST RESU	LTS (or	the basis o	of AEC Q102	- Revisio	n March15, 20	117)						
	Assessment of appect on Equipy Oraln near-flag following appects	Remainin riska with Supply Chain?	ng ini Understanding of seriiconductors esperts	Ecangles to explain	Evoluation fevd A/B/C	Further applicable conditions	er auf Ben Jan dand)	re General Like	ber i	rain: Opending Like	ana Cydag	as for - Human Dady Micael	aler-Ohl			ie Pressensy		rited	3				100				g alfe som en bask har en and stan tan	Remarks
Mark change with an 'X'	- scholar i Indena di processatili, Varandacta taliti di catome - form, Ri, function, qualty performance, relability Tgas al clange are	.	**		A: Application land R: Row clearin C: Disrponent land "Not mile anti-organ		Une evolution (can be evoluted by the AEC O1 02 Cheated spectration (conversion color	High Tenness	L Tergeaha C	Anna Anna	Die Novel Novel	CO Caralle	teo Osvete	ED Prepare d D Inne	Terried See	Vitantee Vand	K Medianian Di	LE Reint to Date	Hand Gard	ELE Polis Lie Nu	Con Tox	Plan Mine (12 There have	ALE IN BUCK	L No food She	LG 0.40%-ear	Parameter des	
LED-AN-01			P trended to be used if no other type of change i applicable but the change affects agreed technical contractual agreements.		•		a (2) (2)	1.1	-		-	-			-				-	-	-							
LED-AN-82	Any change with impact on technical interface or processability/manufacturability of customer, which is not covered in the matrix below DATA shellst	P F	P dee processibility on board level technical interface means component terminals			Check F LED-09-01 is affected Processability should be assessed.			т		-				-	-		S,T -						-				
LED-09-01	Charge of database parameters/electrical specification (min.max./bp. values) and/or PulseDC interference.	P F	Change of application minuters information (e.g. maximum pulm current) due to a technical product or process change.	e a change of die substrate material.				Е	E	E	-	E	E					s .		E		-	E				. E	
LED-03-02	Correction of data direct of issue of errors.		No technical change of product, process or test. New description of behaviorability was not specified befare or which different training specification.							-	-		-						-				-	-				
LED-03-43	Specification of additional parameters	. ,	Notassiment in application sequend E Definition of an additional parameter which was not specified below Pr. If these is a risk on supply chain where at least one addition other PCH-services change category will apply.	Ingrowd Alatelice. E e.g.: adding newseled parameter E e.g.: addinoral temperature coefficient parameter					-		-	-			-							-	-	-				Formation since this is not a product change, ony addisinal information Casesfulation C
LED-DE-01	Design changes in epitosy.	p r		e.g. change from Double-Fatera to Quantum wells e.g. change of barrier thickness	c	A: change trom Double tesses to Quantum wells spectrum is Affected		•	-	•	•	•	•	-	-	-			-	•	н		-					
LED-06-62	Design changes in rausing/toyour.	p p	and reliability. Ney change in chip-design / layout. Nos isokubed- Changes within design rules and design geostication without affecting specified functions, parameters	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 patient changes		•	•	•	•				-		-	•	м	•	м	м	-	в	вс	. м		TR might be considered for samples die bond technologies
LED-DE-ES	De shox	P F	and reliability. Bitrink of active area. Not included: saving streether/souther ine	Typical shrink of do.		Please check if change in process technology (LED-PH-OI) is also attected.		•	•	•	•	•	•				-	•		•			•	в	в	• •		•
LED-DE-DI	LED package (woosp: leadhare)		P any change in focusing thickness any change in form or dimensions	e.g. change of dimensions. e.g. change of x.y. or 2 dimension of the package	8	Check # LED-09-92 is affected which leads to a change of the eldrooptic parameters.	• • •	•	•	•	•		-	•		v	v	• т	D		D	D	L	в	в	D -		
LED-OS-05	Design of Modifiana PROCESS - MARK PRODUCTION	p p	P any change of leadtrane / carrier dimensions. any change of ourse dimensions.	e.g. shange initialitate / carrier dimensions in $x,y,{\rm dr}z$ dimension $x,y,{\rm dr}z$ dimension $x,y,{\rm dr}z$ design of the backsame not affecting the ${\rm ell}$ performance x reliability of the device	8	Check F LED-05-92 is affected which leads to a change of the elchooptic parameters or destructors.	• • •	·		•	•	•	•	•	-	v	v	• T	-	-	-	-	•	в	в	D 2	2 •	•
LED-PW-01	New I change of water substatus or castler material	p r	P New water substate material.	 a. different valer material to currently released material (change from Sapphie to Silicor) 	c	Check # LED-01-92 is affected which leads to a change of the elitrooptic parameters or detributions.		•	Ρ	Р	•	Ρ	Р	-	÷	+	-	•	Ρ	•	Ρ	Ρ	•		+	•	-	
LED-PW-02	Walter diameter	p p	change of water diameter resulting in equipment and process changes.	44 C 10 C	c	In case other type of changes are affected to equipment/process technology - they need to be identified in addition		•		•	-	Ρ	Р	-			-	•		•			•					
LED-PW-03	New final water thickness.	p r	P Change in final water thickness	n.g. strange in final chip/die Trickness	c	Check 7 LED-09-92 is affected which leads to a change of the elistrophic parameters or demburities.	• • •	•	•	Р	•	Ρ	Р	-		-	-			•		-	•	в	в	• •		
LED-PWee	Change of electrically active disping/inglamation element	p p	P Change in electrically active doping.) implantation element resulting in a new technology.	e.g. change from Re to C as dopant	c			•		с	с	•								•		-	•					
LED-PW-65	Change of stacking	p p		e.g. change of isolation layer thickness between n- and p- material		cuidomer application needs to be checked due to potential system voltage differences	• • •	•	F	•	•	•	•	-			-			•	F				-			
LED-PW-04	New/ change of metallization (specifically drip transide)	p p	P Change in metallization of bondpade, meterial, layer thickness	e.g. change in band pad metalization thickness	c		- • M	•	•	•	•	M,B	M,B	-		+	-		м	•	м	м		•	•		-	•
LED-PW-07	New (change of metallization (specifically drip backside)	P F	P Change of bottom layer of die (between die and leadhane/carrier). Change in process, material, or dimensions recessary.	e.g. change Tom Au to Autlie	c	Ac outcomer 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 is process technique (e.g. significant process changes like lithography, etc), sade depositor, de tack surface preparation backginet,)		Change from wet to dry etching, change from horizontal to werkal oven for oxidation, change from contact life into depper lifes,	e.g. change from set exh to dry exh e.g. change from laser curting (taxing) to plasma curting (taxing) 4.g. change from contact into to stepper into	c	B: change tross.CND dep to spurse dep for backside/fruntide metal/bation. In case of new equipment please check if LED-P&-14 is also affected.	• • •	-	-	-	-		-				-		-	-	-	-		-	-			Qualification effort depends on type of shange.
LED-PW-09	Prozess Integrity: Turning within specification	- 1	p Variation within process specification	e g. process control	с		• • •	-			-				-		-			-	-				+			
LED-PW-10	Change of material supplier with no impact on agreed specifications	- 1	P Change of water supplier. Change of supplier for chemicals needed for water production.	e.g. Change of water supplier.	c		<u>.</u> .				-			-			-			-								Qualification effort depends on type of change.
LED-PW-12	Change of spedied water process sequence (deterion and/or additional process step) Change in de coating or passivation	F	Readed for water production. Poly change which is not covered by another type of change. Rok is to be assessed. Change in moverial, thickness, and process for coating and pasticulation	e.g. additional cleaning process is water-production e.g. change from SIO2 to SIME	c						- P	Р	- P	-		-	-		Р		Р	Р		· P	P			Qualification effort depends on type of change. PPAP has to be updated.
LED-PW-13	Newwalter production location or transfer of water production to a different not previously released		 passivation New water propduction location or transfer of water production with possible additional changes. 		c	A or E Impact on other type of changes described under PROCESSS - IMPER PRODUCTION and BOUEPMENT categories of this Diroutite																	J					
	RAAS DE DELVERES			I														_			_							
LED-8D-81	New / change of front side metallization		P Change in tompada, netwiral, pad phth, surface changes, layer thickness		8	Check # LED-DS-02 is affected which leads		•		_			M,B			-	-		•	•		•	-	•			-	
LED-8D-92	New (change of backside neralization	P F	P Change of bottom layer of de (between die and inactivame/carrier). Change in process, material, or dimensions P Re-ded information for pick & piace machine. E only additional number of chaps	e.g. change tom Au to Au alloy	8	to a change of the elithooptic parameters or distributions.	M	•	•	•	•	D,M	D,M	-	-	•	-	•	•	•	•	•	•			•	-	cumuner application needs to be checked due to potential system votage differences.
LED-8D-93	Change of water setup or number of dies on water.		Prevant is consistent to pack a place number. E only additional number of only. Proceeding in spacing between onlyse and form of water: Changes in spacing between onlyse and form of water: Changes in Start COs prevalet (including careful, very non-and usually constained with a material change (change of carvier monicol)	e g. information change for pick & place machine.		Check if LED-09-01 is also affected.	· · ·	•		Р	-	Р		-			-		-	•			-					
			P usually contained with a material change (change of carrier material) P Change in material, thickness, and process for coating and passivation	e g. change on converter thickness		Check I LED-09-01 is also affected.	P			_	• P	P	P	•	-			•	· P	•	- P	Р	•	B		•	+	
	PROCESS - ASSEMBLY			1	-		ان النور العام المحمد العام			-					_			-				1	-					
LED-PA-01	Change of leadhame/carrier base material		New Isadhameitarrier material (new in compositor) Change of surface material of de attach pad and second bond	e.g. change from copper alloy to bare copper	8	Check # LED-05-92 is atteded which leads to a change of the eichtoptic parameters or desibutions.		Ρ		_	-	-	-	-	3	-		• •	A	-	A	A	P,1	•	•		P .	Explanation should be provided in case Hotil text in not applicable Regarding applicable materials please refer to the Whiker standard. In the second be considered for automative element applications, realization found to survival in case Hotil rest is not applicable.
LED-PA-02	Change of leadhameitarrier frishing material (nternal)	P F	Sond Headery)	e.g. change from Ag fash to NPd protection layer e.g. change from Ag sports: As sport			· · ·	Р	+	-	•						-	• •	A		A	A	P,1	•	•	• •	•	
LED-PA-03	Change of load and heat skip plating manerialplating thickness (scarma)	P F	Classification depends on inpact of change	e.g. change in hear stug stack e.g. change trans for into NAPO/Nu e.g. change of larget thickness			М		•	к	-	1		1	-	-	-	• •	A	-	A	A	P,1	-	-	. к	< .	Explanation should be provided in case M25 test is not applicable Regarding applicable numerials please refer to the Whater standard.
LED-PA-04	Bump Material / Metal System (interna) Die attach namini	P F	Back de cr de to substate Change of de attach material (e.g. suit sobler, epcay, etc.) Thermal managment must be respected.	e.g. change to Po-free numerial e.g. change of Ag glue to Au glue;	A 8						•					- N		•	w		W	w	•			•		
LED-PA-06	Change of bond wire material	PF	P Material, whe diameter, change in process technique	e g. shange from 30µ to 20µ	A													•	P,D			P,D		•	•			Site audit for namerial change with impact on bondprocess (e.g. from Au to Cu) recommended.
LED-PA-07		P F	Change of sub-component supplier using different technology/materials Name: Jump start test at OEMs might be necessary	e.g. using a different ESD-dode in technology and material than previously	A	Check If LED-03-01 is also affected.	1 (1) (1)					1.1		-	-		-		-		-							Qualification effurt depends on type of change.
LED-PA-08	Die Oversaat / Underfill	- F	 Nic change in product integrity of final product Nic change can influence the integrity of final product 	P. e.g. change of underfit with change of thermal resistance	8	Check if LED-09-01 is also affected.	н н Р	•	•	Ρ	•	-	-	-	-	-	Р	•	Ρ	•		Р	U			υ.		
LED-PA-09	Charge of mode compound encoperation heading material	P F	Change of mold compound, encapsulation, or sealing material might be athleted opscal function in case of package material effect (or, browning). Component assembly and based coating has to be assessed. MSL might be changed.	e g. PPA milit compound	*	Check / LED-09-91 is also affected.		·		·	•	-	-	D		D	D	• T	P	P	P	P	P	-	-			
LED-PA-10			P Change of material class. P New suppler with same material specification	e.g. change from pravats to vitrides	c	Check # LED-09-91 is affected for optical/photometric parameters		•		· ·	•	-	-	-		P			P	P	P	P	P		-		-	
LED-PA-12	Change of converter process technology		newtechnology for converter production is no influence on elo performance of product PLIN case of impact on product imagity	e.g. change from volume conversion to layer conversion; e.g. change from stamping to printing of layer	c	Check I any change in electro-optical characteristics results in change of data sheet LED-05-01		•			•		-	-				• •	z	z	z	z	Y					
LED-PA-13	Change of product making		Marshing on device. Rechange in appearance; readability not affected Rechange of content or change of appearance of data matrix cons	e & maning of callodar;	8		• • •		0		-	-	-	-			-	тт	-			-	-	-	-			
LED-PA-14	Change is process technique (e.g., de attach, bonding, mosiding, pitting, trim and form, $\ldots)$	P F		e.g. change die attached from gluing to soldering		A or B: Please check I SQUPMENT and other type of changes of material (LED-PA- 6405/06/07/05/0910] are affected	1 1 1	-	-	1.1	-	1		-	1	-	-	· ·		-		-	-	1	-		-	Qualification etilum depends on type of change.
LED-PA-15	Process Integrity: Tuning within specification	- 7	Variation within process specification	e g. process control	c		1 A A																	-				

LED-PA-16	Change of direct numerical supplier with no impact on specification	Р	Change of suppliers e.g. for lead frames, whe material, die attach, electronical components	Change of suppliers e.g. for lead trames, wire material, ESD- diate	c	Assungtion that change material specification remains unchanged. Otherwise see change of material.			-		-			-	-			-						-		÷	- See charge of nametal.
LED-PA-17	Change of specified essentially process sequence (additional and/or deletion of process step)	р	Addition or detection of a process tang in assembly process sequence with parantially significant impact on the product performance is no influence on product integrity Pr 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 effurt depends on type of change.
LED-PA-18	New assembly location or transfer of assembly to a different not previously released processor (in the second seco	р	New assembly location, assembly transfer or relocation. Transfer of known technology and equipment.	e.g. Dual source ditategy	c	A or it: Impact on other type of changes described under PROCESS ASSEMBLY and EQUIPMENT	• • •	1.1	-	1	-	-	-				 1.1	-			-		1				Qualification effort depends on type of change.
	PACKINGGHIPPING																										
LED-PS-01	Inner Packingshipping specification change P	P	dimension change of direct product packing	e.g. SMT pocket in tape changes	8		P				-	P	Р				 т	-		-	-			-			-
LED-P9-02	Curer Packing-Misping specification change		dimension changes indirect product packing 6 small changes in dimension or appearance P: number of reels in the packing are changing	e și pizator	•				-		-	-	-	-		-	 1.1	-			-	-					
LED-PS-03	Charge of Booking 1	р	Change of labeling also on red. E additional information no change of previous information R change in content of previous information	(R e.g. additional information (RuHG stamp) (P) e.g. change of customer specific information	8	Check F LED-09-01 is also affected.			-		-		-	-		+	 	-				-		-	-	-	-
LED-PS-04	Drypack requirement change P	р	Change of dry pack requirements (change in MSL)	e.g. change trum MSL3 to MSL1		Check If LED-059-02 is also affected.		-		-	-		-	-	-		 	-				-	-	-	-		-
	ECUPMENT																										
LED-ED-81	Production from a new equipment loci which uses a different basic technology	р	Change in process technique which is not already covered above. Nate: Major changes affecting the product not covered by the table require airs a PCN.	e.g. change from single water to batch-process. e.g. over pad metalikation e.g. dambar cutting (mechanical to laser cutting)	8	Check # LED-09-01 is also affected. Corosion stability should be assessed.	• • •		-	+		-	-	+		-	 -		+		-			-	-	-	- Qualification effort depends on type of change.
LED-60-82	Production from a new equipment/bod which uses the same basic technology (replacement equipment or extension of existing equipment pool) without change of process.	р	PCN:required for dedicated equipment for sensitive component production.	e.g. change from single die to muit die handler.	c		• • •	1.1			-			-	-			-			-			-		-	Qualification effort depends on type of shange.
LED-50-83	Change is final test-equipment type that uses a different technology	Р	Change of sease platform (e.g. major text program changes , newstater interface,). It product specification is not affected W product specification is not affected	e.g. change in test method from of to lumen				-	-	-	-	•	•				 т							+			Gage Ritik / deta convision
	TEST FLOW																										
LED-19-01	Move of all or part of electrical water test and/or final tests to a different location/ble/subcontractor	р	Yester transfer or relocation.	e.g. Dual source strategy	c		•	В	•	•	в	•	•		-		т	-	в		1.1		в	в	в	÷.,	Gage RBK / deba correlation; additional specification check B should be cansidered for Wahr testing
	O-GATE																										
LED-00-01	Change of the text coveragementing process flow used by the supplier to ensure data sheet compliance (e.g. elimination/addition of electrical measurementment flow talcol; instantionentancement of monitoring procedure or sampling)	р	Reduction or additional control steps, test coverage within the process flow	e.g. test flow block like Final test./ final clearance	c				-		-	-	-			-	 -	-			-			-	-	-	•
Tests, which a	hould be considered for the appropriate process change.									-		-		-		-	 -		-	-		-	-		-		÷
Tests, which s	hould be considered for the appropriate process change after selection of condition table.																										
								_																			

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 'O' for generic)	
Rasson for exception of texts and/or usage of generic data:	



Worked (Name, Funct D:	on: Max Mustermann ate																										
PCN numb	ber:										матея	RIAL PERFOR				aluation		vision -Ser	tember 14	2017						additional to	
Signatu	ire:			ī	-						mater	CIAL PERFOR		ESTRESUL		basis of AE	C-0104 Kt	vision -sep	centuer 14,	2017						additional to AEC-Q10x	
					E valaaton ford		had) ther 14, 2017	ia s or bisis dHAST	wst	gol.fe atng Lfe	beerion, and							at ly				8116	re Steps	u boku		JE (80:001) theregied divice textbrace	
Mark change eith an "x"	Assessment of Impact on Supply Chain regarding following aspects - contractual agreements - technical interface of processibility/manufacturability of customer - form, R. function, quality performance, wiability	Remainin riaks with Supply Chain?	g in Understanding of semiconductors experts	Examples to explain	Further applicable condition	s	date of automoreal di- tryision Septermi autocomponent)	errpe a ture Humiday B	ubolave of Unbiased F amperature Cycling Diver Temperature Cyc	lgh Temperature Bona ligh Temperature Oper	any Line Failure Kan MMEndura non, Data F ipe est ond Life	áre Bond Shear áre Bond Puá biterábály	hydical Dimensions older Ball Shear	eed intergrity insy/CSAM	lectronic Discherge Armen Body Ab de actronic Discherge	trange d De vice Mű del arch u p	lection Detribution aut. Gaiding	haracterisation Journagedic Compa	ot Error Rate	lemetro Package Text Is cielo ge Orop	ed Torque de Shear	derna I Wrater Yap or o and Lavel Poleiability on Temperature Store	Lat Up and Temperatu CMDrop Test	waru diwe Physical An	ra y co usit e Microscopy	Ar shertest BC 60066T2-62, JEDE C arm relev Arolysis comparison of current with comparison of current with	Remarks
	Type of change	No Ye	-		R Application R Borefloor - Component - Nat relevant		The contrast of the constraint	ę	0 1 01	HTBL P	5 8	Vies Vies Vies Vies Vies Vies Vies Vies	0 88	U 1		8 3	8 2	CHUR C	8	HI HI HI	5 8 3	an a a	STEP 2	OPA C	ueer v		
MEMAN	ANY Any charge 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 		•	_	58 🛛 68	A2	A3 A4 A5	AG B1	32 B3	· · · ·			E2 1	ы н 	ES ES	E7 E		11-4 GS (GE G7 (<mark>са н1 нс</mark> 	2 H3 H4	H5)	HS H7		
MEM-AN-	Any change with impact on processability/manufacturability at customer, which is not covered in the matrix balow.	р р	Any change which is not covered in the matrix below but risk assessment at customer is recommended.		в		·																				
	DATA SHEET		Update of data sheet because of technical change of the product.	f e.g. recommendations for pul-upipul-down or NC															1.1				1.1.				
MEMOS		1 1	Optimit of uses are to electrical or of income of the product. No is deviced change of product process or test. New description of behaviour which was not specification of behaviour which was not specification. Please indicate clearly, that Ho note contains this type of change!	pire, MGL e.g. Errata	*																						
MEMOS	20. Specification of additional parameters		Assessment is service atom socials Description of a new red previously covered parameter. No socivical change of the product. (P): Definition of new parameter which was not documented babers. (P): Not income as single change. Only in combination with other changes.	R: e.g. adding new tested parameter.	*																						
	DESIGN		1														_									-	
MCM-DE-	01 Female indification		Integrated software by design or memory as defined by upplier. (8) Firmmers modification or update without effect of functional performance at the customer (hug fit). (9) Firmware modification or update with effect of functional or reliability performance at the customer.	(P) e.g. addition of Firmware opportunities (P): e.g. bug fix with impact on functional performance	*		·																				
MCM-DE-		P P	•	e & addition of passive elements in filter circuit	A		• •	۰.	••••	e•••	•			• •	•	• •	• •	• •	Mg	•.D ·	• @ F						
MCMPA-	PROCESS - ASSEMBLY - MATERIALS Papecenet of any sub-componently a Non-AEC qualified sub-component		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								Ι.Ι.						ме		. @ F		1.1.	e• e			
мемеран			Change from a Non-KEC Qualified sub-component to another Non-KEC Qualified sub-component Change from one AEC Qualified sub-component to another AEC Qualified sub-component to an AEC Qualified sub-component to an AEC Qualified sub-component e.g. with inspace on electrical informance (ESD, tech up) electrical functionality, test coverage		A Requires additional evidences that new sub-comp qualified	onent is AEC										•••			e		• @ F			e• e			
	Replacement of any sub-component by an AEC qualified sub-component Critical characteristics of sub-component ass <u>net</u> affected		 a.g. with impact on electrical robustness (p. 5.0), sitch up,) electrical functionality, text coverage a.g. with <u>no</u> impact on electrical robustness (ESD, latch up,) electrical functionality, text coverage 		C Requires additional evidence that new sub-comp qualified	onent is AEC				· @•	· @•										- @ F			@• @			
	Chical characteristics of sub-component are net affected Charge within a sub-component that has been nequalified Chical characteristics of sub-component are affected		 acts up,) electrical functionality, text coverage a.g. with impact on electrical robustness (ESD, bach up,) electrical functionality, text coverage 		qualified qualified Requires additional use of the appropriate ZVE10 A active, passive component) for qualification of the component component											• •			M		- @ F						
	Charge within a sub-component that has been requalified Critical characteristics of sub-component and and affected	-	 e.g. with no impact on electrical tobustness (SSD, latch up) electrical functionality, test coverage 		C Requires additional use of the appropriate ZVE10 active, passive component) for qualification of the component	DeQuMa (e.g. changed sub-				· @•						e• @•					- @ F						
	Substrate change affecting models schematic (Changes to the instrati dimensions and / or schematicu)	P P	Design of homes and south any low memory of Change insubstate, leadthene dimensions which has impact to the specified desired parameter acc data sheet or specification (e.g. hast ink, pin dimension, de paddi state,) Not included: Variation aitifus specification.		A		• •	۰.	• • • @K		•	e• e• ·							м					۰.			
мемеран	207 Processes used inmodule assembly (e.g., pick & place, de stach bonding, wfow, emopsishton, singulation, die overcoat, untellit, die preparation, die diard)	. P	 He include: Tailability in package of the second sec	(-): e.g. turing within process specification	c		•	•	· • @K	- @ A		•••					ен .	@• ·						۰.			
MCM-PA-	08 Poores integlity turing within specification		Variation within process specification (-) Funing within process specification does not induces the integrity of the final product. (P): Elimpact on product specification is anticipated.	(-): e.g. process control	c									-										-			
MCM-PA-	Change to materiale used inmodule assembly (e.g., schesile, undertil, encopsulate, solder, epore, bump material, die aktach material, bond wire, die overcoat, substrate, leadhane base material)	p p	Change of used material (e.g. bump material, die attach material, acit solder, epony, esc.) Change of bord wire material, diameter, change in bonding diagram		C B: impact on themomechanical stress caused by mold compound, interconnecting technology ar anticipated B: external lead finishing material is affe	rnianatch of d carrier is cled	• •	٠	· • @K	@• @E @	E -		•••	•			•	@• ·						۰.		•	
мемера-	10 Change of direct material supplier	· •	Change of supplers for direct materials which are used in assembly process (BCR). (-) Fichange does not influence the integrity of the free product on product integrity is anticipated.	(-): e.g. change of wire material supplier. (P): e.g. change to new mold compound supplier e.g. additional insidhame supplier with specific leadhame manufacturing technology e.g. additional or new substatus supplier.	C Please check if material is charged																						See change of material.
мемера-	11 Dange to assembly location Move all or parts of production to a different assembly site)			e.g. dual source / tab strangy	C A of E: impact on other type of charges descriptions of the type of charges descriptions. A SSGMBULY and SSM-RQ incase of Cu wire product please const ABC-0006.		• • •	·	• • @K		•	••••	• @	•			•	@• ·						۰.		e•	Whilker tests have to be done on monitoring basis! AEC-Q100: "For bread changes that incole multiple attributes (e.g., etc., materiale, processes), (micro bacicn A13 of the supportion and section 23 of Q100, which silows the salection of worst-case test whiches to cover all the possible permaablors."
МСМ-РА-	PACKINGSHIPPING		Change of marking on divice and / or change in process sealing in a new technology. (B): If change does not influence the imaging of the final product. (P): If impact on product integrity is anticipated.	(R): e.g. change of appearance (additional marking) (P): e.g. change from inked marking to baser marking e.g. marking of pin 1	8		· · ·	÷		• •		в							•					•			
MCM-PS-	01 Packinghtipping specification dange 02 Dry pack requirements dange	P P	Packing/shipping specification-change. Change of dry pack requirements (e.g. change of MSL)		•			1	· · ·			· · · ·										· · ·					
MCM-PS-	0 Dange of Carter (Iby, me) 04 Dange of Dates (Iby, me)		Change of carrier (bay, neel) Change of labeling also sorreel. (I): Change of maintai label without impact on barcade. (P): Changes of maintai label information which affects data processing at customer.	(Re.g. additional information (Rol-G stamp) (P) e.g. change of defined nomencleaure for data processing	8				· · ·	· ·		· · · ·		-						· ·		· · · ·					
MCM-EQ-	EQUIPMENT Poductorihom a new equipmentibal which uses a different tradic such rology or which due to its unique bm or function can be expected to Munice the imaging of the final podul.	P P	Change in process technique which is not already covered above.	Change from single water to batch process (e.g. over pad metalization) e.g. dambar cuting (mechanical to baser cuting)	A												•	e• ·						•			Affected process change is to check.
MCM-EQ-	22 Poducionhors new equipmentibol which uses the same basic schoology (wpiscement equipment or extension of existing equipment pool) without drange of process.		PCN required for dedicated equipment for sensitive component production. (-): for brange does not influence the integrity of the final product. (P): If impact on product integrity is anticipated.		c												• •							-			
MCM-EQ-	Orange to testing platform Change in final test equipment type leading to a different test concept TEST FLOW	P P	Change of setier platform with differences in HW or SW that makes a change in test concept necessary	e. g. charge taster equipment from LTX to Teradyne	c		•										•	e•	•				• •		-		Gage R&R / delta convention

MCM-TF-01	Change to testing location (Mow of all or part of the final test to a different test site) P	Tester transfer or nelocation. Check impact on MCM-AN-01 includes transfer as well as additional site	Dual source strategy	с	X a b b b b c b c c c c c c c c c c
	O-GATE				
MCM-QG-01	Change of the text commandwating process flow aund by the tapping to smart data their complexes (b) a diministrated flow of all other measurement that the tables, established measurement of monitoring proceeding or sampling	change in how in (an in spectrum of change of the set	(-); e.g. test implemented without customer requirement (P): e.g. eduction from three temperature measurements to two temperature measurements e.g. change in burn in / an in process.	c	
	Tests, which should be considered for the appropriate process charge.				
				-	
	Tests, which should be considered for the appropriate process change after selection of co	endition 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. Information Note required. PCN required.

nge.	Indicates that performance of that stress test should be considered for the appropriate process	•
3 record	mended additionally by ZVEI.	
	CONDITIONS No.	£
A	die preparation and/or die clean	
в	For symbol nework, new cure time, temp	
с	If bond to leadinger (requirement in Q100)	
D	G1 - G3; no G4	
E	only for bare die and change of mold compound	
F	bare die sub-component only	П
н	processes for material in direct contact with die surfaces	
к	For devices requiring PTC (requirement in Q100)	
м	Applicable for subcomponents with > 1M SRAM or DRAM per AEC-Q100	
T	Only for Solder Ball SMD (requirement in Q100)	-
•	For "burn in" changes IOL or ELFR recommended	

		Max Mustermann		Form provided by ZVEI - Revision 4.1 - N	ovember 2019																									
	Date: PCN number:						ľ										Devi	ce eva	luation											
	Signature:						-							M	ATERIAL PE	ERFORMAN	ICE TEST RE	SULTS (on the bas	is of AEC-C	200 Revisio	n D)						additi	nal to AEC- 0200	
Mark change with an "x"				_	-	Evaluation lavel A/B/C	Gene Anno A																					000)	nget device toution	
with an "x"		Assessment of Impact on Supply Chain regarding following aspects - contractual agreements - stortical interface of processabilitymanufacturability of customer - form, fit, function, quality parformance, initiability	Remainin risks withi Supply Chain?	g in Understanding of component experts	Examples to explain	A: Application level B: Component level C: Component level * Not relevent for qualificant on matrix	Further applicable conditions	C-Q.200 Ravision D of specification we make at only)	High Teng Exposure (Borego) Ten protue Oycling	Destructive Physical Analysis	Act was a constructor Bission Humid Iy	Operational Life	E Kennal Visual Physical Dimension	Territral Stangh (Landa) Residence to Solvers	Metanical Brock	Vibration Residence to Soldering Hast	Thermel Stock Electrostatic Distange (E30)	Sci dendel ky	Electrical Characterization	Band Plex	Terrina Storgh (SAD) Barn Lood Test	Puero Potardoco	Action Voltage	Sali Spray Electrical Transfert Conduction	Shear Brough Fault Current Duribility	Entro of Use Mode Verification	Amp Burt Endurance	Load Dump Endurance Whisker T au 000 0000 T3-02, 40000 405	Paranteer-Andysia: Paranteerian di cumet with che chemicrettalion, di editical dat	Remarks
Selection of component		Type of change NETWORKS & RESISTORS	No Yes			480°	Line (cent	AE	3 4		6 - F.		1 50	11 12	13	м	94 - 17	а. С	9 20	21	22 28	24	26 27	а х Х	м х	23	м	38		
NETWORKS & RESISTORS	PAS-RES-AN-01	ANY .		Intended to be used if no other type of change is applicable but the change affects agreed technical contexts at successes																						1.				
NETWORKS & RESISTORS	PAS-RES-AN-02	Any change win impact on agreed upon sortincal contractual agreements Any change with impact on processability/manufacturability at customer, which is not covered in the matrix below	P P	is appealed but the change attents agreed technical revolution all averagements	Technical interface means component terminals.	в						-																@•		
NETWORKS & RESISTORS	PAS-RES-DS-01	DATADJET	L				Risk assessment decending on change																			1.				
NETWORKS & RESISTORS	PAS-RES-DS-02	understanding of databaset parameters/afranken (sein, heav) pp. velaket) and / or ACROC questionation Connection of data, sheat or lease of arrela.		Not included: Editorial changes. No included: Editorial changes of product, process or http: New description of behavior which was not apporting behavior or which is different from thists production, by the Indonesis contains. PR types of change! Assessment is application required! Description of a new not previously covered	e.g. data sheet conection because of new information about component behavior	A	Risk assessment depending on change																						-	
NETWORKS & RESISTORS	PAS-RES-DS-00	Specification of additional parameters	I P	Assessment is application required! Description of a new not previously covered parameter. No technical change of the product. (Er: on influence (P): Risk nanessment depending on change for each application to produce evidence of additional parameters (stat. evaluation)	n.g. adding new (lasted) parameter.	*									-														-	
NETWORKS & RESISTORS NETWORKS & RESISTORS		MATERIAL.								_						_				<u> </u>		-				-				
NETWORKS & RESISTORS	PAS-RES-MA-01 PAS-RES-MA-02		P P	Change of Ink / Wine material	e.g. resistor parts, NDr, resistor wire e.g. AgPd pasts, Ag pasts, lead wire, NDr for wide termination.	в			· ·			•		w .			• F		в -		•	R							@• @•	
NETWORKS & RESISTORS		Change of material composition - Package/ Mold	P P	Change of Package	side termination e.g. for chip res.: final costing, epoxy	в		• •	• •				• •	• •			• •			•	•	R								hether AOI at tier 1 can be
NETWORKS & RESISTORS	PAS-RES-MA-04 PAS-RES-MA-05	Dhange of material composition - Pasalvation Dhange of material composition - Substrate material	P P	Change of Passivation /Inner protection Change of substrate material	e.g. change of glass	c c		· ·	• •										• 8			R		N -						
NETWORKS & RESISTORS	PAS-RES-MA-05	Change of supplier of material	- P	Change to a new or additional material supple at component manufacturer.	r e.g. for 2nd source purpose	c					•						•••					R		N -					@• Assumption	on material specification unchanged. Otherwise see of material.
NETWORKS & RESISTORS	PAS-RES-DE-01	DESIGN Changes of territoxiton, surface linish, shape, color, appearance or dimension structure Changes of inner construction - Passivation				BC	-	•	: : :			•	• •		1 • 1	• •	• •				•	R						: :	-	
NETWORKS & RESISTORS NETWORKS & RESISTORS	PAS-RES-DE-02	Ohanges of inner construction - Passivation PROCESS	. P	Change of package Change of passivation/inner protection	e.g. change of glass, laquer, epoxy,	с		• •	• • • •		• •	•					• •		•			R		N -					-	
NETWORKS & RESISTORS	PAS-RES-PR-01	Ohanges 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	с	•	•	• •			•	· ·	R ·				1.1	в -					$\epsilon \to 1$				· ·	6.	
NETWORKS & RESISTORS NETWORKS & RESISTORS	PAS-RES-PR-02 PAS-RES-PR-03 PAS-RES-PR-04	Changes in process technology or manufacturing methods - Ink Print Changes in process technology or manufacturing methods - Trim	- Р - Р	Change of ink print process Change of tim process Change of lead form process	e.g. change from mill trimming to baser trimming e.g. change from bending to punching	ССВ	•		• •	-	•	•	•	R ·			•		B -	R	R -	R		 N -		-			@• @• @•	
NETWORKS & RESISTORS	PAS-RES-PR-05	Changes in process technology or manufacturing methods - Termination Attach	- P	Change of termination attach process	e.g. change from bending to punching e.g. chip resistors: electroplating process e.g. welding of leads for through put devices.	в								•	•	• •			в .					N -			•		@•	
NETWORKS & RESISTORS	PAS-RES-PR-06	Changes in process technology or manufacturing methods - Marking Changes in process technology or manufacturing methods - Molding	. P	Change of marking process Change of molding process	e.g. change from tampon printing to laser marking	B			• •			-	•	•			•				•							÷ .	-	
NETWORKS & RESISTORS NETWORKS & RESISTORS	PAS-RES-PR-08	Charges is process increasing or manufacturing memore - Meaning Process Integrity: having within specification PACKING / SHIPPING - NEW MATERIAL, ORITICAL DIMENSIONS	. P	Variation within process specification.	e.g. process control	C	-			-				•					-			•		1	-					
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 real.	В									-			-		-	· ·						· ·		-	
NETWORKS & RESISTORS	PAS-RES-PN-02 PAS-RES-PN-03			Change of dry pack requirements.	e.g. change of MSL e.g. change in dry pack assurance (HIC, MSB) e.g. change by material e.g. change by geometry.	в																							-	
NETWORKS & RESISTORS		PACKING / SHIPPING - VISUAL INSPECTION	P P	Change of Carner	e.g. change by geometry.	в				_																				
NETWORKS & DESIGNMENT	PAS-RES-PV-01	Change of labeling	I P	Change of labelling, also on reel.	(1) e.g. additional information (RoHG stamp) (P) e.g. change of customer specific information	в	-	1.1													· .			· ·					-	
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	в	-	1 A.								• •					· .						•	· -	-	
	PAS-RES-PV-03	Drange of packing/shipping specification	р р	Change in packing specification which does not described a change of dimensions or material of the packing.	e.g. charge of documentation in packing specification																								-	
NETWORKS & RESISTORS		LOGISTICS / CAPACITY / TESTING - EQUIPMEMENT			1					-																				
NETWORKS & RESISTORS	PAS-RES-EQ-01	Poduction from a new equipmentflood which uses a different fectimology or which due to its unique form or function can be expected to filamone the integrity of the Virall product Poduction how a new equipmentflood which uses the assess fault inclundage (reglacement explanations) or advance of advance of a	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. PCN required for decicated equipment for	e.g. new equipment supplier with different process concept e.g. additional equipment to increase production research.	c c	•	•	· ·	•	•	•	• •				•••	•	в -	•		•	•	• •	• •	•		• •	(Re Test effo	ort depends on final risk sent. ance test according to affect change. ort depends on final risk sent. Performance test
NETWORKS & RESISTORS			. P	sensitive component production.	e.g. additional equipment to increase production capacity e.g. replacement of same equipment																								accordin	ng 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 leat equipment which use different technology. PCN required for dedicated equipment for sensitive consenses.	e.g. charge of tester platform	c	•	1.1			•								@В -		1			· ·				1	©• Cage PS	SR / delta correlation
NETWORKS & RESISTORS	PAS-RES-PF-01	LOGISTICS / CAPACITY / TESTING - PROCESS FLOW		Change of manufacturing site. Includes transfer as well as additional site.	e.g. movement or transfer of manufacturing site or process step(s) to a different location/site.	в													в.					N .				. @•		
NETWORKS & RESISTORS	_		PP	Change of manufacturing site. Includes transfer as well as additional alle. Note: Reorganization inside one planifalle is not affected	e.g. dual source / fab strategy				• •		• •	•	• •	• •	-	•	• •			·	•	к		N .				. @•	@•	
NETWORKS & RESISTORS	PAS-RES-PF-02	Elimination or addition of a manufacturing process step LOGISTICS / CAPACITY / TESTING - Q-GATE	. Р	Change of manufacturing process sequence.	e.g. washing / cleaning process e.g. change of order of processes	с	•	1.1				•				• •			@B ·		1.1						•	· ·	@• Characte production	erisation depends on impact on flow.
NETWORKS & RESISTORS	PAS-RES-QG-01	LOGETICS / CARACTY/TETING - 0-04/TE Comport and company and by the support to ensure data sheet compliance (e.g., elimitationoldition of electrical measurement/lest flow block, relaxation/enhancement of mentioning procedure or sampling NDUCTORS	. р	Change of test coverage.	e.g. change from 100% to sample inspection e.g. test flow block, reduction from free to two temperature measurements e.g. change in turn intrum in process.	c	-	· -		-		•						•				•						•	- R (siech R (siech process	t. funct.): test coverage. silby) only for change in burn ;
INDUCTORS	_	MIY .		Intended to be used if no other type of change is applicable but the change affects agreed technical context the accessment	1	•				1								1	1	1										
INDUCTORS	PAS-IND-AN-01 PAS-IND-AN-02		P P P P		Not relevant for technical evaluation. Technical interface means component terminals.	в														-								· ·	-	_
INDUCTORS		DATASHEET																												
INDUCTORS	PAS-IND-DS-01	Change of datasheet parameters/electrical specification (min/max/hyp. values) and / or ACIDC specification	P P	Change of application relevant information Not included: Editorial changes. No technical change of product, process or	e.g. tighten of electrical parameter distribution	A	Risk assessment depending on change for each application.			•		•									· ·		· ·	· ·			•		-	
INDUCTORS	PA5-IND-05-02	Correction of data sheet or tasse of emate	1 1	No sechnical change of product, process or text. New description of behavior which was not apecified before or which is different from initial specification. Please indicate clearly, the linknote contains this type of change! Assessment in application required!	e.g. data sheet correction because of new Information about component behavior	*																						• •	-	

PAS-IND-OS-03	Specification of additional parameters		Description of a new not previously covered parameter. No technical change of the product. PI ((): no influence (P): Piak assumement depending on change for each application to provide evidence of additional parameters (tetal: evaluation)	e g. addrg new (lasted) parameter.	A		-								-	• •		-			•										
PAS-IND-MA-01	Change of material composition - Bobbin Material	P	Material without magnetic function ("Sputerkörper") typically made by plastic	e.g. change from Thermoset to Thermoplastic	в		-		•	-		•	• @		-	• •															
PAS-IND-MA-02	Change of material composition - Core Material	P	P Change of core material, which is material with magnetic function	h e.g. change from NZh into MhZh	A							•	•			• •				в.		-					<u>.</u>			@•	
PAS-IND-MA-03	Change of material composition - Insulation Material		P Change of insulation material	e.g. whe insubition, insubition tapes, e.g. change from Polyurethane to Polyamide	c							_	•				• •	_		в •								. 7			
PAS-IND-MA-04			P Change of lead material	e.g. change from Polyurethane to Polyamide e.g. change from tin coverd to non-coverd lead	в						-		•					_	•		• •								- @•	+	
PAS-IND-MA-04	Change of material composition - Lead Material	P 1	P Change of lead makerial	raterial	в				-	-				•	-	•	• •	-	-		•••	-					<u> </u>		. @•	<u> </u>	Electrical f
PAS-IND-MA-05	Change of material composition - Mold Compound	P	P Change of mold compound material	e.g. change to green mold	в		-	•••	•	-	• •	•	•	• •	•	•	•	_		в •		-					•	•	· ·	@•	Electrical f mechanics changes. J board coal MSL micht
PAS-IND-MA-06	Change of material composition - Solder Material		p Change of adder material at internal connection.	e.g. change of SnAgCu composition	в		-	• • •	•	-		-	•	•	-	• •	@• •		•		• •	-					•	•	· @•	-	
PAS-IND-MA-07	Ohange of material composition - Wire / Foil Material Ohange of material composition - Glue		P Wee for wounded inductors. Foil for multileyer inductors (inner electrode). P Change of glue material	e.g. change of Cu composition	в		-	• • @			• •	-	•	• •	-		••••	•	•		• •	-		-			-		· ·	@• @•	
PAS-IND-MA-08	Unange of material composition - usue		P Change or gue material p Change to a new or additional material supple at component manufacturer.		c			• • •	_	_	• @•	+ +	•	• •	•	· @•				в -							<u> </u>				
PAS-IND-MA-10			P Change of poting material	e.g. charge from epoxy resin to silicon		A: If influence on other connections on PCB or laquer expected.	_		_		· @•		e• @				@• •		@• (\pm	+	<u> </u>	@•	
PAPERD NO. 10	Design	-	Change or posing material	e.g. change from epoxy rean to secon	· ·	PCB or laquer expected.			e	•	- @•		6.6	· ·	-					8B -						1.1.	ا ن ا		<u> </u>		
PAS-IND-DE-01	Changes of termination, surface linish, shape, color, appearance or dimension structure - Bobbin	1 1	Material without magnetic function ("Sputerkörper") typically made by plastic material	e.g. construction / dimension change of bobbin	в		-	• • •		-		-	• •			• •		•	-	в -		-					/	. 7		@•	
PAS-IND-DE-02	Changes of termination, surface finish, shape, color, appearance or dimension structure - Land Terminals		P Change of lead/terminals	e.g. change from PTH terminals to SMD terminals	A					-		-	• •				• .	•	•		• •	-						. 7	· @•	@•	Effect rega frequency
PAS-IND-DE-03	Changes of termination, surface finish, shape, color, appearance or dimension structure - Nold		P Change of mold	e.g. new mold material with different color	в		-	• • •	•	-	• @•	• -	• •	_	•	• .		-	-	в -		-					-	•		@•	
PAS-IND-DE-04	Changes of inner construction - Core Construction	· 1	P Change of core construction, which is makeria with magnetic function	i e.g. change fromdhum core & shield core into pot core & cover plate core	A		-	• • •	•	-		-	•		-	• •	- •	-	-	в -		-			· ·		/	-		@•	
PAS-IND-DE-05	Changes of inner construction - insulation System		P Change of insulation system	e.g. whe insulation, insulation tapes, e.g. change from Polyurehane to PTFE (Tellon)	с		÷.	• @	•	-	- •	•	• •		•		• •	A	-	в •		-					1 - 1			-	
PAS-IND-OE-05	Changes of inner construction - Wire / Foil Construction	. 1	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	в			• • •		-		-	• •		-	· @•		-	-	в -	• •	-					/			@•	
PAS-IND-DE-07	Charges of termination, surface limith, shape, color, appearance or dimension structure - Polling Material		P Change of potting dimension	e.g. non unge whe bits are		If data sheet is affected (PAS-ND-DS-			0			-	@• @			· @•		_	- (@•	
	Maarid PROCESS	- T		A		nj					-		3.18			3.							-			1 1	4				
PAS-IND-PR-01	Dhanges in process technology or manufacturing methods - insulation Strip		P (Mechanica) removal of insulation.	e.g. change from mechanical removal to baser removal	в		·	•	-		• •	-	•		•		• .		@•			-	• •				·	·	•		Mechanic impact on stripping p area.
PAS-IND-PR-02	Changes in process technology or manufacturing methods - Lead Prep. / Plating	- 1	P Change of lead prep. / plating	e.g. change from hot dip tinning to electroplating	в		•	• • •	_			_	•	•					•	• •	• •	-	• •		• •			-	· @•		pint
PAS-IND-PR-03	Changes in process technology or manufacturing methods - Terminal Attach		Connection of size terminal and / or connection of termination to core/bobbin.	e.g. chanle from Manual winding to Semi-automtic winding (winding of wire on terminal)	c		•	• • •	•	-	• @•	_	•	• •		• •			•	÷ ÷			÷ .					•	- @•	•	increase o
PAS-IND-PR-04	Changes in process technology or manufacturing methods - Marking	- 1	P Change of marking process P Change of molding process	e.g. change from ink marking to laser marking	в		•	• • •					•		•				-			-								· ·	
PAS-IND-PR-05	Changes in process technology or manufacturing methods - Molding	- 1	P Change of molding process	 e.g. change from one component molding to two component molding (other technology needed) e.g. change from hot tip tinning to resistance welding. 	в		•		•			•			٠		•			в •		-					4	-	· ·	· ·	
PAS-IND-PR-05 PAS-IND-PR-07	Changes in process technology or manufacturing methods - Soldering Internal Connections Changes in process technology or manufacturing methods - Winding Insulation		P Change of addering internal connection P Change of winding - insulation	e.g. change from hot to tinning to resistance welding e.g. change from manual to subsmatic process	B		•		• •	-					•		•			 B -	• •								: :	<u> </u>	
	Changes in process technology or manufacturing methods - Winding Insueson Changes in process technology or manufacturing methods - Winding Wine		P Change of winding - wine P Change of winding - wine	e.g. change from minute to automatic process e.g. change from semi-automatic winding to full automatic winding	с		•					•					• •			в -										@•	
	Process integrity: tuning within specification		P Variation within process specification.	e.g. process control	c										-							-									
PAS-IND-PR-10	Changes is process technology or manufacturing methods - Poting		P Change of potting process	e.g. change from manual poting process to automatic poting process	с		•		0		· @•		@• @	2• -	-			•	-			-									
	PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS									1	1	1 1				1						1	1			1 1				_	1
			P Change of packing specification. P Change of drypack requirements.	e.g. number of pieces on real.	в				-	-								-				-					4		-	<u> </u>	
PAS-IND-PN-02				e.g. change of MSL e.g. change is dry pack assurance (HIC, MSB)	в			1 (A)				-															النبه		<u> </u>	· ·	
PAS-IND-PN-03		PI	P Change of carrier	e.g. change by material e.g. change by geometry.	в			1 (A (A (A (A (A (A (A (A (A (· ·			1				1			1.1							· ·	· ·	
PAS-IND-PV-01	PACKING / SHIPPING - VISUAL INSPECTION Charge of labeling		P Change of labeling, also on real.	(I) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	в							1.1														· ·					
PAS-IND-PV-02	Charge of poduct marking		P Marking on device.	e.g. charge of content of marking	в																										
				e.g. charge of appearance of marking							-												-							<u> </u>	
PAS-IND-PV-03	LOGISTICS / CAPACITY / TESTING - EQUIPMEMENT		roserai o ne packing.	e.g. change of documentation in packing specification	•		-			·	• •		•	•				•			· ·	•	• •		• •	· ·	· ·	•	• •	-	
PAS-IND-EQ-01	Production from a new equipmentifical 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 polling process	c		•								+					≱в -		-					-			@•	process cha
PAS-IND-EQ-02	Production from a new equipmentifical which uses the same basic technology (replacement equipment or extension of existing equipment pool)	- 1	P CN required for dedicated equipment for sensitive component production.	e.g. duplication of existing winding machine	с		•	1														-					-			@•	Text effort o assessment Performanc process ch
PAS-IND-EQ-03	Drange in final test equipment type that uses a different technology	P	P P Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of laster platform	с		•											-	- 0	₿В -		-					-			@•	Gage R&R.
-	LOGISTICS / CAPACITY / TESTING - PROCESS FLOW			a a resumption in transfer of more functions.					-																						
PAS-IND-PF-01	Manufacturing site transfer or movement of a part of production process to a different location/site	P	Change of manufacturing site. p. Includes traveler as well as additional site. Note: Reorganization inside one plantitute is net attracted.	 e.g. movement or transfer of manufacturing site or process site(s) to a different location/site. e.e. dual second (lab strategy) 	в		•	• • •	•	-	• @•	• •	@•	•	-	• •	•••	-	-	в -	•	-			• •			•	- @•	@•	
PAS-IND-PF-02	Elimination or addition of a manufacturing process step				с		·		-	-		-			-			-	-			-					-				
PAS-IND-PF-03	Elimination of final electrical measurement / test flow block LOGISTICS / CAPACITY / TESTING - Q-GATE	-	P Reduction of final testing, PCN required for dedicated final test reductions for sensitive parameters.	e. g. elimination of High-sollage measurement	c		-		-	-		-			-			-	-			-					•	·	· ·	@•	Characteria final test flo
				e.g. change from 100% to sample inspection a. a. text flow block, and clining from them.					T			T											T								R (electr. h. R (reliability
PAS-IND-QG-01	Otange of test coverage used by the suppler to ensure data sheet compliance (e.g., elimitationidation of electrical measurementities flow block, relaxation/enhancement of monitoring procession or sampling CERAMIC / TANTALUM	1	P Change of test coverage.	e.g. change from 100% to sample inspection e.g. teat flow block, reduction from three to two temperature measurements e.g. change in burn initian in process.	c				1				•														<u> </u>				R (nellability process.
PAS-CER-AN-01	ANY Any charge 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 to develop another to develop affects agreed	Net released for technical maturity	•							.																			
		PI		Not relevant for technical evaluation. Technical interface means component terminals.																									. @•	-	
	he matia below. DATASHEET		· 1	record of the rest	•																						بلضبه			<u> </u>	
PAS-CER-OS-01	Drange of datasheet parametera/electrical specification (min/max/typ. velues) and / or ACIDC specification	Р		e.g. tighten of electrical parameter distribution	A .	Risk assessment depending on change for each application.		1. (1.) (1.)											-								•	· .	· ·		
PAS-CER-OS-02	Correction of data alread or insues of erratio	ı	No sechnical change of product, process or test. New description of behavior which was not pacified before or which is different from initial specification. Please indicate clearly, that infonce conteins this type of change! Assessment in application required!	e.g. data sheet conscion because of new information about component behavior	*										-																
PAS-CER-OS-03	Specification of additional parameters		Description of a new not previously covered parameter. No technical change of the product. P (Br on influence (P): Ruk sussammet depending on change for each application to provide evidence of additional parameters (tab. evaluation)		A																										

CERAMIC / TANTALUM CERAMIC / TANTALUM	PAS-CER-MA-01	MATERIAL Change of material composition - Ceramic Binder	Р	P Binder material (ceramic)	1	с	1					1 · I			1 • 1		•		•			1	1			1 · 1				· · ·		
CERAMIC / TANEALLM CERAMIC / TANEALLM	PAS-CER-MA-02 PAS-CER-MA-03	Dhange of material composition - Tantalum Binder Dhange of material composition - Dielechric	P	P Binder material (tantal) P Dielectric change (ceramic only)	e.g. charge from wax 1 to wax 2 e.g. charge from ceramic & into ceramic B	c c			: :		: :										в.	· ·	•						-			
	PAS-CER-MA-04	Change of material composition - Electrode Attach	P	P Dielectric change (ceramic only) P Electrode attach (only tantel, glue, carbon, Ag	e.g. change of Ag particle size in conductive	c				•								с			в .	с .										
CERANIC / TANEALUM	PAS-CER-MA-05	Change of material composition - Electrode Material		P Electrode Material (only ceramic, inner	e.g. change from spehric to fake shape (N paste)	c				•						• •					в -											
	PAS-CER-MA-06	Dhange of material composition - Encapsulation		P Encapsulation	e.g. change from epoxy1 into epoxy2	c						•			•																	Deck whether AOI at Tier 1 can be discuss
CERAMIC / TANEALUM CERAMIC / TANEALUM	PAS-CER-MA-07				e.g. charge from SnPb to pure Sn	c										•		•			в											
	PAS-CER-MA-08	Change of supplier of material		P Change to a new or additional material supple at component manufacturer.	e.o. for 2nd source purpose	с					• •						• •		• •		в.	• •	с.				1.1				@•	asumption material specification emains unchanged. Otherwise see
CERAMIC / TANEALUM CERAMIC / TANEALUM		DESIGN		at component manufacturer.	e.g. for 2nd source purpose	-																							_		6.	thance of material.
ſ	PAS-CER-DE-01	Changes of termination, surface linish, shape, color, appearance or dimension structure - Lead Dismeter		P Lead dameter	e.g. change from 0.8mm into 0.6mm	в					•		• •			• •																
CERAMIC / TANEALUM	PAS-CER-DE-02									_										_				_					_			
CERAMIC / TANEALUM		Dranges of termination, surface linish, shape, color, appearance or dimension structure - Termination Area Dranges of termination, surface linish, shape, color, appearance or dimension structure -		P Termination area	e.g. change is width of termination from 0.1 -0.3mm into 0.2 - 0.4 mm					•		•			•							• •										
CERAMIC / TANTALIM CERAMIC / TANTALIM	PAS-CER-DE-03 PAS-CER-DE-04	Campaire of inference, particule many, apply, color, appearance of caminatin and camina Transition intercome Changes of inner construction - Electrode Thickness		P Terminal interface P Electrode thickness (ceramic only)	e.g. additional layer in termination e.g. N layer change from 2.5µm into 3.5µm	B						•			•	•	· · ·		• •		в - в -	• •										
	PAS-CER-DE-05	Changes of inner construction - Layer Thickness		P Layer thickness (delectric thickness)	e.g. Ceramic layer thickness changes from 3µm into	° c						-				•	•				в -		с .									
CERAMIC / TANEALUM	PAS-CER-DE-05				Spm.										с						B,C ·		_									
CERAMIC / TANTALUM CERAMIC / TANTALUM	PAS-CER-DE-06	Changes of inner construction - Namber of Layers		P Number of layers (ceramic only). Always in combination with PAG-CER-DE-05.	see also layer thickness	с		1.1	•	1	с с	-	с с	-	С		с -		с с	1.1	B,C ·	1.1.1.1.1	с -				1.1					
CERAMIC / TANTALUM CERAMIC / TANTALUM	PAS-CER-PR-01	PROCESS Dranges in process technology or manufacturing methods - Dicing	1.1	P Change of dicing	e.g. change from cutting to saveing	с	1			•		1.			· • ·		• • •	1.1			в .		с .									
	PAS-CER-PR-02	Changes in process technology or manufacturing methods - Electrode apply		P Electrode apply (delectric layer process)	e.g. change from wet to dry process	c				с								C I	сс		B,C ·	с .										
CERAMIC / TANEALUM	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					• •										в -		с .									
CERAMIC / TANEALLM CERAMIC / TANEALLM	PAS-CER-PR-04	Changes in process technology or manufacturing methods - Lamination		p Change of lamination / press techinque	e.o. standard pressing to iso static pressing.	c							•					•	•		в .	• •	с.									
	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	с					•		• •					•			в.	• •										
CERAMIC / TANTALUM	PAS-CER-PR-05	Charge in process echnology of management pressure - Parion and			eg. chaige bab non o spin nib d spin	C.			•					-																		
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		•	•	1			- C				с .		. с		B,C ·		с -				1.1					
	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 plating (apply)	в			•	•	• •	•	• •	•	•	• •		•		•	в .						1.0	1.1			-	
CERAMIC / TANTALUM CERAMIC / TANTALUM	PAS-CER-PR-08	Process integrity: tuning within specification		P Variation within process specification.	e.g. process control	с																										
CERAMIC / TANTALUM		Process integrity: funing within specification PACKING / SHIPPINS - NEW MATERIAL, CRITICAL DIMENSIONS												-					-	-			1	1 1		_			1			
CERAMIC / TANEALUM	PAS-CER-PN-01	Packing / shipping specification change (loserning of tolerances)		p Change of packing specification.	e.g. number of pieces on reel.	в			1.00						-												1.1					
	PAS-CER-PN-02	Dry pack requirements change	Р	P Change of drypack requirements.	e.g. change of MSL e.g. change in dry pack assurance (HIC, MBB)	в			1.00					1.1						1.1							1.1				-	
CERAMIC / TANKALUM	PAS-CER-PN-03	Change of carrier (tray, reel)		P Change of carrier		в																										
CERAMIC / TANEALUM CERAMIC / TANEALUM		Change of carrier (bay, reel) PACKING / SHIPPING - VISUAL INSPECTION	1	,	e.g. change by material e.g. change by geometry.	•				_	_			1					_													
	PAS-CER-PV-01	PACANG / STIPPING - VISUAL INSPECTION Change of labeling		P Change of labeling, also on reel.	(1) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	в									. I									. I.							. 1	
CERAMIC / TANTALUM					(P) e.g. change of customer specific information e.g. change of content of marking																											
CERAMIC / TANEALUM	PAS-CER-PV-02	Change of product marking		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	в			1.1	1			1.1	1.1		1.1				1.1					1.1		1.1				-	
	PAS-CER-PV-03	Change of packing/shipping specification	р	Change in packing specification which does P not described a change of dimensions or material of the packing.	e.g. change of documentation in packing specification																											
CERAMIC / TANEALUM			11	material of the packing.	apecification																											
CERAMIC / TANTALUM		LOGISTICS / CAPACITY / TESTING - EQUIPMEMENT	T T		1	1	1				1	<u> </u>		1	<u>т т</u>	- 1	<u> </u>	1 1	1	1	<u>г г</u>	1 1	<u>1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 </u>	- T - T	1	1 1		<u>г г</u>		<u>г г</u>	1	
	PAS-CER-ED-01	Production from a new equipmentitod 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.	с										A -					в -		с -								@•	Rest effort depends on final risk essessment.
CERAMIC / TANEALUM		form or function can be expected to influence the integrity of the final product		 Note: Changes affecting the product not covered by the table require also a PON. 		-															-		-								- C- P	east entert depands on triak hak assessment. Performance test according to affected process change.
		Devicution from a new environmentional which uses the same basic technology (rentarement		PCN we want for dedicated environment for							• •					Α -																East effort depends on final risk essessment. Performance test according to affected
CERAMIC / TANTALIM	PAS-CER-ED-02	Production from a new equipment/box/which uses the same basic technology (replacement equipment or extension of existing equipment pool)		P PON required for dedicated equipment for sensitive component production.	e.g. elimination of manual handling processes	с		•	•	1	•	•	• •	-	•	Α -	•		•	•	в -		с -	-		-			-	-	@•	Performance test according to affected process change.
CERONIC/ IANIALDA				Change of final test equipment which use																												rotes trap.
	PAS-CER-EQ-03	Change in final test equipment type that uses a different technology	Р	P Change of final last equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	с		•	1. S.	÷				-							@B -			-		-			-		@•	Sage R&R / delta correlation
CERAMIC / TANEALUM CERAMIC / TANEALUM				sensitive parameters.																												
CEROWIC/ IANIALOM		LOGISTICS / CAPACITY / TESTING - PROCESS FLOW	1 1	Change of manufacturing site.	e.g. movement or transfer of manufacturing sile or process step(s) to a different location/sile.	1	1					1 1	1	1	1 1		1 1	1 1				1	1 1		1	1						
	PAS-CER-PF-01	Manufacturing sile transfer or movement of a part of production process to a different location/sile	P															•	• •											@•	@•	
		resources by an earlier of noninered a part of produces process to a different scalar rese		Note: Reorganization inside one plantisite is		в		•	•	•	• •	•	• •	•	•	• •	•••			-	в -		0									
CERAMIC / TANTALUM				P Change of manufacturing site. Includes transfer as well as additional site. Note: Reorganization inside one plantisite is not affected	e.g. dual source / fab strategy			•	•	•	• •	+ ·	· ·	•	•	• •			_	-	в.	+							_			
CERMIC / TANEALLIM	PAS-CER-PF-02	Elimination or addition of a manufacturing process step		P Note: Reorganization inside one plentiale is not affected P Change of manufacturing process sequence.		с		•	•	•	•••	•		•	•	•••					в ·										@•	Daracterisation depends on impact of roduction flow.
	PAS-CER-PF-02	Elmination or addition of a manufacturing process step LOGISTICS / CAPACITY / TESTING - Q-GATE			e.g. dual source / fab strategy e.g. vashing / cleaning process e.g. change of order of processes			•	•	•	••••			•	•	•••					в -											
CERMIC / TANEALLIM	PAS-CER-PT-02	Elmination or addition of a manufacturing process step LOGISTICS / CAPACITY / TESTING - Q-GATE			e.g. dual source / fab strategy e.g. vashing / cleaning process e.g. change of order of processes	c			•	•	• •		• •	•		• • • •					в . 				· ·		· ·	· ·	•			
CERMIC / TANEALLIM	PAS-CER-PF-02	Entriedion or schland of a manufacturing process step Logarstical (CAMACTY/TESTING - Q-GATE Dorspot and company used by the supple and an event adult shard compliance (e.g., entrological starts) or detection manusementing frau black, elevationiverancement of methods processing an entrologi		P Change of manufacturing process sequence.	e.g. dual source / fab strategy e.g. vashing / cleaning process e.g. change of order of processes				• ·	•	••••		• •	•	•	•••	· ·		· ·		в ·				· ·		· ·		-			Daracterisation depends on impact of roduction flow. R (Inlect: Aunct): test cowrage. R (Inlability) only for change in burn in rocess.
CERMIC / TANEALLIM	PAS-CER-PT-02	Elmination or addition of a manufacturing process step LOGISTICS / CAPACITY / TESTING - Q-GATE		P Change of manufacturing process sequence.	e.g. dual source / fab strategy	c			• · ·	•	• • · ·		· ·	•		•••	· ·		• •		в . 						• •		•			
CERMIC / TANEALLIM	PAS-CER-PF-02 PAS-CER-QG-01	Encoder or addition of instructioning process tage Logarized in company and by the space data that completion (in a Change of a company and by the space data that completion (in a manual company) and the space data that completion (in a manual company) TEXE CONSTRUCTIONS WY	· ·	P Change of manufacturing process sequence. P Change of text coverage.	 a.g. dual source / the strategy a.g. watering process a.g. observe of order of processes a.g. observe of order of processes a.g. observe advanced on the strategy of the stra	c				•	• • • •		· ·			• • · ·			· ·		в · · ·				· ·		· ·					
CERMIC / TANEALLIM	PASCER.PF-02 PASCER.QG-01	Enclude or without it is merufactured process day LossTed. / GARGYY TETRIE - 5 -64/E Congred and congress and by Texageline stream data that congletion to be, encourses and any other to be an explored in the set of		P Change of manufacturing process sequence. P Change of text coverage. P Change of text coverage. P Intended to be used if no other type of change P Intended to be used if no other type of change	e.g. dute source if the shading: e.g. which og / charing process e.g. charing of our di processes e.g. charing and our di processes e.g. charing in time. 100% to sample inspection e.g. charing in time. 100% to sample inspection e.g. charing in libera hirlin in process. e.g. charing in libera hirlin in process.	с с				•	• • • •		· ·			• • • •			· · ·		· ·				· · ·		· ·	· ·		· · ·		
CERMIC / TANEALLIM	PAS-CER-PT-02 PAS-CER-QG-01 PAS-FLM-AN-01 PAS-FLM-AN-02	Enclairs a billion of a menubarray process tage LossTeck (Softwarry (Horses) - G. SAR Charge of the company meric file in the discontenies of a softwarry procession and units of the company of the softwarry File (LOSATORSE) ENC ENC And Company of the softwarry of the softwarry of the softwarry Procession of the softwarry of the softwarry of the softwarry Procession of the softwarry of the softwarry of the softwarry of the softwarry of the softwarry of the softwarry	- - P P	P Change of manufacturing process sequence. P Change of text coverage. P Change of text coverage. P Intended to be used if no other type of change P Intended to be used if no other type of change	 a.g. dual source / the strategy a.g. watering process a.g. observe of order of processes a.g. observe of order of processes a.g. observe advanced on the strategy of the stra	c				• •	• • • • • •		· · ·			· · ·			· ·		· ·				· · ·		· · ·	· · ·	· ·			
CERMIC / TANEALLIM	PAS-CER-PT-02 PAS-CER-QG-01 PAS-FLM-AN-01 PAS-FLM-AN-02	Description of addition of a second-social parameter of a second-social parameter of a second-social parameter of the second secon	Р	p Change of manufacturing process sequence. p Change of test coverage. p Change of test coverage. p Second to be used if to other type of change of test coverage. p P testing of the coverage. Second to be used if to other type of change of testing testing of the coverage. p P	a de antenir y chastrag municipal de la destraga d'actestrag processa de la destraga d'actestraga processa de la destraga d'actestra de processa de la destraga d'actestra de la destraga destraga de la destraga d	с с				• • •	· ·		· · ·			· · ·			· · ·		B ·				· · ·		· · ·			· · ·		
CERMIC / TANEALLIM	PAS-CER-PT-02 PAS-CER-QG-01 PAS-FLM-AN-01 PAS-FLM-AN-02	Enclairs a billion of a menubarray process tage LossTeck (Softwarry (Horses) - G. SAR Charge of the company meric file in the discontenies of a softwarry procession and units of the company of the softwarry File (LOSATORSE) ENC ENC And Company of the softwarry of the softwarry of the softwarry Procession of the softwarry of the softwarry of the softwarry Procession of the softwarry of the softwarry of the softwarry of the softwarry of the softwarry of the softwarry	Р	P Change of manufacturg process sequence. P Change of set coverage. P Change of set coverage. P Instruct to be used if no other type of change affects be for change affects appendix the set of the	a de antenir y chastrag municipal de la destraga d'actestrag processa de la destraga d'actestraga processa de la destraga d'actestra de processa de la destraga d'actestra de la destraga destraga de la destraga d	с с	Rå assumer dependig or druge versk registerio.			• • •	• • 		· · ·			• • • • • • • • • • • •			· · ·		B ·				· · ·			· · ·		· · ·		
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CERMIC / TANEALLIM	PAS-CER.PF-02 PAS-CER.QGS-01 PAS-FLMAN0-01 PAS-FLMAN0-2 PAS-FLMAN0-2	Description addition of a non-solution genome date Description of Constant Technological procession description of the constant o	Р	P Damps of manufacturing process sequence. P Damps of least country. P Telesche die least and if no other type of change in telesche bie for langung die statistics. P Telesche die least if no other type of change in telesche bie for langung die statistics. P Telesche die statistics. P Telesche die statistics. P Telesche die statistics. P Damps of application indexes i Homation die statistic die statistic die statistics. Die statistic die statistic die statistics. Telesche die die statistic die statistics.	e.g. de dans in the britishing e.g. densing in the dans i	C C				• • • •	• • · · · · · · · ·					• • · · · · · · · · · · · ·			· · ·											· · ·		
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CERMIC / TANEALLIM	PAS-CERIPT-02 PAS-CERIPT-02 PAS-PLANNo1 PAS-PLANNo1 PAS-PLANNo2 PAS-PLANNo2 PAS-PLANS-50	Products a setter of a neurolativity processing DODREG (SEGMENT TENDER * 0-401 DODREG (SEGMENT TENDER * 0-401 Annual setter of a setter of a neuronal setter of a setter originate to the setter operation to the setter o	Р	P Orange of multiclustry process sequence. P Orange of multiclustry process sequence. P Sequence of the company.	es de dans i fai diago es de dans i fai diago es de la diago dans de la diago es de la diago dans de la diago es diago dans i fai diago es diago dans dans de la diago es diago dans de la diago es diago dans de la diago es digenti di actos penetar da balan es digenti di actos penetar da balan	C C B A A			• • • • • • • • • • • • • • • • • • •	• - - - - -	• • • · · · · · · · · · · · · · · ·					• • • • • • • • • • • • • • • •			· · · · · · · · · · · · · · · · · · ·											· · ·		
CERMIC / TANEALLIM	PAS-CER.PF-02 PAS-CER.QGS-01 PAS-FLMAN0-01 PAS-FLMAN0-2 PAS-FLMAN0-2	Description addition of a non-solution genome date Description of Constant Technological procession Description of Constant Technological Procession Description Descript	Р	P Orange of mundation ground sequences P Orange of mundation ground sequences P Orange of mundation ground sequences P Sequences of the sequences P Sequen	e.g. de dans in the britishing e.g. densing in the dans i	C C				• • • • • • • • •	• • • • • • • • • • • • • • • •					· · · · · · · · · · · · · · · · · · ·											· · · · · · · · · · · · · · · · · · ·			· · ·		
CENNEL I NUCLUM CENNEL I NUCLUM CENNEL I NUCLUM I Filmanania Filmananania Filmanania Fil	PAS-CERIPT-02 PAS-CERIPT-02 PAS-PLANNo1 PAS-PLANNo1 PAS-PLANNo2 PAS-PLANNo2 PAS-PLANS-50	Products a setter of a neurolativity processing DODREG (SEGMENT TENDER * 0-401 DODREG (SEGMENT TENDER * 0-401 Annual setter of a setter of a neuronal setter of a setter originate to the setter operation to the setter o	Р	P Okage of membership mean sequence. P Okage of test membership mean sequence. P Manufacture of test membership means sequence. Manufacture of test membership means sequence. Manufacture of test membership means sequence. Manufacture of test membership means sequence. Manufacture of test membership means sequence. Manufacture of test membership member	es de dans i fai diago es de dans i fai diago es de la diago dans de la diago es de la diago dans de la diago es diago dans i fai diago es diago dans dans de la diago es diago dans de la diago es diago dans de la diago es digenti di actos penetar da balan es digenti di actos penetar da balan	C C B A A			• • • • • • • • • • • • • • • • • • • •	•	• • • • • • • • • • • • • • • •					· · · · · · · · · · · · · · · · · · ·											· · · · · · · · · · · · · · · · · · ·			· · ·		
CERMIC / TANEALLIM	PAS-CERIPT-02 PAS-CERIPT-02 PAS-PLANNo1 PAS-PLANNo1 PAS-PLANNo2 PAS-PLANNo2 PAS-PLANS-50	Products a setter of a neurolativity processing DODREG (SEGMENT TENDER * 0-401 DODREG (SEGMENT TENDER * 0-401 Annual setter of a setter of a neuronal setter of a setter originate to the setter operation to the setter o	Р	P Orange of mundation ground sequences P Orange of mundation ground sequences P Orange of mundation ground sequences P Sequences of the sequences P Sequen	es de dans i fai diago es de dans i fai diago es de la diago dans de la diago es de la diago dans de la diago es diago dans i fai diago es diago dans dans de la diago es diago dans de la diago es diago dans de la diago es digenti di actos penetar da balan es digenti di actos penetar da balan	C C B A A	Indi assument depending on change for also supplication			• - - - - - - - - - - - - -	 . .					• • - · - · - · - · - · - · - · - ·											· · · · · · · · · · · · · · · · · · ·			· ·		
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CENNEL I NUCLUM CENNEL I NUCLUM CENNEL I NUCLUM I Filmanania Filmananania Filmanania Fil	PAS-CERIPT-02 PAS-CERIPT-02 PAS-PLANNo1 PAS-PLANNo1 PAS-PLANNo2 PAS-PLANNo2 PAS-PLANS-50	Constant or defined a service-orange process are Locational or defined a service-orange defined by the register or most data that completes the gamma data that completes the gamma data that completes the gamma data data completes the gamma data data data data data data data	Р	P Charge of memory private sequences P Charge of the control private sequences P Technical the	es de dans i fai diago es de dans i fai diago es de la diago dans de la diago es de la diago dans de la diago es diago dans i fai diago es diago dans dans de la diago es diago dans de la diago es diago dans de la diago es digenti di actos penetar da balan es digenti di actos penetar da balan	C C B A A				·	· · · · · · · · · · · · · · · · · · ·					· · · · · · · · · · · · · · · · · · ·											· · · · · · · · · · · · · · · · · · ·			· ·		
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CENNEL I NUCLUM CENNEL I NUCLUM CENNEL I NUCLUM I Filmanania Filmananania Filmanania Fil	NG-CERNPLO NG-CERNPLO NG-CERNPLO NG-CERNPLO NG-READER		р 	P Change of membership process sequence. P Change of the company. P Sequence of the company. Sequence of the company. Sequence of the company. P Sequence of the company. Sequence of the company. Sequence of the company. Sequence of the company. Sequence of the company. P Seq	a. 6 - Learning (L)	C C	Indi assument depending on change for also supplication			· · ·			· · · · · · · · · · · · · · · · · · ·																	· ·		(Janua Kurat), kar a samage (analah jang Ya Anage Kura a analah jang Ya Anage Kura a analah jang Kurat ang Kurat a Samaka Analah in agakatan
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Film capacitors	PAS-FLM-DE-06	Changes of inner construction - Insulation System Ohanges of termination, surface finish, shape, color, appearance or dimension structure -	- P	Change of inner insulation to protect winding element against housing.	e.g. change of number of inner insulation layers (depending of insulation material thickness)	с			-	•			-					•	- В	-		-		-			-		-	- 6	@•
Film capacitors	PAS-FLM-DE-07	Changes of termination, surface linish, shape, color, appearance or dimension structure - Package	I P		e.g. change of dimension or shape e.g. change of surface	В			- (ĝ•	- @		@•	@•	· @• @	•		-	· ·	@•		-		-			-		-	<u> </u>	•
	PAS-FLM-PR-01	Changes in process technology or manufacturing methods - Package	. р	Change of reain filling or handening process Intervent for board types only/	e.g. change in reain filing process (mixing, sequences, polling,) e.g. change in hardening process (temperature,	с			•	•			•																	. 7	
Film capacitors					Sme)		B: for naked SMD								_						-										Consider ESP
Film capacitors	PAS-FLM-PR-02	Changes in process technology or manufacturing methods - Terminal Attach	. Р	Change Tentrinal Attach Process to winding element for boxed and nacked types	e.g. spraying and / or galvaric process, e.g. welding / soldering	с		•		•	•				• •				• в	1	• •	1	1.1	1.1	1.1		1.1	1.1		1 × 1	Consider ESR. Solderability Test for naked SMD components.
Film capacitors		Oranges in process technology or manufacturing methods - Winding Process integrity: tuning within specification	. Р		e.g. change of tempering temperature e.g. process control	c		•	•	-		@•	-					•	· В		· ·		· ·							<u> </u>	
Film capacitors Film capacitors		PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS																													
Film capacitors					e.g. number of pieces on reel.	в		• • •					-						* *				· ·				1.1	1.1		<u> </u>	<u>· </u>
Film capacitors	PAS-FLM-PN-02			Change of drypack requirements.	e.g. change of MSL e.g. change in dry pack assurance (HIC, MSB)	в			1	-											1.1		· ·	1.1				1.1	-	<u> </u>	•
Film capacitors	PAS-FLM-PN-03	Change of carrier (tray, reel)	Р Р	Change of carrier	e.g. change by material e.g. change by geometry.	в		1 (A) (A)	1.1	÷			-					-	* - *	1.1			· .	1.1			1.1	1.0		1.0	·
Film capacitors		PACKING / SHIPPING - VISUAL INSPECTION			1	_				1	1		<u> </u>	1		<u> </u>								1 1	<u> </u>						
	PAS-FLM-PV-01	Change of labeling	I P	Change of labelling, also on reel.	(1) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	в		1 (A)	1.1	-									· ·	1.1	· . ·	1	· ·	1.1			1	1.1	-		· .
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	в																									
Film capacitors				Change in packing specification which does		-															-										_
Film capacitors	PAS-FLM-PV-03	Ohange of packing/httpping 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	•			1.1	-			-						1.1	1		1	1.1	1.1	1	1	1.1	1.1			
Film capacitors				Change in process technique which is not						_	_		1 1		<u> </u>	1 1	1	1 1						<u> </u>			<u>г г</u>				Test effort depends on final risk
	PAS-FLM-EQ-01	Production from a new equipmentifical 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 nequire also a PCN.	e.g. implementation of new machines	с		• • •	-	•	•	@•	@•	@•	• •		- •	•	- В		- •		• •				-		-	- 6	Test effort depends on final risk assessment. Performance test according to affected process change.
Film capacitors	PAS-FLM-EQ-02	Production from a new equipmentified which uses the same basic technology (replacement equipment or extension of westing equipment pool)		PCN required for dedicated equipment for sensitive component production.	e.g. extension of existing machine capacity	с						@•		@•					- в												
Film capacitors		equipment or extension of existing equipment pool				с				-	•		@•	æ			• •		. 5		•		-						-		Test effort depends on final risk assessment. Performance test according to affected process change.
	PAS-FLM-EQ-03	Change in final test equipment type that uses a different technology	РР	Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	с		• • •	-				-					-	- @B			-		-			-		-	- (Gage R&R / delta correlation
Film capacitors Film capacitors		LOGISTICS / CAPACITY / TESTING - PROCESS FLOW																													
	PAS-FLM-PF-01	Menufacturing site transfer or movement of a part of production process to a different location/site	РР	Change of manufacturing site. Includes traveler as well as additional site. Note: Recropenization inside one plantitate is not effected.	e.g. movement or transfer of manufacturing site or process step(s) to a different location/site.	в		•	•	•		• •	•	• •	•••	• •	• •	•	• в	•	• •			· ·]						@•	@•
Film capacitors	PAS-FLM-PT-02	Elimination or addition of a manufacturing process step	. р	cri started Change of manufacturing process sequence.	e.g. dual source / fab strategy e.g. washing / cleaning process e.g. change of order of processes	с																									Oharacterisation depends on impact of production flaw.
Film capacitors Film capacitors		LOGISTICS / CAPACITY / TESTING - Q-GATE																													production flow.
	PAS-FLM-QG-01	Change of test coverage used by the supplier to ensure data sheet compliance (e.g., elimination/addition of electrical measurement/lest flow block, relaxation/enhancement of monitoring procedure or sampling)	. р	Change of test coverage.	e.g. change from 100% to sample inspection e.g. test flow block, reduction from free to two temperature measurements e.g. change in burn infru in process.	с																								. 1	R (electr. funct.): test coverage. R (milability) only for change in burn in
Film capacitors		monitoring procedure or sampling) QUARTZ CRYSTAL / SAW			e.g. change in burn in/run in process.																					_					process.
QUARTZ CRYSTAL / SAW QUARTZ CRYSTAL / SAW	-	ANY	1	intended in he used if no other hose of channel	1					-	- r						-	1 1								-					
OLARTZ CRYSTAL / SAW				Intended to be used if no other type of change is applicable but the change affects agreed technical codesct all accessed		•				-			-								· ·								-		·
QUARTZ ORYSTAL / SAW		Any change with impact on processability/manufacturability at customer, which is not covered in the matrix below.	P P		Technical interface means component terminals.	в				-		1.1								1.1							1.1	1.1	-	@•	·
CLARIZ CRTSTAL/ SAW			P P	Change of application relevant information Not included: Editorial changes.	e.g. lighten of electrical parameter distribution		Risk assessment depending on change for each application.																								
QUARTZ CRYSTAL / SAW		specification		Not included: Editorial changes.			for each application.			_	_															_			_		
	PAS-GUA-05-02	Correction of data sheet or issue of errats		No technical change of product process or here description of behavior which was not specified before or which is different from relating aportication. Phases indication, which is informed combine this type of changel Assessment in sectoration resultant!	e o data sheet conscilion hereisse of new																										
	PAS-QUA-DS-02	Correction of data sheet or issue of errats		Initial specification. Please indicate clearly, that infonote contains this time of cherceal	e.g. data sheet correction because of new information about component behavior	^																									
QUARTZ CRYSTAL / SAW				Assessment in application required!						_	_												_			_					
	PAS-GUA-OS-03	Specification of additional parameters		Description of a new not previously covered parameter. No technical change of the product. (Qr: no influence (P): Flak assessment depending on change for each application to provide weldence of additional parameters (test. evaluation)																											
	PAS-QUA-OS-03	Specification of additional parameters	I P	(It no influence (P): Risk assessment depending on change for each application to provide evidence of	e.g. adding new (lealed) parameter.	A				-											1										
QUARTZ ORYSTAL / SAW	_	MATERIAL		additional parametes (stat. evaluation)																											
QUARTZ CRYSTAL / SAW		Drange of material composition - Quartz Blank	P P	A change of Quartz Blank is a very rare case. Mainly for SAW-Filter		A			•	•						• • •	- •	-	- B	-	• •	-		· ·			-		-	- 17	-
QUARTZ CRYSTAL / SAW	PAS-CLIA-MA-02	Change of material composition - Base	P P	Changing of the material of the base.	e.g. change from ceramic to epoxy	A				•		• •			- • •					@•	• •	-				. @•	-		-	- 1	Ol may be influenced Temperature expansion coefficient
QUARTZ ORYSTAL / SAW		Change of material composition - Lead / Termination	P P	Change of Lead/Termination	e.g. change of plating finish. (eg:Au, AgPid,Sn)	в							•	• •	• •	- •	• -	-		-							-		-	-	-
QUARTZ CRYSTAL / SAW				Change of Glass Seal	e.g. change to lead free glass	в									• •				- B		• •	-			@•		-		-	· • ·	 X-Ray inspection may be influenced when sealing is containing Pb
CONTRACTORISTICS AND		Change of material composition - Can / Cap	P P	Changing of the material of the canicap Change of Blank Support	e.g. change from metal to ceramic material e.g. change of glue (Silicone to Epony)	A C			@• @•	•	· @•	• @ (@Y	• •	•	- •	• •	@• @•	-	- @B	-	• •	-			@• ·		-		-		-
QUARTZ CRYSTAL / SAW					e.g. change of glue (Silicone to Eposy) e.g. change metal holders (old types)																										Electrical function affected in case of
	PAS-GLIA-MA-07	Change of material composition - Overmold	РР	Change of Overmold	e.g. change to green mold compound e.g. change of filler particles	в		· · ·	•	• @	2• •	@• @	• •	•	- • ·	• •	• •		- @B	•	• •	-	· ·	•	@•	•	-		-	•	 McK, wave soldering and board coaring has to be assessed. MSL might be changed.
QUARTZ CRYSTAL / SAW				Change of Case Sealing. Change of material for search walding.		c														•											
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-08	Change of material composition - Case Sealing		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	·		• • •		•		• •	•			• •					• •	-		-		· ·	-				Impedance my be influenced.
QUARTZ CRYSTAL / SAW	PAS-CLIA-MA-09	Change of material composition - Electrode		Change of Electrode material on crystal blank.	e.g. change from Au to Ag	с		· ·		•	- @1	′ @Y ∙	-		- @Y	- •	@•	-	- @B	-		-		-			-		-		-
	PAS-QUA-MA-10	Change of material composition - Insulator	РР	Change of Insulator. Only for leaded types Not relevant for typical SMD.	e.g. Insulating plate under crystal e.g. Glass sealing for leads	в			•	• @	2• •	- @	• •	•			• •		- в	•	•	-		-			-		-	•	•
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-11			Not reasoned for typical balls.	e.g. change of ink e.g. chemical to environmental triandly	в							@•		· @•		@• .	-		-		-					-		-		- ACI check necessary!
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-12	Change of supplier of material		Change to a new or additional material supplier at component manufacturer.		с				•					• • •			-	• в	•	• •	-					-		-		Assumption material specification semains unchanged. Otherwise see change of material.
QUARTZ CRYSTAL / SAW		DESIGN									_												-								change or material
QUARTZ ORYSTAL / SAW	PAS-GUA-DE-01	Changes of termination, surface finish, shape, color, appearance or dimension structure - Base		Change of Base design	e.g. due to miniaturization purpose.	в			•		· @	• •			• @•						• •	-		· ·		- @•	-		-		-
QUARTZ CRYSTAL / SAW	PAS-QUA-DE-02	Changes of termination, surface linish, shape, color, appearance or dimension structure - Lead / Termination		Change of Lead/Termination design. Change geometry or terminal pad or lead form	e.g. change lead design to improve reliability.	в		· ·		•				•			• •		• B		• •	-			@•		-		-	•	Ol may be influenced Relability of solder joints may be affected
QUARTZ CRYSTAL / SAW	PAS-QUA-DE-03	Diarges of termination, surface linish, shape, color, appearance or dimension structure - Can / Cap		Change of Can/Cap design	e.g. due to miniaturization purpose.	A				• @	2• •	•	•	•	- @•	• •	@• •	-	- B	-	• •	-			@•		-		-		-
	PAS-QUA-DE-04	Changes of termination, surface finish, shape, color, appearance or dimension structure - Durchown	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)	в			@•	•	D• •	@• @							- в	•					@•		-				Electrical function affected in case of mechanical stress datribution change - ACI, wave soldering and board coaling has to be assessed. MSL might be
QUARTZ ORYSTAL / SAW					(rease some \$)																				_						has to be assessed. MSL might be changed.
QUARTZ CRYSTAL / SAW	PAS-QUA-DE-OS	Olanges of termination, surface linish, shape, color, appearance or dimension structure - Insulator	I P	Change of Insulator design. Only for leaded types (old technology) Not relevant for typical SMD.		в		1 () () ()				• - @			- •		@• @•		- @B		g• ·	-		•			-		-	•	-
			. Р	Change of Quartz Ellank design	e.g. change dimension of blank, add phase, electrode design,	с		• • •				- @				• •	- @•	-	- B		•	-		-			-		-		•
QUARIZ ORTSTAL/ SAW		Changes of inner construction - Blank Support	- P	Change of Blank Support design	e.g. change design of glue shape e.g. change design of metal supporter	с		· · ·	@•	•	- @1	r @Y	-			• •	@•	•	- в	•	•	-		•	@Y ·		-		-		•
QUARTZ ORYSTAL / SAW QUARTZ ORYSTAL / SAW	PAS-QUA-PR-01	PROCESS Dranges in process technology or manufacturing methods - Quartz Blank	. Р	Change of Quartz Blank process	e.g. change of cutting or lapping technology		I	•		•		<u> </u>		· [·						•	• •	· ·	· ·	· ·					. · .]		-
	PAS-QUA-PR-02	Changes in process technology or manufacturing methods - Blank Eliching / Cleaning		using different / new sechnology	e.g. change from liquid etching to plasma etching	с		•		-			-			- @•	· @•		- B			-		-						-	-
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-03	Ohanges in process technology or manufacturing methods - Electrode Formation	. Р	Change of Electrode Formation process	e.g. change from evaporation to sputiering	с		•	-	•			-			- •	· @•	-	- B	-	•	-		-			1.1			•	-
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-04	Ohanges in process technology or manufacturing methods - Trimming	. р	Change of Auto Trim process (Method of final frequency tuning)	e.g. change from evaporation to ion beam	с		• • •	-	-			-			• •	· @•	-	- в	-	• •	-		-						•	
	PAS-QUA-PR-05	Changes in process technology or manufacturing methods - Bonding / Annealing	. р	Change of Blank bonding / annealing process. Change of method how apply conductive material to base or blank		с			•	• @	2• @1	r @Y							- в	-	•	-			@Y						-
CUBRTZ CRYSTM / SAW				material to base or blank																											

CONTRACTOR CONTRACTOR	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 rellow oven	c	• •		• • @•	@Y • •		· · ·	• •	• • •	в -	• -					1.1		-	
SUARTZ CRYSTAL / SAW	PAS-QUA-PR-07	Changes in process technology or manufacturing methods - Molding	. р		e.g. change of overmold process parameter	c				• @• @•				• • •	в •	• •							-	
200012 OKTSTAL/ SAW	PAS-GUA-PR-08	Changes in process technology or manufacturing methods - Marking		Change of Marking process	e.g. change from inked marking to baser marking e.g. marking of pin 1	8												· · @					-	
SUARTZ CRYSTAL / SAW	PAS-QUA-PR-08	Changes in process technology or manufacturing methods - Marking			e.g. change of appearance (additional marking)	8	• •											· · @	•				-	AOI check necessary!
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-09	Changes in process technology or manufacturing methods - Aging	. Р		If aging is done: e.g. change of times or temperatures	c	• •)• · ·			- •	• •	• • •	в -	• •					1.1	10 C - 10	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-10	Process integrity: turing within specification PACKING / SHIPPING - NEW INATERIAL, CRITICAL DIMENSIONS	. P	Variation within process specification.	e.g. process control	c															1.1.1.1		-	
QUARTZ CRYSTAL / SAW	PAS-QUA-PN-01	Packing / shipping specification change (locering of tolerances)		Change of packing specification.	e.g. number of pieces on real.	в													<u> </u>				1	
QUARTZ ORYSTAL / SAW																							-	
CUARTZ CRYSTAL / SAW	PAS-QUA-PN-02	Dry pack requirements change	р р		e.g. change of MSL e.g. change in dry pack assurance (HIC, MBD)	в	1. Barris (1. Barris)	1.1							1.1		 • 		1.1	e - e -	1.1	· ·	-	
CLARTZ CRYSTAL / SAW	PAS-QUA-PN-03	Dhange of carrier (tray, reel)	P P	Change of carrier	e.g. change by material e.g. change by geometry.	в															1.1		-	
QUARTZ ORYSTAL / SAW		PACKING / SHIPPING - VISUAL INSPECTION			e.g. change by geometry.										1 1 1									
	PAS-QUA-PV-01	Change of labeling	I P	Change of labelling, also on reel.	(1) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	в		1.1													1.1		-	
QUARTZ CRYSTAL / SAW																				-				
QUARTZ CRYSTAL / SAW	PAS-QUA-PV-02	Change of product marking		Marking on device.	e.g. change of content of marking e.g. change of method of marking e.g. change of appearance of marking	в	1 B. 199	1.1							1.1				1.1	· ·	1.1	· ·	-	
	PAS-QUA-PV-03	Change of packing/ahipping specification	p p		e.g. change of documentation in packing specification																		-	
QUARTZ ORYSTAL / SAW	PAPapart Full	Cialge o pace grande of species and		material of the packing.	specification																			
OLARTZ CRYSTAL / SAW		LOGISTICS / CAPACITY / TESTING - EQUIPMEMENT	<u> </u>	Characterized and a state of the state	1	1					- T - T				1 1 1	1 1	<u> </u>		<u> </u>		<u> </u>	<u> </u>	r	Text alloct descents on final sist.
	PAS-QUA-ED-01	Production from a new equipmentition 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	•	1.1							@B -				-				@•	Test effort depends on final risk assessment. Performance test according to affected
QUARTZ CRYSTAL / SAW				covered by the table require also a PCN																				process change.
	PAS-QUA-ED-02	Production from a new equipmentitioal which uses the same basic technology (replacement equipment or extension of existing equipment pool)	. р	PCN required for dedicated equipment for sensitive component production.	e.g. additional equipment to increase production capacity e.g. replacement of same equipment	c									@В -								@•	Test effort depends on final risk assessment. Performance test according to affected process change.
QUARTZ CRYSTAL / SAW		equipment or extension or exteining equipment pool)			e.g. replacement of same equipment										-								~	Performance test according to anected process change.
	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.	e.g. change of tester platform	c									@в -								@•	Gage R&R / delta correlation
QUARTZ CRYSTAL / SAW				Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.																			3.	
QUARTZ CRYSTAL / SAW		LOGISTICS / CAPACITY / TESTING - PROCESS FLOW		Change of manufacturing site.	e.g. movement or transfer of manufacturing site ~										1 1 1		1 1					1 1		
QUARTZ CRYSTAL / SAW	PAS-QUA-PF-01	Manufacturing alle transfer or movement of a part of production process to a different location/site	РР	Change of manufacturing site. Includes traveler as well as additional site. Note: Recrganization inside one plantisite is not offended.	e.g. movement or transfer of manufacturing site or process step(s) to a different location/site.	в	• •		• • •		· • •	•••	• •	• • •	в •	• •	· ·			· ·	1.1	· @•	@•	
	PAS-GUA-PT-02	Elimination or addition of a manufacturing process also		cer attacted Change of manufacturing process sequence.	e.g. washing / cleaning process	c																	@•	Characterisation depends on impact of
QUARTZ CRYSTAL / SAW		LOGISTICS / CAPACITY / TESTING - Q-GATE	· [P		e.g. change of order of processes															_	<u> </u>	<u> </u>		production flow.
QUARIZ CRISIAL/ SAW					e.g. change from 100% to sample inspection e.g. text flow block, reduction from three to two temperature measurements												<u> </u>		1 1				1	R (electr. funct.): test coverage.
CUARTZ CRYSTAL (SAT	QUA-05-01	Change of lest coverage used by the supplier to ensure data sheet compliance (e.g., altrinistion/addition of electrical measurement/lest flow block, relevation/enhancement of monitoring procedure or sampling)	. Р	Change of test coverage.	 g. test flow block, reduction from three to two temperature measurements e.g. change in burn in/run in process. 	c	1.0	1.1				1.1				1.1	· ·						-	R (electr. funct.): test coverage. R (reliability) only for change in burn in process.
Al-Cap		ALUMIUM ELECTROLYTIC CAPACITORS	-																			- 1		
incap.	PAS-ALU-AN-01	ANY Any change with impact on agreed upon technical contractual agreements	p ^	Intended to be used if no other type of change is applicable but the change affects agreed	Not release for technical evaluation.	•																	1.	
Al-Cap				active a contraction activation	Technical Interface areas compared in the																		-	
Al-Cap	PAS-ALU-AN-02	very charge win impact on processability/manufacturations at customer, which is not covered in the matter below. DATASHEET	P P		See processability on board level.	в	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.1									1.1			1.1	1.1.1.1.1	· @•	-	
Al-Cap			1		1			1			<u> </u>	<u> </u>		<u> </u>			<u> </u>		<u> </u>	1	1 1	1 1	1	
Al-Cap	PAS-ALU-DS-01	Change of datasheet parameters/electrical specification (min/max/typ. values) and / or ACIDC specification	P P	Change of application relevant information Not included: Editorial changes.	e.g. tighten of electrical parameter distribution	A Risk assessment depending on char for each application.	° -	1.1				1.1	1 A A A A A A A A A A A A A A A A A A A		1.1		5 - S		1.1	1.1	1.1		-	
				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 indicase locarly, test Infonces contains this type of change!																				
	PAS-ALU-DS-02	Correction of data sheet or issue of errata		New description of behavior which was not specified before or which is different from	e.g. data sheet correction because of new information about component behavior	A																		
				Initial specification. Please indicate clearly, that infonote contains this taxe of shareed	information about component behavior																			
Al-Cap				Assessment in Accustor regards										_			_						-	
				Description of a new not previously covered parameter.																				
	PAS-ALU-OS-03	Specification of additional parameters	I P	No technical change of the product. (I)c no influence	e.g. adding new (tested) parameter.	A	4.1																	
	PAS-ALU-OS-03	Specification of additional parameters	I P	No technical change of the product. ((): no influence (P): Risk assessment depending on change for each application to provide evidence of whitisonal parameter (and evidence)	e.g. adding new (leated) parameter.	A	÷ .																-	
Al Cap Al Cap	PAS-ALU-DS-03	Specification of additional parameters	I P	parameter. No technical change of the product. (If: no influence (IP): Ruk sussamment depending on change for each application to provide evidence of additional parameters (stat. evaluation)	e.g. adding new (insted) parameter.																		-	
Al-Cap Al-Cap		MATERIAL	I P	*						· · · ·				· · ·				· · · ·		· ·			- -	
Al-Cap Al-Cap	PAS-ALU-MA-01	NATERAL Charge of material composition - Housing		Change of housing	e.g. change Al alloy for housing	B: only if a cap holder holds the Capacitor body by pressing.	- ·	•	• • •	•	· · ·			• • •	· ·	· ·	· ·	· · ·		· ·	· ·		•	
AlCap AlCap AlCap		MATERIAL	і Р Р Р	Change of housing		B: only if a cap holder holds the Capacitor body by pressing.	 -	· ·	· · ·		· · ·	· ·		· · · ·	· ·	· ·		· · ·		· ·	· ·	· ·	-	
АнСар АнСар АнСар АнСар	PAS-ALU-MA-01	MATENAL Design of material compatibles - Heating Design of material compatibles - Salating	P P	Change of housing Change of sealing	e.g. change Al alloy for housing e.g. change of rubber compound e.g. change of sasking disc material (sate), Snep in)	C Capacitor body by a cap holder holds the C Capacitor body by pressing. B: In case of external surface of set is changed. Evaluation only, if copacitor is gland	In the second se	•	• •	•••	• • •	• -	@• @S	• • •		· ·	· ·	· · · ·		· ·	 	 	-	Based Humidly last can be done
АСар АСар АСар АСар АСар	PAS-ALU-MA-01 PAS-ALU-MA-02 PAS-ALU-MA-03	MTTNE Dong of natural corporation - Huaring Dang of natural corporation - Scaling Dang of natural corporation - Scaling	P P P P	Change of housing Change of sealing Change of external insulation / skealing	e.g. change Al skity for housing e.g. change of nubber compound e.g. change of ausling dia: material (asist, Snep in) e.g. change of the STP C is to PET e.g. change of color	Bc only if a cap holder holds the Capacitor body by pressing. C Bc in case of ederaid surface of set is changed. Exhibit only, if capacitor is gland C C Bc hy tar gland capacitor.	· · ·	• @	• • •		• • •	• •	@• @S - @S	• • •	· ·	· ·	· ·	· · · ·		· ·	· ·	· ·		Based Humidly last can be done without applying voltage.
лСар ЛСар ЛСар ЛСар ЛСар	PAS-ALUMA-01 PAS-ALUMA-02 PAS-ALUMA-03 PAS-ALUMA-04	INTENSE Design of relation competition : Handing Design of relation competition : Sanding Design of relation competition : Sanding Design of relation competition : Landing Themasters	Р Р Р Р	Change of bousing Change of seeing Change of seeing Change of seeing Change of lead or ouder termination.	e.g. drange Al skilly for housing e.g. drange of nativer compound e.g. drange of nativer compound (unit) (Song H) e.g. drange for dransmit for manifest (unit) e.g. drange of color e.g. drange of kadmans finals from initiac coper e.g. drange of kadmans finals from initiac coper e.g. drange of kadmans finals from initiac iso (e.g.	C B: only if a cap holder holds the Capacitie body by prevening. C is changed. B: in case dearner surface of res is changed. C B: Only for glassification is glassific C B: Only for glassifications.	· · ·	• @	· · ·	• • • •	• • •	• •	@• @S	• • •	- • - • B -	· · ·	· · ·	· · ·		· ·	· ·	· · ·	-	Based Hendly ket car be done whout applying velops.
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PAS-ALU-PV-02	Change of product marking		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	в			-											-			-					4	
PAS-ALU-PV-03	Change of packing/ahipping specification	Р	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	•	-	- E - E			1.1		-	1.1	1.1	- e - e							1.1				· · ·	· ·	
	LOGISTICS / CAPACITY / TESTING - EQUIPEMEMENT	1 1							-	1	1 1	1 1		1 1		1 1	1 1					1 1		1 1	1 1	<u></u>	4	-
PAS-ALU-ED-01	Production from a new equipmentilool which uses a different lechnology or which due to its uniquitorm or function can be expected to influence the integrity of the lineal product	e 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	с				•						• •		- E	3 -				•					@•	Test
																										4	4	proc
PAS-ALU-ED-02	Production from a new equipmentitod which uses the same basic technology (replacement equipment or extension of existing equipment pool)	-	P PON required for dedicated equipment for sensitive component production.	e.g. additional equipment to increase production capacity e.g. replacement of same equipment	c	•	• •		• •	1.1	· ·		• •	· ·	• •	· •	- E	3 -	-			•					@•	Perfo
			Change of final test equipment which use																									proce
PAS-ALU-ED-03	Change in final test equipment type that uses a different technology	Р	P different technology. PCN required for dedicated equipment for sensitive carameters.	e.g. change of tester platform	c	•	1.1			1.1				1.1	1.1	1.1	· 6	в -				-		· ·	· ·	· · ·	@•	Gage
	LOGISTICS / CAPACITY / TESTING - PROCESS FLOW								_	-																		
PAS-ALU-PT-01	Menufacturing site transfer or movement of a part of production process to a different location/site	• Р	Change of manufacturing site. Includes traveline as well as additional site. Note: Reorganization inside one plantistle is not attacted	e.g. movement or transfer of manufacturing site or process step(s) to a different location/site.	в	•	• •	•	• @•	•	•••	•	• •	•••	•••	• •	•	з •	•	•		•				· @•	• @•	
PAS-ALU-PT-02	Elimination or addition of a manufacturing process step	-	P Change of manufacturing process sequence.	e.o. dual source / tab strategy e.g. washing / cleaning process e.o. channel order of processes	с	•																					@•	Chara
PAS-ALU-PT-03	Elimination of final electrical measurement / test flow block	1	P PCN required for dedicated final test reductions for sensitive consensus.	e.g. elemination of additional impedance control	с	-	1.1			1.1			1.1	1.1						· ·		1.1		1.1			@•	
	LOGISTICS / CAPACITY / TESTING - Q-GATE	1 1			1				-	1	1 1	1 1	1		T T	1 1	1 1		1	1	1	1 1	1		1 1			
PAS-ALU-QG-01	Change of test coverage used by the suppler to ensure data sheet compliance (e.g., elimination/addition of electrical measurement/lest 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 intro in process.	с	-	1 A 1	1.1		1.1	- e - e			1.1	1.1	1.1									1.1			R (sisc R (rails
	NTC			e.g. change in burn in/run in process.																								
PAS-NTC-AN-01	ANY	1 1	Intended to be used if no other type of change	1						T	1	1 1	- I	1 1	<u> </u>	<u> </u>		-	1	<u> </u>		1 1	-	1 1	T			1
	Any change with impact on agreed upon technical contractual agreements Any change with impact on processability/menufacturability at cuatomer, which is not covered in the matrix balow.	Р	Intended to be used if no other type of change p is applicable but the change affects agreed technical contractual agreements.	Not remain for technical evaluation.						1																4 - 1 -		
PAS-NTC-AN-02	he matrix below. DATASHEET	Ρ	P	Technical interface means component terminals.	В				· ·	<u> </u>	1 . 1 .				1 · I ·								1 1	1 . .	1 . 1 .	· @•	<u> </u>	
PAS-NTC-DS-01	Ber matic solator, DarAppeter Diarge of databaset parameters/electrical specification (mist/max/lyp.velues) and / or AGDC seechcation	Ρ	P Change of application relevant information Not included: Editorial changes.	e.g. lighten of electrical parameter distribution	A	Risk assessment depending on change for each application.	1. A. 1. A.						1.1	1.1	1.1	1.1			-					1.1	1.1			
			No technical change of product, process or test. New description of heliwaire which war	'																								
PAS-NTC-DS-02	Correction of data sheet or issue of errats	1	No suchnical change of product, process or near. New description of bahavior which was not specified before or which is different from Initial specification. Planas indicate clearly, that infonote contains this type of changed	e.g. data sheet correction because of new information about component behavior	A		1.1		· ·	1.1			1.1					· •			1.1					· ·		
			Please indicate cleanly, that Infoncte contains, this type of changel Assessment in application required?																									
			Assistantino in appealation required Description of a new not previously covered parameter. No technical change of the product. P (B: no influence (P): Fisk assessment depending on change for ach application to provide valuance of additional carameters (stat. evaluation)																									
PAS-NTC-DS-03	Specification of additional parameters	1	P (It no influence (P): Risk assessment depending on change for	e.g. adding new (tested) parameter.	A		1.1	1.1				-	1.1	1.1	1.1	1.1				· ·			1.1	1.1	1.1	1 1 1	· ·	
I	MATERIAL		each application to provide evidence of additional parameters (stat. evaluation)	<u> </u>																								
PAS-NTC-MA-01	MATERIAL Ohange of material composition - Ceramic Binder	Р	P Change of Binder Material to bind ceramics.		с		• •	•		- ·		· ·	· ·	- @•	- @•	@• •		· · ·	•	• •	· ·	· · ·			· · ·		1	
PAS-NTC-MA-02		Р	P Change of ceramic composition													• -	• @	в •	@S									Param an anti
	Dhange of material composition - Ceramic			e.g. changes in additives amount	c									•			. 0	•	83								@•	Parama an anti- perform S = Sh
PAS-NTC-MA-03	Change of material composition - Inner Electrode	Р	P Change of inner electrode material (ink material). Valid in case of multilayer shuctures	e.g. change from AgPt material to AgPd material	с			•	•	-	• •	-					- E	3 -	-			-					@•	
PAS-NTC-MA-04	Change of material composition - Encagesulation	р	p Change of encapsulation material.	e.g. change of coating e.g. change of additives in an insulation.	в	A: Risk assessment on application level, If interaction with other material expected.		•							- @•	• -	- a	B @•									@•	Parame an antic
						Risk assessment needed to evaluate compatibility of acidering process.		-	-								_	_				_				4		perform
PAS-NTC-MA-05	Change of material composition - Lead material / Termination	Р	Change of lead or outer termination. Change of lead (Inish) material, termination material or attachment material.	e.g. change from SnPb to pure Sn	в	compatibility of soldering process.	• •	-		@•	@• @•	-	- @•	· @•		- @•	@• 6	B -	@• (2∙ -		-					@•	
PAS-NTC-MA-06	Change of suppler of material		P Change to a new or additional material supplier at component manufacturer.	e.g. for 2nd source purpose	с			-						• •		• •	• 6	3.	•	• •							@•	Assump
	DESIGN	-			-													_	-	-		<u> </u>		<u> </u>		┶━┶━		change
PAS-NTC-DE-01	Changes of termination, surface finish, shape, color, appearance or dimension structure - Lead Diameter	1	p Change of lead diameter	e.g. charge lead diameter from 0.5 to 0.4 mm	в		•	-		@•			@• @•				- 6		@• (-				· · ·	@•	_
PAS-NTC-DE-02	Changes of termination, surface finish, shape, color, appearance or dimension structure - Termination Area	1	P Change of termination area	e.g. change of termination layer thickness e.g. change in termination dimensions	в		•			@•							@• 6		@•			-				· · ·	@•	_
PAS-NTC-DE-03	Changes of termination, surface finish, shape, color, appearance or dimension structure - Intern Connection		P Change of inner connection	e.g. change from soldered connection to welded connection	с		•	-		@•	@• @•			- @•		- @•	@• 6	·B -	@•	≥• -		-				· · ·	@•	
PAS-NTC-DE-04	Changes of termination, surface linish, shape, color, appearance or dimension structure - Appearance		Change of appearance. P Note: Marking on device is defined as separate change (PAS-FLM-PV-02).	e.g. change or adding of color on component Mainly in combination with other changes!	в		• •	-		-		@•							-			-						
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	с			- 6	e• @•			-	@• -		- @•	@• -			@• (D• -		-						
PAS-NTC-DE-06									2• @•									_	@• (+	4	
PAS-NIC-DE-06	Changes of inner construction - Layer Thickness	-	P Change of caramic layer thickness. For multi- layer technology only.	e.g. change from 1.5µm into 1.0µm	c		•			-		-	@• ·			@• ·			@• (g• -		-				<u> </u>	<u> </u>	
PAS-NTC-DE-07	Changes of inner construction - Number of Layers	-	P P In combination with PAS-NTC-DE-06.	s see also layer thickness	с		• •	- @	@•	-		-	@• ·		· @•	@• ·			@•	≥• -		-					I	
	PROCESS								_	1		1 1			1 1	1 1								<u> </u>			4	_
PAS-NTC-PR-01	Changes in process technology or manufacturing methods - Lamination		P Change of lamination / press technique technique	e.g. stamp press to isostatic press	с	•	•		- @•	-	@• ·					_	- G		@•			-				<u> · · ·</u>	@•	_
PAS-NTC-PR-02	Changes in process technology or manufacturing methods - Firing		P Change of firing / sintering profile	e.g. isoperature and / or time and / or atmosphere. e.g. from tunnel to batch kilo.	с	•	•		Q•		· @•					@• @•			-					• •		4 - 1 -	@•	
PAS-NTC-PR-03	Changes in process technology or manufacturing methods - Dicing		p Change of dicing / slicing	e.g. change from cutting to saveing	с	•	•				@• ·			@• @•				B -	-			•					@•	
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.		в	•	•	-		•	••	•	•	•		•	• 6	3 -	•	•						· ·	@•	
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.	с	•	• •	@•		-	@• ·	-			· @•	@• @•	- 6	B -	@•								@•	
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 costing / encapsulation process	в	•	• •	•	• -	-		•	• •	•	•••		•	•	-			-					-	
PAS-NTC-PR-07	Process integrily: tuning within specification		P Variation within process specification.	e.g. process control	с		1 A A	-		1 ·	1	L - 1		· · ·	<u> . .</u>	<u> </u>			-					· · ·	1 - 1 -	1	1.	
PAS-NTC-PN-01	PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS Packing / shipping specification change (loosening of bierances)	Р	P Change of packing specification.	e.g. number of pieces on reel.	в			•				· · ·															1.	
PAS-NTC-PN-02	Dry pack requirements change		P Change of drypack requirements.	e.g. change of MSL e.g. change in dry pack assurance (HIC, MSB)	в		1.1						1.1					· •			1.1		1.1					
PAS-NTC-PN-03	Change of carrier (tray, reel)		P Change of carrier	e.g. change by material e.g. change by geometry.	в		1 A 1			1.													1.1					
4	PACKING / SHIPPING - VISUAL INSPECTION									-													_					_
PAS-NTC-PV-01	Change of labeling	1	P Change of labeling, also on real.	(i) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	в		1 A 1												-				1.1			444	4	
PAS-NTC-PV-02	Change of product marking	1		e.g. change of content of marking e.g. change of method of marking e.g. change of appearance of marking	в	1. A	1.1	1.1	· ·			1	1.1	1.1	1.1	1.1		· · ·		5 (S. 1	1.0		1.1	1.1	1.1			
PAS-NTC-PV-03	Change of packing/shipping specification	Р	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	•		1.1														1. 1.							
	LOGISTICS / CAPACITY / TESTING - EQUIPEMENENT																											
PAS-NTC-EQ-01	Production from a new equipmentition which uses a different technology or which due to its unive		Change in process technique which is not already covered above. Note: Changes affecting the product not covered by the table require also a PCN.		с												. g	P									@•	Test effe
- AS-NIC-EQ-01	Production from a new equipmentified which uses a different technology or which due to its uniquiterm or function can be expected to influence the integrity of the final product	P	Note: Changes affecting the product not covered by the table require also a PCN.	e. g. change from wet to dry technology.	с	•											. 6										@•	process
	Production from a new equipment/loci 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. elmination of manual handling processes	с													в -									@•	Text all
PAS-NTC-EQ-02		1		The second second second by the second s	· ·	· · ·																				411		Perform
PAS-NTC-EQ-02	egapters of exercise of energy equipters poor		Change of final test equipment which use		с		- A										· 6	в -	-								@•	Gage R
PAS-NTC-EQ-02 PAS-NTC-EQ-03	Reporter to some of the second s	Р	P different technology. PCN required for dedicated equipment for	e.g. charge of tester platform								1														4		
	Change in final test equipment type that uses a different technology	Р	P Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.		Ŭ				-	-																		
	Charge in final test equipment type that uses a different technology LOGISTICS / CAPACITY / TESTING - PROCESS FLOW	P	sensitive parameters.						•		<u> </u>									•							. @•	
PAS-NTC-EQ-03	Change in final test equipment type that uses a different technology		seriesve parameters.	is.g. movement or transfer of manufacturing site or process simply) to a different location/site.	в	•	•	•	•	•		•	• •	•	•••	•••	•	•	•	•						· @•	• @•	

0.6um BICMOS Vanguard Qualification Summary

Тавle	1A: LTC4270 QUALIFICATIO	ON RESULTS	
Test	SPECIFICATION	SAMPLE SIZE (LOTS X SAMPLE)	RESULTS
High Temperature Operating Life (HTOL)	JEDEC JESD22-A108	3 x 77	Pass
Highly Accelerated Stress Test (HAST)**	JEDEC JESD22-A110	3 x 77	Pass
Temperature Cycle (TC)**	JEDEC JESD22-A104	3 x 77	Pass
Autoclave (AC)**	JEDEC JESD22-A102	3 x 77	Pass
High Temperature Storage Life (HTSL)	JEDEC JESD22-A103	3 x 45	Pass
Early Life Failure Rate (ELFR)	MIL-STD-883, M1015	3 x 800	Pass

TABLE	1B: LTC3850 QUALIFICATION	ON RESULTS	
Test	SPECIFICATION	SAMPLE SIZE (lots x sample)	RESULTS
High Temperature Operating Life (HTOL)	JEDEC JESD22-A108	3 x 77	Pass
Highly Accelerated Stress Test (HAST)**	JEDEC JESD22-A110	3 x 77	Pass
Temperature Cycle (TC)**	JEDEC JESD22-A104	3 x 77	Pass
Autoclave (AC)**	JEDEC JESD22-A102	3 x 77	Pass
High Temperature Storage Life (HTSL)	JEDEC JESD22-A103	3 x 45	Pass
Early Life Failure Rate (ELFR)	MIL-STD-883, M1015	3 x 800	Pass

TABLE	1C: LTC3112 QUALIFICATION	ON RESULTS	
Test	SPECIFICATION	SAMPLE SIZE (lots x sample)	RESULTS
High Temperature Operating Life (HTOL)	JEDEC JESD22-A108	3 x 77	Pass
Highly Accelerated Stress Test (HAST)*	JEDEC JESD22-A110	3 x 77	Pass
Temperature Cycle (TC)*	JEDEC JESD22-A104	3 x 77	Pass
Autoclave (AC)*	JEDEC JESD22-A102	3 x 77	Pass
High Temperature Storage Life (HTSL)	JEDEC JESD22-A103	3 x 45	Pass
Early Life Failure Rate (ELFR)	MIL-STD-883, M1015	3 x 800	Pass