DeltaQualifikationsMatrix

Kurze Produkt- und Technologiezyklen elektronischer Bauelemente sowie neue Umweltauflagen (Bleiverbot Flammhemmer, …) führen häufig zu prozeß- und werkstofftechnischen Änderungen an Bauelementen, Leiterplatten, Verbindungstechnik und Schaltung, welche evaluiert werden müssen. Eine geeignete Methodik zur Handhabung von Änderungen an elektronischen Bauelementen beschreibt die ZVEI "Guideline for Customer Notifications of Product and /or Process Changes (PCN) of Electronic Components specified for Automotive Applications". Ein wesentlicher Teil dieser Guideline sind die hier vorliegenden Matrizen, welche sich als Empfehlungen für die Evaluierung von typischen Änderungen an elektronischen Bauelementen verstehen. Dies sollte Teil des offenen und risikobewussten Dialoges zwischen Lieferant und Kunden sein. Diese DeltaQualifikationsMatrizen wurden durch den Industriearbeitskreis "PCN DeltaQualifikationsMatrix" und den DeltaQualificationMatrix" together with component experts from the ZVEI Working Group "PCN-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. Neugualifikationen und Sondergualifikation (z.B. Verguß von Modulen) sowie Information Notes bleiben von diesen Matrizen unberührt. b) Ist eine Änderung in dieser Tabelle nicht aufgeführt, so ist der Qualifikationsumfang zwischen
- Kunde und Lieferant abzustimmen. c) Die Matrix der Aktiven Bauelemente ist so aufgebaut, dass zwischen integrierten Halbleitern
- (AEC-Q100 Rev.H) und diskreten Halbleitern (AEC-Q101 Rev. D1) auszuwählen ist (Zelle D4). Für Passive Bauelemente gilt die AEC-Q200. Für LED's gilt die IEC 60810.
- 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" (Zeile 83 für Aktive Bauelemente, Zeile 466 für Passive Bauelemente oder in Zeile 77 für LED's) alle in Betracht zu ziehenden Zuverlässigkeitstests
- e) In "Tests, which should be considered for the appropriate process change after selection of condition table" (Zeile 85 für Aktive Bauelemente, Zeile 468 für Passive Bauelemente oder Zeile 79 für LED's) wird die Anpassung der in Betracht zu ziehenden Tests in Folge der Relevanz bezüglich der Änderung berücksichtigt.
- Dazu ist die Tabelle "Conditions" entsprechend der Auswahl (A/B/C) mit einem (x) zu bewerten. f) In "Suppliers performed tests" (Zeile 87 für Aktive Bauelemente, Zeile 470 für Passive Bauelemente oder Zeile 81 für LED's) 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" (Zeile 89 für Aktive Bauelemente, Zeile 472 für Passive Bauelemente oder Zeile 83 für I FD's) zu
- 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 schließlich am Bauelelement 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 Verarbeitbarkei des Bauelementes im Steuergerät. Die Evaluierung der Änderung wird wie unter C beim Rauelementehersteller 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.

Änderungen die nur eine Infornation 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. influence evaluation level and test effort.

- <u>Wichtige Hinweise</u>
 Zur formgerechten Anwendung der DeltaQualifikationsMatrizen steht auf der Homepage des ZVEI AK ein Tutorial hereit (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 pr

 üfen, ob der jeweilige Test für die spezifische Änderung in dieser Form notwendig ist. Abweichungen oder
- generische Daten sind im Detail zu begründen.
 Die Spalte "Further applicable conditions", Bemerkungen und Fußnoten sind unbedingt zu beachten, da sie wichtige Hinweise und Einschränkungen enthalten.
- Zur Nutzung aller Funktionen muss in Excel die Anwendung von Makros freigegeben sein

DeltaQualificationMatrix

General

Short product and technology cycles as well as new environmental regulations ("Pb-free", flame retardants) frequently result in process and material changes of components, printed circuit boards, assembly techniques and circuit layout which have to be evaluated. The ZVEI "Guideline for Customer Notifications of Product and /or Process Changes (PCN) of Electronic Components specified for Automotive Applications' describes an appropriate methodology for dealing with changed electronic components. The qualification matrices in this guideline are recommendations for how to assess typical changes of electronic components These recommendations promote an open risk-based discussion between supplier and customer regarding qualifications.

The DeltaQualificationMatrices were developed by the Industry Task Force Team "PCN 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

- <u>DeltaQualificationMatrix Application</u> (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 chose between integrated circuits (AEC-Q100 Rev. H) and discret semiconductors (AEC-Q101 Rev.D1) (cell D4).
 For Passive Components AEC-Q200 is used. For LED'S the IEC 60810 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" (row 83 for Active Components, row 466 for Passive Components, respectively in row 77 for LED's).
- e) In "Tests, which should be considered for the appropriate process change after selection of condition table" (see row 85 for Active Components, row 468 for Passive Components, or row 79 for LED's) 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" (here row 87 for Active Components, row 470 for Passive
- Components, or row 81 for LED's) the component manufacturer documents the planned and
- a) 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" (see row 89 for Active Components, row 472 for Passive Components, or row 83 for LED's). 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 R 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

Changes indicated as "I" shall not be marked in the DeQuMa. For those changes the InformationNote sheet shall be used. As the DeQuMa is desired for PCN only, a marking of "I"-changes would automatically

Important Notes

- To use the matrices in the right form the ZVEI working group provides a Tutorial on its homepage
- ID number; is a unique identification number for each indicated change defined in the ZVELPCN DeltaQualificationMatrices. The same ID number is used in the PCN Form sheet to identify the
- 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
- 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)

Worked on	Carl Iwashita, Reliability Engineer	l																						
(Name, Function	06/06/2019		Form provided by ZVEI - Revision 3.1 - Dece																					
	D6/06/2019 PCN 19_0133																							
Signature	- PCN 19_0122																							1
For integrated circuits of screte semiconductors selec	AEC-Q100 Revision H									MAT	ERIAL PE	RFORMA	NCE TEST	RESULTS (on	the basis o	f AEC-Q	00 Revisio	on H)					onal to AEC-	
belov					7		inc	ludes in	tegrated (ircuits (e.	, ASICs,	μ-Controle	r, memorie	s, voltage reg	ulators, sm	art powe	r devices,	logic de	vices, analo	og devices,)		Q10x	
					Evaluation leve A / B / C		De có	Nas orbins of HAST	нат	ding	an bus	denter, and Operator		tric Breshdown	ure hatability				utbiky sation			0.0030001)	h changed device i distribution	
k change an 'X'	Assessment of impact on Supply Chain regarding following aspectscontractual agreementstechnical interest of processability invariant cutability of customer - form, fit, function, quality performance, reliability	Remainin risks on Supply Chain?	Understanding of semiconductors experts	Examples to explain	ation level level connt level devent for qualification metric	Further applicable conditions	used by data or audition site of OO Re vision H	Temperature Humidily B	Autobave or Unblased Temperature Cycling	Power Temperature Cy. High Temperature Sons	Figh Temperature Upor Early Life Fallure Rate	Wre Bond Shear	Soldenbilly Physical Dimensions	Lead Integrity Elactromignation Time Depending Clebic	Hot Camier Injection Hot gat ve Bias Tempera	Stress Migration Electronic Discharge Human Body Model	Electronic Discharge Charged Device Model Lath up	Electrical Distribution Characterisation	Electomagnetic Compa Short Crout Characteria Sort Error Rate	Lead free Hermatic Plackage Test	List Tongue Die Shear	Whitestreet (EC coosta-12-62, JEDE)	Paramete-Analysis: Comparison of current est characterization, electrical	Remarks
, ID	Type of change	No Ye	•		A: Application b B: Board evel C: Component		AEC-Q10	92	9 2	DT0	ELFR ELFR	EDR ANDS	9 8 8	800	p 5	MOH HOM	WOO P	ID CHMR	MC SC EMC	HO M	5 t 8	1		
SEM-AN-01	ANY Any change with impact on agreed upon contractual agreements	PF	Not relevant for technical evaluation.	<u> </u>			30 A 65	A2	A3 A4	A5 A8	B1 B2	B3 C1 C	2 03 04 0	5 C6 D1 D2	D3 D4	D5 E2	E3 E4	E5 E7	E9 E10 E11	1 E12 G1-4 C	5 G8 G7 (G8		
SEM-AN-02	Any change with impact on processability/manufacturability at customer, which is not covered in the matrix below.	P F	Any change which is not covered in the matrix below, but risk assessment at customer is seconstrended.		В			-															-	
x SEM-DS-01	DATA SHEET		Update of data sheet because of technical change of the product.	e.g. recommendations for pull-up/pull-down or NC	А						. .												-	
SEM-DS-02	specification Correction of data sheet / errata	1 6		pins, MSL. (I): e.g. correction of typo (IP): e.g. datasheet correction because of new information about component behavior.	A			-															-	
SEM-DS-03	Specification of additional parameters	1 8	Py: It came to reproduce improved in Description of a new not previously covered parameter. No technical change of the product. (i): Definition of new parameter which was not documented before. (iii): Not known as single change. Only in combination with other changes.	(I): e.g. adding new tested parameter.	A																		-	
SEM-DE-01	Oction Design changes in active elements. 1)	P F	Any device relevant 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 translator in layout	A	Please check if data sheet is affected (\$656-D\$-01).				м -		D,J -		- D D	D D	D •					F		•	
SEM-DE-02	Design changes in routing . *)	P F	Any change of wiring between elements in chip	e.g. mask changes in metal fix for corrective action (based on external 8D report)	С	A: Impact on EMC behavior cannot be evaluated / excluded on component level. A: If impact on electrical function is not excluded on component level. Please check if data alreet is affected (SEM-OS-O1).		-	- A	м -														
SEM-DE-03	Die shrink ³)	P F	Shrink of active area. 3) Not included: sawing street/kert/scribe line	Typical shrink of die.	А	Please check if change in process technology (SEM-PW-09) is also affected. In case of Cu wire product please consider AEC-0006.				м -		D,J -												
SEM-DE-04	Firmware modification	1 6	Integrated software by design or memory as defined by supplier. (i): Firmware modification or update without effect of a functional performance at the customer (but fig.). (ii): Firmware modification or update with effect of functional performance at the customer.	(I): e.g. addition of Firmware opportunities (P): e.g. bug fix with impact on functional performance	A	IS CAME OF U.S. WITE PRODUCT PARRIES CONSIDER PACK-UDOS.																		
SEM-PW-01	PROCESS - WAFER PRODUCTION New / change of wafer substrate material			e.g. different water material to currently released material (like change from EPI material into non-		In case of Cu wire product please consider AEC-Q006.																		Qualification effort acc. AEC-Q100: see diffusion/docing
58M-PW-01	New / change of water substitute material New water diameter		New water material. Change of water diameter resulting in equipment and process changes.	material (like change from EPI material into non- EPI material)	С	In case of Cu wire product please consider AEC-0006. Impact on changes in SEM-PW-09 and/or SEM-EQ-01.			. F	м .		. F				. F							<u> </u>	Qualification effort acc. AEC-Q100: see diffusion/doping AEC-Q100: *For broad changes that involve multiple attributes (e.g., site, materials, processes), refer to section AE 3 of this appeared; and section 2.3 of Q100, which allow for the selection of orsent-case sets whiches to cover all the possible permitsions.*
SEM-PW-03	New final water thickness			e.g. change in final chipidie thickness		A. V. Annual conduction in advanced Obs. MCCCCCT. COST. DCA.			. F	м -						. F	EE						•	producing, term of excellent in 3 or this approach and excellent 2 of 500, which one." for the selection of worst-case least vehicles to cover all the possible permutations."
						At 8 impackage, stacked dies,). As 8 impackage, stacked dies,) At 8 impact on EMC or ESD behavior cannot be evaluated / excluded on component level. In case of Cu wire product please consider AEC-Q006.				м -														
SEM-PW-04	Change of electrically active doping/implantation element Change of gate material / dielectrics		Change in electrically active doping / implantation element resulting in a new technology. Change of gate material and / or gate delectric material.		A			Ė		M -	. "	D,J -			•	•						1	•	
acm-PW-05						A: If thermal conductivity is affected (like MOSFET; IGBT, BGA		Ė				5,5				H	м.	1						
SEM-PW-05	New / change of backside operation (grinding / metallization)	PF	Change of bottom layer of die (between die and leadrisme). Change in process, material, or dimensions recessary. Abstrative see SEM-PW-09 Change in metallization of bondoads, material.	e. g. change from CrNNVAu to CrNNVAg		A: If thermal conductivity is affected (like MOSFET; IGST, BGA package, stacked diss) A: If impact on EMC or ESD behavior cannot be evaluated / secluded on component level.		Ė	•	М -	•					- M		•		- н	н		•	AEC-Q100: Applicable to all arrest power devices
SEM-PW-07	New / change of metallization / vias / contacts		Change in metalization of bondpads, material, layer thickness specifically for chip frontaids and internal layers.		С	In case of Cu wire product please consider AEC-Q006. Change of intrinsic mechanical stress might influence electrical		٠		м -	•	•	1 1					• •					•	
SEM-PW-OS	New / change of passivation or dis coating (without bare dis)	P F		e. g. addition of polyimide	С	function. In case of Cu wire product please consider AEC-0006.			• •	М -	• #,N	D,J •			• •			• •					•	
SEM-PW-09	Change in process technology (e. g. process changes like lithography, etch, coxide deposition, diffusion, die back surface preparation/backgrind,)	- F	(-): If the change in process technology does not influence the integrity of the final product. (P): If the change in process technology can influence the integrity of the final product.		A	Please also check changes described under EQUIPMENT. 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	- F	Variation within process specification (—): If turning within process specification does not influence the integrity of the final product. (P): If semaining risk on product specification is anticipated.	(-): e.g. process control	С	Please check if DATA SHEET is affected. Please check if SEM-PW-02 is affected.																	•	
SEM-PW-11	Crange of water supplier.	- F		material and / or electrical behavior.	С	Not on component, tested on test structure (typical for IC), interaction on component level for discrete components expected. In case of SOI substate NF properties have to be qualified. Please check if SEM-PW-91 and SEM-DS-01 is affected.		-										•					٠	Qualification for IC & p-Controller difficult on product level. Characterisation on water to only on test attracture. AEC-0100. For bread charques that involve multiple attribution (e.g., alle, materials, processes), ether eaction A13 of this appareds and section 23 off(100, which allow for the selection of worst-case last whicks to cover all the possible permutations.
SEM-PW-12	Change of specified wafer process sequence (deletion and/or additional process step)	- F	Any change which is not covered by another type of change. Risk is to be assessed. (—): No Risk for Supply chain. (P): Risk for Supply chain (influence on product integrity)	(-); e.g. change of cleaning process in wafer production (P); e.g. additional sinker implantation after standard implantation (to protect circuit against interference impulses).	С			-		- -	- -										- - -		-	
SEM-PW-13	Move of all or part of water fab to a different location/alle/aubcontractor	P F	Wafer fab transition with additional changes (described above).	e.g. dual source / fab strategy	A	In case of Cu wire product please consider AEC-Q005.	• • •	٠		м -		J •						• -		- н	н		•	AEC-Q100: "For broad changes that involve multiple attributes (e.g., site, materials, processes), refer to section A1.3 of this appendix and section 2.3 of Q100, which allow for the selection of worst-case test vehicles to cover all the possible permutations."
SEM-PW-14	Libography	F	Change in process technique for lithographic pocess and material (—): If the change in process technology does not refluence the integrity of the final product, (P): If the change in process technology can refluence the integrity of the final product.	(-): e.g. exchange of defect mask (P): e.g. change from E-basm process to X-ray process e.g. change from contact into projection mode	С	Please also check changes described under EQUIPMENT.	• • •	٠		м -	. #							•					•	

SEM-PW-15	Oride / Interlayer Dielectric	-	Change in process technique for colds / interlays delectric process (-): If he change in process technology does not influence the integrity of the first product. (9): If the change in process technology can influence the integrity of the first product.		A	Please also check changes described under EQUIPMENT.	-		-	٠.	м -		#,N D,J	- · -					•								•	
SEM-8D-01	BARE DIE New final wafer thickness		P Change in final water thickness.	Change in final chipide thickness	A	In case of Cu wire product please consider AEC-Q006.				. F	м -			E E -					E	E E			T.I.					
SEM-BD-02	New / change of frontside metallization		P Change in bondpada, material, pad pitch, surfac changes, layer thickness	e. g. change from ASICu to AICu	В	In case of Cu wire product please consider AEC-Q006.	_											1	+-+	-		_	 					
SEM-BD-03		÷	changes, layer thickness Change of bottom layer of die (between die and leadframe). Change in process, material, or dimensions.	e. g. change in over pad metalization e. g. change from CrNNVAu to CrNNVAg	A	II case of the product please consider Activities						i.				+				-		-	H					
SEM-BD-03	New / change of backside metallization				^			• •	-	•	м -	١.		<u> </u>	•				-	- - -	1	•		- 1	• • •		•	
SEM-8D-04	Change of water setup or number of possible good dies on water.		P Needed information for pick & place machine. (i): amount of possible good dies on wafer (ii): influence on wafer setup and wafer mapping	(P): e.g. information change for pick & place machine.	В		-		-			-							-									
SEM-BD-05	Change of optical appearance of water edge region (like irride coverage or edge exclusion)	1	Selection of dies in water edge region which has full electrical functionality. (f)c in case of water edge is affected only (f*)c in case of single die is affected	(f): e.g. appearance of water edge (rounded instead of square) (P): e.g. polylimide as new coating on die	В		•		-			-							-								•	
SEM-BD-06	Die sofbe or separation	1	Needed information for sawing and pick & place machine. P (I): If the change in sawing process does not influence the integrity of the final product. (P): In case if product is delivered on wafer.	(I)c e.g. if product is delivered as known good die (in tape and reel) (P)c e.g. information change for pick & place machine. e.g. information change for sawing machine.	В	Please check if SEM-80-04 is affected.	-		•	٠.	м -								-									
SEM-BD-07	Die Preparation / Clean	-	Change in process technique for die preparation cleaning (-): If the change in process does not influence the inlegitly 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-8D-06 is affected.	-			•	м -			• • •					-						н			
SEM-BD-08	New / change of passivation or dis coating		P Change of top layer on die.	e.g. addition of polyimide e.g. change of polyimide thickness	В	In case of Cu wire product please consider AEC-0006.	-		-			-							-								•	
	PROCESS - ASSEMBLY	T . T	P Change in dimensions of existing package.	e. c. changes in package dimensions (further	В			_			м •	т т			1.1	Т			т т		T T		T. L.	тт.		_		
SEM-PA-01	Change in critical dimensions of package	-		e. g. changes in package dimensions (further development).						_		H	•		-		- -		H	-	1	•	LH					
SEM-PA-02	Change of leadiname base meterial		P New leadframe material in new composition.	e. g. change from alloy42 to copper e. g. change between two different copper alloys	В	In case of Cu wire product please consider AEC-Q006.		• •		• •	м •	Н		• •	•					- -		•	LH	F	H - G			
SEM-PA-03	Changu in leadframe dimensions		Change in leadframe dimensions which has import to the specified electrical parameter acc. data sheet or specification (e.g., heat sink, pin dimensions, die paddle size,) Not included: Variation within specification.	ct e.g. change in lead frame geometry	В	ESD investigations are only recessary if internal ground and power supply connection of leadhrane is affected. A: If impact on EMC behavior cannot be evaluated / excluded on component level. In case of Cu wire product please consider AEC-Q006.					м -				•							•	L H					
SEM-PA-04	Change of lead frame finishing material / area (internal)	Р	P Change of surface material of die attach pad and second bond area (e.g. influence in adhesion to mold compound, wedge bond reliability)	e. g. change from Ag flash to NIP protection layer e. g. change from Ag spot to Au spot e. g. increase of silver plating area	С	In case of Cu wire product please consider AEC-Q006.	-		٠		м •	-		- с •		• -			-				L H		н		-	For wire bond strengh test: Pre-& Post-process change comparison to evaluate process change robustness (AEC-Q 101).
SEM-PA-05	Change of lead and heat slug plating material/plating thickness (external)		P Change in material and / or process resulting in new technology (e.g. pure tin).		В				•		м •	-		- с •		•			-				L H	F	н			
SEM-PA-05	Bump Material / Metal System (internal)	Р	P Stack die or die to substrate (flip chip)	e.g. change to Rb-free material e.g. change of copper pillars	С				•		м •								-			٠.	L -					
				A consider an authorit Assesse		A: If impact on EMC behavior cannot be evaluated / excluded on component level (if die attach has impact on electrical conductivity).						П				П			П									
SEM-PA-07	Die attach material	Р	Change of die affach material and / or process P saulting in a new technology (e.g. soft solder, epoxy, etc.)		С	In case of Cu wire product please consider AEC-Q006.		• •	•	•	м -					•			-	- - -		•	L H	1	н н -		•	
SEM-PA-05	Change of wire bonding	Р	Material, diameter, change in bonding diagram and/or change in process resulting in a new technology.	e.g. change from Au to Cu material e.g. change from 25pm to 25pm diameter e.g. change from single to double bond e.g. change from slich bond to stich 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 SEM-EO-01. In case of Cu wire bonding please consider AEC-Q006.	٠		•		Q •	-				. .			-	,		•	- н				•	Parameter Analysis: Strictly required only for Power devices. In general: Diss subtile the resistant interpret with repeat on benchprocess (e.g. then Au to incommended. ACC 2010: "Ye check changes that involve multiple attributes (e.g., sits, materials, ACC 2010: "Ye check the parameter of the product and selection 2 of 2010; Acceptant of the selection of a worst-case less vehicles to cover all the possible permutations."
SEM-PA-09	Substate / Merpaser	Р	P Change of BGA substrate	e.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. In case of Cu wire product please consider AEC-QDDS.			٠		м •				- т				-				L H	+	н н -			
SEM-PA-10	Die Overcost / Underfül	-	Supporting layers for complex packages like flip this and if or change in process resulting in a ne technology. (-): If change does not influence the integrity of the final product. (P): If impact on product integrity is anticipated.	v (-): e.g. change of dispensing speed (P): e.g. change of underfill material	С						м •						- -		-	- -		٠.			. н .		-	
SEM-PA-11	Charge of midd compound / encapsulation melaintal	Р	P Change of mold compound / encapsulation material.	e.g. change to green mold compound e.g. change of filler particles	В	A: impact on themse-mechanical stress caused by mismatich of mold compound, interconnecting suchnology and carrier is undertail and interconnecting suchnology and carrier is undertail anticipated (specific for Power Devices). A: is cause of high frequency signate (b. 2004) is mode compound carrier and interconnecting signate (b. 2004) in mode compound cardid affects signate behavior (e.g. digital signate processor). In case of 6 or view product pleases consider AEC-COOK.			•		м •		•			•							L -					
SEM-PA-12	Change of hermoic sealing	Р	Affected areas are material and process of hermetic (e.g. ceramic) packages, capped die a sealed devices (e.g. pressure sensors)	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).			-		٠.	-			•				-								-	
		П								T		П				П			П									
SEM-PA-13	Change of product marking	1	Change of marking on device and / or change in process resulting in a new technology. P (9): If change does not influence the integrity of 5 final product. (P): If impact on product integrity is anticipated.		В			• •	-					B			- -											
SEM-PA-14	Change in process technology (e.g. sawing, die attach, bonding, molding, plating, birn and form, lead frame preparation,)	-	(-): If the change in process technology does no influence the integrity of the final product. (P): If the change in process technology can influence the integrity of the final product.	t (P): e.g. change from ball bond to stitch	В	Please also check changes described under 52M-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 suring within process specification does neithannos the integrity of the final product. (P): If impact on product specification is anticipated.		С		÷		-										-								-	
SEM-PA-16	Change of direct material supplier	-	Change of suppliers for direct materials which as 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 leadhs/res supplier with specific leadings or manufacturing technology.	С	Please check if material is changed			-			-					- -		-	- -							-	See charge of material.
SEM-PA-17	Change of specified-assembly process sequence (deletion and/or additional process step)	-			С				-			-					-		-	- -							-	Qualification depends on specific change.
SEM-PA-18	Move of all or part of assembly to a different location/site/subcontractor.	Р	P Assembly transfer or relocation	e.g. dual source / fab strategy	С	A or B: impact on other type of changes described under PROCESS ASSEMBLY and SEM-EQ-01. In case of Cu wire product please consider AEC-Q006.	٠		٠		м -		•		• т				-				L H	1	H H G		•	Whisles tests have to be done on monitoring bealed AEC-Q100: "For broad changes that involve multiple stributes (e.g., sits, materials, processes), refer to section A13 of this appends and section 2.3 of Q100, which also for the selection of exercic seals truly which to cover aff the possible permissions."
SEM-PA-19	Die sobie or separation	-	Separation 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 kerl width (P); e.g. change from sawing to laser cut	С				•		м -								-	- -							-	
SEM-PA-20	Die Preparation / Clean	-	Change in process technique for die preparation desering P (-): If the change in process does not influence the integrity of the final product. (P): If impact on product integrity is anticipated.	/	С				٠		м -	٠					- -		-	- -				,	н		-	
SEM-PA-21	Molding / Encapsulation process PACKING/SHIPPING	-	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.		С		·		·		м •	ŀ			• •		- -		-		- -		L -				-	

SEM-PS-01	Packing/shipping specification change	P Packing/shipping specification change.				 		 	 	 - 1		 	 			
SEM-PS-02	Dry pack requirements change	P Change of dry pack requirements (e.g. change of MSL)				 		 	 	 -		 	 		-	
SEM-PS-03	Change of carrier (tray, reel)	P P Change of carrier (tray, reel)		В		 		 	 	 		 	 			
	Change of labelling	Change of labelling also on reel. #J: Change of malerial label without impact on barcode. #P: Changes of material label information which affects data processing at outstorer.	(i) e.g. additional information (RoHS stamp) (IP) e.g. change of defined nonenclature for data processing	В		 . - -	. - -	 	 	 -	- -	 	 - - -		-	
	EQUIPMENT					 		 	 	 		 	 	 		
SEM-EQ-01	Production from a new equipment/lool which uses a different basic technology or which due to its unique form or function can be expected to influence the integrity of the final product	P 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 cutting (mechanical to laser cutting)	A	1	 		 	 	 -	- -	 	 		-	Affected process change is to check.
SEM-EQ-02	Production from a new equipment/host which uses the same basic technology (replacement equipment or extension of existing equipment pool) without change of process.	PCN required for dedicated equipment for sensitive component production.	(-); e.g. extension of existing equipment pool (P); e.g. extension of dedicated equipment in case basic technology still need to be proven	С		 	. - -	 	 . . .	 -	- -	 	 - - -			
SEM-EO-03	Change in final text equipment type that uses a different technology.	P Change of teater (only in case of bore dis: final test means wafer test.)	e.g. change tealer equipment from LTX to Teradyne	С		 		 	 	 -		 	 		•	Gage R&R / delta correlation
	TEST FLOW															•
SEM-TF-01	Move of all or part of electrical water test and/or final test to a different location/site/subcontractor	P P Tester transfer or relocation. Check impact on SEM-AN-01	Dual source strategy	С		 		 	 	 -	- -	 	 - - -		•	Gage R&R / delta correlation
		P P Tester transfer or relocation. Check impact on SEM-AN-01	Dual source strategy	С		 1-1-		 	 	 -		 	 		•	Gage R&R / delta correlation
	Move of all or part of electrical water test and/or final test to a different location/site/subcontractor	P P Teater transfer or relocation. Class. Inspect on SIMM-MOST. ag least files block, reduction from three transferance reasonaments to live languages transcenaments, durage in burn in / not in process. P P - Charge does not otherwise the integrity or P P - Firepact on product integrity is writispeled.	(-); e.g. test implemented without customer	c		 		 	 	 		 	 			Gage RBR (ridis consisten Parameter Analysis Cells correlation **Are Yours to' Changes EURN reconnected
	Move of all or part of electrical water test anchor final test to a different location/his/subcontractor GGATE Carpy of the lest coverage-facility process fine used by the supplier to woman data sheet coverages for a different final data of testing and testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to woman data sheet coverages for a different final data of testing the supplier to testi	Check impact on SEM-AN-01 In g. less flow block, reduction from three imperature measurements to two temperatures P (-): It change does not influence the integrity of the first conduct.	(—): e.g. test implemented without customer requirement (PF e.g. reduction from three temperature measurements to two temperature measurements	c				 	 			 				Parameter Analysis: Delta correlation
	Show of all or part of electrical water and and/or that lead to a different location-inhaladed-oriented GOATE CONTROL OF A STATE O	Check impact on SEM-AN-01 In g. less flow block, reduction from three imperature measurements to two temperatures P (-): It change does not influence the integrity of the first conduct.	(—): e.g. test implemented without customer requirement (PF e.g. reduction from three temperature measurements to two temperature measurements	С				 				 	 			Parameter Analysis: Delta correlation
92M-QG-01	Show of all or part of electrical water and and/or that lead to a different location-inhaladed-oriented GOATE CONTROL OF A STATE O	Deach impact on SEEA-69-01 as but float back, including from from these separation measurements to large interpretation resourcements, dauges in his in 1 / no in process p. [-] of dauges dates and transpire of the separation p. T impact on product integrity is anticipated.	(—): e.g. test implemented without customer requirement (PF e.g. reduction from three temperature measurements to two temperature measurements	С				 					 			Parameter Analysis: Delta correlation
SEM-QG-01	Show of all part of electrical water was and/or that that is a 6th-west booksternish subcommental GASTE. Compart for that command the command of the comma	Deach impact on SEEA-69-01 as but float back, including from from these separation measurements to large interpretation resourcements, dauges in his in 1 / no in process p. [-] of dauges dates and transpire of the separation p. T impact on product integrity is anticipated.	(—): e.g. test implemented without customer requirement (PF e.g. reduction from three temperature measurements to two temperature measurements	С												Parameter Analysis: Delta correlation
52M-QG-01	Secret of a part of electrical water has and/or that has a different trouters into hashing the GARNE. GARNE GARNE The part of the trouversy fracting process the west by the against on exact data dress everythened by a treasurement of the trouvers. The part of the trouversy fracting processes are semployed. The part of the trouvers of anothering processes are semployed. The part of	Deach impact on SEEA-69-01 as but float back, instanction from these separation measurements to large inspections resourcements, dauges in his in 1-fra in process p (-) of storage does not instance the stepsity of p (2) impact on product integrity is anticipated.	(—): e.g. test implemented without customer requirement (PF e.g. reduction from three temperature measurements to two temperature measurements	С												Parameter Analysis: Delta correlation

Not required.
 Information Note required.
 P PCN required.

Abbit of ** induces the performance of that sites is test should be considered for the appropriate process change.

COMMITTION

For your facility.

For your facility. ⇒ Please mark NOT with V. detailt is YES

A letter or * indicates that performance of that stress test should be considered for the appropriate process change.

	Worked on: (Name, Function)	Max Mustermann		Form provided by ZVEI - Revision :	1.1 - December 2016																						
	Date:																										
	PCN number: Signature:																	aluation								additio	nal to AEC-
	Signature:		l			Evaluation level	doed)									addition	al to AEC-G	200 Revision								40	2200 5 6 7 8
Mark change with an "x"	\	- contracula gyssements - rectracula gyssements - rechnical instruce of processability/imanufacturability of customer - form, fit, function, quality performance, reliability	Remaining risks on Supply Chain?	Understanding of componer experts	N Examples to explain	Further applicable conditions for the project of th	bevolunted by data or sudificer at C-0.200 Revision D	we material only)	Temperature Cycleg	Destructive Physical Analysis Mature Resistance	Bissed Hund by	Operators Life Esternal Visual	Physical Dimension Terrebul Strangth (Leaded	Resistance to Solvents	Vibration	Resistance to Subsering Heat Thermal Shook	Electrostatic Dischtrage (850) Soddendality	Electrical Characterization Flatmatch by	Board Nox	Terrand Strength (SAC) Bean Load Test	Plane Retardinos Roseton Ulio	Suge Velage	Electrical Translent Conduction	Sharr Brength Fault Carreet Christilley	End of Lile Mode Verification Jump Bart Endurance	Load Dump Brokrance Whisker Tet (IDD 00009-T2-40, JEDIC JEDO	Remarks Outside James Age of Control of Con
Selection of component NETWORKS & RESISTORS		Type of change NETWORKS & RESISTORS	No Yes			580. 4805	AE Gons	1	4		7		10 11	12 1	3 14		17 14	39 20	2	22 23	24 25	27 2	2	31 33	23 34	*	
NETWORKS & RESISTORS NETWORKS & RESISTORS	PAS-RES-AN-01	ANY Any change with impact on special customer characteristics/contractual agreements	P P		Not relevant for technical evaluation.														1 - 1				1 - 1				
NETWORKS & RESISTORS NETWORKS & RESISTORS		DATASHEET	P P		Technical interface means component terminals.	В			•		-								-								•
NETWORKS & RESISTORS	PAS-RES-DS-01	Ohange 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 change for each application.	-																				-
	PAS-RES-DS-02	Correction of data sheet	I P	No technical change of the product, or constraint in description (wording, drawing,) ((i): In case of editorial changes. (P): In case of impact on product intentity.	e.g. data sheet correction because of new information about component behavior	A .			-		-								-								-
AL INCHOS & ASSISTA	PAS-RES-DS-03	Specification of additional parameters	I P	Description of a new not previously covered parameter. No inchrical change of the product. (I) co in lithusnos (I): Risk assessment depending on change for each application to provide editions of additional parameter (states).	e.g. adding new (tested) parameter.	A	-																				-
NETWORKS & RESISTORS NETWORKS & RESISTORS		MATERIAL								+			- w		++		-				R -		+	+			-
NETWORKS & RESISTORS		Change of material composition - Ink/Wire material of Resistor element. Change of material composition - Ink/Wire material of Terminal element.	P P	Change of Ink / Wire material Change of Ink / Wire material	e.g. resistor paste, NCr, resistor wire e.g. AgPd paste, Ag paste, lead wire , NCr for side termination	в							. w				F -	В .			R -						•
NETWORKS & RESISTORS NETWORKS & RESISTORS	PAS-RES-MA-03	Change of material composition - Package/ Mold	Р Р	Change of Package	e.g. for chip res.: final costing, epoxy	В									•				•		R -						Check whether ADI at tier 1 can be affected.
NETWORKS & RESISTORS	PAS-RES-MA-04 PAS-RES-MA-05	Change of material composition - Passivation Change of material composition - Substrate material	P P	Change of Passivation /Inner protection Change of substrate material		c c		•			:	•						В .		• •	R -	- N					•
NETWORKS & RESISTORS	PAS-RES-MA-OS	Change of supplier of material	. Р	Change to a new or additional materia supplier at component manufacturer.	e.g. for 2nd source purpose	С			•		-			•		• •	•	в •	-		R -	- 1	-				Assumption material specification remains unchanged. Otherwise see change of material.
NETWORKS & RESISTORS NETWORKS & RESISTORS	PAS-RES-DE-01	DESIGN Changes of termination, surface Brish, shape, color, appearance or dimension structure Changes of Inner construction - Passisation PROCESS				B		:	H	: :		: :					: :		1:1	: :	R -				- :	1:1:	-
NETWORKS & RESISTORS			. Р		e.g. change of firing profile	c							. R					в .									
NETWORKS & RESISTORS NETWORKS & RESISTORS	PAS-PES-PR-02	Changes in process technology or manufacturing methods - Ink Fire Changes in process technology or manufacturing methods - Ink Print		Channa of ink print renouse	e.g. change of firing profile e.g. change from normal atmospher to nitrogen atmospher	С			.		-		- R	-				в .	R	R -	R -						•
NETWORKS & RESISTORS NETWORKS & RESISTORS	PAS-RES-PR-01 PAS-RES-PR-04	Changes in process technology or manufacturing methods - Trim Changes in process technology or manufacturing methods - Lead Form	. P	Charge of tim process Charge of lead form process	e.g. change from mill timming to baser timming e.g. change from bending to punching	C B		- :		: :	-:		- :				•	B -	-			- 8			- : :		•
NETWORKS & RESISTORS		Changes in process technology or manufacturing methods - Termination Attach Changes in process technology or manufacturing methods - Marking	. P	Change of termination attach process Change of marking process	e.g. chip resistors: electropisting process e.g. welding of leads for through put devices. e.g. change from tempon printing to lease marking	8	•		-		•							в .	-			- 1					•
NETWORKS & RESISTORS NETWORKS & RESISTORS NETWORKS & RESISTORS	PAS-RES-PR-07	Changes in process technology or manufacturing methods - Molding	. P	Change of molding process Variation within process specification.	e.g. process control	B C		:	•	:	•	:		•					•	•	R -					1 :	-
NETWORKS & RESISTORS NETWORKS & RESISTORS	PAS-RES-PN-01	Packing / shipping specification change (lossering of tolerances)	РР	Change of packing specification.	e.g. number of pieces on reel.	В					-								1.1			1 - 1 -	1 - 1				-
NETWORKS & RESISTORS				Change of dry pack requirements.		В	-												-				-				-
NETWORKS & RESISTORS		Otange of carrier (tray, reel) PACKING / SHEPPING - VISUAL INSPECTION	P P	Change of carrier	e.g. change by malerial e.g. change by geometry.	В		_			1 . 1		1 1 1 1		. .				1 .	. .		1	1 1			1 1 1	-
	PAS-RES-PV-01	Change of labeling	I P	Change of labelling, also on reel.	(B) e.g. additional information (RoPG stamp) (P) e.g. change of customer specific information	В													-				-				+
NETWORKS & RESISTORS	PAS-RES-PV-02	Change of product marking	I P		e.g. change of content of marking e.g. change of method of marking e.g. change of appearance of marking	В	-												-	-							-
NETWORKS & DESIGNINGS	PAS-RES-PV-03	Change of packing/shipping specification	P P	Change in packing specification which does not described a change of dimensions or material of the packing.	e.g. change of documentation in packing specification		-				-								-								-
NETWORKS & RESISTORS	PAS-RES-EQ-01	LOGSTICS / CAPACITY / TESTING - EQUIPMEMENT Production from a new equipmentition which uses a different feachnology or which due to its unique former function can be especial to influence the integrity of the final product	РР	Change in process technique which is sheady covered above. Note: Changes affecting the product covered by the table require also a PC	a.g. new equipment supplier with different process out.	c												в .									Test effort depends on final risk assessment. Performance test according to affected process change.
NETWORKS & RESISTORS	PAS-RES-EQ-02	Production from a new equipment/bod which uses the same basic technology (replacement equipment or extension of existing equipment pool)	. р			c												в .									• Process Crisings
NETWORKS & RESISTORS	PAS-RES-EQ-03	equipment or extension or existing equipment pool) Change in final fest equipment type that uses a different technology	РР	Change of final test equipment which different technology. PCN required for dedicated equipment for sensitive carameters.	e.g. replacement of same equipment are e.g. change of tester platform	c												в -									Gage R&R / delta correlation
NETWORKS & RESISTORS NETWORKS & RESISTORS		LOGISTICS / CAPACITY / TESTING - PROCESS FLOW																									
NETWORKS & RESISTORS	PAS-RES-PF-01	Manufacturing sile transfer or movement of a part of production process to a different location table	P P	Change of manufacturing site. Note: Recgarization inside one plantisite is not affected!	Movement or transfer of manufacturing site or process step(s) to a different location/site.	8	•		٠	٠.	٠	٠ .		•			•	в .		•	R -						•
NETWORKS & RESISTORS NETWORKS & RESISTORS		Elmination or addition of a manufacturing process step LOGISTICS / CAPACITY / TESTING - O GATE	- Р	Change of manufacturing process sequence.	e.g. washing / cleaning process e.g. change of order of processes	С	•			- -					- -	- -		в .	•			• •		- -	• •		Characterisation depends on impact of production flow.
NETWORKS & RESISTORS		Change of test coverage used by the supplier to ensure data sheet compliance (e.g., elimination-difficient of electrical measurement that flow block, relaxation-levihancement of enountring procedure or sampling). NOUCTORS	. Р	Change of test coverage.	e.g. change from 160% to sample impaction e.g. test flow block, reduction from three to two temperature measurements. e.g. change in burn inhurs in process.	С		• •								• •				• •					- -		R (elect: funct): test coverage. R (reliability) only for change in burn in process.
INDUCTORS INDUCTORS	PAS-IND-AN-OI	ANY Any change with impact on special customer characteristics/contractual agreements. Any change with impact on processability/inserufucturability at customer, which is not covered in the maint below.	P P		Not relevant for technical evaluation.				Ι·Τ		·		1 - 1 -						- Ī			1 - 1	·			1 - 1 -	
INDUCTORS INDUCTORS	PAS-IND-AN-02	LIN I PURE LIN			Technical interface means component terminals.	В						. .						· ·	1 - 1							•	-
INDUCTORS	PAS-IND-DS-01	Change of datasheel parameters/idectrical specification (min./max./kyp. values) and I or ACIDC specification	P P	Not included: Editorial changes.	e.g. lighten of electrical parameter distribution only	A Plak assessment depending on change for each application.	* ·		-		-								-								-
INDUCTORS	PAS-IND-DS-02	Connection of data sheet	I P	No technical change of the product, or correction in description (wonding, drawing) ((i): in case of editorial changes. (P): in case of impact on product integrity) Description of a new not presidually		A .					-								-				•			-	-
NOUCTORS	PAS-IND-DIS-03	Specification of additional parameters MATERIAL	I P	Description of a new not previously covered parameter. No sechnical change of the product. (I): no influence (IP): Risk assessment depending on change for each application to provide exidence of additional parameters (stateshalten).	a.g. adding new (tested) parameter.	A .				- -	-								-				-				-

	_																							
	PAS-IND-MA-01	Change of material composition - Bobbin Material P	Material without magnetic function P ("Spulerkörper") typically made by pla	esic e.g. change from Thermoset to Thermoplastic	В		•	•			•		-	•		•								
INDUCTORS	PAS-IND-MA-02		P Change of core material, which is material with magnetic function	e.g. change from NZh into MhZh	A						+ + +		+ +		- в							+ + + + + + + + + + + + + + + + + + + +		
INDUCTORS																			-				-	
INDUCTORS	PAS-IND-MA-03	Change of material composition - Insulation Material P	P Change of insulation material	e.g. sire insulation, insulation tapes, e.g. change from Polyurethane to Polyamide	С		•	•	•			• - -	•	• A	• B	•								
	PAS-IND-MA-OI	Change of material composition - Lead Material P	P Change of lead material	e.g. change from tin coverd to non-coverd lead	В																			
INDUCTORS				The same of the sa									+ +											Electrical function affected if
	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 function affected if mechanical stress distribution changes. ACI, wave soldering and board costing has to be assessed.
INDUCTORS																								MSL might change.
	PAS-IND-MA-06	Change of material composition - Solder Material P	P Change of solder material at internal connection.	e.g. change of SnAgCu composition	В		-																	
INDUCTORS													+											
	PAS-IND-MA-07	Change of material composition - Wire / Foil Material P	Wire for wounded inductors. P Foil for multilayer inductors (inner electrods)	e.g. change of Cu composition	В		•							- A	• В		• •						-	
INDUCTORS			P Change of glue material																					
	PAS-IND-MA-08	Change of material composition - Glue	P Change of glue material	e.g. change from glue A into glue B	С		-	•	•				•		• B						1 1 1		•	Considers in case of core-core glue the air gap.
	PAS-IND-MA-09	Change of supplier of material -	p Change to a new or additional material supplier at component manufacturer.		с										. в									Assumption material specification remains unchanged. Otherwise see change of material.
INDUCTORS	PAG-10-UP-UP			e.g. for 2nd source purpose	c			•						•	, ,								•	remains unchanged. Otherwise see change of material.
	PAS-IND-MA-10	Change of material composition - Poting Material P	P Change of potting material	e.g. change from eposy resin to silicon	C A: If influence on other connections on PCB or laquer expected.		-								• B									
INDUCTORS		DESIGN			PLATO SEQUE ESPECIAL.											-								1
neo.ioo	PAS-IND-DE-01	Changes of termination, surface linish, shape, color, appearance or dimension structure - Bobbin	Material without magnetic function	asic a.g. construction / dimension change of bobbin	В					T . T .					. B									
INDUCTORS						1 1		-																
INDUCTORS	PAS-IND-DE-02	Changes of sermoson, sursice trisin, stape, coor, appearance or direction structure -	P Change of lead/terminals	e.g. change from PTH terminals to SMD terminals	Α		•						•		•		•							Effect regarding EMC relevant for high frequency only.
	PAS-IND-DE-03	Changes of termination, surface finish, shape, color, appearance or dimension structure - Mold	P Change of mold	e.g. new mold material with different colour	В		-								. в									Parameter Analysis only for components where mold material has
INDUCTORS			Channel and a second and a ship in										+		-									magnetic function
INDUCTORS	PAS-IND-DE-04	Changes of Inner construction - Core Construction .	P Change of core construction, which is material with magnetic function	e.g. change fromdrum core & shield core into pot core & cover plate core	A			•						•	- В									
INDUCTORS	PAS-IND-DE-05	Changes of inner construction - Insulation System -	P Change of insulation system	e.g. sire insulation, insulation tapes, e.g. change from Polyurethane to PTFE (Tellon)	С	•	•		•		•	• • •	•	- A	- В			-						
	PAS-IND-DE-06	Changes of inner construction - Wire / Foil Construction -	P Change of wire / foil dimensions	e.g. change from round cross section to rectangular cross section e.g. from single wire to litz wire	В										. в									
																H		\perp			1		_	
INDUCTORS	PAS-IND-DE-07	Changes of termination, surface linish, shape, color, appearance or dimension structure - Polling Internation	P Change of potting dimension	e.g. change of poting (filing) height	C If data sheet is affected (PAS-IND-DS- 01)			• •			• •		•		- В									
INDUCTORS		HOLESS																						Mechanical damage of wire,
	PAS-IND-PR-01	Changes in process technology or manufacturing methods - Insulation Strip -	P (Mechanical) removal of insulation.	e.g. change from mechanical removal to laser removal	В	•			•			• • •	•		•			-						Mechanical damage of wire, impact on solderability in case of stripping process is affecting soldering
INDUCTORS	PAS-IND-PR-02		P Change of lead prep. / plating	e.g. change from hot dip linning to electroplating	В																			area. Influence regarding reliability of solder
INDUCTORS																							_	pri.
INDUCTORS	PAS-IND-PR-03	Changes in process technology or manufacturing methods - Terminal Attach -	P Connection of wire terminal and / or connection of termination to core/bobb	e.g. chantle from Manual winding to Semi-automic sin. winding (winding of wire on terminal)	С	•		•					А	•	• •								•	Increase of contact resistance.
INDUCTORS	PAS-IND-PR-04 PAS-IND-PR-05	Changes in process technology or manufacturing methods - Marking .	P Change of marking process	e.g. change from ink marking to baser marking	В	•							-											
INDUCTORS	PAS-IND-PR-05	Changes in process technology or manufacturing methods - Molding -	P Change of molding process	e.g. change from one component molding to two component molding (other technology needed)	В	•	•	•			• •		-	•	• В	•		-						
INDUCTORS	PAS-IND-PR-06	Changes in process technology or manufacturing methods - Soldering Internal Connections .	P Change of soldering internal connection	e.g. change from hot tip tinning to resistance	В									•	•		•							
INDUCTORS	PAS-IND-PR-07	Changes in process technology or manufacturing methods - Winding Insulation .	P Change of winding - insulation	e.g. change from manual to automatic process	В		•						•	- A	- B									
	PAS-IND-PR-08	Changes in process technology or manufacturing methods - Winding Wine .	P Change of winding - wire	e.g. change from semi-automatic winding to full automatic winding	с		•								- В									
INDUCTORS	PAS-IND-PR-09		P Variation within process specification.	a o renown control	С		-																	
	PAS-IND-PR-10	Changes in process technology or manufacturing methods - Potting .	P Change of potting process	e.g. change from manual potting process to	c			_					+ - +		H. H.			-		H. H.				
INDUCTORS		PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS	P Crange or possing process	e.g. change from manual potting process to automatic potting process	· ·			-														1 - 1 - 1		
nacocioros	PAS-IND-PN-01	Packing / shipping specification change (loosening of tolerances) P	P Change of packing specification.	e.g. number of pieces on real.	В																			
INDUCTORS	PAS-IND-PN-02			e.g. change of MSL e.g. change in dry pack assurance (HC, MBS)	В								+ +											
INDUCTORS		Dry pack requirements change P	P Change of drypack requirements.	e.g. change in dry pack assurance (HEC, MEE)		•																		
INDUCTORS	PAS-IND-PN-03		P Change of carrier	e.g. change by material e.g. change by geometry.	В	F (1)							-											
INDUCTORS		PACKING / SHIPPING - VISUAL INSPECTION																						1
INDUCTORS	PAS-IND-PV-01	Change of labeling	P Change of labelling, also on reel.	(B) e.g. additional information (RoPG stamp) (P) e.g. change of customer specific information	В	- 10 miles	-																	
	PAS-IND-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		-																	
INDUCTORS				e.g. change of appearance of marking									+											
	PAS-IND-PV-03	Change of packing/shipping specification P	P does not described a change of dimensions or material of the narrison	e.g. change of documentation in packing specification	•	- 1 m	-																	
INDUCTORS		LOGISTICS / CAPACITY / TESTING - EQUIPMEMENT																						
	PAS-IND-EQ-01		P Change in process technique which is already covered above. Note: Changes affecting the product in covered by the table nequire also a PO	not	c																			Test effort depends on final risk
	PAS-IND-EQ-01	Production from a new equipment/bool 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	Note: Changes affecting the product n covered by the table require also a PCI	e.g. introduction of potting process N.	c																			Test effort depends on final risk assessment. Performance test according to affected process change.
INDUCTORS																								Test effort depends on final risk
	PAS-IND-EQ-02	Production from a new equipment/bod which uses the same basic technology (replacement equipment or extension of existing equipment pool)	PCN required for dedicated equipment for sensitive component production.	e.g. duplication of existing winding machine	С	• •	-	100															-	Test effort depends on final risk assessment. Performance test according to affected process change.
NUCTURS			Change of final test equipment which u	an .																				
	PAS-IND-EQ-03	Change in final test equipment type that uses a different technology P	P Change of final test equipment which u different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of teater platform	С			1					-		• В								-	Gage R&R / debs correlation
INDUCTORS		LOGISTICS / CAPACITY / TESTING - PROCESS FLOW																						
	PAS-IND-PF-01	Manufacturing site transfer or movement of a part of production process to a different location labe P	Change of manufacturing site. P Note: Recepanization inside one plantisite is not affected	Movement or transfer of manufacturing site or process step(s) to a different location/site.	В										. В									
INDUCTORS		P P	plantisite is not affected																					
	PAS-IND-PF-02	Elimination or addition of a manufacturing process step .	P Change of manufacturing process sequence.	e.g. washing / cleaning process e.g. change of order of processes	c	• -	-						-					-						Characterisation depends on impact of production flow
Lection	PAS-IND-PF-03																							Characterisation describes to
INDUCTORS		Elimination of final electrical measurement / test flow block	P PCN required for dedicated final test reductions for sensitive parameters.	e.g. elimination of High-voltage measurement	С																		-	final test flow.
INDUCTORS		LOGISTICS / CAPACITY / TESTING - Q-GATE		<u> </u>																				
	PAS-IND-QG-01	Change of test coverage used by the supplier to ensure data sheet compliance (e.g., elimination/addition of electrical measurement/test flow block, releasion/enhancement of emotioning 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 inhur in process. 	с																			R (electr. funct.): test coverage. R (reliability) only for change in burn in process.
INDUCTORS				simperature measurements e.g. change in burn inhun in process.																				process.
CERAMIC / TANTALLIM CERAMIC / TANTALLIM		CERAMIC / TANTALUM																						
CERAMIC / TANTALIM	PAS-CER-ANOI	Any change with impact on special customer characteristics/contractual agreements P	Р	Not relevant for technical evaluation.			-			1 - 1 -			1					1 - 1						
CERAMIC / TANTALUM	PAS-CER-AN-02	Any change with impact on special customer characteristics contractual agreements. Por change with impact on processability/manufacturability at customer, which is not covered in permitte below. DATASHEET	Р	Technical interface means component terminals.	В								-						. .		1 - 1 -		• •	
CERAMIC / TANTALUM		DAIAGREEI	Change of application relevant																					
CERAMIC / TANTALLIM	PAS-CER-OS-01	Change of datasheet parameters/electrical specification (min./max./typ. values) and / or ACIDC specification	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					-											
Servino, mendi			No technical change of the product, on	ay																				
	PAS-CER-OS-02	Connection of data sheet	P ((c in case of editorial change)	e.g. data sheet correction because of new information about component behavior	A		-						-					-						
CERAMIC / TANTALUM			No technical change of the product, or correction in description (wording, or drawing,) (i): In case of editorial changes. (ii): In case of impact on product integrity.																					
			Description of a new not previously																					
	PAS-CER-OS-03		Integrity. Description of a new not previously covered parameter. It covered parameter is the product. (it is not included in the product. (it is not inflamons of the product of the pr																					
	PRO-USH-05-03	Specification of additional parameters.	(P): Risk assessment depending on change for each application to provide	e.g. adding new (tested) parameter.	A																			
CERNAC / TANTA I **			evidence of additional parametes (stat. evaluation)																					
CERAMIC / TANTALLIM CERAMIC / TANTALLIM	DUE CERTITION																							1
CERAMIC / TANTALLIM	PAS-CER-MA-02	Channel of anticid consension - State of State -	P Sinder material (ceramic) P Sinder material (tantal)		C C									•								1 1		
CERAMIC / TANTALUM CERAMIC / TANTALUM	PAS-CER-MA-03	Change of material composition - Dielectric P	P Dielectric change (ceramic only)	e.g. change from ceramic A into ceramic B e.g. change of Ag particle size in conductive advantage	С		•								- B	. с								
CERAMC / TANTALUM		Change of material composition - Electrode Attach P	P secross seach (only tental, glue, carbon, Agi	w.y. change or Ag paracle size in conductive adventive	С		•	•		•					• В			-						
CERAMIC / TANTALLIM		Change of material composition - Electrode Naterial P	p succross sesserial (only ceramic, inner eletrode)	e.g. change from spehric to flake shape (N posts)	С								-	• •	- B									Chart whether ACI at Tay 1 h-
CERAMIC / TANTALLIM CERAMIC / TANTALLIM	PAS-CER-MA-06	Change of material composition - Encapsulation P	P Encapsulation P Lead material / Termination	e.g. change from eposy1 into eposy2	c c			•					1											Check whether AOI at Tier 1 can be affected
CERAMIC / TANTALUM	- APARTEN	Change of material composition - Lead material / Termination P	P Lead material / Termination	e.g. crange from SnPb to pure Sn				•							• 8									

CERAMIC / TANTALLIM	PAS-CER-MA-08	Change of supplier of material -	Р	Change to a new or additional material supplier at component manufacturer.	e.g. for 2nd source purpose	с				•		•	•						•	в .	•	• c			-				-	Assumption material specification remains unchanged. Otherwise see
CERAMIC / TANTALIM	PAS-CER-06-01	DESIGN																												Charos or mastria.
CERAMIC / TANTALLIM		Line to the line t			e.g. change from 0.8mm into 0.6mm	В		• •		•					•				-		-				-				-	•
CERAMIC / TANTALUM CERAMIC / TANTALUM	PAS-CER-0E-02 PAS-CER-0E-03	Termination Area	P		e.g. change in width of termination from 0.1 -0.3mm into 0.2 - 0.4 mm e.g. additional layer in termination	В														В .					+ -				-	-
CERAMIC / TANTALUM	PAS-CER-DE-04	Changes of inner construction - Electrode Thickness -	P	Electrode thickness (ceramic only)	e.g. N layer change from 2.5µm into 3.5µm e.g. Ceramic layer thickness changes from 3µm into	С				•	•		•			•	•			в .										
CERAMIC / TANTALUM				Layer thickness (delectric thickness)	Sym.	С		• •			•				•					в .	-	- с			-				-	•
CERAMIC / TANTALUM CERAMIC / TANTALUM		Changes of inner construction - Number of Layers - PRODESS	Р	Number of layers (ceramic only). Allways in combination with PAS-CER-DE-05.	see also byer thickness	С		•		С	с -	С	С	- с		С		СС	-	B,C ·		- с			-				-	•
CERAMIC / TANTALIM CERAMIC / TANTALIM	PAS-CER-PR-01	Changes in process technology or manufacturing methods - Dicing		Change of dicing		С		• •	•			•	-	• • •						В .		. с			-					
CERAMIC / TANTALUM		Changes in process technology or manufacturing methods - Electrode apply	Р	Electrode apply (dielectric layer process)	e.g. change from wet to dry process	С		• •	С			С .				-				B,C -	С									•
CERAMIC / TANTALLM CERAMIC / TANTALLM		Ohanges in process technology or manufacturing methods - Firing - Ohanges in process technology or manufacturing methods - Lamination -	P	Change of firing profile Change of lamination / press techinque	e.g. separation of decarbonization and firing profile. e.g. standard pressing to iso static pressing.	c c				+ •	:	•	•			-				В -	· ·	. c			-		-		-	
	PAS-CER-PR-05	Changes in process technology or manufacturing methods - Particle Size -	Р	Change of powder particle size. Allways in combination with PAS-CER-MA-03.	e.g. change DS0 from 0.5µm into 0.4µm	С						•				-				в .	•									
CERAMIC / TANTALUM	PAS-CER-PR-06	Changes in process technology or manufacturing methods - Screening Printing -			e.g. change from screen printing into diffset printing	С							С			С		- с	-	в,с -		. с								
					e.g. change in plating technology (final termination) e.g. change from dp in paste to plating (apply)	В														в .										
CERAMIC / TANTALUM CERAMIC / TANTALUM		Process integrity: tuning within specification -		Variation within process specification.		С																								
CERAMIC / TANTALUM		PACKING / SHPPING - NEW MATERIAL, CRITICAL DIMENSIONS Packing / shipping specification change (loosening of tolerances) P	Р	Change of packing specification.	e.g. number of pieces on reel.	В				Т - Т		Τ.							T . T		T . T				Т.Т				T . T	
CERAMIC / TANTALUM					e.g. change of MSL e.g. change in dry pack assurance (HC, MSE)	В				1.1																				
CERAMIC / TANTALUM					e.g. change in dry pack assurance (HLL, sase) e.g. change by malerial e.g. change by geometry.	В				+ - 1									+ - +						+ + +				-	
CERAMIC / TANTALUM CERAMIC / TANTALUM		PACKING / SHEPPING - VISUAL INSPECTION	Ľ																											
CERAMC / TANTALUM	PAS-CER-PV-01	Change of labeling	Р	Change of labelling, also on real.	(i) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	В																					-		-	•
CERAMIC / TANTALUM	PAS-CER-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				. [-		-	
	PAS-CER-PV-03	Change of packing/shipping specification P	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																									
CERAMIC / TANTALUM CERAMIC / TANTALUM		LOGISTICS / CAPACITY / TESTING - EQUIPMENENT	-								_																		44	
	PAS-CER-ED-01	Production from a new equipment/bod 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.		Change in process technique which is not sheady covered above. Note: Changes affecting the product not covered by the table require also a PCM.	e.g. change from wet to dry technology.	С				. I					Α .					в .		. с								Test effort depends on final risk assessment.
CERAMC / TANTALUM		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 PCN.		ŭ																								process change.
	PAS-CER-EQ-02	Production from a new equipment/bod 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. elimination of manual handling processes	С						•			Α .					в .		- с								Test effort depends on final risk assessment. Performance test according to affected process change.
CERAMIC / TANTALUM			╁							+																				
	PAS-CER-EQ-03	Change in final test equipment type that uses a different technology	Р	Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	с														в .									-	Gage R&R / debs correlation
CERAMIC / TANTALIM CERAMIC / TANTALIM		LOGISTICS / CAPACITY / TESTING - PROCESS FLOW									_					++										_			+	
	PAS-CER-PF-01	Manufacturing site transfer or movement of a part of production process to a different location/site P	Р	Change of manufacturing site. Note: Reorganization inside one plantisite is not affected!	Movement or transfer of manufacturing site or process step(s) to a different location/site.	В														в .		• c								
CERAMIC / TANTALUM	PAS-CER-PF-02	Elimination or addition of a manufacturing process step -				С																								Characterisation depends on impact of production flow:
CERAMIC / TANTALLIM CERAMIC / TANTALLIM		Elimination or addition of a manufacturing process step LOGISTICS / CAPACITY / TESTING - O-GATE	Р	sequence.	e.g. washing / dearing process e.g. change of order of processes	С									- -														1 '	production flow
CERAMIC / TANTALIM	PAS-CER-QG-01	Change of test coverage used by the supplier to ensure data sheet compliance (e.g.,	Τ.	Change of test coverage.	e.g. change from 100% to sample inspection	С										T											T			R (electr. funct.): test coverage. R (reliability) only for change in burn in
CERAMC / TANTALIM	PAS-CEN-QUANT	Change of test coverage used by the supplier to ensure data sheet compliance (e.g., elimination/addition of electrical measurement/less flow block, relaxed onlenhancement of moritoring procedure or sampling)	۲	Change or sest 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 inhun in process.	c										1													-	 R (reliability) only for change in burn in process.
Film capacitors		Film capacitors Any																												
									_																					
Film capacitors	PAS-FLM-AN-01 PAS-FLM-AN-02	Any change with impact on special customer characteristics/contractual screenents. P Any change with impact on processability/manufacturability at customer, which is not covered in permittin-ballity.	P		Not relevant for technical evaluation. Technical interface means component terminals.	В В							-											1 1						
Film capacitors Film capacitors Film capacitors	PAS-FLM-AN-02	Any chance with intenct on special customer characteristics/contracted somewheth Any change with impact on processability/menufacturability at customer, which is not covered in permatria below DATASPEET	Р		Technical interface means component terminals.							Ė			: :			: :								: :				
Film capacitors Film capacitors Film capacitors	PAS-FLM-AN-02	New Charcos with instead on stacking customer characteristics/contracted surreservers. Per you chargo with impact on processability/insteaductability at customer, which is not covered in per terminal tables in most tables. ORDINGET DESCRIPTION procession of the processability or processability o	P	Change of application relevant information	Not relevant for technical evaluation. Technical interface means component terminals. a.g. lighten of electrical parameter destribution		Risk sassesment depending on change for each application.		1	-		: :	:						-		:									
Film capacitors Film capacitors Film capacitors	PAS-FLM-AN-02 PAS-FLM-DS-01	An otherwise with treast on section distinction of transcription interesting and property in processes dilight remarks and an advantage of the processes of the mobile between the contract of the co	P	Change of application relevant information	Technical interface means component terminals. e.g. lighten of electrical parameter distribution	A			-	-			-			-			-		-				-				-	-
Film capacitors Film capacitors Film capacitors Film capacitors	PAS-FLM-AN-02	Any chance with intenct on special customer characteristics/contracted somewheth Any change with impact on processability/menufacturability at customer, which is not covered in permatria below DATASPEET	P P	Change of application relevant information. Not included: Editorial changes. Not included: Editorial changes of the product, only correction in description (undring, draining,) (R): In case of delitorial changes. (9): 1 to case of product	Technical interface means component terminals.					-						-														
Film operature Film operature Film operature Film operature Film operature	PAS-FLM-AN-02 PAS-FLM-DS-01	An otherwise with treast on section distinction of transcription interesting and property in processes dilight remarks and an advantage of the processes of the mobile between the contract of the co	P P	Change of application relevant information. Not included: Editorial changes. Not included: Editorial changes of the product, only correction in description (undring, draining,) (R): In case of delitorial changes. (9): 1 to case of product	Technical interface means component terminals. e.g. lighten of electrical parameter distribution	A			-	-																				
Fin capacitors Fin capacitors Fin capacitors Film capacitors Film capacitors	PAS-FLM-AN-02 PAS-FLM-DS-01	An otherwise with treast on section distinction of transcription interesting and property in processes dilight remarks and an advantage of the processes of the mobile between the contract of the co	P P	Change of application relevant information. Not included: Editorial changes. Not included: Editorial changes of the product, only correction in description (undring, draining,) (R): In case of delitorial changes. (9): 1 to case of product	Technical interface means component terminals. e.g. lighten of electrical parameter distribution	A			-	-						-						· · · · · · · · · · · · · · · · · · ·								
Film capacitors	PISSTLM-NAC1 PISSTLM-NAC2 PISSTLM-DS-01 PISSTLM-DS-01 PISSTLM-DS-02	All characters and interest contact co	P P	Change of application relevant information. Not included: Editorial changes. Not included: Editorial changes of the product, only correction in description (undring, draining,) (R): In case of delitorial changes. (9): 1 to case of product	Technical interface means component terminals. a.g. Sphilan of electrical parameter distribution a.g. data sheet correction because of new information about component behavior.	A .													-	 	-	· · · · · · · · · · · · · · · · · · ·								
Film capacitors	PAS-FILM-05-02 PAS-FILM-05-02 PAS-FILM-05-02 PAS-FILM-05-02	All characters and interest contact co	P P	Change of application relevant Not included: Editorial changes. Not included: Editorial changes. Not included: Editorial changes. In included: Editorial changes. In included: Editorial changes. (IP): In case of input on product. (IP): In case of input on produc	Technical interface means component terminals. a.g. Sphilan of electrical parameter distribution a.g. data sheet correction because of new information about component behavior.	A A	Total extremental depending on change for each hypothesism.									-							· · ·	· · · · · · · · · · · · · · · · · · ·						
Film capacitors	PAS-FILM-RH-02 PAS-FILM-RH-02 PAS-FILM-DS-01 PAS-FILM-DS-02 PAS-FILM-DS-02	An others and immunic contact colored reconstruction and extended colored and other an	P P	Change of application relevant Not included: Editorial changes. Not included: Editorial changes. Not included: Editorial changes. In included: Editorial changes. In included: Editorial changes. (IP): In case of input on product. (IP): In case of input on produc	Technical infertion record component territorials a.g. Signion of electrical parameter distribution i.g. data about community territorial or every electrical and component technical or every electrical addition component technical a.g. adding new (winds) parameter.	A A A										-													-	
Film capacitors	PAS-FILM-05-00 PAS-FILM-05-00 PAS-FILM-05-00 PAS-FILM-05-00	As more and immedia control co	P P	Change of application relevant Not included: Editorial changes. Not included: Editorial changes. Not included: Editorial changes. In included: Editorial changes. In included: Editorial changes. (IP): In case of input on product. (IP): In case of input on produc	Technical interface means component terminals. a.g. Sphilan of electrical parameter distribution a.g. data sheet correction because of new information about component behavior.	A A	Total extremental depending on change for each hypothesism.														-									Consider displace to application
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Film capacitors	PRE-FLM-MAC 1 PRE-FLM-DE-01 PRE-FLM-DE-01 PRE-FLM-DE-02 PRE-FLM-DE-02 PRE-FLM-MAC 01 PRE-FLM-MAC 02	An others and interest control control control control control control control control of programs (Programs of Programs of Pr	P P P P	Chappe of agintum visions of the chapter of agintum visions of the chapter of the point, or the chapter of the point or principle. We have been considered as we are proposed or principle of the point of the poin	The third defined means congressed services, as a spin of decitor assessment decitories as a spin of decitor assessment decitories as a spin of decitor assessment decitories as a spin of decitories	A A C C B	Ball somewhat dispending on change for each application. A contribution with PAS-FLB-SSSI or F. Change of the Contribution with PAS-FLB-SSSI or F. Change of trading promotion of each of the contribution promotion.												-											
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Film cognitions	THE FILM OF CO. THE FI	The content of the co	P P P P P P P P P P P P P P P P P P P	Owego of a globian visioner. Owego of a globian visioner. In which of a display of the profile of the state of a display of the profile. In which of a display of the profile of the state of a display of the profile of the state of a display of the profile of the state of a display of the profile of the state of a display of the profile of the state of a display of the profile of the state of a display of the profile of the state	The content of the co		The securities depending on charge for such supplication. A superstandard with PRE-PARSON and supplications on the pre-parson of the parson of th							• • •		•				B		· · · · · · · · · · · · · · · · · · ·								Owang of laws related Consider ST, light hydrocy partners and
Fine cognition	THIS PLANTS OF TAMES	The content of the co	P P P P P P P P P P P P P P P P P P P	Owege of a global on value of the property of	The control of the company of the treatment of the control of the	A A A B B C C C C B B C C C C C B C C C C	The securities depending on charge for such supplication. A superstandard with PRE-PARSON and supplications on the pre-parson of the parson of th							• • •		•				B		· · · · · · · · · · · · · · · · · · ·								Carego of how mixed Consider ESI, Sign In-page of position of ESI, Sign In-page of position ESI, Sign In-page of E

Film capacitors	PAS-FLM-PR-04	Process integrity: tuning within specification PACKING / SHEPPING - NEW MATERIAL, CRITICAL DIMENSIONS		P Variation within process specification.	e.g. process control	С		•			- -	<u> </u>			- - -	1 - 1 -				- 1					- -		خالت		-	
Film capacitors	DATE TO ME PROCES	PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS Packing / shipping specification change (bosening of tolerances)		P Change of packing specification.	e.g. number of pieces on reel.	В				.			т. г.			T . T .	т. г							Т.Т				Т.Т		
Film capacitors	PAGP CAPPROT									-							-							-		44	نست	+		
Dim canacitys	PAS-FLM-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, MSS)	В		100												-	. .					A 1	100		-	
	PAS-FLM-PN-03	Change of carrier (tray, reel)	Р	p Change of carrier	e.g. change by material e.g. change by geometry.	В																								
Film capacitors		PADRING / SHIPPING - VISUAL INSPECTION	Ľ		e.g. change by geometry.																									
Pilit Capacita E		PRODUCT STEPPING - VISION INSTELLATION	П																											
	PAS-FLM-PV-01	Change of labeling	1	P Change of labelling, also on reel.	(B) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	В														-									-	
Film capacitors																										44				
	PAS-FLM-PV-02	Change of product marking	1	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				Channe in nacking specification which	e.g. change or appearance or manong						_		+ +				+ +						+-	+ +		+	_	+ +		
	PAS-FLM-PV-03	Change of packing hhipping 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															-									-	
Film capacitors Film capacitors		LOGISTICS / CAPACITY / TESTING - EQUIPEMENT								_																_				
				P Change in process technique which is not stready covered above. Note: Changes affecting the product not covered by the table require also a PCN.																									Test	fort depends on final risk sment.
	PAS-FLM-EQ-01	Production from a new equipment/boil 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	Р	P Note: Changes affecting the product not	e.g. implementation of new machines	С					• •		• •	• •	• • •	1 1 1		•	В -		• •				-				Perfs	amont. Immance test according to affected as change.
Film capacitors										_				_						_	+			+	_	+	_		Proc.	as change. Mort depends on final risk
	PAS-FLM-EQ-02	Production from a new equipment/tool which uses the same basic technology (replacement equipment or extension of existing equipment pool)		PCN required for dedicated equipment for sensitive component production.	e.g. extension of existing machin capacity	с													в .		. .								• 3336	ament.
Film capacitors		equipment or exercision or esisting equipment poorly																											peso	ament. Immance test according to affected as change.
	PAS-FLM-EQ-03		_	P Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.															в .										• Gage	
	PAGP CAPE COLD	Change in final test equipment type that uses a different technology	Р	PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	С							1 ' 1 '			1 ' 1 '			ь .					1 1				1 1	· Lag	Hair / deta consessor
Film capacitors		LOGISTICS / CAPACITY / TESTING - PROCESS FLOW																												
	PAS-FLM-PF-01	Manufacturing site transfer or movement of a part of production process to a different location hills	_	Change of manufacturing site. P Note: Receparization inside one plantisite is not affected	Movement or transfer of manufacturing site or	_								. .							.									
	PAGP CAPP CO.	senuracturing the transfer or movement of a part of production process to a dimerent location tale	Р	plantisite is not affected	Movement or transfer of manufacturing site or process step(s) to a different location/site.	В				•	• .		1 ' 1 '			' '	1 1			•				1 1				1 ' 1	•	
ram capacions	PAS-FLM-PF-02		Ħ	P Change of manufacturing process sequence.	e.g. seating / cleaning process e.g. change of order of processes	-																							. 0	sclerisation depends on impact of
Film capacitors		Elimination or addition of a manufacturing process step	لنا	sequence.	e.g. change of order of processes	С																					نالت		prod	ction flow
Film capacitors		LOGSTICS / CAPACITY / TESTING - Q-GATE	_		and the second second second																					_	_			
	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, releastion/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 inhus in process.	С																							R (el	cir. funct.): test coverage. lability) only for change in burn in
Film capacitors			ш		e.g. change in burn inhun in process.																					للحلك			peso	
QUARTZ CRYSTAL / SAW		QUARTZ CRYSTAL / SAW																												
QUARTZ CRYSTAL / SAW QUARTZ CRYSTAL / SAW		Any change with impact on special customer characteristics/contractual agreements.	Р	P	Not relevant for technical evaluation.					- 1									-1-1				1							
	PAS-QUA-AN-02	Any change with impact on processability/manufacturability at customer, which is not covered in the metric below.	Р		Technical interface means component terminals.	В			-																				-	
QUARTZ CRYSTAL / SAW		DATASHET								_										_						_	_			
CONTROL ON TO THE TOTAL		Change of datasheet parameters/electrical specification (min/max/kyp. values) and / or AC/DC apecification		Change of application relevant			Disk sessessment depending on change																							
QUARTZ ORYSTAL / SAW	PAS-QUA-DS-01	specification	Р	Change of application relevant information Not included: Editorial changes.	e.g. tighten of electrical parameter distribution	A	Risk assessment depending on change for each application.		-							1 1 1					. .				-					
CONTROL ON TO THE TOTAL				No technical change of the product, only correction in description (wording, drawing,) (I): In case of editorial changes. (P): In case of impact on product integrity.																										
	PAS-QUA-OS-02	Correction of data sheet		p drawing)	e.g. data sheet correction because of new information about component behavior	A																							_	
			1	(f): In case of editorial changes. (P): In case of impact on product	information about component behavior																									
QUARTZ CRYSTAL / SAW				ragny.	 					-	_									_				+ +	_	+	_	+		
				Description of a new not presiously covered parameter. No his technical change of the product. (0; no influence (0); no influence (0); Risk assessment depending on change to each sept section to provide addence of additional parametes (stat. melastor).																										
	PAS-QUA-OS-03	Specification of additional parameters		P (f): no influence	e.g. adding new (tested) parameter.	Α.																							-	
				change for each application to provide																										
CHAPTY CRYSTAL / SAW				evaluation)																										
QUARTZ CRYSTAL / SAW		MATERIAL																												
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-01	Change of material composition - Quartz Blank	Р	P A change of Quartz Blank is a very rane case. Mainly for SAW-Filter		A			•	•	•					• •			в -	•								-	-	
	PAS-QUA-MA-02	Change of material composition - Base	Р	P Changing of the material of the base.	e.g. change from ceramic to eposy	A																							- Temp	sy be influenced erature expansion coefficient
QUARTZ CRYSTAL / SAW		Change of material composition - Lead / Termination			e.g. change of plating finish. (eg:Au, AgPd;Sn)	В				-													•	+		+	_	-	may	hance
QUARTZ CRYSTAL / SAW						В			•	-																\rightarrow		+	X.Dv	inspection may be influenced
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-04	Change of material composition - Sealing	Р	P Change of Glass Seal	e.g. change to lead free glass				•	•	• •									•	• •		•						when	inspection may be influenced sealing is containing Pb
QUARTZ CRYSTAL / SAW		Change of material composition - Can / Cap	Р	P Changing of the material of the can/cap P Change of Blank Support	e.g. change from metal to ceramic material	A			•	•	•									•			•					-	-	
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-06	Change of material composition - Stank Support	Р	P Change of Blank Support	e.g. change of glue (Silicone to Epoxy) e.g. change metal holders (old trops)	С			•	•	•	. Y Y	•				•		в -				· Y					-	-	
					1																								Deci	ical function affected in case of snical stress distribution change.
	PAS-QUA-MA-07	Change of material composition - Overmold	Р	P Change of Overmold	e.g. change to green mold compound e.g. change of filler particles	В			•	•		. . .		• •			•		В •	•	• •		•		-			-	- ACII,	snical stress distribution change. www.soldering.and.board.coating be assessed. MSL might be
QUARTZ CRYSTAL / SAW										_				_						_	+			+		+	_		chan	ed
	PAS-QUA-MA-08	Change of material composition - Case Sealing		P Change of Case Sealing, Change of material for seam welding Relevant for components with ceramic base and metall cap.	e.g. change from solder paste to adhesive glue	c						. Y .							в •										- Ima	tance my be influenced.
QUARTZ CRYSTAL / SAW										-	-			-					- -											,
QUARTZ ORYSTAL / SAW	PAS-QUA-MA-09																													
QUARTZ CRYSTAL / SAW		Change of material composition - Electrode	P			c						. Y Y			. Y .				в -	-								-	-	
CI METT COVETAN AND			Р	P Change of Electrode material on crystal blank.	e.g. change from Au to Ag	С				٠					. Y .					-							-	-	-	
	PAS-QUA-MA-10	Change of material composition - Electrode Change of material composition - Insulator	P P	P Change of Electrode material on crystal blank. Change of Insulator. Change of Insulator. P Child for leaded types Not released to typical SMD.	e.g. change from As to Ag e.g. traulating plate under crystal e.g. Class sealing for leads							· · · ·			. Y .				в .	•				-				-	-	
QUARTZ CRYSTAL / SAW		Change of material composition - Insulator	Р	P Change of Electrode material on crystal blank. Change of Insulator. Change of Insulator. P Child for leaded types Not released to typical SMD.	e.g. change from As to Ag e.g. traulating plate under crystal e.g. Class sealing for leads	С									. Y .					•								-	- ACI	heck recessary!
	PAS-QUA-MA-11	Owenge of material composition - Insulator Owenge of material composition - Marking	P P	Change of Electrode material on crystal blank. Change of Issuitator. Chyl for Issuitator. Chyl for Issuitator. Not released types Not released for typical SMD.	e.g. change from Au to Ag e.g. Insubsing plate under crystal e.g. Class sealing for leads e.g. Class sealing for leads e.g. Class sealing for leads e.g. change class e.g. changes class e.g. changes class e.g. changes cl	C B														•				-				-		hack necessary! rption material specification
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-11 PAS-QUA-MA-12	Charge of material composition - Insulator Charge of material composition - Marking Charge of material composition - Marking Charge of supplier of material	P P	Change of Electrode material on crystal state. Change of Insulator. Only for leaded types. Not released types SMD. Change of marking material.	e.g. change from As to Ag e.g. traulating plate under crystal e.g. Class sealing for leads	С												 		•				-				-	- Assu	heck necessary! rption material specification rs unchanged. Otherwise see p of material.
	PAS-QUA-MA-11 PAS-QUA-MA-12	Charge of makerial composition - broubler Charge of makerial composition - Making Charge of supplies of makerial GESON	P P	P Change of Electrode material on crystal blank. Change of Insulator. Change of Insulator Insulator. Change to a new or additional reservat augular at component Insulator.	e, g. change from Au to Ag e, g. treading plate under crystal e, g. Class satisfies for loads g. Class satisfies g. Class satisfies g. Chancial to environmental friendly e, g. for 2nd source purpose	C B C			•	•						· ·	•	 	B •					-	- ·		· ·	-	- Assu	rption material specification ns unchanged. Otherwise see
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CLARITE CONSTRUIT SHAP CLARITE CONSTRUIT SHAP	PROGRAMO 11 PROGRAMO 12 PROGRAMO 13 PROGRA	Owege of manifest computation - healtery Change of terminals - healtery Change of terminals - healtery healtery computation of change of terminals - healtery Change of terminals - healtery healtery computation of demands an activary - healtery Change of terminals - healtery blook, drags, noise, agreement or demands an activary - healtery Change of terminals - healtery blook, drags, noise, agreement or demands an activary - healtery Change of terminals - healtery blook, drags, noise, agreement or demands an activary - healtery Change of terminals - healtery blook, drags, noise, agreement or demands an activary - healtery Change of terminals - healtery blook, drags, noise, agreement or demands an activary - healtery Change of terminals - healtery blook, drags of the healtery - healtery Change in process heighting or manifesting methods. Though of healtery Changes in process heighting or manifesting methods. Though of healtery Changes in process heighting or manifesting methods. Noting of Armship Changes in process heighting or manifesting methods. Mediag	P P P P P P P P P P P P P P P P P P P	p general former and an organic former and anotation and an organic former and an organic former and an organi	e g charaph mon All o Ag 1 ha hands por com crystel 2 d Come ming the com crystel 2 d Come ming the com crystel 2 d Come ming the come crystel 2 d Come ming the come crystel 2 d Come ming the come crystel 2 d Come come crystel 2 d Come come crystel 3 d Come come crystel 3 d Come come crystel 4 d Come come crystel 4 d Come come crystel 5 d Come come come come 5 d Come come come come 5 d Come come come come come 5 d Come Come come come 5	C B B B B C C C C C				· · · · · · · · · · · · · · · · · · ·									B • • • • • • • • • • • • • • • • • • •										American Ame	the charge of th
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LIARTZ CRYSTAL / SAW	PAS-QUA-PN-02	Dry pack requirements change P	Р	Change of drypack requirements.	e.g. change of MSL e.g. change in dry pack assurance (HC, MSB)	В			-	-					-														•		
			Р	Change of carrier	e.g. change by material e.g. change by geometry.	В			-																						
LIARTZ CRYSTAL / SAW		PACKING / SHIPPING - VISUAL INSPECTION	P	1	Mary additional information (Bull Format)										т		T 1			П			Т				т т			$\overline{}$	
LIARTZ CRYSTAL / SAW	PAS-QUA-PV-01		<u> </u>		(8 e.g. additional information (RoHG stamp) (P) e.g. change of customer specific information	В			•																				•		
	PAS-QUA-PV-02	Change of product marking	Р	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			-				- -							-			-								
	PAS-QUA-PV-03	Change of packing/shipping specification P	Р	Change in packing specification which does not described a change of	e.g. change of documentation in packing specification																										
LIARTZ CRYSTAL / SAW		.OGSTICS / CAPACITY / TESTING - EQUIPMEMENT		dimensions or material of the packing.	specialists.					_													11						-		
				Change in process technique which is no should covered show	ot a new analysment supplier with different recovers	с																									Test effort depends on final risk
CHAPTE COVETAL / SAW	PAS-QUA-EQ-01	Production from a new equipmenthool which uses a different technology or which due to its unique premor function can be especial to influence the integrity of the final product	P	Note: Changes affecting the product not covered by the table require also a PCN.	ot e.g. new equipment supplier with different process to concept	c							1 1																		Test effort depends on final risk assessment. Performance test according to affected process change.
	PAS-QUA-60-02	Production from a new equipmentition which uses the same basic technology (replacement equipment or edention of existing equipment pool)				с																									Test effort depends on final risk assessment. Performance test according to affected
LIARTZ CRYSTAL / SAW		quipment or extension of existing equipment pool)		for sensitive component production.	e.g. additional equipment to increase production capacity e.g. replacement of same equipment.					_																				نسلا	Performance test according to affected process change.
	PAS-QUA-EQ-03	Change in final test equipment type that uses a different technology P	Р	Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	с			-				- -							В											Gage R&R / delta correlation
LIARTZ CRYSTAL / SAW		.ogstics / capacity / Testing - Process FLow																											_		
		illanufacturing site transfer or movement of a part of production process to a different location/site P	Р	Change of manufacturing site. Note: Reorganization inside one plantisite is not affected	Movement or transfer of manufacturing site or process step(x) to a different location/site.	В						٠.								В											
		Elimination or addition of a manufacturing process step -	P	clantisis is not affected. Change of manufacturing process sequence.	e.g. washing / deaning process e.g. change of order of processes	С																								_	Characterisation depends on impact of senduction flow
LIARTZ CRYSTAL / SAW		.OGSTICS / CAPACITY / TESTING - O-GATE	Ė													_						_							_		production flow
	QUA-QG-01	Change of test coverage used by the supplier to ensure data sheet compliance (e.g., illerination) addition of electrical measurement/less flow block, releasion/enhancement of nonlooning 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 inhun in process.	с																									R (electr. funct.): test coverage. R (reliability) only for change in burn in process.
LIARTZ CRYSTAL / SAW		monitoring procedure or sampling) Numinism ElectroNetic Casacitor for			e.g. change in burn inhun in process.										\perp					$\perp \perp$	-		$oxed{oxed}$					\perp			process.
i-Cap I-Cap	PAS-ALU-ANO1	Nov. Proy change with impact on special customer characteristics/contractual agreements.	Р	1	Not relevant for technical evaluation.	-			T - T	- 1		T -			T - T		T - T						T - T					1 - 1	- 1	- 1 - 1	
i-Cap		key change with impact on processability/manufacturability at customer, which is not covered in phe matrix below. SATASHEET	Р		Not relevant for technical evaluation. Technical interface means component terminals. See processability on board level.	В			-																					• -	
FCsp	PAS-ALU-DS-01	SATASHEET Change of datasheet parameters/electrical specification (min./max./lyp. values) and / or AGIDC pecification		Change of application relevant information Not included: Editorial changes.	e.g. lighten of electrical parameter distribution		Risk assessment decending on chance																								
i-Cap	PAS-ALU-DS-01	pecification				^	Risk assessment depending on change for each application.		-	4	-								1											نب	
	PAS-ALU-DS-02	Connection of data sheet	_	No technical change of the product, only correction in description (wording, drawing,)	e.g. data sheet correction because of new information about component behavior	A																									
	. Armanadis	1	۲	conscisor in description (wording, drawling,) ((it: In case of editorial changes. (P): In case of impact on product integrity.	information about component behavior	^																									
FCsp				(P): In case of impact on product integrity. Description of a new not previously covered parameter. No ischnical change of the product. (I): no influence (I): No																											
	PAS-ALU-DS-03	Specification of additional parameters	P	No technical change of the product. ((): no influence	e.g. adding new (tested) parameter.	A																								/	
				 (P): Hisk assessment depending on change for each application to provide evidence of additional parametes (stat. 																											
FCap FCap		MERAL	_								\Rightarrow	+																	_		
	PAS-ALU-MA-01	Change of material composition - Housing P	Р	Change of housing	e.g. change Al alloy for housing	с	Et: only if a cap holder holds the Capacitor body by pressing.		-	•			- -							-	•		-								
~	PAS-ALU-MA-02	Change of material composition - Sealing P	Р	Change of sealing	e.g. change of rubber compound e.g. change of sealing disc material (salat, Snap in)	С	B: in case of external surface of sealing is changed. Dataston only, if capacitor is dued											s .													
i-Cap				Change of external insulation / sleeving		С	Evaluation only, if capacitor is glued B: Only for glued capacitors.					٠.			+			s -		H. I			H. H				H. H.				Bissed Humidity test can be done without applying voltage.
FCap		Change of material composition - Lead / Termination P	P	Change of lead or outer termination.	e.g. change of colour e.g. change of leadframe from iron into copper e.g. change of leadframe finish from tis/lead into tin	В						Ŧ÷.				1															without applying voltage.
i-Cap			÷				A Only if impedance increase (deta			-	-				l i l		+ +			+ +		•	H						-		
i-Cap	PAS-ALU-MA-OS	Phange of material composition - Internal Insulation / Paper P	Р	Change of paper type / internal insulation	n e.g. change of paper thickness 50 µm to 40µm	С	A: Only if impedance increase (delta characterization). Check if datasheet is affected (PAS-ALU-DS-01).			٠			•						•	В										•	
	PAS-ALU-MA-06	Change of material composition - Electrolyte P	Р	Change of electrolyte	e.g. change in formulation	с	A: Only if impedance increase (delta characterization). Check if datasheet is affected (PAS-ALU-DS-01).													В											
FCsp FCsp	PAS-ALU-MA-07	Change of material composition - Tape Material P	Р	Change of closing type material Change of base plate material	e.g. change of glue or basis material	C B	shicas (PAS-ALO-05-01).						•				:														
i-Cap	PAS-ALU-MA-08	Change of material composition - Base Plate P	Р	Change of base plate material	e.g. change of used plastic material	В			-	•		-		-	-		++	•					-						-	-	Test effort depends on final risk
	PAS-ALU-MA-09	Change of supplier of material .	P	Change to a new or additional material supplier at component manufacturer.	e.g. for 2nd source purpose	с						١.								В											sessement. Performance test according to affected material.
				supplier at component manufacturer.																											assessment. Performance test according to affected material. Assumption material specification remains unchanged. Otherwise see change of material.
i Cap	PAS-ALU-DE-01	Office Transpar of termination, surface finish, shape, color, appearance or dimension shucture - Wire Jamester	÷			В				\Rightarrow	_	+			+ +						. .	_		_		_			_	\rightarrow	
FCap	PAS-ALU-DE-01 PAS-ALU-DE-02	Changing to minimization, surface finish, shape, color, appearance or dimension shucture- Changing of termination, surface finish, shape, color, appearance or dimension shucture- Internitation	P	Change of wire dameter Change of termination appearance	e.g. change from 0.5 into 0.6 mm wire dameter. e.g. change from malt tin into bright tin.	В				-		÷		-	•		•			-		•	-						-		
FCsp		Parenination Tampas of termination, surface finish, shape, color, appearance or dimension shucture -	-	For welded Al capacitors only. Change of appearance	e.g. change of colour/sposarance	В																								—	
FCsp			Р	Change of appearance Note: Marking on device is defined as separate change (PAS-ALU-PV-02).	e.g. change of safety vent shape			•	-	-							-			- 1											
FCap	PAS-ALU-DE-04	Despute of inner construction - Alienteum End	D	Change of rubber sealing stand-off shape (for radial) Change of Al foil width	e.g. change of profile / design	A C		-	-			-					- :			- B					- :				-		
i-Cap I-Cap	PAS-ALU-DE-OS	Dranges of Inner construction - Alaminum Foil . Changes of Inner construction - Separator .	Р	Change of seperator width	e.g. change of width	С			-				•				•		•	В											
		Changes of inner construction - Inner Connection .	Р	Change of inner connection	e.g. change of seperator density/resistivity e.g. change of shape/dimension	c			-				•							В				•							Terminal Strength (11) not for solal components without paddle tabs.
i Cap	PAS-ALU-DE-09	Changes of inner construction - Closing Tape -	P	Change of closing type	e.g. change of dimension	c		• • •		-	•																				
i-Cap	PAS-ALU-DE-10	Changes of Inner construction - Foil - PROCESS	Р	Change of foil type	e.g. change of etching level e.g. change of thickness	С			•	•		1	•							В							<u> </u>		- 1	- •	
			Р	Change of terminal attach process	e.g. change of stitching / welding layout	с			-	•					•					В											Terminal Strength (11) and Vibration (14) not for axial components without paddle table.
i-Cap		Dranges in process technology or manufacturing methods - Winding .	Р	Change of winding process	e.g. change of material disposition	В	& only for HV application	•	-	•										В			-						-		
i-Cap	PAS-ALU-PR-03	Changes in process technology or manufacturing methods - Impregnation .	Р	Change of Impregantion	e.g. change of bulk process into individual impregnation e.g. change of sealing method	c			•	•		-	•						•	В									•		Surge voltage test for high voltage components only.
i-Cap			P	Change of assembly process Change of aging/lesting process	e.g. change of sealing method e.g. change of assembly process sequence e.g. change of timing, voltage or temperature of	c				•	-	+		·	\vdash		•			В.									-	4	R: Depends on process change R: Depends on process change
FCsp					process	В														8										4	R: Depends on process change Solderability may be influenced
Юф			P	Change of tim & form process (#840)	e.g. change of boiling shape or bending procedure e.g. change of boiling shape or bending procedure	В			-					+																-	Solderability may be influenced Solderability may be influenced
i-Cap	PAS-ALU-PR-08	Process integrity: tuning within specification .	P	Variation within process specification.	e.g. process control	С			-								-														
i-Cap		PADRING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS	Р				1			Ŧ				T				T				Ŧ		Ŧ					Ŧ		
i-Cap			_		e.g. number of pieces on reel.	В			-	-				1			-													ن إ	
i-Cap					e.g. change of MSL e.g. change in dry pack assurance (HC, MSS)	В			-			-																	•		
FCsp		Pagings of carrier (tray, real) ADDING (SHIPPING - VISUAL INSPECTION	Р	Change of carrier	e.g. change by material e.g. change by geometry.	В						1 -												- -	-				-		
			Р	Change of labelling, also on reel.	(f) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	В			-	. [- 1		- 1												- 1		
rup .		Change of product marking	Р	Marking on device.	e.g. change of content of marking e.g. change of method of marking e.g. change of method of marking	В																									
i-Cap					e.g. change of appearance of marking																									4	
i-Cao		Change of packing/shipping specification P	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	•			-																						
i-Cap		OGSTICS / CAPACITY / TESTING - EQUIPEMENTITY	Ħ	L	,							i i																			
	PAS-ALU-EIQ-01	Production from a new equipment/lool which uses a different technology or which due to its unique ormor function can be expected to influence the integrity of the final product	Р	Unange in process technique which is no sheady covered above. Note: Changes affecting the product not	ot e.g. new equipment supplier with different process to concept	с		• •	-	•			•		•					В					-					-	Test effort depends on final risk assessment. Performance test according to affected process change.
-Свр										4										Н									-		process change. Test effort depends on final risk
_	PAS-ALU-EIQ-02	Production from a new equipment/bool which uses the same basic technology (replacement quipment 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	С		•	-	•			•	•	•	•	•		•	В											Test effort depends on final risk assessment. Performance test according to affected process change.
																		_													

PAS-ALU-ED-03	Change in final test equipment type that uses a different technology	P Change of final test equipment which us different technology. PCN required for dedicated equipment for sensitive parameters.	a a.g. change of tester platform	С												. в								-				Gage R&R / c
PAS-ALU-PF-01 b	LOGISTICS / CAPACITY / TESTING - PROCESS FLOW Manufacturing sile transfer or movement of a part of production process to a different locationsiste.	P P Note: Recognization inside one plantials is not affected	Movement or transfer of manufacturing site or process step(s) to a different location site.	В												• В												
PAS-ALU-PF-02	Elimination or addition of a manufacturing process step	plantialis is not affected! Description De	e.g. washing / cleaning process e.g. change of order of processes	С																				-				Characterisa production for
PAS-ALU-PF-03	Elimination of final electrical measurement / test flow block	P PCN required for dedicated final test reductions for sensitive parameters.	e.g. elemination of additional impedance control	с																					- 1			
PAS-ALU-OG-01	LOGISTICS / CAPACITY / TESTING - O-GATE Change of set coverage used by the supplier to ensure data sheet compliance (e.g., eleminators) addition of electrical measurement/lest flow block, releaston/enhancement of monitoring procedure or surpling).	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 burs inhus in process.	c				Ť.				1.1									i.							R (electr. fun R (reliability) process.
PAS-ALD-GD-01	entransormation or secrical measurements to block, responsivernancement or monitoring procedure or sampling) NTC	. ,	temperature measurements e.g. change in burn inhun in process.					<u> </u>																				process.
PAS-NTC-AN-01 PAS-NTC-AN-02	Any change with impact on special customer characteristics/contractual agreements. Any change with impact on processability/manufacturability at outstoner, which is not covered in	P P P	Not relevant for technical evaluation. Technical interface means component terminals.					1 -					- -	- -					1		1	- 1		- 1			-	
E	DATASHEET		,					+					- -						+ -		+-	-			÷	÷	÷	_
PAS-NTC-DS-01	Change of datasheet parameters/sectrical specification (min./max./typ. values) and / or AC/DC specification	P P Internal of application relevant. Information Not included: Editorial changes. No technical change of the product, only correction in description (wording, therein).	e.g. tighten of electrical parameter distribution	A	Risk assessment depending on change for each application.										-							-						
PAS-NTC-DS-02	Connection of data sheet	(i): In case of editorial changes. (P): In case of impact on product	information about component behavior	A																								
PAS-NTC-DS-03	Specification of additional parameters	Description of a new not previously covered practices. Description of a new not previously covered practices. In the inchical change of the product. (i) no inflamone (ii) Risk assessment depending on change for each application to provide addrone of additional parameter (that excluding of the control parameter (that excluding).	e.g. adding new (lasted) parameter.	A											-													
	MATERIAL Change of material composition - Ceramic Binder	p p Change of Binder Material to bind		С				1.	1.1.1		i . i .								1.		1.				一	#	1	
																												Parameter ar an anticipate
	Change of material composition - Ceramic		e.g. changes in additives amount	С										٠.		• B	• s								نبلنا		•	S = SMD de
	Change of malerial composition - Inner Electrods	P P Change of inner electrode material (ink. p material). Valid in case of multilayer structures only.		С	A Risk assessment on application level,					•					•	- В					-	•		-		4	•	
PAS-NTC-MA-04	Change of material composition - Encapsulation	P P Change of encapsulation material.	e.g. change of costing e.g. change of additives in an insulation.	В	A Risk assessment on application level, if interaction with other material expected. Risk assessment needed to evaluate		•		• •					٠ .		- В	•				-	-			4	نبلا	Ŀ	Parameter a an anticipate performance
PAS-NTC-MA-05	Change of material composition - Lead material / Termination	P Change of lead or outer termination. Change of lead or outer termination. Change of lead (trials) material. Intermination material or attachment material.	e.g. change from SnPb to pure Sn	В	Risk assessment needed to evaluate compatibility of soldering process.			-		•			•			• В	•	•			-			-			•	
PAS-NTC-MA-06	Change of supplier of material	Change to a new or additional material supplier at component manufacturer.	e.g. for 2nd source purpose	С				-	•	•	• •			• •		• B	• •	•				•				ىنىك	Ŀ	Assumption remains und change of m
PAS-NTC-DE-01	DESIGN Changes of termination, surface finish, shape, color, appearance or dimension structure - Lead Diameter	p Change of lead dameter	e.g. change lead dameter from 0.5 to 0.4 mm	В				1 -					1		1.1	- В		• .			1 - 1	-		- 1	- -	- 1	T •	
		j P Change of termination area	e.g. change of termination layer thickness e.g. change in termination dimensions	В												• В		•										SMD compor
PAS-NTC-DE-03	Changes of termination, surface finish, shape, color, appearance or dimension structure - internal Connection	p Change of inner connection	e.g. change from soldered connection to welded connection	С									•		•	• B	•	•									•	
PAS-NTC-DE-04	Changes of termination, surface finish, shape, color, appearance or dimension shucture - Appearance	Change of appearance. P Note: Marking on device is defined as appearate change (PAS-FLM-PV-02).	e.g. change or adding of colour on component Mainly in combination with other changes!	В																		-		-				
PAS-NTC-DE-05	Changes of inner construction - Electrode	Change of electrode layer trickness or geometry. For multi-layer technology only.	e.g. change of electrode design	с														•										
PAS-NTC-DE-06	Changes of inner construction - Layer Thickness	P Change of ceramic layer thickness. For multi-layer technology only.	e.g. change from 1.5µm into 1.0µm	С				•			•				-			•										
PAS-NTC-DE-07	Changes of inner construction - Number of Layers PRICESS	Change of number of ceramic or electrode layers. For multi-layer technology only. Always in combination with PAS-NEC-DE-06.	see also byer thickness	с				٠			•				-			•			-			-				
	PROCESS Changes in process technology or manufacturing methods - Lamination	P Change of lamination / press technique technique technology	e.g. stamp press to isostatic press	С										• •	-	- В									- 1 -			
PAS-NTC-PR-02	Changes in process technology or manufacturing methods - Firing	. p Change of firing / sintering profile	e.g. temperature and / or time and / or atmosphere. e.g. from tunnel to batch kiln.	С		• •		•		•	•				•	- В								-			•	
PAS-NTC-PR-03	Changes in process technology or manufacturing methods - Dicing	. P Change of dicing / slicing	e.g. change from cutting to sawing	С							•		•		-	• В											•	
PAS-NTC-PR-04	Changes in process technology or manufacturing methods - Termination	P Change for termination preparation like plating or apply of termination base layer.	e.g. change in plating technology (final termination) r. e.g. change from dp in paste to plating (apply)	В						•			•			• В		•										
PAS-NTC-PR-05	Changes in process technology or manufacturing methods - Electrode apply		e.g. change of inner electrode by down method.	С			•									. в												
PAS-NTC-PR-06	Changes in process technology or manufacturing methods - Assembly	P Change in assembly process for leaded or encapsulated devices.	e.g. soldering method for lead attach to element or coating / encapsulation process								•			•	-		•											
		P Variation within process specification.	e.g. process control	С			- . L .	-					- -	- -		. .		- -	1				- -		===	÷	1	
	Packing / shipping specification change (lossening of tolerances)	P P Change of packing specification.	e.g. number of pieces on reel.	В											-							-		-		4	4	
		P P Change of drypack requirements.		В									- -		-							•		•	4	4	+-	
	Change of carrier (tray, reel) PACKING / SHEPPING: - VISUAL INSPECTION	p p Charge of carrier	e.g. change by malerial e.g. change by geometry.	В			- 1	1					- -			. .			1	1 1		- 1	. .		نان	خلك	1	
		j P Change of labelling, also on reel.	(8) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	В				-					-1-1									<u> </u>		- 1				
PAS-NTC-PV-02	Change of product marking	P Marking on device.	e.g. change of content of marking e.g. change of method of marking	В				-							-									-				
PAS-NTC-PV-03	Change of packing/shipping specification	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												-									-				
PAS-NTC-EG-01 F	LOGSTICS / CAPMOTY / TESTING - EQUIPMENENT Production from a new equipmenthod which uses a different inchnology or which due to its unique form or function can be expected to influence the integrity of the final product		od a. g. change from wet to dry technology.	С				1																-				Test effort di assessment. Performano process cha
PAS-NTC-EO-02	Production from a new equipment/bool which uses the same basic technology (replacement equipment or extension of existing equipment pool)	PCN required for dedicated equipment for sensitive component production.	e.g. elimination of manual handling processes	с											-													Test effort de
PAS-NTC-EO-03	Change in final test equipment type that uses a different technology	P P Change of final test equipment which us different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	с		•										- В								-			•	
PAS-NTC-PF-01	LOGISTICS / CAPACITY / TESTING - PROCESS FLOW Manufacturing sits transfer or movement of a part of production process to a different location-hills.	P Change of manufacturing site. P Note: Recognitization inside one plantistis is not affected.		В												• B						-						
PAS-NTC-PF-02	Elimination or addition of a manufacturing process step		e.g. seathing / cleaning process e.g. change of order of processes	С																								Characterise production fi
	LOGISTICS / CAPACITY / TESTING - Q-GATE		e.g. change from 100% to sample inspection e.g. test flowblock, reduction from three to two	с																								Characteris test coverag R (electr. fu R (reliability
i.	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 surrolling)	. P Change of test coverage.	temperature measurements																								4	process.
PAS-NTC-QG-01	Change of test coverage used by the supplier to ensure data sheet compliance (e.g., estimated soldiers of electrical measurement/test flow block, relaxation/enhancement of mentioning procedure or sampling) PTC	. P Change of test coverage.	temperature measurements e.g. change in burn inhun in process.									<u> </u>													_	_		
PAS-NTC-QG-Q1 C	PTC Rey Any change with impact on special customer characteristics/contractual agreements	P P	temperature measurements e.g. change in burn inhun in process. Not relevant for technical evaluation.																									
PAS-NTC-QG-01 C	PTC Rey Any change with impact on special customer characteristics/contractual agreements		temperature measurements e.g. change in burn inhun in process.			· · ·		1:		: :						- -								-	· ·			

PAS-PTC-DS-02	Correction of data sheet	No sechnical change of the product, only correction in description (wording, drawling,) P (tc. in case of editorial changes. (P): in case of impact on product integrity.	e.g. data sheet correction because of new information about component behavior	A																							
PAS-PTC-DS-03	Specification of additional commentum	Integrity. Description of a new not previously covered parameter. No technical change of the product. (If in influence If it is influence If it i	e.a. adding new frested parameter.																								
	MATRAL	 (P): Risk assessment depending on change for each application to provide evidence of additional parametes (stat evaluation) 																									
	Change of material composition - Ceramic Binder P	P Change of Binder Material to bind ceramics.		С										•									 -				
PAS-PTC-MA-02		p Change of ceramic composition	e.g. changes in additives amount	с													В	• s									Parameter analyse only necessary if an anticipated impact on electrical performance. S = SMD device only
				c													1										performance. S = SMD device only
PAS-PTC-MA-OI		P Change of polymer composition P Change of encapsulation material.			A Risk assessment on application level, if interaction with other material expected.		•						-				+ :				-		 + +		-	•	Parameter analyse only necessary if an anticipated impact on electrical
			e.g. change of coaling e.g. change of additives in an insulation.	В			٠					<u> </u>					В	•					 -			•	an anticipated impact on electrical performance.
PAS-PTC-MA-05	Change of material composition - Lead material / Termination P	P Change of lead (finish) material, sermination material or attachment material	e.g. change from SnPb to pure Sn	В	Risk assessment needed to evaluate compatibility of soldering process.		•				•		-	•			В		•				 -				
PAS-PTC-MA-06	Change of supplier of material -	P Change to a new or additional material supplier at component manufacturer.	e.g. for 2nd source purpose	с						•							В		•				 -			•	Assumption material specification remains unchanged. Otherwise see change of material.
	proper								+				-				+						-				Cargo or research
PAS-PTC-DE-01	Charges of termination, surface finish, shape, color, appearance or dimension structure - Lead Diameter Charges of termination, surface finish, shape, color, appearance or dimension structure - Termination Area 1	p Change of lead darmeter	e.g. change lead diameter from 0.5 to 0.4 mm	В						• -							В						 -			•	
PAS-PTC-DE-02 PAS-PTC-DE-03	Change to destination, season state, imply, both, appearance or dimension structure. [Sentination Area	p Change of termination area	e.g. change in termination dimensions	В						•							В		•		-		 -		-	<u>:</u>	SMD components only!
	Connection	P Charge of inner connection Charge of appearance.	connection	С			-							•		• •	В	•	•		-		 -			•	
	Changes of termination, surface linish, shape, color, appearance or dimension shuckure - Appearance		e.g. change or adding of colour on component Mainly in combination with other changes!	В		•	1						-										 -			-	
	Changes of Inner construction - Electrode .			с								• .							•								
PAS-PTC-DE-06	Changes of Inner construction - Layer Thickness .	P geometry. P Change of ceramic layer thickness. For multi-layer technology only.	e.g. change from 1.5µm into 1.0µm	с			1		٠			• .	-						•								
PAS-PTC-DE-07	Changes of inner construction - Number of Layers .	P Change of number of ceramic or electrode layers. For multi-layer technology only. Alterys in combination with PAS-PTC-DE-06.	see also byer thickness	с					•			•							•								
PAS-PTC-PR-01	PROCESS Change in recognitive hopeing or manufacturing methods - Lavination	P Change of lamination / press technique technology	a a starre mess to involve mess	С					1.				1.1				В			T . T .			 T . İ			•	
	Changes in process technology or manufacturing methods - Lamination - Changes in process technology or manufacturing methods - Firing -	p Change of firing / sintering profile	e.g. stamp press to isostatic press e.g. temperature and / or time and / or atmosphere. e.g. from turnel to batch klin.	c					T:								В									÷	
							_						+ -				В						 H	÷		•	
			e.g. change from cutting to sawing	С			_		-			•		_				- 1									
PAS-PTC-PR-04			e.g. change in plating technology (final termination) e.g. change from dp in paste to plating (apply)	В		•						•		•				•	•							٠	
PAS-PTC-PR-05			e.g. change of inner electrode lay down method.	С		•		•		•					•	•	В						 -			•	
	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-PTC-PR-07	Process integrity: tuning within specification -	P Variation within process specification.	e.g. process control	С																			 -				
PAS-PTC-PN-01	PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS			В	1		1		_			т т					_						Т		Ť		i
	Packing / shipping specification change (lossening of tolerances)	P Change of packing specification. P Change of drypack requirements.	e.g. number of pieces on reel.	В			-		-			F .					+ -				+		 + +	-	-		
	Dry pack requirements change P Change of carrier (tray, reel) P	P Change of drypack requirements. P Change of carrier	e.g. change in dry pack sesurance (HC, MSS) e.g. change by material	В			-		÷								÷				+		+ +	-	-		
	PACKING / SHIPPING - VISUAL INSPECTION		e.g. change by material e.g. change by geometry.		<u> </u>																						
PAS-PTC-PV-01	Change of labeling	P Change of labelling, also on reel.	(8) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	В		100	100		-								-						 -				
PAS-PTC-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		100																	 -				
PAS-PTC-PV-03	Change of packing/shipping specification P	Change in packing specification which does not described a change of dimensions or material of the packing.	e.g. change of appearance or manking e.g. change of documentation in packing						T .			T					٠.									-	
	LOGSTICS / CAPACITY / TESTING - EQUIPEMENT	dimensions or material of the packing.	specification																								
PAS-PTC-EQ-01	Production from a new equipment/fool 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 Change in process technique which is not already covered above. Note: Changes affecting the product not covered by the table require also a PCN.	it e. g. change from wet to dry technology.	с		•																	 -			•	Test effort depends on final risk assessment. Performance test according to affected process change.
PAS-PTC-EQ-02	Production from a new equipment/bool which uses the same basic technology (replacement equipment or extension of existing equipment pool)	P PCN required for dedicated equipment for sensitive component production.	e.g. elimination of manual handling processes	с		•																	 -			٠	Test effort depends on final risk assessment. Performance test according to affected process change.
PAS-PTC-EQ-03	Change in final test equipment type that uses a different technology	P Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	с		•											В				-		 -			٠	Gage R&R / delta correlation
PAS-PTC-PF-01	LOGISTICS / CAPACITY / TESTING - PROCESS FLOW	Change of manufacturing site.					ı		7			T T					T						Т	$\overline{}$			
	Manufacturing site transfer or movement of a part of production process to a different location/site P		Movement or transfer of manufacturing site or process step(s) to a different location/site.	В		•	- 1			•							В		•				 -		٠	٠	
PAS-PTC-PF-02	Elimination or addition of a manufacturing process step .	P Change of manufacturing process sequence.	e.g. washing / cleaning process e.g. change of order of processes	С		•																	 -			٠	Characterisation depends on impact of production flow
	LOCISTICS CARMOTY / TESTING - OGATE Change of set coverage used by the supplier to ensure data sheet compliance (e.g., stimization) addition of selectical measurement/heat flow block, relaxed/onlenhancement of emotioning procedure or sampfling)	p Change of test coverage.	e.g. change from 100% to sample inspection e.g. test flowblock, reduction from three to two temperature measurements e.g. change in burn initius in process.	с																			 - 1			•	Characterisation depends on impact of test coverage. R (electr. funct.): test coverage. R (reliability) only for change in burn in
	una	<u> </u>																									process.
PAS-VDR-AN-01	Any Any change with impact on special customer characteristics/contractual agreements P	Р	Not relevant for technical evaluation.					- -				1 - 1 -	1 - 1							1 - 1 -			 1 - 1			-	
PAS-VDR-AN-02			Technical interface means component terminals. See processability on board level.	В									-										 -		•		
	P DATASHEET	Change of application relevant information							i i												i						
PAS-VDR-DS-01	Change of datasheet parameters/electrical specification (min./max./kp. values) and / or ACIDC specification	Not included: Editorial chances.	e.g. lighten of electrical parameter distribution	A	Risk assessment depending on change for each application.																		 -			•	
PAS-VDR-DS-02	Correction of data sheet	integrity.	e.g. data sheet conscilon because of new information about component behavior	A																	-	-	 -		-	-	
PAS-VDR-05-03	Specification of additional parameters.	Discorption of a new not previously covered parameter. No technical change of the product. (6; no influence (9): 104 assessment depending on change for each application to provide change for each application to provide seal and additional parameter (but enhanced).	e.g. adding new (tested) parameter.	A																							
PAS-VDR-MA-01	MATERIAL Change of material composition - Ceramic Binder P	p Change of Binder Material to bind		С					1		T - T -	T - T -	1.1			- 1 -				T - T -			 T . T				
PAS-VDR-MA-02	Change of material composition - Ceramic P	P Change of Binder Material to bind ceramics. P Change of ceramic composition	e.g. changes in additives amount	С														• s								•	
PAS-VDR-MA-03		P Change of inner electrode material. Valid in case of multilayer structures only.		С									-			•	В				-		 -		-	•	
PAS-VDR-MA-04		p Change of encapsulation material.		В	A: Risk assessment on application level, if interaction with other material expected.				_								В									•	
PAS-YOR-MA-05					Risk assessment needed to evaluate compatibility of soldering process.												+										
PAS-VDR-MA-05		material.	e.g. change from SnPb to pure Sn	В	compensately or soldering process.						•	•		•			В	•	•								
PAS-VDR-MA-06	Change of supplier of material .	P Change to a new or additional material supplier at component manufacturer.	e.g. for 2nd source purpose	с			•			•	•				•		В		•							•	Assumption material specification remains unchanged. Otherwise see change of material.
	DESIGN Changes of termination, surface finish, shape, color, appearance or dimension shucture - Lead	<u> </u>	1		1									_			1							_	+		
PAS-VDR-06-01 PAS-VDR-06-02	Changes of termination, surface finish, shape, color, appearance or dimension structure - Lead	P Change of lead darmeter p Change of termination area	e.g. change lead dameter from 0.8 to 0.6 mm e.g. change of termination byer thickness	B					i i	•			-					•								•	SMD components only!
PAS-VDR-06-03	Termination Area Changes of termination, surface finish, shape, color, appearance or dimension shudure - Internal Connection.	p Change of inner connection	e.g. change in termination dimensions e.g. change from soldered connection to welded	c																							
	- Communication of the Communi	t 1	[Located200]		1				_					_			_										

PAS-VDR-06-04	Changes of termination, surface finish, shape, color, appearance or dimension structure - Appearance	1	P Note: Marking on device is defined as separate change (PAS-VDR-PV-02).	e.g. change or adding of colour on component Mainly in combination with other changes!	В					-			•																		
PAS-VDR-06-05	Changes of inner construction - Electrode		P Change of electrode layer thickness or peometry.	e.g. change of electrode design	С					•									- В		•						- 1				
PAS-VOR-DE-06	Changes of inner construction - Layer Thickness		P Change of ceramic layer thickness. For multi-layer technology only.	e.g. change from 1.5µm into 1.0µm	с														- в								. 7				
PAS-VDR-DE-07	Changes of Inner construction - Number of Layers		P Schooling of number of ceramic or electrode layers. For multi-layer schoolings only. Always in combination with PAS-VDR-DE-DS.		С											-		•					-			-					
PAS-VOR-DE-DB	Changes of inner construction - Grain size		Change of grain size. Grain size is a peaut of process and / or material change.	e. g. change of grain size.	С							•	-			-			- в				-	-						•	
PAS-VDR-DE-09	Changes of inner construction - Grain boundary size		Change of grain boundary size. Grain P boundary size is a result of process and or material change.	I / e.g. change of grain boundary size.	с														- в												
	PROCESS	_	or material change.				_																		_		_	_	-		
PAS-VDR-PR-01	Changes in process technology or manufacturing methods - Lamination	- 1	P Change of lamination / press technique	e.g. pressures or temperature	С					•						-			- В								- 1				
PAS-VDR-PR-02	Changes in process technology or manufacturing methods - Firing	-	p Change of firing / sintering profile	e.g. temperature and / or time and / or atmosphere.	С										-				- в				-				$\overline{}$				
PAS-VDR-PR-03	Changes in process technology or manufacturing methods - Dicing		P Change of dicing	e.g. from turnel to batch kiln.	c														- в				-				$\overline{}$				
PAS-VDR-PR-04		_	n Change for termination preparation like						_			_					-										=				
PAS-VDR-PR-05	Changes in process technology or manufacturing methods - Termination	-	P plating or apply of termination base layer Change of electrode apply. For multi	r. e.g. change from dp in paste to plating (apply)	В		•		_			•	-			•		•	• В	· ·	+ •		-		· •		-		₽₽₽		
	Changes in process technology or manufacturing methods - Electrode apply	-	bayer technology only.	e.g. change of inner electrode lay down method.	С				• •	•			-		-		•		- В		+		-			1	4		H	•	
PAS-VDR-PR-06	Changes in process technology or manufacturing methods - Assembly		or encapsulated devices.	e.g. soldering method for lead attach to element or coating / encapsulation process	В		•		• •	•			•	•	•	•	• •		• •	•						-				-	
PAS-VDR-PR-07	Process integrity: tuning within specification	-	P Variation within process specification.	e.g. process control	С																										
	PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS	-			_				_			_		_									_				_		_	_	
PAS-VDR-PN-01	Packing / shipping specification change (lossening of tolerances)	-	p Change of packing specification.	e.g. number of pieces on real.	В			100					-		-															-	
PAS-VDR-PN-02	Dry pack requirements change	Р	r crange of organization.	e.g. change of MSL e.g. change in dry pack assurance (HC, MSS)	В			100					-		-											-				-	
PAS-VDR-PN-03	Change of carrier (tray, reel)	Р	P Charge of carrier	e.g. change by material e.g. change by geometry.	В			100					-		-											-				-	
	NODIG (1999)G - VISAR ROPICTO) Bit a substantinomia (195 gras)																														
PAS-VDR-PV-01	Change of labeling	1	P Change of labeling, also on reel.	(B) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	В			100																					1 1		
PAS-VDR-PV-02	Change of product marking	1	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					-			-			-					-			-			-			-	
PAS-VDR-PV-03	Change of packing/shipping 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						-																					
	LOGISTICS / CAPACITY / TESTING - DOLIPEMENENT		amensions or material of the packing.	1						طلسا																	_				
PAS-VOR-EQ-01	Production from a new equipment bod which uses a different lachnology or which due to its unique form or function can be especied to influence the integrity of the final product.	Р	P Change in process technique which is n sheady covered above. Note: Changes affecting the product no covered by the table require also a PCN	e. g. change from wet to dry technology.	с						•		-		-				. в			-									Test effort depends on final risk assessment. Performance test according to affected process change.
PAS-VOR-EQ-02	Production from a new equipment/local which uses the same basic technology (replacement equipment or extension of existing equipment pool)	-	PCN required for dedicated equipment for sensitive component production.	e.g. elimination of manual handling processes	С					-	•								. в		-			•			-			•	Test effort depends on final risk assessment. Performance test according to affected process change.
PAS-VDR-EQ-03	Change in final test equipment type that uses a different technology	Р	P Charge of final test equipment which us different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	С					-									. в								-				Gage R&R / delta correlation
	LOGISTICS / CAPACITY / TESTING - PROCESS FLOW		*	*							,			,																	
PAS-VOR-PF-01	Manufacturing site transfer or movement of a part of production process to a different location/site	Р	Change of manufacturing site. P Note: Reorganization inside one obstitute is not affected.	Movement or transfer of manufacturing site or process step(s) to a different location/site.	В											•			• B		•						- 1			•	
PAS-VDR-PF-02	Elimination or addition of a manufacturing process step	-	P Change of manufacturing process sequence.	e.g. washing / cleaning process e.g. change of order of processes	с					-																	-			•	Characterisation depends on impact of production flow
	LOGISTICS / CAPACITY / TESTING - Q-GATE																														
PAS-VDR-QG-01	Charge 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)	-	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 inhus in process.	с								-													-				-	R (electr. funct): test coverage. R (reliability) only for change in burn in process.
Tests, which should	d be considered for the appropriate process change.							-		-		-	-		-	-					-		-	-		-	-		1 - -	-	
Tests, which should	d be considered for the appropriate process change after selection of condition	table.						-		-			-		-	-					-			-		-				-	
Suppliers performer	d tests (mark with an 'X' for done or 'G' for generic)																														
									_																						

-	Not required
	Information Note required

	CONDITIONS	N
A	Termination equipment only	L
C	Ceramics only	Ш
В	Comparative data (unchanged vs. changed) required	Е
Ε	Capacitive trimmers only	ш
F	Film products only	
N	Networks only	L
R	Resistors only	ш
8	SMD components only	Е
w	Wirewound products only	ш
Y	Component not hermitically sealed	Г
Note 1:	For parts marked with ink only. Laser and stamp marked parts shall be exempt.	
	=> Please mark 'NO' with 'x', default is 'YES'	

Date:	Max Mustermann		Basis: IEC 60810																								
CN number:		1	Fampervided by 2561 - Residen 2.1 - December 2016												De	vice eval	uation									4	
Signature:		f												MATERIAL		MANCE TEST			asis of EC	50810)						1	
	1	J			Marie Co									TT						T							<u> </u>
					duston in A7 87C																						
					á	1	W C1463		A DITO.		5	Deg No	Poor 1													(a) (b)	<u> </u>
	Assessment of impact on Supply Chain regarding following sepects - contractual severents	Remaining			1		M M M		0.00		Operation of the control of the cont	- Human	Made	tumb							8					9 9	Remarks
	contractual agreements technical interface of processability/manufacturability of customer term, fit, function, quality performance, reliability	Remaining risks on Supply Chain?	Understanding of semiconductors experts	Examples to explain	9	Further applicable conditions	100		aye O	Supply 1		n dan fee	90	under Par	900	9					90 80		1		- 1	Tes. R	
7	- name, or managery personners or measure				stor lead end reed lead		es o	dicate titeeb)	pyrepe	100	or for	DOWN	00	sical Die	Charles	9	Contdi	d la		ą.	N I I	1	a Book	effere 5	Dear An (Dan	CECCE.	4
ID.	Type of change	No Yes			A Applica Di Donnia Ci Compo		Edetail Edetail	200	ž	-	8 2	8	9	£ 3	- 1	ž	3	£ :	2	å	2		+	H	8 2	82 286	<u> </u>
LED-AN-01	ANY Any change with impact on agreed upon contractual agreements.		Not relevant for technical evaluation.			1	EC REAL		-	н	A 4	1	1	8 3	S	- 1	9	1 :	1 2	1	1				п	-	4
LED-AN-02	yety change each impact on agreem upon communicating generous. Any change with impact on technical interface or processability/manufacturability of customer, which is not convent in the installic below.	p p	See processibility on board level sedunical interface means component terminals			Check if LED-05-01 is affected Processability should be assessed.			-	т		-				S,T					-			Ħ			
	DATA SHEET	• •				Processing stool or storage.				=		+	+		+		\rightarrow	_	_	+		#	-	=		=	
LED-05-01	Change of datastnest parameters/sectrical specification (nin Insulty), values() and/or Pulse/DC specification		Change of application relevant information (e.g. maximum purse current) Not included: Editorial changes.		A				Е	E	Е -	E	E			8	-	-		-	-	E		-		- E	A
LED-05-02	Correction of data sheet	1 P	Note statused to account changes; Casa sheet (editorial changes) has to check if application affected. E. It case of editorial changes. Pits case of impact on product imaging.	e.g. change of ESD level	A				-				-			-	-			-	-		/ -/	-			
			Par case of impact on product integrity Definition of an additional parameter which was not specified							=		+										#	+	+			
LED-05-03	Specification of additional parameters	I P	Yes user to require to produce templay. Distinction of an additional parameter which was not specified before before. It is imaging of the device is not although. PLE there is a nick on supply chair than at least one additional other change campony will apply - LEO- 05-62 correction of late although the produce of the change of th	t e.g.: adding new tested parameter	С			-	-			-	-		-	-	-	-		-	-		/ -/	-		· •	Formation since this is not a product change, on Classification: C
	DESIGN		Lists theet						4	_					<u> </u>						1	4	_				4
LED-06-01	Design changes in epitaly.	p p	wither Orange canagedy wat apply - LEO-109-62 connection or take where: Any device inference changes in design / layout of epiticisal Buyers Any device inference changes within design rules and design that lackable-difficulty operations functions, parameters, and initialized control of the control function.	e.g. change from Double-Resero to Quantum wells e.g. change of barrier thickness	с	At change from Double henery to Quantum wells — a spectrum is affected	٠.												. .	н							A
		\vdash	epermentin without attecting specified functions, parameters and reliability. Any change in chip design / layout.							\rightarrow							-					#	45			##	4
LED-06-03	Design changes in routing/byout.	p p	and initiability. Any change in chip design / layout. Not includeds, Changes within design rules and design specification without affecting specified functions, garanteess and reliability.	e.g. change in tayout of current spreader; thickness of current spreader e.g. reduction of bond pad size	c	A change in layout of current spreader—a radiation pattern changes			٠	٠	• •					•		,D,M			М	نبلا	В		D,M -		
	Die strink	P P	Not included: saving streetherthcribe ine	Typical strink of die.	A				•						-	•		-				•			•		
LED-DE-DE	LED-package (except leadforms)		any change in housing thickness any change in furm-or dimensions.	e.g. change of dimensions e.g. change of x, y, or z dimension of the package		Check if LED-05-02 is affected which lead to a change of the etcrooptic parameters or distributions.		-	•	•		-	-	• v	v	•	т	- 1		D	D	L	В	В	D -		A
LED-DE-ES	Design of leadframe	РР	any change of leadhame / carrier dimensions any change of outer dimensions	e.g. change in teadstante ℓ carrier dimensions in xy , or z direction e.g. change inner design of the leadstante not affecting the		Check if LED-09-02 is affected which lead to a change of the elcrooptic parameters or distributions.	·							• v	v	•	т	•					В	В	D -	2 •	
	PROCESS - WAFER PRODUCTION			at promotes making a salance					_	=			+		+		_				_	+	#	=		#	
LED-PW-01	New/ change of water substrate-or carrier material	P P	New water autotrate material.	e.g. different water material to currently released material (change from Sapphine to Silicon)	c	Check if LED-09-92 is affected which lead to a change of the elchooptic parameters or distributions.	•		•	Р	Р •	Р	Р		-	•	-	P I		Р	Р	•		-	•		
LED-PW-02	Water diameter	p p	change of water diameter resulting in equipment and process. changes	46.6.84	c	It case other type of changes are affected in equipment/process technology - they need to be identified in addition						Р	P				-		. .	-	-		4 -7	-		•	
LED-PW-03	Newfood water thickness		Change in final water thickness	e.g. change in final chipide thickness	c	Check if LED-06-02 is affected which lead to a change of the ektrocopic parameters.					Р •	Р	Р		٠.		-					٠.	В	В			
	Change of electrically active doping/implantation element			e.g. change from the to C as dispart		or distributions.				=	СС		_											+		_	1
	Change of eaching			e.g. change of isolation layer trickness between in- and p- material	Α.	outtoner application needs to be checked			•	F					-		-		-	F		Ŧ	÷	H			4
Librards			Change in restallization of bondpads, material, layer thickness	easerial e.g. change in bond pad metalization thickness	-	sustainer application needs to be checked due to potential system voltage differences		M													м.	H	÷	+ -			
UED-PW-07					c	A customer application needs to be checked due to potential system voltage		м	_			D,M			-						D,M	D,M	_				
LED-PW-07	New/change of metalization (specifically chip backside)	P P	Change of bottom layer of die (between die and leadhame/carrier). Change in process, repetial, or dimensions societality.	e.g. change from Au to Aurille	c	checked due to potential system voltage differences Bt change from CVD dea to souther dec to			•			D,M	D,M		-		- '	3,M D		D,M	D,M	D,M	نب	¥	•		4
LED-PW-08	Change in process technique (e.g. significant process changes like $\operatorname{Sthography}$, etch , colde deposition, de back surface preparation-backgrind,)	- P	Change from wet to day exthing, change from horizontains vertical own far oxidation, change from contact timo into stepper little,	e.g. change from wet with to day elich e.g. change from laser cutting (sawing) to plasma cutting (sawing) e.g. change from contact litho to stepper liths	c	differences Et change from CVD deg to aputier dep for backside/fromtide metalization. It case of new equipment please-check? LED+A-14 is also affected.		-	-	-		-	-		-	-	-	-	. .	-	-	/ -	/ -/	- 1		1 - 1 -	Qualification effort depends on type of change.
LED-PW-09	Process Integrity: Tuning within specification	р	Variation within process specification	e.g. process control	c				-	-		-	-		-	-	-				-	-	+-	1		1 - 1 -	
	Change of namerial supplier with no impact on agreed specifications.	р	Change of water supplier. Change of supplier for chemicals needed for water production.	e.g. Change of water supplier.	c				-	-		-	-		-	-	-			-	-			-			Qualification within depends on type of change.
	Change of specified water process sequence (deletion and/or additional process step)	Р	seeded für water production. Any change which is not covered by another type of change. Note is to be assessed.	e.g. additional deaning process in water production	С				-	-						-	-			-	-	4	4	-			Qualification effort depends on type of change. PPAP has to be updated.
	Change in die casting or passivation		Change in material, thickness, and process for coating and passivation	e.g. change from SICIZ to SIMIZ	c			_	•	_		Р			-		-	- 1	٠.	Р	Р			+			
	Newwater production location or transfer of water production to a different not previously released location/sites/subcontractor	P P	New water propduction location or transfer of water production with possible additional changes.		c	Aur & Impact on other type of changes described under PROCESS - WWFSR PRODUCTION and SQUERSINT caregories of this DAQAMa		-	•	•	•				-	•	-	-	. •	-	-	J	•	•	• •		
	New change of front side mestitusion	РР	Change in bondpads, numerial, pad ploth, surface changes, layer Bickness.	e.g. change from Au to Au alloy				м				M,B	M,B		T .	1.1	- 1					₹.	₹.	☴			
LED-80-02	New/change of backside metallization	РР	layer thickness. Change of bottom layer of die (between die and leadflamercanier). Change in process, reserial, or dimensions.	e.g. change from Au to Au alloy		Check if LED-05-02 is affected which lead to a change of the ektrocopic parameters			•			D,M				٠.											custamer application needs to be checked due to voltage differences
LED-80-01			teastranecumer; Change is process, interest, or dimensions. Needed information for pick & place machine. Liviny additional number of drips. Prichance in schaling between chick and form of water.	e.g. information change for pick & place machine.		or elementarions.																	1.				
LED-RO-DE	New final safer Discress	p -	Changes in South Settlement chick and Some of water Changes in Sout Chip beight (including carrier); very sare and subtly combined with a transmit change (change of carrier)	e.c. change on converter thickness		Check if LED-09-01 is also affected.		P	•		Р .	P	P									+	P	В		+ +	+
LED-RO-ES	Change in die coating or passivation		Change in material, thickness, and process for coating and constitution			Check if LED-09-01 is also affected.		P		-	• P					+				P	P			P			
	PROCESS - ASSEMBLY											_	+		+					-		+				ŧ	
	Change of leadframe/currier base manerial			e.g. change from copper alloy to have copper	в	Check if LED-05-02 is affected which lead to a change of the elchooptic parameters or distributions.					•	-	-				•			A	A	_	•			Р.	Explanation should be provided in case HDS text
LED-PA-02	Change of leadtrane/carrier finishing naterial (internal)	p p	Change of surface material of die attach-pad and second bond area (e.g. influence in adhesion to mold compound, wedge bond reliability)	e.g. change from Ag flash to NiPd protection layer e.g. change from Ag spot to Au spot	A		•	٠	Р	٠						٠	•			A	A	P,1	1.	•	•	4 - 1 -	HIS test should be considered for automative ea explanation should be provided in case HIS test
LED-PA-03	Change of lead and heat skip plating resonal/plating thickness (esternal)	p p	Change in material and process technique for final pin- termination (e.g. pure tin). Herein package, processability and reliability on board level can be verified by generic data. Classification depends on impact of change	e.g. change in heat slug stack e.g. change from Sn into NIPAIAu e.g. change of layer thickness.				-	Р		к -		-	1 .						A	A	P,1				к .	Explanation should be provided in case HDS text
LED-PAGE	Bump Material / Metall System (electral)	p p	Classification depends on impact of change Stack die or die to substitute	e.g. change to Pt-free material	A												-		v -	w	w	٠.	+-				#
LED-PA-05	Die attach material			e.g. change of Ag glue to Au glue;					•				-	- N	N		-			N	Q				•		
LED-PA-06	Change of band wire material		Material, wire diameter, change in process technique	e.g. change from 30y to 25y	A			·	•		P,D •	-	-	- D	0	•	-	D P	о .		P,D	1		•			Site audit for nuterial change with impact on box to Cu) recommended.
LED-PAGE	Change in naterial for sub-components (excluding LED chip & LED package retard bents) with impact on agreed specifications.	p p	Change of sub-component supplier using different technology/materials. Note: Jung start test at OSMs might be necessary.	e.g. using a different ESD-dode in technology and naterial than previously	A			-	-			-	-				-	-		-		4	4.0	-			Qualification effort depends on type of change.
	Die Overcook / Underfüll	Р	Supporting layers for complex packages like flip chip. No change in product integrity P: change can influence the integrity of final product	Pr. e.g. change of underfit with change of thermal resistance		Check if LED-09-01 is also affected.		P		•	Р •		-		Р	•		P I	,	-	Р	U		-]	U -		
LED-PAGE	Change of maid compound-encapeutarion/sealing resteries	p p	Change of mold compound, encapsulation, or sealing manifold sight to affected optical function in case of package related effect (a.g. browning). Component assembly and board coating tas to be assessed. MSL might be changed.	e.g. PPA mold compound	A	Check if LED-09-01 is also affected.								D D	0		т	P I	, p	Р	Р	Р					
		ŁĽ	www.jx.g. browning). Component assembly and board coating has to be assessed. Milk might be changed.		c	Check if LED-09-01 is affected for								. Y							P	· ·		4			4
	Change of convention reservat Change of direct supplier for conventer material	P	Change of material class. New supplier with same material specification	e.g. change from granuts to nibides	c	Check if LED-05-01 is affected for optical/photometric parameters		•	•		• •			. Y	P		-	P I	, F	P	P	P					
	Change of converter process technology	1 P		e.g. change from volume convention to layer conversion; e.g. change from stamping to printing of layer	c	Check if any change in electro-optical characteristics results in change of data sheet LED-05-01			•					. Y	Y				2 2	z	z						
LED-PA/II	Change of product marking	1.1.	P. in case of impact on product integrity. Making on device. Schange in appearance; readability not affected. Pi change of contention change of appearance of data matrix code.	e.g. marking of carbode;		sheet LED-05-01				0						т	т						Ħ	H			
					F				-			H.										H	#				4
LEDPANI	Change in process technique (e.g., die attach, bonding, moulding, plating, trim and form, $\ldots \}$		Any change in assembly process technique	e.g. change die attached from gluing to soldlering:		Aur B: Please check if EQUIPMENT and other type of changes of naterial (LED-PA 04/05/06/07/08/08/10) are affected	•	100	-			-	-			- 1	-	-		-	-		1	-			Qualification effort depends on type of change.
	Process integrity: Tuning within specification		stariation within process specification	e.g. process control	С																						

LEDPANT	Change of specified-assembly process sequence (additional and/or debrision of process step)	-	Addition or deletion of a process copy in assentity process sequence with potentially eighticant report on the product pollutations on product reagity. It is titlewore on product reagity expected.	e.g. additional or deletion plasma deaning process.	о	Single case assessment necessary to identify possible interactions or risk.	-		-	-	-	-	-	-		-					-	-		-	-		-	-	-	- Qual	dification effort depends on type of change.
LEDPANE	New assembly location or transfer of assembly to a different not previously released location/site/eu/bounts-door	P	P New assembly location, assembly transfer or infocation. Transfer of known technology and equipment.	e.g. Dual source storagy		A or it: Impact on other type of changes described under PROCESS ASSEMBLY and EQUIPMENT			-	-	-	-	-	-	-	-	-			-			-		-	-		-	-	- Qual	Efcation effort depends on type of change.
	PACKENDISHEPPING																														
LED-P9-01	Inner Packing Mipping specification change	P	P dimension change of direct product packing	e.g. SMIT pocket in tape changes				- P	-	-	-	-	P	P		-		- 1	г -		-	-		-	-	-	-		-	-	
LED-P9-02	Cuter Packingshipping specification change	1	dimension changes indirect product packing E small changes in dimension or appearance F number of melt in the packing are changing	ng pissabox					-	-	-	-	-	-	-	-	-			-	-	-		-	-		-	-	-	-	
LED-P9-03	Change of tabeling	-	P Change of labelling also on seet. It additional information no change of previous information P; change in content of previous information.	(f) e.g. additional information (Rordi stamp) (F) e.g. change of customer specific information		Check if LED-05-01 is also affected.			-	-	-	-	-	-	-		-			-		-	-	-			-		-		
LED-PS-04	Dry pack requirement change	Р	P Change of dry back requirements (change in MSL)	e.g. change from MSL3 to MSL1		Check if LEID-09-02 is also affected.			-		-	- 1		-	-						- 1	-	-		-		- 1	-	-	-	
	SOUPMENT	_																		 											
LED-EQ-61	Production from a new equipment/hoof which-uses a different basic technology	Р	P. Change in process technique which is not already covered above. More-Major changes affecting the product not covered by the table secure also a PCN.	e.g. change from single water to batch process e.g. over pad meralisation e.g. clambar cutting (mechanical to baser cutting)		Check if LED-09-01 is also affected. Consider stability should be assessed.	-		-	-	-	-		-	-		- [. [-	- [- [-	-		-	-	-	-	-	- 0.4	dification effort depends on type of change.
LED-EQ-62	Production from a new equipment/soci which uses the same basic technology (replacement equipment or extension of existing equipment pool) without change of process.	-	PCN required for dedicated equipment for sensitive component production.	e.g. change from single site to must site handler.	o						-	-				-	-			-	-	-		-	-		-		-	- Qual	Efcation effort depends on type of change.
	Change in final test equipment type that uses a different technology		Change of tester platform (e.g. major test program changes , see tester immittee,). E product specification is not affected Pr product specification is affected.	e.g. change in text method from of to lumen					-	-	-	-	•		-		-	- 1	٠.	-	-	-	-	-	-		-	-	-	• Gag	e RBR / debs correlation
	TEST FLOW																														
LED-19-41		Р	P Team transfer or relocation.	e.g. Dual source storagy	o		٠		В	•		В	•	•				• 1	г в		В	-			В	В	В		- 1	• Gap	e RBR / deta correlation; additional specification check outside considered for Water testing
_	D-GATE																			 											
LED-Q0-01	Change of the text coverage besting process flow used by the supplier to ensure data sheet congliance is a defination/addition of electrical measurementhest flow back; instantion-technic connect of sort-busing procedure or samplest.	-	P Reduction or additional control steps, test coverage within the process flow	e.g. terrifowblock/ika Final test / final clearance	c				-	-	-	-	-		-	-				-	-	-		-	-		-	-	-	•	
Tests, which s	should be considered for the appropriate process change.						-		-		-	-	-	-	-		-				-	-	-		-	-	-	-	-		
Tests, which s	should be considered for the appropriate process change after selection of condition tal	ble.							-				-			-	-											-	-	-	
Suppliers perf	ormed tests (mark with an 'X' for done or 'G' for generic)																														
Reason for ex	ception of tests and/or usage of generic data:																											_			
			_	_																											

 IN the colors
 In Minimum Amounts
 No.

ELECTRICAL CHARACTERISTICS The \bullet denotes the specifications which apply over the full operating junction temperature range, otherwise specifications are at $T_A = 25^{\circ}C$. $V_A^+ = V_D^+ = V_{IN}^+ = V_{OUT0}^+ = V_{OUT1}^+ = V_{OUT2}^+ = 3.3V$, unless otherwise specified. All voltages are with respect to GND. (Note 2)

irequency Differential Voltage Output Static) Delta V _{OD} (Output Static) Delta V _{OS} (Output Static) Delta V _{OS} (Output Static) Rise Time, 20% to 80%	Differential Termination = 100Ω , 3.5 mA Mode Differential Termination = 50Ω , 7 mA Mode Differential Termination = 100Ω , 3.5 mA Mode Differential Termination = 50Ω , 7 mA Mode Differential Termination = 100Ω , 3.5 mA Mode Differential Termination = 50Ω , 7 mA Mode Differential Termination = 100Ω , 3.5 mA Mode Differential Termination = 100Ω , 3.5 mA Mode Differential Termination = 50Ω , 7 mA Mode Differential Termination = 100Ω , 3.5 mA Mode Differential Termination = 100Ω , 3.5 mA Mode Differential Termination = 100Ω , 3.5 mA Mode	0	290 290 -30 -30 1.16	370 370	800 1400 450 450 30	MHz mV _{PK} mV _{PK} mV
Differential Voltage Output Static) Delta V _{OD} (Output Static) Diffset Voltage (Output Static) Delta V _{OS} (Output Static)	$\begin{array}{ll} \mbox{Differential Termination} = 50\Omega, \mbox{ 7mA Mode} \\ \mbox{Differential Termination} = 100\Omega, \mbox{ 3.5mA Mode} \\ \mbox{Differential Termination} = 50\Omega, \mbox{ 7mA Mode} \\ \mbox{Differential Termination} = 100\Omega, \mbox{ 3.5mA Mode} \\ \mbox{Differential Termination} = 100\Omega, \mbox{ 3.5mA Mode} \\ \mbox{Differential Termination} = 50\Omega, \mbox{ 7mA Mode} \\ \mbox{Differential Termination} = 100\Omega, \mbox{ 3.5mA Mode} \\ \mbox{Differential Termination} = $	•	290 -30 -30 1.16	370	1400 450 450 30	MHz MHz mV _{PK} mV
Output Static) Delta V _{OD} (Output Static) Offset Voltage (Output Static) Delta V _{OS} (Output Static)	$\begin{array}{l} \mbox{Differential Termination} = 100\Omega, \ 3.5\mbox{mA Mode} \\ \mbox{Differential Termination} = 50\Omega, \ 7\mbox{mA Mode} \\ \mbox{Differential Termination} = 100\Omega, \ 3.5\mbox{mA Mode} \\ \mbox{Differential Termination} = 50\Omega, \ 7\mbox{mA Mode} \\ \mbox{Differential Termination} = 100\Omega, \ 3.5\mbox{mA Mode} \\ \mbox{Differential Termination} = 50\Omega, \ 7\mbox{mA Mode} \\ \mbox{Differential Termination} = 100\Omega, \ 3.5\mbox{mA Mode} \\ \m$	•	290 -30 -30 1.16	370	450 450 30	mV _{PK} mV _{PK} mV
Output Static) Delta V _{OD} (Output Static) Offset Voltage (Output Static) Delta V _{OS} (Output Static)	$\begin{array}{l} \mbox{Differential Termination} = 50\Omega, \mbox{ 7mA Mode} \\ \mbox{Differential Termination} = 100\Omega, \mbox{ 3.5mA Mode} \\ \mbox{Differential Termination} = 50\Omega, \mbox{ 7mA Mode} \\ \mbox{Differential Termination} = 100\Omega, \mbox{ 3.5mA Mode} \\ \mbox{Differential Termination} = 50\Omega, \mbox{ 7mA Mode} \\ \mbox{Differential Termination} = 100\Omega, \mbox{ 3.5mA Mode} \\ \mbox{Differential Termination} = 1$	•	290 -30 -30 1.16	370	450 30	mV _{PK}
Oelta V _{OD} (Output Static) Offset Voltage (Output Static) Oelta V _{OS} (Output Static)	$\begin{array}{l} \mbox{Differential Termination} = 100\Omega, \ 3.5\mbox{mA Mode} \\ \mbox{Differential Termination} = 50\Omega, \ 7\mbox{mA Mode} \\ \mbox{Differential Termination} = 100\Omega, \ 3.5\mbox{mA Mode} \\ \mbox{Differential Termination} = 50\Omega, \ 7\mbox{mA Mode} \\ \mbox{Differential Termination} = 100\Omega, \ 3.5\mbox{mA Mode} \\$	•	-30 -30 1.16		30	mV _{PK}
Offset Voltage (Output Static) Delta V _{OS} (Output Static)	$\begin{array}{l} \mbox{Differential Termination} = 50\Omega, \mbox{ 7mA Mode} \\ \mbox{Differential Termination} = 100\Omega, \mbox{ 3.5mA Mode} \\ \mbox{Differential Termination} = 50\Omega, \mbox{ 7mA Mode} \\ \mbox{Differential Termination} = 100\Omega, \mbox{ 3.5mA Mode} \\ \mbox{Differential Termination} = 100\Omega, \mbox{ 3.5mA Mode} \\ \end{array}$	•	-30 1.16	1.23		
Delta V _{OS} (Output Static)	$\begin{array}{l} \mbox{Differential Termination} = 100\Omega, \ 3.5\mbox{mA Mode} \\ \mbox{Differential Termination} = 50\Omega, \ 7\mbox{mA Mode} \\ \mbox{Differential Termination} = 100\Omega, \ 3.5\mbox{mA Mode} \\ \end{array}$	•	1.16	1.23	30	
Delta V _{OS} (Output Static)	Differential Termination = 50Ω , 7mA Mode Differential Termination = 100Ω , 3.5mA Mode	•		1.23		mV
	Differential Termination = 100Ω , 3.5mA Mode	•		0	1.32	V
			1.15	1.23	1.32	V
Rise Time, 20% to 80%	Differential Termination = 50O, 7mA Mode	•	-15		15	mV
Rise Time, 20% to 80%	Billorondar rominadion - 0012, rimr modo	•	-15		15	mV
	Differential Termination = 100Ω , 3.5mA Mode			240		ps
	Differential Termination = 50Ω , 7mA Mode			120		ps
all Time, 80% to 20%	Differential Termination = 100Ω , 3.5mA Mode			240		ps
	Differential Termination = 50Ω , 7mA Mode			120		ps
Short-Circuit Current to Common	Shorted to GND, 3.5mA Mode			16		mA
	Shorted to GND, 7mA Mode			25		mA
Short-Circuit Current to	3.5mA Mode			4		mA
Complementary	7mA Mode			8		mA
Outy Cycle	Mx[5:0] = 1			DC _{IN}		%
	Mx[5:0] > 1 (Even or Odd)	•	45	50	55	%
tion Delays			250			
Propagation Delay From IN to	Mx[5:0] = 1	•	-290	360	480	ps
Any LVPECL Output	Mx[5:0] > 1	•	360	430	550	ps
emperature Variation of the	Mx[5:0] = 1	•	320	0.65		ps/°C
Propagation Delay From IN to Any LVPECL Output	Mx[5:0] > 1	•	305	0.68		ps/°C
Propagation Delay From IN to	Mx[5:0] = 1	•	_350	420	545	ps
	Mx[5:0] > 1	•	415	480	625	ps
emperature Variation of the	Mx[5:0] = 1	•	370	0.8		ps/°C
Propagation Delay From IN to Any LVDS Output, VCSx = 1 (7mA Mode)	Mx[5:0] > 1	•		0.85		ps/°C
Propagation Delay From IN to	Mx[5:0] = 1			480		ps
	Mx[5:0] > 1			550		ps
emperature Variation of the	Mx[5:0] = 1	•		8.0		ps/°C
Any LVDS Output, .VCSx = 0 (3.5mA Mode)	Mx[5:0] > 1	•		0.85		ps/°C
Propagation Delay From IN to	Mx[5:0] = 1			1.25		ns
Any CMOS Output, Complementary Outputs (CMSINVx = 1)	Mx[5:0] > 1			1.32		ns
emperature Variation of the	Mx[5:0] = 1	•		1.3		ps/°C
Propagation Delay From IN to Any CMOS Output (CMSINVx = 1)	Mx[5:0] > 1	•		1.4		ps/°C
	chort-Circuit Current to Common chort-Circuit Current to Complementary Duty Cycle tion Delays Propagation Delay From IN to Complementary Description Delay From IN to Compute Propagation Delay	Differential Termination = 50Ω, 7mA Mode Shorted to GND, 3.5mA Mode Shorted to GND, 7mA Mode Shorted to GND, 7mA Mode Shorted to GND, 7mA Mode Shorted to GND, 7mA Mode 3.5mA Mode 7mA Mode Mx[5:0] = 1 Mx[5:0] > 1 (Even or Odd) Mx[5:0] = 1 Mx[5:0] > 1 Mx[5:0] > 1 Mx[5:0] > 1 Mx[5:0] = 1 Mx[5:0] > 1	Differential Termination = 50Ω, 7mA Mode	Differential Termination = 50Ω, 7mA Mode	Differential Termination = 50Ω, 7mA Mode 120	Differential Termination = 50Ω, 7mA Mode 120



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