0.6um CMOS and BiCMOS Vanguard Qualification Summary

	0.6UM CMOS LTC361	2	
TEST	SPECIFICATION	SAMPLE SIZE (LOTS X SAMPLE)	RESULTS
High Temperature Operating Life (HTOL)*	JEDEC JESD22-A108	3 x 77	Pass
Highly Accelerated Stress Test (HAST)*	JEDEC JESD22-A110	2 x 77	Pass
Temperature Cycle (TC)*	JEDEC JESD22-A104	3 x 77	Pass
Autoclave (AC)*	JEDEC JESD22-A102	3 x 77	Pass
High Temperature Storage Life (HTSL)	JEDEC JESD22-A103	3 x 45	Pass
Early Life Failure Rate (ELFR)	AEC Q100-008	3 x 800	Pass

	0.6uм CMOS LTC361	5	
TEST	SPECIFICATION	SAMPLE SIZE (LOTS X SAMPLE)	RESULTS
High Temperature Operating Life (HTOL)*	JEDEC JESD22-A108	3 x 77	Pass
Highly Accelerated Stress Test (HAST)*	JEDEC JESD22-A110	3 x 77	Pass
Temperature Cycle (TC)*	JEDEC JESD22-A104	3 x 77	Pass
Autoclave (AC)*	JEDEC JESD22-A102	3 x 77	Pass
High Temperature Storage Life (HTSL)	JEDEC JESD22-A103	3 x 45	Pass
Early Life Failure Rate (ELFR)	AEC Q100-008	3 x 800	Pass

	0.6uм CMOS LTC297	7	
TEST	SPECIFICATION	SAMPLE SIZE (LOTS X SAMPLE)	RESULTS
High Temperature Operating Life (HTOL)*	JEDEC JESD22-A108	1 x 77	Pass
Highly Accelerated Stress Test (HAST)*	JEDEC JESD22-A110	1 x 77	Pass
Temperature Cycle (TC)*	JEDEC JESD22-A104	1 x 77	Pass
Autoclave (AC)*	JEDEC JESD22-A102	1 x 77	Pass
High Temperature Storage Life (HTSL)	JEDEC JESD22-A103	1 x 77	Pass

	0.6um BICMOS LTC38	50	
TEST	SPECIFICATION	SAMPLE SIZE (LOTS X SAMPLE)	RESULTS
High Temperature Operating Life (HTOL)*	JEDEC JESD22-A108	3 x 77	Pass
Highly Accelerated Stress Test (HAST)*	JEDEC JESD22-A110	3 x 77	Pass
Temperature Cycle (TC)*	JEDEC JESD22-A104	3 x 77	Pass
Autoclave (AC)*	JEDEC JESD22-A102	3 x 77	Pass
High Temperature Storage Life (HTSL)	JEDEC JESD22-A103	3 x 45	Pass
Early Life Failure Rate (ELFR)	AEC Q100-008	3 x 800	Pass

	0.6um BiCMOS LTC42	70	
TEST	SPECIFICATION	SAMPLE SIZE (LOTS X SAMPLE)	RESULTS
High Temperature Operating Life (HTOL)*	JEDEC JESD22-A108	3 x 77	Pass
Highly Accelerated Stress Test (HAST)*	JEDEC JESD22-A110	3 x 77	Pass
Temperature Cycle (TC)*	JEDEC JESD22-A104	3 x 77	Pass
Autoclave (AC)*	JEDEC JESD22-A102	3 x 77	Pass
High Temperature Storage Life (HTSL)	JEDEC JESD22-A103	3 x 45	Pass
Early Life Failure Rate (ELFR)	AEC Q100-008	3 x 800	Pass

	0.6um BiCMOS LTC31	12	
TEST	SPECIFICATION	SAMPLE SIZE (LOTS X SAMPLE)	RESULTS
High Temperature Operating Life (HTOL)*	JEDEC JESD22-A108	3 x 77	Pass
Highly Accelerated Stress Test (HAST)*	JEDEC JESD22-A110	3 x 77	Pass
Temperature Cycle (TC)*	JEDEC JESD22-A104	3 x 77	Pass
Autoclave (AC)*	JEDEC JESD22-A102	3 x 77	Pass
High Temperature Storage Life (HTSL)	JEDEC JESD22-A103	3 x 45	Pass
Early Life Failure Rate (ELFR)	AEC Q100-008	3 x 800	Pass



Vanguard International Semiconductor Summary

· Plant Address

123, Park Ave-3rd, Science-Based Industrial Park, Hsinchu, Taiwan 30077, R.O.C.

Headcount

5,200

· Total Building size in sq. ft. and fab size in sq. meters

880,543.3 sq. feet (Building 1)

· Clean room floor space in sq. meters

12,600 sq. meters (Building 1)

· Fab utilization in percent

Fab 1: 100%

· Land Area in sq. meters

41,925 sq. meters

· Wafer capacity for each facility

Fab 1: 87K wafers per month (ADI's material is scheduled to run in Fab 1)

- A list of certifications (i.e. TS16949, ISO-14001, etc.)
 - ISO 9001 Quality Management System (since 1996)
 - ISO 14001 Environment Management System (since 1997)
 - OHSAS 18001 Health & Safety Management System (since 2003)
 - QC 080000 Hazardous Substance Management System (since 2007)
 - ISO 27001 Information Security Management System (since 2015)
 - IATF 16949 Automotive Quality Management System (since 2018)

DeltaQualifikationsMatrix

Kurze Produkt- und Technologiezyklen elektronischer Bauelemente sowie neue Umweltauflagen führen häufig zu Short product and technology cycles as well as new environmental regulations frequently result in process prozeß- und werkstofftechnischen Änderungen an Bauelementen, Leiterplatten, Verbindungstechnik und Schaltung, welche evaluiert werden müssen. Eine geeignete Methodik zur Handhabung von Änderungen an elektronischen Bauelementen beschreibt die ZVEI "Guideline for Customer Notifications of Product and /or Process Changes (PCN) of Electronic Components specified for Automotive Applications". Ein wesentlicher Teil dieser Guideline sind die hier vorliegenden Matrizen, welche sich als Empfehlungen für die Evaluierung von typischen Änderungen an elektronischen Bauelementen verstehen. Dies sollte Teil des offenen und risikobewussten Dialoges zwischen Lieferant und Kunden sein.

Diese DeltaQualifikationsMatrizen wurden durch den Industriearbeitskreis "PCN DeltaQualifikationsMatrix" und den Bauteilexperten des ZVEI Arbeitskreis "PCN-Methodik" erarbeitet. Der Inhalt wurde basierend auf dem aktuellen Stand der Technik erstellt und erhebt keinen Anspruch auf Vollständigkeit. Im Einzelfall ist ggf. ein abweichendes Vorgehen abzustimmen, da kundenspezifische Vereinbarungen zur Qualifikation zu berücksichtigen sind.

Anwendung der DeltaQualifikationsMatrix (auszufüllen durch den Bauelementehersteller)

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

Die Einstufung des Untersuchungslevel erfolgt in folgende Kategorien

- "C: Component level": Die Evaluierung der Änderung am Bauelement ist durch Untersuchungen ausschließlich am Bauelement beim Bauelementehersteller durchführbar. Zur Evaluierung der Änderung dürfen Ergebnisse aus bereits durchgeführten Untersuchungen herangezoger werden, wenn diese zu einem ähnlichen Bauelement hereits vorliegen (Generische Daten)
- "R. Board level". Die beschriebene Änderung hat möglicherweise Einfluss auf die Verarbeitharkei des Bauelementes im Steuergerät. Die Evaluierung der Änderung wird wie unter C beim Bauelementehersteller durchgeführt. Zusätzlich ist durch den Kunden/Steuergerätehersteller die Verarbeitbarkeit zu prüfen, die z.B. abhängig von der Änderung, Zuverlässigkeitsuntersuchungen auf applikationsrelevanten Testbords erfordert.
- "A: Application level": Die beschriebene Änderung hat möglicherweise Einfluss auf die Applikation/ das Steuergerät. Die Evaluierung der Änderung wird wie unter C oder B durchgeführt. Zusätzlich ist vom Kunden/Steuergerätehersteller der Einfluss der Änderung im Steuergerät durch geeignete Untersuchungen zu bewerten. Dieses Vorgehen ist mit dem OEM abzustimmen. Hierbei ist zu berücksichtigen, ob die Steuergeräte- / Baugruppenanforderungen durch andere Qualifikationen bereits hinreichend abgesichert sind (applikationsspezifische Risikobetrachtung).
- " *: Not relevant for qualification matrix": Änderung(en), die nicht in A, B oder C eingestuft werden können und somit nicht relevant für die DeQuMa sind

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

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

DeltaQualificationMatrix

General

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

The DeltaQualificationMatrices were developed by the Industry Task Force Team "PCN DeltaQualificationMatrix" together with component experts from the ZVEI Working Group "PCN-Methodology", Actual content represents state-of-the-art technology and does not claim to be comprehensive. Deviation from proposed guideline should be mutually agreed as customer specific requirements have to be considered

DeltaQualificationMatrix Application (completion by component manufacturer)

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

Evaluation Levels are categorized as follows

- "C: Component level": The evaluation of a change at component level by the component manufacturer is sufficient. Generic data from other relevant evaluations can be used.
- "B: Board level": The intended change described in the PCN may influence processability / manufacturability of the component at board level. Therefore additional evaluation by customer may be necessary, for example reliability tests on application relevant testboards depending on change
- "A: Application level": The intended change described in the PCN may influence the properties of the application (e.g. Electronic Control Unit). In addition to the evaluation under C or B the influence of the change in the application is evaluated by suitable investigations by the customer. The scope of the evaluation has to be aligned with the OFM. 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 Information Note sheet shall be used. As the DeQuMa is desired for PCN only, a marking of "I"-changes would automatically influence evaluation level and test effort.

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

History of DeQuMa

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

Worked on: (Name, Function)	ann																							
Date: 26/06/2020			Form provided by ZVEI - Revision 4.1 - Nove	imber 2019																				
PCN number: PCN 20_0244																								
Signature:												D	evice e	valuati	ion									
For integrated circuits or discrete semiconductors select below.	00 Revision H	ĺ					include	es integr	rated cir	MAT cuits (e.g.	ERIAL PERFOR ASICs, μ-Contri	MANCE TE oller, memo	ST RESUL ries, volta	TS (on the	e basis o tors, sm	of AEC-Q	00 Revisi devices,	ion H) logic device	s, analog	devices,	,)	additional AEC-Q10	to 0x	
5000 m.		ı		T	Evaluation level A/B/C	-	(quest)	Blas or blassed HAST	THAST	yding rag o Lillo	earing Life I Paterston, and Optications			rotic Binakabani	ture institution			oabay rizaton				EC.ESD201)	and deliberation	
Assessment of its - contractual agre than the change - form, If, function D Type of change	opact on Supply Chain regarding following aspects inverse or consosability invariationability of customer or consosability invariationability of customer quality performance, reliability	Remaining risks within Supply Chain?	g in Understanding of semiconductors experts	Examples to explain	A Application level B Boards wil C Component level 1. Nat referent for qualification matrix	Further applicable conditions	eraburion beervacood by date or solidon six C-Q100 Revision H	Temperature Hunidis	AC Autodave or Unbiase	PTC Power Temperature C	HTCL High Temperature Op. ELPR Early Lile Fabire Rain EDR NVM Enternos, Date LFe	AND Whe Bond Shear AND Whe Bond Pull SO Solderability Control Description	SDS Souter Deli Shrar	TDDB Two Depending Daily	VBT1 Negative Bias Temps	Heart Betrank Clockwys Huan Body Model	LU Larch up Electrical Distribution	DHAR Characterisation BMC Electromagnetic Corr SC Short Choult Characte	SER Sot Error Rate F. Leadfree Ministry Min	DROP Padage Drop	DS Die Shear WV Irremal Water Vapor	Whistor but (EC6008+12-82, ED Purmeter-Analysis	Fer Cu Wie Products Consider AEC-000	Remarks
ANY			Intended to be used if no other type of change is				AEC		A3 A4		81 82 83	C1 C2 C3 C	4 05 08 0	01 D2 D3	D4 D5	5 E2 E:	E4 E5	E7 E9 E10	E11 E12 G	-4 G5 G6	G7 G8			
	ct on agreed upon technical contractual agreements ct on processability/manufacturability at customer, which is not covered in the	P P	Intended to be used if no other type of change is applicable but the change affects agreed technical contractual acceptance. Any change which is not covered in the matrix below, but risk assessment at customer is		•			-															-	
DATA SHEET			recommended.	1	В					لنانا	1 1		1 1 1			1.1.	1-1-	1 1 1	11				1	
SEM-DS-01 Change of datasheet paperification	parameters/electrical specification (min/max./lyp. values) and/or AC/DC	P P	Update of data sheet because of technical change of the product.	e.g. recommendations for pull-up/pull-down or NC pins, MSL	A																	-	- -	
SEM-DS-02 Correction of data shee	et or tosses of entatia		No technical change of product, process or test. New description of behavior which was not apecified before or which is different from initial apecification. Please indicate clearly, that Infonde contains this type of change! Assessment is wateration sets stood!	n.g. Errata	A			-														-		
SEM-DS-03 Specification of addition	anal parameters	I P	Description of a new not previously covered parameter. No technical change of the product. (i): Definition of new parameter which was not documented before. (P): Not known as single change. Only in combination with other changes.	(i): e.g. adding new leated parameter.	A			-					- - -									-	. .	
DESIGN			-			I													Ħ					
SEM-DE-01 Design changes in act	ive elements. 1)	P P	Any device relevant changes in design / layout of elements with effect on data abset 1) Not included: Modification to adjust product parameter within specified process window and design rules.	e.g. change of ESD structure e.g. add / remove a translator in layout	^	Please check if data sheet is effected (SEM-DS-01).		-		м -	• • D,J			D D D	D D		· ·		•	F -		-	•	
SEM-DE-02 Design changes in rou	sting . ²)	P P	Any change of wiring between elements in chip design / layout with affect on data sheet. ²) Not included: Modification to adjust product parameter within apecified design rules.	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 sheet is affected (SEM-DS-01).		-	- A	м -												-		
SEM-DE-03 Die shrink 3)		P P	Shrink of active area. 3) Not included: sawing street/kerf/scribe line	Typical shrink of die.	A	Please check if change in process technology (SEM-PW-03) is also affected.		٠	• -	м -	• • D,J			• • •		· • •			•	. . .		-	• •	
SEM-DE-04 Firmware modification		I P	Integrated software by design or memory as defined by supplier. (i): Pirrewere modification or update without effect of functional performance at the customer (bug fa). (p): Pirreware modification or update with effect of functional performance at the customer.	(R: e.g. addition of Firmware opportunities (P): e.g. bug fix with impact on functional performance	A																			
PROCESS - WAFER I			New worker material.	e.g. different water material to currently released material (like change from EPI material into non-	С				T . T .								1.1.						. .	Qualification effort acc. AEC-Q100: see diffusion/doping
X SEM-PW-02 New water diameter		P P		EPI material)	С	Impact on changes in SEM-PW-00 and/or SEM-EQ-01.		-	- E	м -		E E -				EE	E •						_	AEC-0100: The broad changes that involve multiple attributes (e.g., zite, materials, processes), where to section A1.3 of this appendix and section 2.3 of 0100, which allows for the selection of worst-case less whiches to cover at the possible permutations.
SESA-PW-CO New final water thickne	955	P P	Change in final wafer thickness.	e.g. change in final chip/die thickness	С	A: If thermal conductivity is affected (like MOSPET; KGST, BGA package, stacked dies,) A: If impact on EMC or ESD behavior cannot be evaluated / eacluded on component level.		-	- E	м -		Е Е -			•	- Е Е	Е •					-		
SEM-PW-04 Change of electrically	active doping/implantation element	РР	Change in electrically active doping / implantation element resulting in a new technology.		A					м -	• # ·				•									
SEM-PW-05 Change of gate materi	ial / dielectrica		Change of gate material and / or gate dielectric material.		A				٠.	м -	• - D,J				•			•				-		
SEM-PW-06 New / change of backs	side operation (grinding / metallization)	РР	Change of bottom layer of die (between die and leadframe). Change in process, material, or dimensions necessary. Attenuative see SEM-PW-09	e. g. change from CriNV/Au to CriNV/Ag	С	A: If thermal conductivity is affected (like MOSFET; IGBT, BGA package, stacked des,) A: If impact on EMC or ESD behavior cannot be evaluated /		-		м -						м м					н -			AEQ-Q100: Applicable to all smart power devices
SEM-PW-O7 New / change of metal	Sization / visa / contacts	РР	Change in metalization of bondpads, material, layer thickness specifically for chip frontside and internal layers.	e. g. change from ASICu to ACu e. g. change in over pad metallization	С	excluded on component level.				м -							٠.					-		
SEM-PW-06 New / change of passin	vation or die costing (without bare die)	P P	Change of top layer on die (between mold compound and die)	e. g. addition of polylmide	С	Change of intrinsic mechanical stress might influence electrical function.				м -	• #,N D,J											-		
SEM-PW-09 Change in process tec	choology not covered by any other type of change	Р	(-): 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: tunin	ng within specification	Р	Variation within process specification (—): If suring within process specification does not influence the integrity of the final product. (P): If remaining risk on product specification is articipated.	(-): e.g. process control	С	Please check if DATA SHEET is affected. Please check if SEM-PW-09 is affected.		-					-									-		
SEM-PW-11 Change of water suppl	iter.	Р	(-): If no remaining risk in supply chain exist (P): If the change of wafer suppler can influence the integrity of the final product.		С	Not on component, tested on test shurdure (typical for IC). Interaction on component level for discrete components expected. In case of SCI substrate HF properties have to be qualified. Please check if SEM-PR-91 and SEM-DS-91 is affected.											- @•					-		Qualification for IC & p-Controller difficult on product level. Characterisation on water is only on that structure. Supplier about glorestern and kassessment if there is a technology dependent fisik sequency additional qualification effort. AC-C100: The total charges that increase many large structure (e.g., site, materials, processes), refer to section A1 of this appendix and section 2.3 dr2000, which allow the Post section 4.0 and care as the visit of the cover all the preside permutations.
SEM-PW-12 Change of specified w	sifer process sequence (deletion and/or additional process step)	Р	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			-				- - -	-[-[-									-	.	
X SEM-PW-13 Move all or parts of pri	oduction to a different water fab site.	P P	Wafer fab transition with additional changes (described above). Includes transfer as well as additional site.	e.g. dual source / fab strategy	A	Check if any other type of process change is applicable due to the transfer		•		м -	• • 1	• • •							1		н -	-		AEC-Q100: "For broad charges that involve multiple attributes (e.g., site, materials, processes), refer to section A1.3 of this appendix and section 2.3 of Q100, which slow for the selection of worst-case test vehicles to cover all the possible permutations."
SEM-PW-14 Lithography		Р	Change in process technique for lithographic process and material (—): If the charge in process technology does not influence the integrity of the final product. (P): If the charge in process technology can influence the integrity of the final product.	(-): e.g. exchange of defect mask (P): e.g. change from E-beam process to X-ray process e.g. change from contact into projection mode	С	Please also check changes described under EQUIPMENT.	• •	٠		м -	• # -	• • •	- - -		•							-		

			Change in resource technique for mide / Interfacer														
SEM-PW-15	Oxide / Interlayer Dislactric	Р	Change in process technique for oxide / inferfayer (-): The change in process schending does not eliminate the change in process schending does not enhanced the insight of the first product. (P): If the change is process schending can influence this insight of the first product.	A	Please also check changes described under EQUIPMENT.		м -	#,N D,J	. . .		 $\cdot \cdot $					•	•
	BARE DIE																El ER can only be performed on parkaged last valvidas
SEM-BD-01	New final water thickness	P P	Change in final wafer thickness. Change in final chipidie thickness	A				• • •			 - E E	E • -	- - - -			•	ELFR can only be performed on packaged test vehicles. NSTI was removed in deviation from the AEC-Q100 Matrix because there it is a combine type of change (Water Dimension/Thickness), NSTI is applicable for water dimension change cells.
SEM-BD-02	Change of top metallization or bond pad stack	P P	Change in bondpads (incl. stack below), material, e. g. change from ASICu to AlCu pad pitch, surface changes, layer thickness e. g. change in over pad metalization	В							 	- • •				-	-
SEM-8D-03	New / change of backside metallization	P P	Change of bottom layer of die (between die and leadinare). Change in process, material, or dimensions.								 - M M	• - •				•	-
SEM-8D-04	Change of wafer setup or number of possible good dies on wafer.	I P	Needed information for pick & place mechine. (I): amount of possible good des on water (IP): influence on water setup and water mapping mechine.	od dies on k & place							 					
SEM-BD-05	Change of optical appearance of wafer edge region (like imide coverage or edge exchasion)	I P	Selection of dies in wafer edge region which have to electrical functionality. It electrical functionality. It is cause of wafer edge is affected only (P): in case of single die is affected P: e.g. polymide as new coaling or	n de							 					•	
SEM-BD-06	Die scribe or separation	I P	Needed information for sawing and pick & place (ξi: e.g. if product is delivered as knot (ξi: the change in sawing process does not influence the integrity of the final product. (H): in case if product is delivered on wafer e.g. information change for sawing m. e.g. information change for sawing m.	own good die k & place B machine.	Please check if SEM-BD-04 is affected.		- - - -			-	 					
SEM-8ID-07	Dis Preparation / Clean	Р	Change in process technique for de preparation / (—): a.g. change of cleaning firm. (—): 8 the change in process does not influence the integrity of the final product. (P): 8 repet on product integrity is articipated.	ure after B	Please check if SEM-BD-96 is affected.						 						
SEM-BD-08	New / change of passivation or dis costing		Change of top layer on die. e.g. addition of polylmide e.g. change of polylmide thickness	В				#,N D,J			 					•	-
	PROCESS - ASSEMBLY Change in critical dimensions of package	РР	Change in dimensions of estating package. 8. g. changes in package dimensions development).	ns (further B			M .			• T • ·	 		L	н -	- н н -		
SEM-PA-02	Change of leadframe base material		New leadframe material in new composition. e. g. change from alloy42 to copper e. g. change between two different or				- • • м •				 		- • - L	н -	- н - •		
SEM-PA-03	Change in leadharre dimensions	P P	Change is lauditure dimensions which has impact to the specified electrical parameter acc, data sheet or specification (e.g. heat strike, juic dimensions, die padde size,) e.g. change in lead frame geometry Mont included: Variation within specification.		ESD investigations are only necessary if internal ground and power supply connection of leadname is affected. A: If impact on EMC behavior cannot be evaluated / excluded on component level.		- • • M -				 			н -		-	
SEM-PA-04	Change of lead fname linishing material / area (internal)	P P	Change of surface material of die attach pad and se. g. change from Ag flash to NP pro mold compound, wedge bond milability) e.g. change from Ag spot to Au spot sold compound, wedge bond milability) e.g. increase of silver plating area.	rotection layer C			• • • м •		- c •		 			н -	- н	-	For wire bond strength text: Pns-& Post-process change comparison to evaluate process change robustness (AEC-Q101).
SEM-PA-05	Change of lead and heat slug plating material/plating thickness (external)	РР	Change in material and / or process resulting in a new technology (e.g. pure tin). a.g. change from Sn into NiPd/Au a.g. change of byer thickness	В			M .		- c •		 		L	н -	- н	-	
SEM-PA-06	Bump Malerial / Metal System (internal)	РР	Stack die or die to substrate (flip chip) 8. g. change to Pt-free material 8. g. change of copper pillars	С			M .				 		L			-	•
SEM-PA-07	Die attach moterial	P P	Change of die attach material and / or process resulting in a new technology (e.g. soft solder, epoxy, etc.)	С	A: If impact on EMC behavior cannot be evaluated / excluded on component level (if die attach has impact on electrical conductivity).		• • M -				 			н -	- н н -	•	•
SEM-PA-08	Change of wire bonding	P P	Material, diemeter, change in bonding diagram and for change in process resulting in a new technology.	meter C ond in the ball bond.	A: In case of bond diagram change and EMC cannot be evaluated on component level. Please also chack changes described under SEM-EQ-91.						 	- м -		н -			Pleasmater Analysis: Strictly required only for Power devices: is general: Site and the research others with impact on bondprocess (e.g. tom Au to C accommendate) #ECC_1000: The board changes that involve mulplus stributes (e.g., etc., materials, processes), first the section AL of the appendent and valence 2 of 20100, which allows for the selection of worst-case dest vehicles to cover all the possible permutations."
SEM-PA-09	Substrate / Interposer	P P	Change of BGA substrate e.g. changes in routing	В	Impact on EMC behavior cannot be evaluated / excluded on component level. If impact on electrical function is not excluded on component level.		м .		• • •	. т	 	6	§• L	н -	- н н -	-	
SEM-PA-10	Die Overzoaf / Underfill	P	Supporting layers for complex packages like flip clip and / or change in process resulting in a new clip. It is a continuous process resulting in a new clip. It is always deem not influence the integrity of the final product. (P): If report on product integrity is an efficience.	d C			м				 				н .		
SEM-PA-11	Change of mold compound / encapsulation material		Change of mold compound i encapsulation e.g. change to green mold compound e.g. change to green mold compound e.g. change of title particles		It impact on thermo-machanical stress caused by mismatch of mold compound, interconnecting technology and carrier is anticipated (page-fits of prover browned). It is to rever soldered devices it is to rever soldered devices it is not seen to the property signate to 2014 it should be in case of lay frequency signate to 2014 it should be in case of lay frequency signate to 2014 it should be to compound could affect signal behavior (e.g. digital signal processor).		• • • M		•		 		· · · ·				
SEM-PA-12	Change of hernetic sealing	РР	Affected areas are material and process of harmetic (e.g. curamic) packages, capped die and e.g. change of sealing material for Ru sealed devices (e.g. pressure seraors)	toHS B	A: impact on EMC behavior cannot be evaluated / excluded on component level (if encapsulation / sealing has impact on electrical conductivity).						 			• -		-	-
SEM-PA-13	Change of product marking	I P	Change of mathon and presented with the process resulting of the change in process resulting in a new technology. (B): 8 change does not final seem to integrity of the (B): e.g. change of appearance (additionable) from product on product integrity in anticipated. (B): 8 change does not final seem to integrity of the (B): e.g. change from included marking marking. marking, or marking of pin 1.	ditional g to laser B	saucincia consucivity).				в		 					-	
SEM-PA-14	Change in process technology (s.g. tern and form, leadfurme preparation)	Р	(-): If the change in process technology does not influence the integrity of the final product. (P): If the change in process technology can will be change in process technology can will be change in process technology can will be change in process technology can write the change of the final product.		Please skin check changes described under SEM-EQ-01. Please check if change is described by specific type of change in this matrix.						 					-	
SEM-PA-15	Process integrity: funing within specification	Р	Variation within process specification (-): It is ning within process specification does not inhance the historyle of the first product. (P): If impact on product specification is serticipated.	С							 					-	
SEM-PA-16	Change of direct material supplier	P	Change of suppliers for direct materials which are used in assembly process (EOM). (-): If change does not eliberate the integrity of the final product. (P): If one on product integrity is articipated.	pplier. ound supplier th specific y	Please check if malerial is changed						 						See change of material.
SEM-PA-17	Change of specified-essembly process sequence (deletion and/or additional process step)	. Р	(): no influence in finel product integrity or specified respuence (): a p. additional cleaning step specified respective product integrity or specified (P): in g. change lead finaling pre tri (): a p. additional cleaning step specified (): a p. additional cleaning step specifie								 					-	Cualification depends on specific change.
SEM-PA-18	Move all or parts of production to a different assembly alls.	P P	Assembly transfer or relocation. https://doi.org/10.0000/000000000000000000000000000000	С	A or B: impact on other type of changes described under PROCESS ASSEMBLY and SEM-EQ-01. Check if any other type of process change is applicable due to the transfer	• •	• • M -			• т • .	 			н -	- н н •	•	Whales tests have to be done on monitoring basis! AEC-0100: "For broad changes that involve multiple attributes (e.g., alle, materials, processes), refer to section AI 3 of this appends and section 2.3 of Q100; which allow for the selection of sound-case that whetches to cover at the possible permanentation."
SEM-PA-19	Die scribe or separation	Р	Separation process from single water to diss. (-): 8 the change in process does not influence the integrity of the final product. (P): 8 impact on product integrity is anticipated.	er cut C			• • M -				 					-	-
SEM-PA-20	Die Preparation / Clean	P	Change in process technique for de preparation / cleaning / cleaning in process does not influence may be change in process does not influence may be provide in fair place of the company of the fair place of the company of the fair place of the process integrity is anticipated.	С			• - M -				 			- -	- н	-	
SEM-PA-21	Molding / Encapsulation process	Р	Change in process technique for molding / encappulation. (-): I have been in process does not influence (-): e.g. furning within process specific process of the product. (P): If impact on product integrable, is anticipated.	ification C			• • M •				 					-	

																								_	
	PACKING/SHIPPING	,											 							 			_	_	
SEM-PS-01	Pscking/shipping specification change P P	Packing/shipping specification change.					-						 				-			 				-	
SEM-PS-02	Dry pack requirements change P P	Change of dry pack requirements (e.g. change of MSL)					-						 				-			 			-	-	
SEM-PS-03	Change of carrier (tray, reel) P P	Change of carrier (tray, reel)		В									 				-			 			-	-	
SEM-PS-04	Change of labeling	Change of labelling also on reef. (I): Change of material label without impact on barcode. (P): Changes of material label information which affects data processing at customer.	(f) e.g. additional information (RoHS stamp) (P) e.g. change of defined nomenclature for data processing	В				- -					 . . .				-	- -		 - -			-	-	
	EQUIPMENT																								
SEM-EQ-01	Production from a new equipment/bot 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.	Change in process technique which is not already covered above.	Change from single wafer to batch process (e.g. over pad metallization) e.g. damber cutting (mechanical to lesser cutting)	A		100							 				-	•		 - -				-	Affected process change is to check.
SEM-EQ-02	Production from a new equipment bod which uses the same basic technology (explacement equipment or extension of existing equipment pool) without change of process.	PCN required for dedicated equipment for sensitive component production. (-): If change does not influence the integrity of the final product. (P): If impact on product integrity is anticipated.	(-): e.g. extension of existing equipment pool (P): e.g. extension of dedicated equipment in case basic technology still need to be proven	С									 				-			 				-	
SEM-EQ-03	Change in final text equipment type leading to a different text concept.	Change of teater platform with differences in HW or SW that makes a change in test concept necessary (only in case of base die: final test means wafer test).		С			-						 				-	•		 			•	-	Gage R&R / delta correlation
	TEST FLOW																								
SEM-TF-01	Move of all or part of electrical wafer test and/or final test to a different test site.	Tester transfer or relocation. Check impact on SEM-AN-01 Includes transfer as well as additional site.	Dual source strategy	С	Check if any other type of process change is applicable due to the transfer						-		 . - -				-	• -	- -	 - -	. - -			-	Gage RSR / delta correlation
	Q-GATE												 									*	•	*	
SEM-QG-01	Dange of the test coverage/leating process flow used by the applier to ensure data sheet complexes (e.g. ethinoxino) addition of electrical measurements flow block; electrical recovery or services and extraction of the en	e.g. test flow block, reduction from these temperature measurements to two temperature measurements, change in burn in / nn in process. (P): If change does not influence free integrity of the final product. (P): If impact on product integrity is anticipated.	(-): e.g. test implemented without customer requirement (P): e.g. reduction from three temperature measurements to two temperature measurements as to two temperature measurements e.g. change in burn in / run in process.	С		•							 				-	•		 				-	Parameter Analysis: Delta correlation *For 'burn in' changes ELFR recommended
	Tests, which should be considered for the appropriate process change.			A				• •	E,• M	- •	• J	E,• E,•	 	• •		E,● E	• E,•	• -	- -	 н -	н .		•	٠	
	Tests, which should be considered for the appropriate process change after selection of con-	Sition table.					-	• •	•	•	•		 	• •		•	•	• -		 	- - -		•	•	
	Suppliers performed tests (mark with an 'X' for done or 'G' for generic)					G G		G G	G	G	G	G G	G	G G	G G	X)	X	x x					G	G	
	Reason for exception of tests and/or usage of generic data:																		N/A						

Not required.
 Information Refer required.
 PON required.

Auditor of V Indicate that performance of that stees test should be considered for the appropriae process change.

A recommodate discountly by 7-51

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	Max Mustermann																													
Date:			Fore provided by 2561 - Revision 6.1 - November 2018																										1	
PCN number:														MATERIA	L PERF	ORMANCE			uation		2 – Revis	on March15,	2017)							
Signature:					3														_	_			1		_	_	_	1		
					Evaluation les A/B/C	-	de dad)		3		d Libe		s though the case																unged decide	
Mark change with an 'X'	Assessment of Impact on Eupply Chain negarding following aspects - contractual appearants - inchinical interface of processability/manufacturability of customer - born, fit, function, quality performance, reliability	Remai risks w Supp Chai	ining within Understanding of sensiconductors experts of	Examples to explain	ston for di see! xees bee! or as if or qualification max	Further applicable conditions	and by data or such then	Platten M cely	A Temperature Operating	rqeahm Cydrg	Filip terperant Openia	ner Terperatus Gydeg	D Clarate basics Herei	D Ownstellation COM	pole at D leve es lors	riked Sheegh	aster Variable Property	durini Bed	on to Salarited	dropes Sapraton	to De Yea	a Ted	on Village Class		and Parisace	- Part Stea	Desc	ste of Cross	rand or dealy six repartition of current all had as decide for, when the didin	Remarks
р п	Type of Change	-	Yes		A Application bit Bit Boardheal C. Component		C OI	Check spe	Ĩ		al al	ž	3	à	£		- 1	4	2 8	£	- 2				£ 1		- 6	-	200	
LED-AN-01	ANY	_					A A	O C	-	a		11		8	ä	a	ži	si -	ä a	-	<u>a</u>	9	- 8		a	1 3	2	2		
LED-MHS2	Any change with impact on agreed upon technical contractual agreements. Any change with impact on technical interface or processability/manufacturability of customer, which is:	-	P trended to be used if no other type of change i applicable but the change affects agreed technical contractual agreements. Be processability on board level socious china de technical interface makes component terminals.			Check if LED-09-91 is affected				т т	-	-	-						8,T -	+ -	- 1	1					-	+ -	Ė	
	DATA SHEET					Processability should be assessed.		_												_	-	_	-	_	_	_	-	<u> </u>		
LED-09-01	Change of datasheet parameters/electrical specification (min. Inna. /bp. values) and/or PulserDC specification	Р	P Change of application relevant information (e.g. maximum pulse current) due to a technical product or process change.	e.g. change of die substrate material.	A				Е	Е	Е	-	E	Е		-	-	-	s -		Е	-	-		Е	. .	-	-	Е	
LED-03-02	Correction of data wheel or issue of entitle		Peace indicate clearly, that inforce contains this type of change! Assessment's application required	e.g. Einsta e.g. change of typ, values due to new information about component transacio: e.g. improved statistics. e.g. implication of race, aboved forward voltage due to improved statistics.					-	-	-					-	-				-	-			-					
LED-03-03	Specification of additional parameters Dissort	,	It Definition of an additional parameter which was not specified before P. If there is a risk on supply chain where at least one additional other PCH-relevant change category will apply.	E e.g.: adding new tested parameter E e.g.: additional temperature coefficient parameter	A				-		-	-	-	-	-	-	-	-		-	-	-			-	. .		ŀ	٠	Formation-since this is not a product change, only additional information Classification C
LED-DE-91	Design changes in epitasy.		Any device relevant changes in design / layout of epitalial layers. P Not included: Changes within design runs and design specification without affecting specified functions, parameters and restability.	e.g. change from Double-tenses to Quantum wells e.g. change of barrier trickness		A: change trum Double hoses to Quartum wells —a spectrum is affected															T.	н	П	T						
LED-DE-02		P	P Not included: Changes within deep name and deep specified functions, parameters and initiality. Any change in chip-deeps i fayout. Not included: Changes within deeps name and deeps specified functions, parameters and initiality.	e.g. change of barrier dischaess. e.g. change in tayout of ourset spreader; dischaess of current apreader e.g. reduction of bond paid size		eels spectrum is affected A: change in toyout of current spreader radation pattern changes				•	•	•	•	•					• .	м	+		M			в в	р,м			TR might be considered for complex die bond technologies.
LED-06-03	Die shrink	Р	p Shirik of active area. Not included: streing streethed/scribe line	Typical strink of de.	A	Please check if change in process sechnology (LED-PW-dB) is also affected.			•	•	•	•			-	-	-	-			٠,	-				в в			٠	
LEDOS-ON	LEO package (wcept leadhane)		p any change in tousing thickness any change in torn or dimensions	e.g. change of dimensions. e.g. change of x, y, or 2 dimension of the package	в	Check If LED-09-92 is affected which leads to a change of the elibrooptic parameters or distributions.			•	•	•	•		-	•	-	V	٧	• т	D	-	D	0		L I	в в	D		•	
LED-DE-DE	Design of teachains		p any change of leadframe / carrier dimensions any change of ourse dimensions.	e.g. change in leadhame / carrier dimensions in x.y. or z direction e.g. change inner design of the leadhame not affecting the skit certifemence is neighbor of the design.	в	Check FLED-09-92 is affected which leads to a change of the eliziroptic parameters or distributions.											v	v	• т							в в	D	2		
	PROCESS - MAP EX PRODUCTION																		4		4		\perp	_	_	4	<u> </u>	<u> </u>		
	New Change of water substrate or carrier naterial		P Newworks substate material.	e.g. different water material to currently released material (change from Sapphire to Silicon)	c	Check I LED-05-92 is affected which leads to a change of the elithoopic parameters or distributions.		_	•	Р	Р	٠	Р	Р	-	-	-	-	•	Р			Р	-	•	. .	•	-	•	
LED-PWes	Water diameter		P change of water diameter resulting in equipment and process changes.	*4 * 10 *	с	in case-other type of changes are affected i.e equipmently/ocess technology - they need to be identified in addition	•		٠	-	٠	-	Р	Р		-			•	-	•		-		•		-		٠	
LED-PW-03	Nive Strail volfer thickness.	Р	P Change in final water thickness	e.g. change in final chip/de thickness	с	Check if LED-059-02 is affected which leads to a change of the elitrooptic parameters or distributions.	•		•	•	Р	•	Р	Р			-	-		-					•	в в	•	-	٠	
LED-PW-01	Change of electrically active doping/inplantation element	Р	P Change in electrically active doping.) implantation element resulting in a new technology.	e.g. change from like to C as dopant	c			С	•	-	С	С	•			-	-	-			١.	-				. .	-	-	٠	
LED-PWes	Change of studing	Р	P change in layer sequence or thickness	e.g. change of locitation layer thickness between n- and p- experial	A	customer application needs to be checked due to potential system voltage differences			•	F	•	•	•	•			-	-				F			-		-		•	
LED-PW-01	New? change of metallization (specifically ship trunside)	Р	p Change in neralization of bondpads, material, layer thickness	e.g. change in bond pad metallization thickness	٥			М	•	•	•	•	M,B	M,B			-	-		м		м	N		- 1		-		•	
LED-PW-07	New change of metallization (specifically obje backside)	Р	P Change of bottom layer of die (between die and seadhahw/carrier). Change in process, material, or dimensions necessary.	e.g. change trum Au to Au/Ge	С	differences		м	•	•	•	٠	D,M	D,M			-		•	D,N		D,M	D,1	м	D,M		•		•	
	Change is process technique (e.g., significant process changes the thougraphy, etc.), colde deposition, die back surface preparation/backgrind,		Change from well to dry exching, change from horizontal to serical oversitor addition, change from contact little into impger little, P Variation within process specification	e.g. change from seet each to dry ettch e.g. change from taser outring (tawing) to plasma outring (tawing) e.g. change from contact time to talepper little e.g. process control	c	change from CVD dep to sputter dep for backside/fromside intradication. case of row equipment phase direct if LED-PA-54 is also affected.		-	-	-	-	•	-	-	-	-	-	-		-	-	-	-		-	- -	-	-		Qualification effort depends on type of change.
	Change of material supplier with no impact on agreed specifications	-	p Change of water supplier. Change of supplier for chemicals		c				-		-	-	-	-		-		-					-		-		-	1	-	Qualification effort depends on type of shange.
	Change of specified water process sequence (deletion and/or additional process step)	-	P Change of water supplier. Change of supplier for chemicals revealed for water production. P Any change which is not covered by another type of change. Note is to be assessed.	e.g. additional cleaning process in water production	c			-	-	-	-	-			-		-	-			-	-			-		-	-		Qualification effort depends on type of change. PPAP has to be updated.
	Change in de coating or passivation	р	P Change in namerial, thickness, and process for coating and passivation	e.g. change from SICO to SINS	o		•	P	•	•	•	Р	Р	Р			-	-		Р	-	Р	Р		- 1	РР	-	-	•	
	New water production location ar transfer of water production to a different not previously released location to be subcontactor: BARE DIS DELIVERES	Р	P Newworker propduction location or stander of water production with possible additional changes.		c	A or Bt Impact on other type of changes described under PROCESS - WAPER PRODUCTION and EQUIPMENT casegories of this DeQuiMa			$ \cdot $	٠	٠		٠	٠	-	-	-	-	•	-		-			J .	<u>. </u>		ŀ		
LED-RID-01	New / change of front side metallization		P Change in bondpads, resterial, pad pitch, surface-changes, layer thickness	e.g. change from Au to Au alby e.g. change in over pad metalization						•					-	-		-							•	. [
LED-80-02	New / change of backside meralication		P Change of bottom layer of die (between die and leadhtame/barrier). Change in process, material, or dimensions.	e.g. change from Au to Au alby		Check if LED-05-02 is affected which leads to a change of the elithroptic parameters or distributions.		М	•	•	•	•	D,M	D,M		-	-	-	•						•		•	-	-	customer application needs to be checked due to potential system voltage differences.
LED-ED-ES	Change of water setup or number of dies on water.	1	P change in spacing between chips and from of water P change in spacing between chips and from of water	e.g. information change for pick & place machine.					-		-	-	-			-	-	-			-				-		-		-	
LED-ED-01	New Snall voller thickness.	P	Changes in final Chip height (including carrier), very rare and	e.g. change on convener thickness.		Check If LED-09-91 is also affected.	•		•	•	Р		Р	Р	٠	-		-	•						•				٠	
LED RD-05	Change in die coding or passivation PROCESS - ASSEMBLY	Р	P Change in numerial, thickness, and process for coating and passivation	e.g. change from SICS to SINS			•	Р	•	•	٠	Р	Р	Р		-]	-	ĿĪ	•	Р	1-	Р	Р		- 1	РР	Ŀ	Ŀ		
LED-PA-01	Change of leadhame/carrier base material	Р	P Newleadhane/carrier restrial (newin composition)	e.g. change from copper alloy to bare copper	в	Check if LED-09-02 is affected which leads to a change of the elitrooptic parameters or distributions		•	Р	•	•	- 1	-	-	-	3	-	-		А	-	A	А		P,1	. .		Р	-	Explanation should be provided in case HDS test is not applicable Regarding applicable materials please refer to the Whiteler standard.
LED-PA-02	Change of leadhame/carrier friething material (nternal)	Р	Change of surface instellal of die attach pad and second bond area (e.g. influence in adhesion to most compound, wedge bond reliability)		A			٠		•	•	•	-	-		-		-	٠.	А	-	А	А						-	MS test should be considered for automotive extentior applications, explanation should be provided in case HSS test is not applicable.
LED-PA-03	Change of lead and hear dug plating maneral/plating thickness (scarrial)	Р	P change in numerial and process technique for final pin territorion (e.g. pure tip). 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 skip stack e.g. change form Sn into NEPGIAu e.g. change of layer thickness.			•	м	Р	•	к	-	-		1		-	-		А	-	A	А		P,1			к		Suplanation should be provided in case PGS test in not applicable Regarding applicable nuteriors please refer to the Sthaker standard.
LEDPAGE	Bump Material / Metall System (internal)	Р	P Stack de or de to substrate	e.g. change to Pt-free numerial	A .			٠	•		٠				-	-	-		•	W		W					•			
	Die attach naterial Change of bond wire material	P	P Change of die attach material (s.g. soft odder, eposy, etc.). Thermal management must be respected. P Material, wire diameter, change in process technique	e.g. change of Ag-glue to Au-glue; e.g. change from 35y to 25y	D A				•									N D		Q P,D		N	Q P,I				•			Site audit for namelal change with impact on bondprocess (e.g. from Au
LED-PAGE	Change of bond was resented Change in resentation sub-components (excluding LED drip & LED package related items) with impact on agreed specification.	p	P Material, was calender, challing in process technique Change of sub-camponent supplier using different inchnology/materials Name: Jump start twict at OSMs regist to recessary	g. change from 30y to 20y g. using a different ESD-dode in technology and material than resolverity.	A	Check if LED-09-01 is also affected.					-,5									-	+		-			T	Ħ	Ė	Ė	to Cu) recommended. Qualification effort depends on type of change.
	Die Overcaat / Underfilli	-	Supporting layers for complex packages like tip chip. — No change in-product integrity of final product. P. change can influence the integrity of final product.	than previously Pr. e.g. change of underfill with change of thermal resistance		Check if LED-09-91 is also affected.		P			Р		-	-	-			Р		P			Р		U		U			
LED-PAGE	Change of mold compoundencepeutation/leaking material	Р	P Change of most compound, encapsulation, or existing material regist to attended operat fraction in case of package instead attending, becoming. Component assessing and board coasing tests to be assessed. Mist, night be changed.	e.g. PPR mold compound		Check If LED-09-91 is also affected.			•	-	•	•	-	-	D	3	D	D	• т	Р	Р	Р	Р		Р		-	-		
LED-PA-10	Change of convention material	Р	P Change of resorrai class.	e.g. change from granats to nitrides	с	Check F LED-09-91 is affected for optically histometric parameters.				Υ		•		-		-	Υ	Υ	•	Р		Р	Р		Y	1				
LED-PA-11	Change of direct supplier for converter material	-	P New supplier with same material specification		С				٠	Р	٠	-			-	-	Р	Р		Р		+	Р	_	Р	Ŧ			•	
LED-PA-13	Change of converse process technology	Н	Personal content of the content product of the content of the cont	e.g. change from volume conversion to layer convention; e.g. change from stamping to printing of layer	С В	Check if any change in electro-optical characteristics results in change of data sheet LEID-03-91	•		•	ν ο	•	٠					Y	Υ		z	Z	Z	2		Y	+	1	Ė	•	
LED-PA-13	Change of product masking Change in process technique (e.g., die attach, bonding, moudring, plating, bler and form,)		P Change of content or change of appearance of data matrix cols P Change in assembly process technique	e.g. manking of cathoda; e.g. change die attached from gluing to soldering;		A or its Presser check if EQUIPMENT and other type of changes of manerial (LED-PA- 0405/06/07/08/09/10] are affected.																						Ė		Qualification effort depends on tipe of change.
					c	esesteuentestearej av affected																					Ė	Ŀ		I superior us governence.
_																														

LED-PA-16	Change of direct nametal supplier with no impact on specification	-	P Change of suppliers e.g. for lead frames, wire national, die attach, electronical components	Change of suppliers e.g. for lead trames, wire material, ESID- diode	u	Assumption that change material specification remains unchanges. Otherwise see change of material.		•	-	-	-	-	-	-	-			-		-	-	-	-					See change of manerial.
LED-PA-17	Change of specified-assembly process sequence (additional antitor deletion of process step)		Addition or defects of a process step in assembly process lequence with promoting agenticar impact on the product performance. It is influence on product integrity in influence on product integrity especied.	e.g. additional or deletion plasma cleaning process	c	Single case assessment recessary to identify possible interactions or risk.			-	-	-	-		-	-		- -	-		-	-	-	-	-			- -	Qualification effort depends on type of dhange.
LEDPATE	New assentibly location or transfer of assentity to a different not previously released location/side/subcontractor	Р	P New assembly location, assembly transfer or relocation. Transfer of snown sechnology and equipment.	e.g. Dual source strategy	0	A or St. Impact on other type of changes described under PROCESS ASSEMBLY and EQUIPMENT	•		-	-	-	-		-	-			-			-	-	-					Qualification effort depends on type of change.
	PACKING/SHIPPING		*	•																								
LED-P9-01	Inner Packing/Itigging specification change	Р	P dimension change of direct product packing	s.a. SMT cocket in tace chances				Р				-	Р	P				T	-									
LED-PS-02	Outer Packing Mipping specification change	1	P to matchanges indirect product packing P to matchanges in dimension or appearance P, number of rests in the packing are changing	e.g. pizzebox					-	-	-	-	-	-						-			-	-				
LED-P9-03	Change of bibeling	1	P change of labeling also on reel. P is additional information no change of previous information P: change in content of previous information	(F) e.g. additional information (RuHG stamp) (P) e.g. change of outsiner specific information		Check F LED-09-91 is also affected.		-	-	-	-	-	-	-	-			-	-	-			-	-				
LED-PS-01	Dry aark requirement change	Р	P Change of dry pack requirements (change in MSL)	s.a. change from MSL3 to MSL1		Check FLED-09-92 is also affected.					-		-					-	-		-	-	-					
	SCUPMENT	-			_			_			_					 _								-			_	4
LED-EQ-01	Production from a new equipment/bod which uses a different basic technology	Р	P Stange in process technique which is not already covered above. Note: Major changes affecting the product not covered by the tible require also a PCN.	e.g.change from single water to botch-process. e.g. over pad metalisation e.g. dambar cutting (mechanical to lisser cutting)		Check FLED-09-91 is also affected. Corrosion stability should be assessed.			-	-	-	-	-	-	-	 T		-	-	-	-	-		-		T		Qualification effort depends on type of change.
LED-EQ-02	Production from a new equipment/boil which uses the same basic technology (replacement equipment or extension of existing equipment pool) without change of process.	-	P POlirequired for dedicated equipment for sensitive component production.	e.g. change from single site to multi-site handler.	c			-	-	-	-	-	-	-	-			-	-	-	-	-						Qualification effort depends on type of change.
LED-EQ-03	Change in final test-equipment type that uses a different sushratogy	ı	P thange of tester platform (a.g. major test program changes , terrimeter interface,). I product specification is not attend. P creditor rescribingtion in attended.	e.g. change in seat method from od so tumen					-		-	-			-			т		-	-	-						Gage RBR / deta correlation
	TIST FLOW	_														 											_	_
LED TF-01	Move of all or part of electrical water test and/or final test to a different location/she/outcontractor	р	P Yester transfer or relocation.	e.g. Dual source strategy	с		•		В		•	В		•	-			т	-	В	-	-	-	В	ВЕ	3	. •	Gage RBR / delta correlation; additional specification check is should be considered for Wafer testing
	O-GATE																											
LED-GO-01	Change of the test coverage testing process flow used by the supplier to ensure data sheet compliance (e.g. elimination/saldison of electrical measurementhest flow block; relaxation/enhancement of monitoring procedure or samples.	-	P Reduction or additional control steps, test coverage within the process flow	e.g. test flow block like Final test/ final clearance	o					-	-	-	-		-			-	-				-					
																												•
Tests, which	should be considered for the appropriate process change.							- 1	-				· T		- 1	. T					-	-				Г		
Tests, which	should be considered for the appropriate process change after selection of condition to	ble.																										
Suppliers pe	formed tests (mark with an 'X' for done or 'G' for generic)																											
_					_											 		_					_	_				
Reason for a	sception of tests and/or usage of generic data:																											А
					l																							

The Management of the Manageme

	Max Mustermann																																
Date:			Formprovided by ZVEI - Revision-4.1 - November 2													Dev	ice eva	luation															
Signature:												MAT	TERIAL PE	RFORM	INCE TEST		rS on the ba			evision -S	Septemb	er 14, 201	7						ac	Iditional to			
					Evaluation level A/B/C		14, 2017	or bissed HAST	ь	- Lo	on o	artion, and									2					Jih Reps				D201) rged date			
	Assessment of impact on Supply Chain regarding following sepects -contracted ingrements -lock-initial interface of processability/immufacturability of customer -loom, it. function, quiety performance, well-obly	emaining sks within Supply Chain?	Understanding of semiconductors experts	Examples to explain	S Sculon martix	Further applicable conditions	d by date or authors also cheeks Revision September caton	Temps a ture Humi dity Bias	Auxiliana or Unbiased HAS Temperature Cycling	Fower Temperature Cycling High Temperature Bonaget.	High Temperature Operating		Wer Bond Shear	So sterrate il ty	Solder Bell Shear	Unid Integrity Xray/CSAM	Bectoric Discharge Harren Body Abdel Bectoric Discharge Charge d Davice Abdel	Larchup	Bectial Distbulon Flux Gading	Characterisation	Bectromignatic Compatibility	Harmetic Package Trest	Package Drop	Die Shear	Mornal Water Visp or Board Level Relability	Low Temperature Storage L Sart Up and Temperature S	MCMDrop Test Destructive Physical Analysi	Хеву	Acoust o Microscopy Westween	(180 todde ft. 60, 180/6 0.3E a Paran etter Analysis Companion of current with their		Remarks	
	Type of change N	40 Yes			A Application level B Boardead C. Corporatellevel "Nat referent forqua		AEC-C104	9 6	9 g	OT N	HUOL	ğ 2 83	wes	8	8 8	7 new	W W W	3	9 2	OWR	EAC SGR	H 08W	9 DROP	3 8	W W E	S STEP	H DBA	AYAO B	3				
MCM-AN-01	Any change with impact on agreed spon technical contractual agreements.	P P	Intended to be used if no other type of change is applicable but the change affects agreed technical				32 0											-				-											
	Any change with impact on processability/manufacturability at customer, which is not covered in the matrix below.	Р	Any change which is not covered in the matrix below, but risk assessment at customer is recommended.		В			-								-																	
	DATA SUSST			e.g. recommendations for pull-upipull-down or NC	A							Ť.				.		1.1		1.1	1		i i							Ť.			
MCM-05-02	specification Correction of data sheet / errats		the product. No sechnical change of product, process or test. New description of behaviour which was not specified before or which is different from initial specification. Please indicate clearly, that into note contains this	e.g. recommendations for pul-upipul-down or NC pire, MGL . e.g. Ernste	A																												
MCM-05-48	Specification of additional parameters	ı P	Description of a new not previously covered parameter. No technical change of the product.	(ii): e.g. adding new tested parameter.	A																												
	DESIGN	*		l I								÷		H							Ť						÷		÷	÷			
MCM-DE-01	Firmware modification	ı P	Integrated software by design or memory as defined by supplier. (I) Firmware modification or update without effect of functional/performance at the customer (bug fis), (II) Firmware modifications or update with effect of functional or reliability performance at the customer.	(B): e.g. additional Firmware opportunities (F): e.g. bug fix with impact on functional performance	A											-		-															
MCM-06-42	Change that adds or subtracts sub-components from the module SCM .	P P		e.g. addition of passive elements in filter circuit	A			8.		e• e•								•		•	• 1	O,• (9)		. @F									
MCM-PA-01	PROCESS-ASSEMBLY-MATERIALS Replacement of any sub-component by a Non-AEC qualified sub-component	P P	Change from an AEC Qualified sub-component to a Non-AEC Qualified sub-component or Change from a Non-AEC Qualified sub-component to another Non-AEC Qualified sub-component to another Non-AEC Qualified sub-component		A			_													• h	1 @•,D	@ •	. @ F			. 8.	@•	e •				
MCM-PA-02	Replacement of any sub-component by an AEC qualified sub-component		Change from one AEC Qualified sub-component to another AEC Qualified sub-component Change from a Nov-AEC Qualified sub-component to an AEC Qualified sub-component e.g. with impact on electrical relocations as (ESO, both up) electrical functionality, text coverage		A	Requires additional evidence that new sub-component is AEC qualified					•										• N	1 @∗,D	e •	. @F				e•	e•				
MCM-PA-03	Replacement of any sub-component by an AEC qualified sub-component Critical characteristics of sub-component am aget affected	I P	e.g. with <u>no</u> impact on electrical robustness (ESD, latch up,) electrical functionality, test coverage		с	Requires additional evidence that new sub-component is AEC qualified					e• ·	@•					e• e•	@•	e• e•		. 0	M @•,D	@•	. @ F			. @•	@•	e•				
MCM-PA-04	Change within a sub-component that has been requalified Critical characteristics of sub-component are affected	Р	e.g. with impact on electrical robustness (ESD, latch up,) electrical functionality, test coverage		A	Requires additional use of the appropriate ZVEI DeQuMs (e.g. active, passive component) for qualification of the changed sub-component of the paper of the changed sub-component of the appropriate ZVEI DeQuMs (e.g. active, passive component) for qualification of the changed sub-component of the paper of the changed sub-component of the paper												•		•	• N	0,+⊗		. @ F									
MCM-PA-05		I P	e.g. with no impact on electrical robustness (ESD, latch up,) electrical functionality, test coverage		с	Requires additional use of the appropriate ZVEI DeQuMa (e.g. active, passive component) for qualification of the changed sub-		-			e• ·	@•					e• e•	@•	. @		. 0	M @•,D		. @ F									
MCM-PA-06	Substrate change affecting module schematic Changes to the internal dimensions and or schematics)	P P	Design change and souting Change insubstates, leading and discourse which has impact to the specified electrical parameter acc- date sheet or specification (e.g. heat sink, pin dimensions, die padde size) Not included: Variation within specification.		A			e•		ек .			e• e	•													. 8.		-				
MCM-PA-07	Change to the processes used in module assembly (e.g., pick & pitco, die attach, bording, sellow, escapulation, singulation, die overzoat, undefit, die preparation, die class)	. Р	(-): If the change in process sechnology does not influence the integrity of the final product. (P): If the change in process technology can influence the integrity of the final product.	(-); e.g. turing within process specification	с			•		ек .	@ A -								ен -	@•													
MCM-PA-08	Process inlegify: suring within specification	. Р	Variation within process specification (-): If tuning within process specification does not influence the integrity of the final product. (P): If impact on product specification is anticipated.	(-): e.g. process control	с											-		-		-				- -									
MCM-PA-09	Charge to materials used concodia assembly in a , athesiae, underful encapsulate, solder, epos, bump restrict, die absch material, biord site, die overcost, substrate, landfrom base materials and the concoding of the concoding		Change of used material (e.g. bump material, die attach material, soft solder, eposy, etc.) Change of bond wire material, diameter, change in bonding diagram		с	B: impact on themcomechanical stress caused by mismatch of mold compound, interconnecting technology and carrier is anticipated. B: external lead finishing material is affected.		٠		вк @•	• 8E 8	Е .				•		-	•	@•							. @•						
MCM-PA-10	Change of direct material supplier	. Р	Change of suppliers for direct materials which are used in assembly process (DCM). (-): If change does not influence the integrity of the final product. (P): If impact on product integrity is anticipated.	(-); e.g., change of sine material supplier. (P): e.g., change to new mold compound supplier e.g. additional leadframe supplier with specific leadframe manufacturing behaviology; e.g. additional or new substrate supplier	c	Please check if material is changed!										-															See change of material.		
MCM-PA-11	Change to assembly location Move all or pasts of production to a different assembly site)	P P		e.g. dual source / fab storingy	c	A or B: impact on other type of changes described under PROCESS ASSEMBLY and SEM-EQ-01. In case of Cu wire product please consider ASC-Q006.	• • ·	٠	• •	ек .					• ® T	•		-		@•						-	@•		. 6		Whisker tests have to be don AEC-Q100: "For broad chan processes; refer to section." the selection of worst-case to	on monitoring basis! es that involve multiple an 1.3 of this appendix and a st vehicles to cover all the	tributes (e.g., section 2.3 of t s possible perm
MCM-PA-12	Change of product marking PACKINACHIPPING	1 P	Change of marking on device and / or change in process resulting in a new technology. (§): It change does not influence the integrity of the final product. (§): If impact on product integrity is anticipated.	(i): e.g. change of appearance (additional marking) (F): e.g. change from inked marking to laser marking e.g. marking of pin 1	В			٠			- -			В		-						-	Ш		- -				-				
MCM-PS-01	Packing/shipping specification change	P P	Packing httpping specification change. Change of dry pack requirements (e.g. change of MSL)														1 1		1 1														_
	Usy parts requirement contept Change of carrier (hay, see) Change of basising	P P	MSL) Change of behaling also censel. Change of behaling also censel. By Change of material label without impact on harcode. Pg: Change of material label without impact on harcode. Pg: Change of material label information which affects data processing at customer.	(B) e.g. additional information (RoHG stamp) (P) e.g. change of defined nomenclature for data processing	В																												
	COUPMENT Poduction from a new equipment bool which uses a different basic technology or which due to its unique term of technic can be expected to inhance the imaging of the find journal.		Change inprocess technique which is not already covered above.		A															@ •											Affected process change is s	check.	
MCM-EQ-02	Production from a new equipmentsfool which uses the same basic technology (episcement equipment or extension of existing equipment pool) without change of process.		PCN required for dedicated equipment for sensitive component production. (-): It change does not influence the integrity of the first product. (P): Illimpact on product integrity is anticipated.		с															-													
MCM-EQ-63	Change to testing platform (Change in final test equipment type leading to a different test concept)		(P): Eimpact on product integrity is anticipated. Change of tester platform with differences in HW or SW that makes a change intest concept necessary.		c								H.							@•	1		Ш								Gage R&R / delta correlation		

MCM-TF-01	Change to testing location (Move of all or part of the final test to a different test site)	Р	Teaser transfer or relocation. P Check impact on MCM-NAV-1 budges transfer as well as additional size. Dual source strategy budges transfer as well as additional size.	С			 		-	 			@• ·	-						•	Gage R&R /	delta correlation		
	O-GATE																							
MCM-QG-01	Change of the test covariage leading process flow used by the supplier to ensure data their compliance to a minimal challetion of electrical measurement test flow block absolution/arthrocenture of excelleng procedure or excepting.	-	s, part for block, modution from three temperature P	c			 			 			@ • ·									naljelis: Delta consisti / changes ELFR reco		
	Tests, which should be considered for the appropriate process change.		<u> </u>						1.1							_	1.1.	_						
				_			 			 											1			
	Tests, which should be considered for the appropriate process change after sell	lection of	condition table.				 			 														
	Suppliers performed tests (mark with an 'X' for done or 'C' for generic)																							
	Reason for exception of tests and/or usage of generic data:																							

Not required.
 Information Note required

p PCN required.

Asked or " ristingue has purformed or 17 at draws had should be considered for the appropriate process and a should be considered for the appropriate process and the considered for the considered for draws. As the considered for draws and the consi

	Worked on	Л																				
		Max Mustermann	Form provided by ZVEI - Revision 4.1 - I	4ovember 2019																		
	Date:																					
	PCN number:												valuation								additional to AEC	
	Signature									MATERIA	AL PERFORMANC	E TEST RESULT	S (on the basis	of AEC-Q200 R	evision D)						additional to AEC- Q200	
Mark change with an "x"					Evaluation lavel	Opening on the Land															SOCIA) weget device influen	
	I	Assessment of impact on Supply Chain regarding following aspects - contractual agreements - sechnical tradition of processability/immufacturability of outstmer - form, fit, function, quality performance, reliability	Remaining risks within Supply Chain? Understanding of component experts	Examples to explain	Further applicable conditions part properties of propertie	sectorism be contained by desirer subtifue C-Q200 Revision C Ket specification we restar all only	Hgh TempExposure (Bore) Temperatue Cycleg Deet uct ve Physical Andysis	Motatum Resistance Based Hundity	Operational Life External Visional Physical Dimension	Territori Stength (Leadat) Resistance to Schwits Mechanical Stock	Vitration Vitration Resistance to Baddering Hear	Thermal Strock Electrostatic Clidnings (ESD Schoolstel)	Electrical Characterization Floremodility	Board Plax Terrinal Stength (SAC)	Bern Load Test Farre Retardance	Rossion Lite Surpe Voluge	SatiSproy	Shor Breigh	Faut Current Duntality End of talk Mode Verification	Amp Bart Endurance Load Dump Endurance	Wheles Test (100 00000 F2-402, ADDD 2,	arks
Selection of component	ID	Type of change NETWORKS & RESISTORS	No Yes		5800	Se AE Se			8 8 50	11 0 13	14 15	17 18	11 20	21 22	25 24	B 27	э :	ж и	32 33	34 35		
NETWORKS & RESISTORS	PAS-RES-AN-01	ANY Any change with impact on agreed upon technical contractual agreements.	P Intended to be used if no other type of change Is applicable but the change affects agreed	•				T . I .			T . T . T		T . T .			T . T .	T . T					
NETWORKS & RESISTORS	PAS-REIS-AN-02		P P	Technical interface means component terminals.	В																@• .	
NETWORKS & RESISTORS NETWORKS & RESISTORS	PAS-RES-DS-01	DATASPET Charge of database recenters identical monification (min. Imm. Inc., salural) and (or ACID):	- Change of predication released information												\perp							
NETWORKS & RESISTORS	PAS-RES-DS-01	Change of datasheet parameters/sectrical specification (min/max/typ. values) and / or ACIDC specification	Not included: Editorial changes. No technical change of product, process or	e.g. Sighten of electrical parameter distribution	A Risk assessment depending on change for each application.	-																-
NETWORKS & RESISTORS	PAS-RES-DS-02	Correction of data sheet or issue of errata	No skohnizal change of product, personal or last. No skohnizal change of product, personal or last. I product of the personal change of the last not personal control or last not personal control or last specification. Please indicate clearly, that lefonder contains this type of change! Assessment in application regulated?		A																	
APTIANDANG & DESIGNANG	PAS-RES-DS-03	Specification of additional parameters	Description of a new not previously covered parameter. I P (tr. no influence (PP, Rak assessment depending on change leach application to provide seldence of additional parameter (oth. eviluation)	e.g. adding new (tested) parameter.	A																	
NETWORKS & RESISTORS		MATERIAL TO A STATE OF THE STATE OF T	P P Change of lnk / Wine material		С					w		• F -	В -		- R						- @•	
NETWORKS & RESISTORS			P P Change of Ink / Wire material P P Change of Ink / Wire material	e.g. resistor poste, NCr, resistor wire e.g. AgPd paste, Ag paste, lead wire, NCr for side termination	В					w		• F .	в .		- R						. @•	
NETWORKS & RESISTORS			P P Change of Package	side termination e.g. for chip res.: final coating, eposy	В В										- R							3) at tier 1 can be
NETWORKS & RESISTORS NETWORKS & RESISTORS			P P Change of Passivation /Inner protection	e.g. change of glass	c							•			- R		N				effected.	-
NETWORKS & RESISTORS	PAS-RES-MA-05	Change of material composition - Substrate material	P P Change of substrate material		С				•												- @+	ial sour France
NETWORKS & RESISTORS	PAS-RES-MA-OS	Change of supplier of material	P Change to a new or additional material supplies at component manufacturer.	e.g. for 2nd source purpose	С	• •		•	•	• •			в •		- R		N					tal specification ad. Otherwise see £
NETWORKS & RESISTORS NETWORKS & RESISTORS	PAS-RES-DE-01	DESIGN Changes of termination, surface limith, shape, color, appearance or dimension structure	P Change of package P Change of passhation/Inner protection		B C	-		T • T •			1.1.1		T - T -		- R	1 - 1 -	T - T	- 1 - 1	- 1 - 1			
NETWORKS & RESISTORS NETWORKS & RESISTORS	PAS-RES-DE-02	Changes of inner construction - Passivation PROCESS	P Change of passivation/Inner protection		С			1 . .				• • •			- R		N	. .	- -			
	PAS-RES-PR-01	Changes in process technology or manufacturing methods - Ink Fire	- P Change of ink fire process	e.g. change of firing profile e.g. change from normal atmospher to nitrogen atmospher	с					R			в .								- @•	
NETWORKS & RESISTORS NETWORKS & RESISTORS	PASRES-PR-02	Changes in process technology or manufacturing methods - Ink Print	P Change of ink print process P Change of tim process		c c		: : :			R				R R	- R						- @• - @•	
NETWORKS & RESISTORS NETWORKS & RESISTORS		Changes in process technology or manufacturing methods - Trim Changes in process technology or manufacturing methods - Lead Form	P Change of lead form process.	e.g. change from mill trimming to laser trimming e.g. change from bending to punching	В								В -			- :	N				- @•	
NETWORKS & RESISTORS	PAS-RES-PR-05	Changes in process technology or manufacturing methods - Termination Attach	- P Change of termination attach process	e.g. chip resistors: electroplating process e.g. welding of leads for through put devices.	В	• •							в .				N				- @•	
NETWORKS & RESISTORS	PAS-RES-PR-06	Changes in process technology or manufacturing methods - Marking Changes in process technology or manufacturing methods - Molding	- P Change of marking process	e.g. change from tempon printing to laser marking	B B										- R							
NETWORKS & RESISTORS NETWORKS & RESISTORS		Changes in process technology or manufacturing methods - Molding Process integrity: tuning within specification PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS	P Change of molding process P Variation within process specification.	e.g. process control	C					• •		• •	- : ·	•	- R	- : :						
NETWORKS & RESISTORS NETWORKS & RESISTORS	PAS-RES-PN-01	Packing / shipping specification change (loosening of tolerances)	P P Change of packing specification.	e.g. number of pieces on reel.	8	-																
NETWORKS & RESISTORS	PAS-RES-PN-02	Dry pack requirements change	P P Change of dry pack requirements.	e.g. change of MSL e.g. change in dry pack assurance (HC, MSB)	В																	
NETWORKS A DESISTEDS	PAS-RES-PN-03		P P Change of carrier	e.g. change by material e.g. change by geometry.	В																	
NETWORKS & RESISTORS		PACKING / SHIPPING - VISUAL INSPECTION		T																	$\overline{}$	
NETWORKS & RESISTORS	PAS-RES-PV-01	Change of labeling	P Change of labelling, also on reel.	(f) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	В																	
NETWORKS & BESTERNA	PAS-RES-PV-02	Change of product marking	I P Marking on device.	e.g. change of content of marking e.g. change of method of marking e.g. change of appearance of marking	В												-					
	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 NETWORKS & RESISTORS		LOGISTICS / CAPACITY / TESTING - EQUIPMEMENT	material of the packing.																			
NETWORKS & RESISTORS	PAS-RES-EQ-01	Production from a new equipment tod 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 altessly covered shows. Note: Changes affecting the product not covered by the table require also a PCN	e.g. new equipment supplier with different process concept	С								в .								Test effort depends o assessment. Performance test acr process change.	according to affected
	PAS-RES-EQ-02	Production from a new equipmentition which uses the same basic technology (replacement equipment or extension of existing equipment pool)	PON 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 of assessment. Perform according to affected	on final risk reance test ted process change.
NETWORKS & RESISTORS NETWORKS & RESISTORS	PAS-RES-EQ-03	Change in final feet equipment type that uses a different technology LOGISTICS / CAPACITY / TESTING - PROCESS FLOW	P P Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive carameters.	e.g. change of tester platform	С								@В -				-				- @+ Gage RER / delta co	
	PAS-RES-PF-01	Manufacturing sile transfer or movement of a part of production process to a different location/sile	P Change of manufacturing site. Includes transfer as well as additional site. Note: Reorganization inside one plantistie is not sifected!	e.g. movement or transfer of manufacturing site or process step(s) to a different location/site.	В								в -		- R		N				@• @•	
NETWORKS & RESISTORS	PAS-RES-PF-02	Elimination or addition of a manufacturing process step	not affected P Change of manufacturing process sequence.	e.g. dual source / fab strategy e.g. washing / cleaning process e.g. change of order of processes	c								@B -								- © Characterisation dep	Sepends on Impact of
NETWORKS & RESISTORS NETWORKS & RESISTORS		LOGISTICS / CAPACITY / TESTING - Q-GATE																			production flow.	
	PAS-RES-QG-01	Change of test coverage used by the supplier to ensure data sheet compliance (e.g., elimination) addition of electrical measurement/lest flow block, relaxation/enhancement of monitoring procedure or sampling)	- P Change of test coverage.	e.g. change from 100% to sample inspection e.g. test flow block, reduction from three to two temperature measurements e.g. change in burn in tun in process.	с																R (electr. funct.): test R (reliability) only for process.	vat coverage. vor change in burn in
NETWORKS & RESISTORS INDUCTORS INDUCTORS		NDUCTORS		-44 months in produc																		
	PAS-IND-AN-01	ANY Any change with impact on agreed upon technical contractual agreements	P P Intended to be used if no other type of change is applicable but the change affects agreed	Not relevant for technical evaluation.				T . I .			T . T . T		T . I .			T . T .						
INDUCTORS	PAS-IND-AN-02		P P is approximated to the change street agreed for her her hard annual	Technical interface means component terminals.	В																@• -	
INDUCTORS INDUCTORS		DATASHEET													_					\perp		
INDUCTORS	PAS-IND-DS-01	Change of datasheet parameters/electrical specification (min./meu/typ. values) and / or ACIOC specification	P P Change of application relevant information Not included: Editorial changes. No technical change of product, process or test.	e.g. lighten of electrical parameter distribution	A Plak assessment depending on change for each application.	*																
INDUCTORS	PAS-IND-DS-02	Correction of data sheet or issue of errads	No technical change of product, process or New description of behavior shich was not specified before or which is different from pacified before or which is different from plants indicate clearly, that Infonde contains that type of change! Assessment in application required!	e.g. data sheet correction because of new information about component behavior	A																	

ctors	PAS-IND-05-03	Specification of additional parameters	I P	Description of a new not previously covered parameter. No such initial change of the product. (P): Plaks assumment depending on change for such application to provide endonce of additional parameter (stat. evaluation)	e.g. adding new (tested) parameter.	A																		-				
TORS	PAS-IND-MA-01	MATERIAL Change of material composition - Bobbin Material	РР	Material without magnetic function ("Spulenkörper") typically made by plastic material	e.g. change from Thermoset to Thermoplastic	В	-					• @•		- •								-		-		1 -		
TORS	PAS-IND-MA-02	Change of material composition - Core Material	P P	material Change of core material, which is material with magnetic function	e.g. change from NZn into MnZn	A	-		@• •		- •	• -	-	- •		• .	- B	•				-		-		-	- @•	
mes	PAS-IND-MA-03	Change of material composition - Insulation Material	P P	Change of insulation material	e.g. who insulation, insulation tapes, e.g. change from Polyurethane to Polyamide	с	-					• -	-	• -		• A	- в	•				-		-		-		
rons	PAS-IND-MA-04	Change of material composition - Lead Material	Р Р	Change of lead material	e.g. change from tin coverd to non-coverd lead material	В	-	• -			- •	• -	•				• -	-	•		-	-		-		-	@• -	
mes	PAS-IND-MA-05	Change of material composition - Mold Compound	РР	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. MSI might change.
	PAS-IND-MA-06	Change of material composition - Solder Material	РР	Change of solder material at internal connection.	e.g. change of SnAgCu composition	В	-						•	- •	• @•	• -		-				-		-		-	@• -	
TORS	PAS-IND-MA-07	Change of material composition - Wire / Foll Material	РР	Whe for wounded inductors. Foil for multibyer inductors (inner electrode).	e.g. change of Cu composition	В	-		@• -				-				- в	-				1		-		-	- @•	
TORS	PAS-IND-MA-08	Change of material composition - Clue		Change of glue material	e.g. change from glue A into glue B	С			- @		@• -	@• -			e @•		@• @!	a .						_				Considere in case of core-core glue the air gap.
TORS	PAS-IND-MA-09	Change of supplier of material		Change to a new or additional material supplier at component manufacturer.		С									s. e.		- B	-				+					- @•	
TORS	PAS-IND-MA-10															•						-		-		+-		remains unchanged. Otherwise see change of material.
tors	PAS-IND-MA-10	Change of material composition - Poling Material DESIGN	PP	Change of potting material	e.g. change from epoxy resin to silicon	C A: If influence on other conne PCB or laquer expected.		•	- @	• • •	@• -	@• @•	<u>' </u>	6	@•	- -	@• 01	3 -	- -				- -	- 1	- - -	1 -	- @•	
	PAS-IND-DE-01	Changes of termination, surface finish, shape, color, appearance or dimension structure - Bobbin	I P	Material without magnetic function ("Spuleristriper") typically made by plastic material	e.g. construction / dimension change of bobbin	В	-						-				- B	-				-		-		-	- @•	
TORS	PAS-IND-06-02	Changes of termination, surface finish, shape, color, appearance or dimension structure - Lead Terminate	I P	Change of lead/terminals	e.g. change from PTH terminals to SMD terminals	A	-						•				• -	-			-	-		-		-	@• @•	Effect regarding EMC relevant for high frequency only.
mes	PAS-IND-06-03	Changes of termination, surface linish, shape, color, appearance or dimension structure - Mold	I P	Change of mold	e.g. new mold material with different color	В			- •		@• -		-			•	- В	-				-		-		-	- @•	
TORS	PAS-IND-DE-04	Changes of Inner construction - Core Construction	. Р	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	-				-		-		-	- @•	
TORS	PAS-IND-DE-05	Changes of inner construction - Insulation System		Change of insulation system	e.g. wire insulation, insulation tapes, e.g. change from Polyunethane to PTFE (Tellon)	с	- 1		@• -						-	- A					-	-		-		-		
TORS	PAS-IND-DE-06	Changes of inner construction - Wire / Foil Construction	. Р	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		•	-				-	6		• •	- в		• •	-	-	-		-		-	- @•	
TORS	PAS-IND-DE-07	Changes of termination, surface Enish, shape, color, appearance or dimension structure - Politing Material PROCESS	I P	Change of potting dimension	e.g. change of polling (filling) height	C If data sheet is affected (PAS 91)	ND-DS-		- @			@• @•		6	@•		- 01	3 -		-	1 -	-		- 1		-	- @•	
TORS	PAS-IND-PR-01	PROCESS Chances in process technology or manufacturing methods - insulation Sirio		(Mechanical) removal of insulation.	e.g. change from mechanical removal to laser	В				1.1.	T . T .						@• -											Mechanical damage of sitre, impact on solderability in case of stripping process is affecting soldering
TORS		Changes in process scrincingly or manufacturing memors: - insusson perp Changes in process technology or manufacturing methods: - Lead Prep. / Plating		Change of lead prep. / plating	removal e.g. change from hot dip tinning to electroplating	В						•												+				stripping process is affecting soldering area. Influence regarding reliability of solder
TORS	PAS-IND-PR-03	Changes in process technology or manufacturing methods - Lead Prep. / Plating Changes in process technology or manufacturing methods - Terminal Attach	. P	Change of lead prep. / plating Connection of wire terminal and / or connection of termination to core/bobbin.	e.g. change from hot dip tinning to electroplating e.g. chante from Manual winding to Semi-automic winding (winding of wire on terminal)	С					@• -	• -			-	•	•					Hit				H	@• -	joint. Increase of contact resistance.
TORS	PAS-IND-PR-04	Changes in process technology or manufacturing methods - Marking	. P	connection of termination to core/bobbin. Change of marking process.	winding (winding of wire on terminal) e.g. change from ink marking to laser marking	В						• .						-				-		-		-		P.C. Const. (Const.)
TORS	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	•						-			• -					-	-		-		-		
rors	PAS-IND-PR-05 PAS-IND-PR-07	Changes in process technology or manufacturing methods - Soldering Internal Connections	. Р	Change of soldering internal connection Change of winding - insulation		В	_					• -	•			• -						-		-		-		
TORS	PAS-IND-PR-08	Changes in process technology or manufacturing methods - Winding Insulation Changes in process technology or manufacturing methods - Winding Wine		Change of winding - insulation Change of winding - wire	e.g. change from manual to automatic process e.g. change from semi-automatic winding to full automatic winding	С			@• -							- A	- B							-		1	- @•	
TORS	PAS-IND-PR-09	Process integrity: tuning within specification		Variation within process specification.	e.g. process control	С	-											-				-		-		-		
TORS		Changes in process technology or manufacturing methods - Potting	. Р	Change of polling process	e.g. change from manual potting process to automatic potting process	С	•		- @	•	@• -	@• @•						-			-	-		-		-		
TORS	PAS-IND-PN-01	PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS Packing / shipping specification change (loosening of tolerances)	РР	Change of packing specification.		В				T . T .	T . T .		Т.Т				T . I .	Т.Т				Т.Т				Τ.		
TORS	PAS-IND-PN-02	Dry pack requirements change	P P	Change of drypack requirements.	e.g. change of MSL e.g. change in dry pack assurance (HC, MSB)	В																						
TORS	PAS-IND-PN-03					В				+	 . .						 	+ .								+ .		
TORS		PACKING / SHIPPING - VISUAL INSPECTION																						_				
TORS	PAS-IND-PV-01	Change of labeling		Change of labelling, also on real.	(f) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	В	•													-								
TORS	PAS-IND-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	-	100												-				-				
TORS	PAS-IND-PV-03	Change of packing/shipping specification	P P	Change in packing specification which does not described a change of dimensions or material of the packing.	e.g. change of documentation in packing specification		-						-							-				-		-		
TORS		LOGISTICS / CAPACITY / TESTINS - EQUIPMEMENT															1 1						1 1					Test effort depends on final risk
TORS	PAS-IND-EQ-01	Production from a new equipmentitod which uses a different technology or which due to its unique form or function can be expected to influence the integrity of the final product		Change in process technique which is not sheady covered above. Note: Changes affecting the product not covered by the table require also a PCN.	e.g. introduction of potting process	С	•										. @1	3 -		- '	-	-		-		-	- @•	assessment. Performance test according to affected process change.
TORS	PAS-IND-EQ-02	Production from a new equipment/loof 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	•											-		-		-		-		-	- @•	Test effort depends on final risk assessment. Performance test according to affected process change.
TORS	PAS-IND-EQ-03	Change in final test equipment type that uses a different technology	РР	Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	С	•										. 01	3 -		-		-		-		-	- @•	Gage R&R / delta correlation
TORS		LOGISTICS / CAPACITY / TESTING - PROCESS FLOW			e.g. movement or transfer of manufacturing site or process step(s) to a different location/site.																							
TORS	PAS-IND-PF-01	Manufacturing sits transfer or movement of a part of production process to a different location/site	P P	Change of manufacturing site. Includes transfer as well as additional site. Note: Reorganization inside one plantisite is not wite-text.	process step(s) to a different location/site.	В		•	• •	•	@• •	@• -	•		•	•	- B	-	-	-	-	-		-		-	@• @•	
TORS	PAS-IND-PT-02	Elimination or addition of a manufacturing process step	. Р	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.
	PAS-IND-PF-03	Elimination of final electrical measurement / test flow block	I P	Reduction of final testing. PCN required for dedicated final test reductions for sensitive parameters.	e. g. elimination of High-solage measurement	с					- -		-					-				-		-		-	- @•	
rors rors		LOGISTICS / CAPACITY / TESTING - Q-GATE			a n channe from 100% to sample instance-				\pm																			
	PAS-IND-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, relocation/enhancement of monitoring procedure or sampling)	. Р	Change of test coverage.	e.g. change from 100% to sample trapection e. g. test flow block, reduction from three to two temperature measurements e.g. change in burn intru in process.	с	•	•				•	-									-				-		R (electr. funct.): test coverage. R (reliability) only for change in burn in process.
NC / TANTALUM NC / TANTALUM		CERAMIC / TANTALUM																		_								
AIC / TANEALUM	PAS-CER-AN-01	Any change with Impact on agreed upon technical contractual agreements		Intended to be used if no other type of change is applicable but the change affects agreed technical contract at accesses.	Not relevant for technical evaluation.								-									-				-		
MC / TANEALIM MC / TANEALIM	PAS-CER-AN-02	Any change with impact on processability/manufacturability at customer, which is not covered in the matrix below.	P P		Technical interface means component terminals.	В														-							@• .	
	PAS-CER-OS-01	DATASMEET Change of datasheet parameters/electrical specification (min./max./lyp. values) and / or ACIDC seedination	p 0	Change of application relevant information Not included: Editorial changes.	e.g. Sighten of electrical parameter distribution	A Plak assessment depending of for each application.	s change		. .	T.I.			T.T					1.1								Τ.		
NC / TANTALUM		specification		No technical change of product, process or		for each application.																						
RC / TANEALUM	PAS-CER-DS-02	Correction of data sheet or issue of errats	1 1	test. New description of behavior which was not apacified before or which is different from initial apacification. Pleases indicate clearly, that infoncie contains this type of change! Assessment in application required!	e.g. data sheet correction because of new information about component behavior	A																						
RG / TANDALIM	PAS-CER-OS-03	Specification of additional parameters	I P	Description of a new not previously covered parameter. It is not not product. (If no notations (IP): Pale assessment depending on change for each application to provide endource of additional parameters (stat. evaluation)	e.g. adding new (lested) parameter.	A																						

_																							
CERAMIC / TANTALIM CERAMIC / TANTALIM CERAMIC / TANTALIM CERAMIC / TANTALIM	PAS-CER-MA-01	MATERIAL Change of material composition - Ceramic Binder P P	Binder material (ceramic)		c			• • •						1 - 1 -				- 1					
CERAMIC / TANEALUM	PAS-CER-MA-02 PAS-CER-MA-03	Change of material composition - Tantalum Binder P P Change of material composition - Dielectric P P P	Binder material (ceramic) Binder material (tartial) Dislectric change (ceramic only)	e.g. change from wax 1 to wax 2 e.g. change from ceramic A into ceramic B	C C		. :	: : :			: : :		. 0	c :	. :								
	PAS-CER-MA-04	Change of material composition - Electrode Attach P P	Electrode attach (only tantal, glue, carbon, Agi		c		•				c	:	. в	c •									
CERAMIC / TANTALUM CERAMIC / TANTALUM	PAS-CER-MA-05	Change of material composition - Electrode Material P P	Electrode Material (only ceramic, inner electrode)	e.g. change from spehric to flake shape (N paste)	c								. в .				-	-					
	PAS-CER-MA-06	Change of material composition - Encapsulation P P	Encapsulation	e.g. change from epoxy1 into epoxy2	c																		Check whether AOI at Tier 1 can be affected
CERAMIC / TANEALIM CERAMIC / TANEALIM	PAS-CER-MA-07	Change of material composition - Lead material / Termination P P	Lead material / Termination	e.g. change from SnPb to pure Sn	С								• B -										
CERNARY (TARTILLE)	PAS-CER-MA-08	Change of supplier of material . P	Change to a new or additional material supplie at component manufacturer.	e.g. for 2nd source purpose	с								• B -		С -		-	-		-		. @•	Assumption material specification semains unchanged. Otherwise see change of material.
CERAMIC / TANEALIM CERAMIC / TANEALIM		DESIGN																					CORPOR OF FEMALES.
CERAMIC / TANTALUM	PAS-CER-DE-01	Changes of termination, surface finish, shape, color, appearance or dimension structure - Lead Diameter	Lead diameter	e.g. change from 0.8mm into 0.6mm	В	• •			• • •	• •							-	-		-			
CERAMIC / TANEALIM	PAS-CER-06-02	Changes of termination, surface finish, shape, color, appearance or dimension structure - I p	Termination area	e.g. change in width of termination from 0.1 -0.3mm into 0.2 - 0.4 mm	В		•											-					
CERAMIC / TANTALIM CERAMIC / TANTALIM	PAS-CER-06-03	Changes of termination, surface finish, shape, color, appearance or dimension structure - p Termination Interface	Terminal interface	e.g. additional layer in termination	В					•			- в -				-						
CERAMIC / TANEALUM	PAS-CER-DE-04 PAS-CER-DE-05	Changes of Inner construction - Electrode Trickness . P	Electrode thickness (ceramic only)	e.g. N layer change from 2.5µm into 3.5µm e.g. Ceramic lever thirkness changes from 3um into	c c						• • •						-	-	-				
CERAMIC / TANTALUM		Changes of inner construction - Layer Thickness - P	Layer thickness (delectric thickness)	e.g. Ceramic layer thickness changes from 3µm into 5µm.						•					υ.		-	-		-			
CERAMIC / TANEALUM	PAS-CER-06-06	Changes of Inner construction - Number of Layers . P	Number of layers (ceramic only). Alleays in combination with PAS-CER-DE-05.	see also layer thickness	С		- с	с - с	с - с		с	- с с	- B,C -		с .		-	-		-			
CERAMIC / TANTALLM CERAMIC / TANTALLM	PAS-CER-PROI	PROCESS Changes in process technology or manufacturing methods - Dicing - P	Change of dicing	e.g. change from cutting to sawing	С								. B .	T . T .	С .		-						1
CERAMIC / TANTALUM	PAS-CER-PR-02	Changes in process technology or manufacturing methods - Electrode apply - P	Electrode apply (delectric layer process)	e.g. change from wet to dry process	c		с .	c			c	ССС	- B,C -	с .									
CERAMIC / TANTALUM	PAS-CER-PR-03	Changes in process technology or manufacturing methods - Firing . P	Change of firing profile	e.g. seperation of decarbonization and firing profile.	С										с .			-					
CERAMIC / TANTALUM	PAS-CER-PROI	Chances in process technology or manufacturing methods - Lamination - P	Change of lamination / press techinque	e.c. standard cressing to iso static cressing.	С								. в .		С -								
	PAS-CER-PR-05	Changes in process technology or manufacturing methods - Particle Size . P	Change of powder particle size. Allways in combination with PAS-CER-MA-03.	e.g. change DS0 from 0.5µm into 0.4µm	с								. в .				-			-			
CERAMIC / TANEALUM	PAS-CER-PR-06	Changes in process technology or manufacturing methods - Screening/Printing - P	Change of screening / printing	e.g. change from screen printing into offset printing	С				с		с	с	- B,C -		с .		-	-					
CERAMIC / TANEALUM	PAS-CER-PR-07		Change for termination preparation like plating or apply of termination base layer.			_																	
CERAMIC / TANTALUM	PAS-CER-PROF				В	• •				• •			• B -										
CERAMIC / TANTALIM CERAMIC / TANTALIM		PACKING / SHIPPING . NEW MATERIAL CRITICAL DIMENSIONS	Variation within process specification.	e.g. process control	С																		
CERAMIC / TANEALUM	PAS-CER-PN-01	Packing / shipping specification change (loosening of tolerances) P P	Change of packing specification.	e.g. number of pieces on reel.	В																		
	PAS-CER-PN-02		Change of drypack requirements.	e.g. change of MSL e.g. change in dry pack assurance (HC, MSB)	В																		
CERAMIC / TANEALUM	PAS-CER-PNOI		Change of carrier																				
CERAMIC / TANTALIM CERAMIC / TANTALIM	PAG-LEK PN03	Charge of carrier (tray, ree) P P PACKING / SHIPPING - VISUAL INSPECTION	unange or carner	e.g. change by material e.g. change by geometry.	В		لنات			لنانا						نانا						خات	
	PAS-CER-PV-01	PACKING / SHIPPING - VISUAL INSPECTION Change of labeling P	Change of labelling, also on reel.	(I) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	В																		
CERAMIC / TANEALUM	PAS-CER-PV-02			e.g. change or customer specific information e.g. change of content of marking																			
CERAMIC / TANKALUM	PAS-CER-PV-02	Change of product marking I P	Marking on device.	e.g. change of content of marking e.g. change of method of marking e.g. change of appearance of marking	В															-			
	PAS-CER-PV-03	Change of packing hthipping specification P P	Change in packing specification which does not described a change of dimensions or material of the packing.	e.g. change of documentation in packing specification																-			
CERAMIC / TANEALUM CERAMIC / TANEALUM		LOGISTICS / CAPACITY / TESTING - EQUIPMEMENT	material of the packing.																				
			Change in process technique which is not																				Test effort depends on final risk
	PAS-CER-EQ-01	Production from a new equipment/loof 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 already covered above. Note: Changes affecting the product not covered by the table require also a PCN.	e.g. change from wet to dry technology.	С	•			•	Α -			• B -		С -		-	-		-		- @•	Performance test according to affected
CERAMIC / TANTALUM																		-					Test effort depends on final risk
	PAS-CER-EQ-02	Production from a new equipment/lool which uses the same basic technology (replacement equipment or extension of existing equipment pool) . P	PCN required for dedicated equipment for sensitive component production.	e.g. elimination of manual handling processes	c	• • •				Α -			• B -		С -		-	-		-		- @•	Research. Performance test according to affected
CERAMIC / TANEALUM																	-						process change.
	PAS-CER-EQ-03	Change in final test equipment type that uses a different technology P P	Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	с								. @B				-	-		-		- @•	Gage R&R / delta correlation
CERAMIC / TANTALUM CERAMIC / TANTALUM		LOGISTICS / CAPACITY / TESTING - PROCESS FLOW	sensitive parameters.																				
																					_		
CERAMIC / TANEALUM			Change of manufacturing site.	e.g. movement or transfer of manufacturing site or																	_		
	PAS-CER-PF-01	Manufacturing sile transfer or movement of a part of production process to a different location/hile P P	Change of manufacturing site. Includes traveller as well as additional site. Note: Reorganization inside one plantisite is	e.g. movement or transfer of manufacturing site or process step(s) to a different location/site.	В								• B -		с -					-		@• @•	
CERAMIC / TANTALIM CERAMIC / TANTALIM		Manufacturing sits transfer or movement of a part of production process to a different location/site.	Change of manufacturing site. Includes transfer as well as additional site. Note: Reorganization inside one plantistie is not affected.	e.g. dual source / fab strategy		• •							• B		с .		ŀ			-			Characterisation depends on invest of
CERANIC / TANEALIM CERANIC / TANEALIM	PAS-CER-PF-01 PAS-CER-PF-02	Manufacturing sits transfer or movement of a part of production process to a different locationhalis P P Elimination or addition of a manufacturing process slep P P	Change of manufacturing site. Includes framelier as well as additional site. Note: Reorganization inside one plentrate is not affected: Change of manufacturing process sequence.		8 C	• • •	• •			• •			• B		c ·		-					@• @• - @•	Characterisation depends on impact of production flow.
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CERANIC / TANEALIM CERANIC / TANEALIM		Manufacturing sile transfer or movement of a part of production process to a different facultionists P P P Generation or addition of a manufacturing process step LOGITICS CAPACITY/TESTING - 0-0-01E		a.g. dual source / fab strategy a.g. washing / cleaning process a.g. change of order of processes a.g. change from 100% to sample inspection a.g. sall flow block, reduction from three to two heroscalator resourcements.		• • • • • • • • • • • • • • • • • • •							• B -		c .								Characterisation depends on impact of production flow. R (elect: Aunt): test coverage. R (stability) only for change in burn in
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Ein caracters	PAS-FLM-DE-06	Changes of inner construction - Insulation System	- P	Change of inner insulation to protect winding element against housing.	e.g. change of potting material e.g. change of number of inner insulation byers (depending of insulation material thickness)	С			•	-		•				-	-		В -			-			- -			@•
Film capacitors	PAS-FLM-DE-07	Changes of termination, surface finish, shape, color, appearance or dimension structure - Package		Change of packaging	e.g. change of dimension or shape e.g. change of surface	В			@		@• -	-	@• @		@• @•	@•			- @•			-						-
Film capacitors		PROCESS			e.g. change in resin filling process (mising.				÷																			
Film capacitors	PAS-FLM-PR-01	Changes in process technology or manufacturing methods - Package	- P	Change of resin filling or hardening process (relevant for boxed types only)	e.g. change in reain filling process (mixing, sequences, polling,) e.g. change in hardening process (temperature, time.)	С	•		•	-	•	•	•		•									1 1		1.0		•
	PAS-FLM-PR-02	Changes in process technology or manufacturing methods - Terminal Attach	. р	Change Terminal Attach Process to winding element for boxed and nacked types	e.g. spraying and / or galvanic process, e.g. welding / soldering	c	B: for naked SMD							•					в -									Consider ESR. * Solderability Test for naked SMD components.
Film capacitors	PAS-FLM-PR-03	Changes in process technology or manufacturing methods - Winding		Change of winding, flattening or tempering process	e.g. change of tempering temperature	С				-								+ +	В -			+ . +						components.
Film capacitors Film capacitors	PAS-FLM-PR-04	Process integrity tuning within specification	. р	Variation within process specification.	e.g. process control	c				-																		
Film capacitors	PASE MENO	PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS		Change of packing specification.	T				_	T T		_				T T						1 1			_			
Film capacitors	PAS-FLM-PN-02	Packing / shipping specification change (lossening of tolerances) Dry pack requirements change		Change of drypack requirements.	e.g. number of pieces on real.	В			÷	+ -		+-										+ - 1			-			
Film capacitors					e.g. change of MSL e.g. change in dry pack assurance (HIC, MSS)				+			+-				-						+ 1			-			•
Film capacitors	PAS-FLM-PN-03	Change of carrier (tray, ree) PACKING / SHIPPING - VISUAL INSPECTION	P P	Change of carrier	e.g. change by material e.g. change by geometry.	В	•			-																		•
Film capacitors		PACKING / SHIPPING - VISUAL INSPECTION								T T						Т		ТТ				T						
	PAS-FLM-PV-01	Change of labeling	I P	Change of labelling, also on reel.	(f) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	В				-																		
Film capacitors	PAS-FLM-PV-02	Change of product marking		Marking on device.	e.g. change of content of marking	В			+	+ +		+													+			
Film capacitors	PASHLMPV-GZ	Change of product marking			e.g. change of content of marking e.g. change of method of marking e.g. change of appearance of marking																							•
	PAS-FLM-PV-03	Change of packing/shipping specification	P P	Change in packing specification which does not described a change of dimensions or material of the packing.	e.g. change of documentation in packing specification					-																		•
Film capacitors		LOGISTICS / CAPACITY / TESTING - EQUIPEMENT																										
	PAS-FLM-EQ-01	Production from a new equipment/tool which uses a different technology or which due to its unique form or function can be expected to influence the integrity of the final product	P P	Change in process technique which is not already covered above. Note: Changes affecting the product not covered by the table require also a PCN.	e.g. implementation of new machines	С				-	. @		@• @						в -			-						Test effort depends on final risk assessment. Performance test according to affected
Film capacitors				covered by the table require also a PCN						-																		process change. Test effort depends on final risk
	PAS-FLM-EQ-02	Production from a new equipmentition which uses the same basic technology (replacement equipment or extension of esisting equipment pool)	. Р	PCN required for dedicated equipment for sensitive component production.	e.g. extension of existing machine capacity	С				-	. @		@• @	• •		-			В -			-						Performance test according to affected process change.
Film capacitors			H	Change of final test equipment which use																								
	PAS-FLM-EQ-03	Change in final test equipment type that uses a different technology	P P	Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	С	•		-	-		-	- -			-		- -	@B -			-		- -				@● Gage R&R / delta correlation
Film capacitors		LOGISTICS / CAPACITY / TESTING - PROCESS FLOW	_		an measured or hander of manufacturing and a									+							_		\pm					
Din caracitys	PAS-FLM-PF-01	Manufacturing site transfer or movement of a part of production process to a different location/site	РР	Change of manufacturing site. Includes transfer as well as additional site. Note: Reorganization inside one plantisite is not efforted!	e.g. movement or transfer of manufacturing site or process step(s) to a different location/site.	В	•		•			•	• ·	•		•	• •	•	в •			-					. @•	@•
ram especiari	PAS-FLM-PF-02	Elimination or addition of a manufacturing process step	. Р		e.g. visel source / fab strategy e.g. vashing / cleaning process e.g. change of order of processes	с																						Characterisation depends on impact of production flow.
Film capacitors Film capacitors		LOGISTICS / CAPACITY / TESTING - Q-GATE				_													\rightarrow					\bot	_			production flow.
	PAS-FLM-QG-01	Change of text coverage used by the supplier to ensure data sheet compliance (e.g., elimination/addition of electrical measurement/lest flow block, relaxation/enhancement of monitoring procedure or sampling)	. Р	Change of test coverage.	e.g. change from 100% to sample inspection e.g. test flow block, reduction from three to two temperature measurements. e.g. change in burn in true in process.	С																						R (electr. funct.): test coverage. R (reliability) only for change in burn in process.
Film capacitors					temperature measurements e.g. change in burn in/run in process.	·												\perp	\perp									process.
QUARTZ CRYSTAL / SAW		QUARTZ CRYSTAL / SAW ANY																										
QUARTZ CRYSTAL / SAW	PAS-QUA-AN-01	Any change with impact on agreed upon technical contractual agreements	P P	Intended to be used if no other type of chang is applicable but the change affects agreed technical control to acceptant.	Not relevant for technical evaluation.		-			-																		-
QUARTZ CRYSTAL / SAW			P P		Technical interface means component terminals.	В	-		-	-		-										-					. @•	-
QUARTZ CRYSTAL / SAW		DATASHEET		1	I				1													т т			_			
QUARTZ CRYSTAL / SAW	PAS-QUA-OS-01	Change of datasheet parameters/electrical specification (min/max/lyp. values) and / or ACIDC specification	P P	Change of application relevant information Not included: Editorial changes.	e.g. Sighten of electrical parameter distribution	A	Risk assessment depending on change for each application.			-															. -			*
				No technical change of product, process or solve description of ballward which was not specified before or which is different from initial specification. Please indicate chearly, that infoncis combine this tips of charge.																								
	PAS-QUA-05-02	Correction of data sheet or issue of errats	1 1	New description of behavior which was not specified before or which is different from initial specification.	e.g. data sheet correction because of new information about component behavior	A				-																		-
QUARTZ CRYSTAL / SAW				Please indicate clearly, that Infoncts contains this type of change! Assessment in small refer negrigar!!																								
				Description of a new not previously covered																								
	PAS-QUA-OS-03	Specification of additional parameters	ı P	Description of a new not previously covered parameter. No sechnical change of the product. (Er: no influence (Ep: Platk assessment depending on change I each application to provide evidence of additional parameters (stat. evaluation)	e.g. adding new (tested) parameter.	A																						_
				(P): Plak assessment depending on change f each application to provide evidence of	or .																							
QUARTZ CRYSTAL / SAW QUARTZ CRYSTAL / SAW		MATERIAL		*															\rightarrow					\bot	_			
QUARTZ CRYSTAL / SAW		Change of material composition - Quartz Blank	Р Р	A change of Quartz Blank is a sery rane case. Mainly for SAW-Filter		A	-		•	-		•				•			В -	•		-						-
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-02	Change of material composition - Base	РР	Changing of the material of the base.	e.g. change from ceramic to epoxy	A			•	-	@•	-				• @	. @•		- @•			-		- @)• -			C0 may be influenced Temperature expansion coefficient
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-03	Change of material composition - Lead / Termination	РР	Change of Lead/Termination	e.g. change of plating finish. (eg Au, AgPd,Sn)	В	-		•	-		-				•			в -			-	- @•					-
QUARTZ CRYSTAL / SAW				Change of Glass Seal	e.g. change to lead free glass	В	-															-	- @•					X-Ray inspection may be influenced when sealing is containing Pb
QUARTZ CRYSTAL / SAW			P P	Changing of the material of the carr/cap	e.g. change from metal to ceramic material e.g. change of olse (Silicron in Financi	A		@	• •	-	@• •	@•	•	-	• •	• @	@•		@B -			-	- @•		1			-
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-06	Change of material composition - Blank Support		Change of Blank Support	e.g. change of glue (Silicone to Eposy) e.g. change metal holders (old types)	С	-			-					•	• @				• -	-	+ 1	- @Y		H			Electrical function affected in case of
	PAS-QUA-MA-07	Change of material composition - Overmold	РР	Change of Overmoid	e.g. change to green mold compound e.g. change of filler particles	В			•	@•	. @	• @•					. •		@B •			-	- @•					Electrical function affected in case of mechanical sheat distribution change. ACI, wave soldering and board coating has to be assessed. MSL might be
QUARTZ CRYSTAL / SAW									+		_	+										\vdash						changed.
	PAS-QUA-MA-08	Change of material composition - Case Sealing	P P	Change of Case Sealing, Change of material for seam welding Relevant for components with ceramic base and metal cap.	e.g. change from solder pasts to adhesive glue	c ·	-		•	-	@Y •	-	•				• •	- -	в •	•		-						- Impedance my be influenced.
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-09	Change of material composition - Electrode	p o	and metal cap. Change of Electrode material on crystal blank		С			١.		ay a	Υ .			@Y -				@B -									
QUARTZ CRYSTAL / SAW											-								в •									
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-10	Change of material composition - Insulator		Change of Insulator. Only for leaded types. Not relevant for typical SMD.	e.g. Insulating plate under crystal e.g. Glass sealing for leads	В				@•			•		• •		•		ь •	•		, ·						
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-11	Change of material composition - Marking		Change of marking material	e.g. change of ink e.g. chemical to environmental friendly	В	-			-			@•		@• -	- 6						-			1			- ACI check recessary!
QUARTZ CRYSTAL / SAW	PAS-QUA-MA-12	Change of supplier of material	. Р	Change to a new or additional material supplies at component manufacturer.	erg. for 2nd source purpose	С		• •	•	-	• -	•	•	•	• •	•	•	•	в •	•		-						Assumption material specification remains unchanged. Otherwise see change of material.
QUARTZ CRYSTAL / SAW	PAS-QUA-DE-01	DESIGN		T	T	В					@.				@• •				- @•					- @				
QUARTZ CRYSTAL / SAW		Changes of termination, surface finish, shape, color, appearance or dimension structure - Base Changes of termination, surface finish, shape, color, appearance or dimension structure - Lead / Termination	P	Change of Lead Territoring during "	e.g. due to ministurization purpose.				_		es	_							_									C0 may be influenced
QUARTZ CRYSTAL / SAW				Change of Lead/Termination design. Change geometry or terminal paid or lead form		В					- -			•				•		• •			- @•					C0 may be influenced - Reliability of solider joints may be affected
QUARTZ CRYSTAL / SAW	PAS-QUA-06-03	Changes of termination, surface finish, shape, color, appearance or dimension structure - Can / Cap		Change of Can/Cap design	e.g. due to ministarization purpose.	A	•	• • @	• •	@•		-	•	•	@•	• @			В -	• •		-	- @•					- Deciriosi function affected in case of
	PAS-QUA-06-04	Changes of termination, surface finish, shape, color, appearance or dimension structure - Package	I P	Change of Package (Molded). Change the design of the package. Not relevant for typical SMD.	e.g. change from welded device to glued device (case sealing)	В		· - @		@•	. @	• @•					. .		в •			-	- @•					mechanical shess detribution change. ACI, wave soldering and board coaling has to be assessed. MSL might be
QUARTZ CRYSTAL / SAW		1			-				_	4											-							ras to be assessed. MSL night be changed.
QUARTZ CRYSTAL / SAW	PAS-QUA-DE-05	Changes of termination, surface tinish, shape, color, appearance or dimension structure - Insulator		Change of Insulator design. Only for leaded types (old technology) Not relevant for typical SMD.	<u> </u>	В	•						•			@• @				@• -		-			-			-
	PAS-QUA-DE-06	Changes of inner construction - Quartz Blank	. Р	Change of Quartz Blank design	e.g. change dimension of blank, add phase, electrode design,	с	-								- •							-					-	•
QUARTZ CRYSTAL / SAW		Changes of inner construction - Blank Support	. Р	Change of Blank Support design	e.g. change design of glue shape e.g. change design of metal supporter	С	-	• @	• •	-	@Y @	Υ •			- •	• @	• •		В -	•		-	- @Y					•
QUARTZ CRYSTAL / SAW QUARTZ CRYSTAL / SAW		PROCESS Changes in process technology or manufacturing methods - Quartz Stank	. P	Change of Quartz Blank process	e.g. change of cutting or lapping technology	С	•		٠.	- 1	- -	٠.			- •	T • T		- 1	В -	• -		- 1						
QUARTZ CRYSTAL / SAW		Changes in process technology or manufacturing methods - Blank Eliching / Cleaning	. Р	Change of Blank Etch/Clean process Using different / new technology	e.g. change from liquid etching to plasma etching	С			-	-		-	- -			@•	@•		В -			-						-
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-03	Changes in process technology or manufacturing methods - Electrode Formation		Change of Electrode Formation process	e.g. change from evaporation to sputtering	С				-							@•		в -			-						-
	PAS-QUA-PR-04	Changes in process technology or manufacturing methods - Trimming		Change of Auto Trim process (Method of final frequency tuning)	e.g. change from evaporation to ion beam	С											@•					- 1						
QUARTZ CRYSTAL / SAW			H	Change of Blank bonding / annealing process								_							в -									
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-05	Changes in process technology or manufacturing methods - Bonding / Annealing	- Р	Change of Blank bonding / annealing process Change of method howapply conductive material to base or blank	1	С			•	€.	≪1 @	•			•	•	•			•			- @Y				1	

QUARTZ CRYSTAL / SAW	PAS-QUA-PR-06	Changes in process technology or manufacturing methods - Can / Cap Attaching	-	P Change of Cap/Can attaching process	e.g. change of the sealing method e.g. change from batch oven to reflow oven	С		• •								•		•		В			 -								
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-07	Changes in process technology or manufacturing methods - Molding	-	P Change of Overmolding process. Not relevant for typical SMD.	e.g. change of overmold process parameter	С		• •	@•	•	@•	@	@•		@• -	•	•	•		В		• .	 -								
	PAS-QUA-PR-08	Changes in process technology or manufacturing methods - Marking	- 1	P Change of Marking process	e.g. change from inked marking to baser marking e.g. marking of pin 1 e.g. change of appearance (additional marking)	В				-						-				-		- -	 -	@•						ACII check	ck necessary!
QUARTZ CRYSTAL / SAW	PAS-QUA-PR-09	Changes in process technology or manufacturing methods - Aging		P Change of Aging process. Typically no aging	E.g. change or appearance (additional marking) If aging is done: e.g. change of times or	С			@•	-						١.	•	٠.		В			 1.								
QUARTZ CRYSTAL / SAW QUARTZ CRYSTAL / SAW QUARTZ CRYSTAL / SAW	PAS-QUA-PR-10	Process integrity: tuning within specification		P Change of Aging process. Typically no aging done on quartr crystals. P Variation within process specification.	e.g. process control	c			-	-								-					 -								
QUARTZ CRYSTAL / SAW		PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS										_				т т		_					 _							_	
QUARTZ CRYSTAL / SAW	PAS-QUA-PNOI			P Change of packing specification.	e.g. number of pieces on reel.	В										•				-											
OLIARTZ CRYSTAL / SAW	PAS-QUA-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			-									-		-											
QUARTZ CRYSTAL / SAW	PAS-QUA-PN-03	Change of carrier (tray, reel)	Р	P Change of carrier	e.g. change by material e.g. change by geometry.	В												-		-				-							
QUARTZ CRYSTAL / SAW		PACKING / SHIPPING - VISUAL INSPECTION										_																_		_	
QUARTZ CRYSTAL / SAW	PAS-QUA-PV-01	Change of labeling	1	P Change of labelling, also on reel.	(f) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	В			-	-						-				-				-							
	PAS-QUA-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																									
QUARTZ CRYSTAL / SAW												-						-								+					
QUARTZ CRYSTAL / SAW	PAS-QUA-PV-03	Change of packing/shipping specification	Р	Change in packing specification which does not described a change of dimensions or material of the packing.	e.g. change of documentation in packing specification					-					1 1							- 1						1 1			
QUARTZ CRYSTAL / SAW		LOGISTICS / CAPACITY / TESTING - EQUIPMEMENT					ı					_						_					 _		_	1				_	
	PAS-QUA-EQ-01	Production from a new equipment/loof 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 Change in process technique which is not alwayd, covered above. Note: Changes affecting the product not covered by the table require also a PCN.	e. g. new equipment supplier with different process	с														@B		- -	 -			-	-		- @	Test effort assessmen Derformen	ort depends on final risk sert. sence lest according to affected change.
QUARTZ CRYSTAL / SAW				covered by the table require also a PCN.																										process cf	change.
	PAS-QUA-EQ-02	Production from a new equipmentitod which uses the same basic technology (replacement equipment or extension of existing equipment pool)	- 1	PCN required for dedicated equipment for sensitive component production.	e.g. additional equipment to increase production capacity	С														@B			 -			-	-		- @	Test effort assessmen Performan	ort depends on final risk nert. sence test according to affected change.
QUARTZ CRYSTAL / SAW					e.g. replacement of same equipment						_	+					_	_							_	+		_		process ch	zhange.
	PAS-QUA-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	e.g. change of tester platform	С														@B			 -			-	-		- @	Gago R&R	SR / delts correlation
QUARTZ CRYSTAL / SAW QUARTZ CRYSTAL / SAW		LOGISTICS / CAPACITY / TESTING - PROCESS FLOW	ш	sensitive parameters.					_		_						_						 					_			
	PAS-QUA-PF-01		Р	P Change of manufacturing site. Includes transfer as well as additional site. Note: Recrossization inside one plantitale is	e.g. movement or transfer of manufacturing site or process step(s) to a different location/site.	В														В									@• @		
QUARTZ CRYSTAL / SAW				est affected	e.n. dual source / fab.strateou											+				+++											erisation depends on impart of
QUARTZ CRYSTAL / SAW		Elimination or addition of a manufacturing process step LOGISTICS / CAPACITY / TESTING - Q-GATE		P Change of manufacturing process sequence.	e.g. change of order of processes	С										لنا			- 1	-			 1						- @	production	erisation depends on impact of on flow.
QUARTZ CRYSTAL / SAW					e.g. change from 100% to sample inspection																									R (electr. 1	r. funct.): test coverage. sliby) only for change in burn in
QUARTZ CRYSTAL / SAW		Change of test coverage used by the supplier to ensure data sheet compliance (e.g., elimination/addition of electrical measurement/lest flow block, relaxation/enhancement of monitoring procedure or sampling)	- 1	P Change of test coverage.	e.g. change from 100% to sample inspection e.g. test flow block, reduction from three to two temperature measurements e.g. change in burn in/run in process.	С				-									- 1											R (reliabilit process.	ity) only for change in burn in
Al-Cap Al-Cap		ALUMIUM ELECTROLYTIC CAPACITORS ANY																													
Al-Cap	PAS-ALU-ANOI	Any change with impact on agreed upon technical contractual agreements	Р	P Intended to be used if no other type of change is applicable but the change affects agreed technical contracts all assessments	Not relevant for technical evaluation.				-	-						-		-		-											
Al-Cap	PAS-ALU-AN-02	Any change with impact on ng two upon more must consume agreement as Any change with impact on processability/manufacturability at customer, which is not covered in the matrix below.	Р	P	Technical interface means component terminals. See processability on board level.	В														-									@•		
Al-Cap		the matrix balow. DATAENEET	П									=											 _	T T	$\overline{}$	T =	П			_	
Al-Cap	PAS-ALU-DS-01	Change of datasheet parameters/electrical specification (min/max/typ. values) and / or AC/DC specification	Р	P Change of application relevant information Not included: Editorial changes.	e.g. Sighten of electrical parameter distribution	A	Risk assessment depending on change for each application.												- 1												
				No technical change of product, process or test. New description of behavior which was not specified before or which is different from initial appellication. Please indicate cleany, that fedurate contains this type of change! Assessment in specification required!																											
	PAS-ALU-DS-02	Correction of data sheet or issue of errata	1	specified before or which is different from initial specification.	e.g. data sheet correction because of new information about component behavior	A																									
				Please indicate clearly, that Infoncte contains this type of change!																											
Al-Cap				Description of a new not previously covered																											
	PAS-ALU-DS-03	Specification of additional parameters		parameter. No technical change of the product.	e.g. adding new (leated) parameter.	A																									
	7.3.200303	application and on additional parameters in	.	Description of a new not previously covered parameter. No technical change of the product. P (it no influence (IP): Pikk assessment depending on change for each application to provide evidence of additional parameters (late, evaluation).	eg azagna (asaz) paranas.	Î																									
Al-Cap		MATERIAL	Ш	additional parametes (stat. evaluation)												\perp				\perp											
			Р	P Change of housing	e.g. change Allalloy for housing	С	B: only if a cap holder holds the Capacitor body by pressing.			•	- •						@•		- -	-			 Ι.			Ι.	- 1				
Al-Cap							By by several external evolution of section									-		_			_		+			+					
Al-Cap				P Change of sealing	e.g. change of rubber compound e.g. change of sealing disc material (sels), Snap in)	С	Evaluation only, if capacitor is gland Evaluation only, if capacitors.	•		•				• •			@• @		- '		• -		 -			-	-				
A4Cap	PAS-ALU-MA-03			P Change of external insulation / sixening	e.g. change from PVC into PET e.g. change of color		B: Only for glued capacitors.			•		@	• •		- •			s •					 -			-	-			Blased Hu without app	Humidity test can be done applying voltage.
Al-Cap	PAS-ALU-MA-04	Change of material composition - Lead / Termination	Р	P Change of lead or outer termination.	e.g. change of color e.g. change of leadframe from iron into copper e.g. change of leadframe finish from tin/lead into tin	В			-	-		. .	- -		• -	-	• •			В	-	•	 -			-	-		@•		
	PAS-ALU-MA-OS	Change of material composition - Internal Insulation / Paper	Р	P Change of paper type / internal insulation	e.g. change of paper thickness 50 µm to 40µm	С	A: Only if impedance increase (debs characterization). Check if debasheet is affected (PAS-ALU-DS-01).									-				В									- @		
Al-Cap							affected (PAS-ALU-DS-01).					-						-								+					
ALC:en			Р	P 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		- -	 •	-		-	-		- @	•	
Al-Cap	PAS-ALU-MA-07	Change of material composition - Tape Material Change of material composition - Base Plate	Р	P Change of closing tape material	e.g. change of glue or basis material e.g. change of used plastic material	C B			-	@•			- @•			-	@•			-			 -		-	-	-				
Al-Cap	PARALUM NA	Charge of Hasenan Composition - Space Page		P Change of base plate material	e.g. crange of this passe, making					(Ω/Ψ						Ė	ez- ez													Test effort	ort depends on final risk
	PAS-ALU-MA-09	Change of supplier of material		P Change to a new or additional material supplier	e.g. for 2nd source purpose	с						. .								В									- @	Performan material	.et. ince test according to affected
				as comparent mendiscripts.																										Assumption remains un change of	rest. since test according to affected from material specification unchanged. Otherwise see of material.
Al-Cap		DESIGN			· · · · · · · · · · · · · · · · · · ·																					_		_		Jungia	
Al-Cap	PAS-ALU-DE-01	DESCN Changes of termination, surface finish, shape, color, appearance or dimension structure - Wire Chanater Changes of termination, surface finish, shape, color, appearance or dimension structure - Termination Termination	1	P Change of wire diameter Change of termination annearance		В			-	-					•		•			В			 -			-	-				
Al-Cap		Territation	1	P Change of termination appearance For welded Al capacitors only. Change of acceptance	e.g. change from met tin into bright tin.	В				-					•	\vdash	•			В		•	 1		-	-	-		@•		
Al-Cap		Changes of termination, surface finish, shape, color, appearance or dimension structure - Appearance	1	Change of appearance P Note: Marking on device is defined as asperate change (PAS-ALU-PV-02).	e.g. change of color/appearance e.g. change of safety vent shape	В			-	-						-		-		-			 -	-		-	-				
Al-Cap	PAS-ALU-DE-04	Changes of termination, surface finish, shape, color, appearance or dimension structure - Rubber Sealing	-1	P Change of rubber sealing stand-off shape (for radial)	e.g. change of profile / design	A				-				- @•			@•			-			 -			-	-				
Al-Cap Al-Cap			-	P Change of Al foil width D Change of apperator width	e.g. change of width e.g. change of width	c		-								1	@•			B							-		- @		
Al-Cap	PAS-ALU-DE-07	Changes of Inner construction - Separator Density	-	P Change of seperator density	e.g. change of seperator density/resistivity	С							•						•	В			 •			-	-		- @	•	Phone to 1441 and the nativ
Al-Cap		Changes of inner construction - Inner Connection		P Change of inner connection P Change of closing tape	e.g. change of shape/dimension e.g. change of dimension	c				@•	@• -				@• -		@• @			@B	- @•	@•	 @•			-	-			componen	i Strength (11) not for satal ents without paddle tabs.
Al-Cap	PAS-ALU-DE-09 PAS-ALU-DE-10	Charges of inner construction - Closing Tape Charges of inner construction - Foil	-	P Change of closing tape P Change of foil type	e.g. change of dimension e.g. change of etching level e.g. change of thickness	c			@•	•	, D.						₂ Ω•			В						T i			- @		
Al-Cap		PROCESS															_		_		_	_				+		_			
Al-Cap		Changes in process technology or manufacturing methods - Terminal Attach		P Change of terminal attach process	e.g. change of stitching / welding layout	С		•		•					• -		@•			В		•	 -	-		-	-			Terminal 5 (14) not for paddle tab	Strength (11) and Vibration for axial components without abs.
Al-Cap	PAS-ALU-PR-02 PAS-ALU-PR-03	Changes in process technology or manufacturing methods - Winding	H	p Change of winding process	e.g. change of material disposition e.g. change of bulk process into individual		Ac only for HV application		-	•			•			-	•			В			 -	-		-	-		- @	_	
Al-Cap			-	p Change of impregantion p Change of assembly process	e.g. change of massina capcasion e.g. change of bulk process into individual impregnation e.g. change of sealing method	c			•	•			- •	· @•	- -				•	В			 •		-	-			- @	сопролег	oltage test for high voltage ents only.
Al-Cap		Changes in process technology or manufacturing methods - Assembly			e.g. change of assembly process sequence e.g. change of timing, voltage or temperature of	c			-	@•	- 1 -			- @•			@•		- 1	@B		- 1				+		- -			nds on process change
Al-Cap		Changes in process technology or manufacturing methods - Aging / Testing		P Change of aging/testing process	process	В										+-1							 + i			1			- @		
Al-Cap		Changes in process technology or manufacturing methods - Trim & Form Leaded	-	P Change of trim & form process (leaded)	e.g. change of looking shape or bending procedure					-	- -			- @•									 1	-		1		- -		_	billy may be influenced
Al-Cap	PAS-ALU-PR-07 PAS-ALU-PR-08	Changes in process technology or manufacturing methods - Trim & Form SMD Process integrity: tuning within specification	-	P Change of trim & form process (SMD) P Variation within process specification.	e.g. change of tooling shape or bending procedure e.g. process control	В								- @•		H	@•		- @		- @•	@•	1			-				Solderabili	billy may be influenced
Al-Cap Al-Cap		PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS																													
Al-Can	PAS-ALU-PN-01	Packing / shipping specification change (lossening of tolerances)	Р	P Change of packing specification.	e.g. number of pieces on reel.	В				-						-				-				-			-				
	PAS-ALU-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										- 1				-				- -					- -		
Al-Cap					e.g. change by material e.g. change by geometry.	В																									
Al-Cap		PACKING / SHIPPING - VISUAL INSPECTION		- '																						_		_			
Al-Cap	PAS-ALU-PV-01	Change of labeling	1	P Change of labelling, also on reel.	(f) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information	В			-							-				-				-							
		·		-								_																			

	PAS-ALU-PV-02	Change of product marking	Ι.	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				١.							Ι.													.		_		
p			Ė																															
	PAS-ALU-PV-03	Change of packing/shipping specification LOGISTICS / CAPACITY / TESTING - EQUIPMENENT	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						-	•					1.			1						- 1						-	-	
				Change in process technique which is not		С											T			T								1					Test e	effort depends on final risk
	PAS-ALUEQ01	Production from a new equipment tool which uses a different technology or which due to its unique form or function can be expected to influence the integrity of the final product	Р	P Change in process technique which is not alwardy covered above. Note: Changes affecting the product not covered by the table require also a PCN.	e. g. new equipment supplier with different process concept	С			1	٠.		-	1	1.1		•	•	•		•	- В			-		•		-	-	-		- (Perio proce	effort depends on final risk sament, onwance test according to affect ess change.
	PAS-ALUEQ-02	Production from a new equipmentlool which uses the same basic technology (replacement equipment or extension of existing equipment pool)		PCN required for dedicated equipment for	e.g. additional equipment to increase production capacity e.g. replacement of same equipment	с															- в							-	-	-		- 6	Test o	effort depends on final risk earners. ormance test according to affect
P				Change of final test equipment which use	e.g. replacement of same equipment								+																				proce	as charge.
	PAS-ALU-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		•	1 - 1 -		-										· @B	-		-		-		-	-	-		- 6	∑ ● Gage	s R&R / delta correlation
ip ip		LOGISTICS / CAPACITY / TESTING - PROCESS FLOW			e.a. movement or transfer of manufacturing site or					÷	\pm		+				+			+ +	_					+		+		_				
ар	PAS-ALU-PF-01	Manufacturing site transfer or movement of a part of production process to a different location/site	Р	P Change of manufacturing site. Includes transfer as well as additional site. Note: Reorganization inside one plantisite is not effected.	e.g. movement or transfer of manufacturing site or process step(s) to a different location/site. e.g. dual source / fab strategy	В		•			@•	٠	٠	•	•	•	٠	•	• •	•	• B	•	• •			•		-		•			№•	
ф		Elimination or addition of a manufacturing process step. Elimination of final electrical measurement / test flow block		P Change of manufacturing process sequence. Reduction of final testing.	e.g. veshing / cleaning process e.g. veshing / cleaning process e.n. rhance of order of orderses	c						-		-			-			-						-		-		•		- 6	Ones	racterisation depends on impact sertion fines racterisation depends on impact test flow.
ap ap		Elimination of final electrical measurement / test flow block LOGISTICS / CAPACITY / TESTING - Q-GATE	'	Feducions for sensors consmisses.	e.g. elemination of additional impedance control	c						•	<u> </u>	<u> </u>			<u> </u>	<u> </u>		1.1				- 1		1 1	- -	<u> </u>				- 0	g∙ final t	set flow.
	PAS-ALU-QG-01	Change of test coverage used by the supplier to ensure data sheet compliance (e.g., slimination)addition of electrical measurement/test flow block, relaxation/enhancement of monitoring procedure or sampling)		P Change of test coverage.	e.g. change from 100% to sample inspection e. g. test flow block, reduction from three to two temperature measurements e.g. change in burn inhun in process.	С																											R (sie R (sel	iscir. funct.): test coverage. slability) only for change in burn ess.
ар		monitoring procedure or sampling) NTC			e.g. change in burn in/run in process.																												proce	ш.
	PAS-NTC-AN-01	Net		Intended to be used if no other type of change						Т		-	1	T																				
	PAS-NTC-AN-02	Any change with impact on agreed upon technical contractual agreements. Any change with impact on processability/manufacturability at customer, which is not covered in the matrix below.	P	P Intended to be used if no other type of change is applicable but the change affects agreed technical contractual agreements.	Not relevant for technical evaluation. Technical interface means component terminals.	В						-	H:				-										1 1	-				@•		
													<u> </u>															_				@*		
	PAS-NTC-DS-01	DATASHEET Change of detasheet parameters/electrical specification (min./max.hyp. values) and / or ACIDC specification	Р	p Unange of application relevant information Not included: Editorial chances. No technical change of product, process or	e.g. lighten of electrical parameter distribution	A	rosx assessment depending on change for each application.		-					-			-			-				-				-		-				
		Correction of data aheet or issue of errata	١, ١	No technical change of product, process or test. New description of behavior which was not possible before or which is different from initial specification. Please indicate clearly, that infoncts contains this type of changel	e.g. data sheet correction because of new information about component behavior	A																												
		A Ser Islande Un Services		 Initial specification. Please indicate clearly, that Infoncts contains this type of change! 		_																												
			\Box	productions of the control of the co						۰																								
	PAS-NTC-DS-03	Specification of additional parameters	1	No technical change of the product. (I): no influence (IP): Risk assessment depending on chance for	e.g. adding new (tested) parameter.	A					-						-							-		-				-				
		MATERIAL	Щ	each application to provide evidence of additional parameter (stat. evaluation)							ш		_	Щ						ш									ш	_				
		Change of material composition - Ceramic Binder	Р	P Change of Binder Material to bind ceramics.		С				F	- 1	-	Ŀ		- -	- -	@•	- 6	2• @•	-		-	- -	- [- -	1-1		-	- 1	- [-	-	
	PAS-NTC-MA-02	Change of material composition - Ceramic	Р	P Change of ceramic composition	e.g. changes in additives amount	с				-	-	-	-	-						-	• @B		s -	-		-		-	-	-		- 6	Paran an an pentor	meter analyse only necessary if nticipated impact on electrical ormance. SMD device only
	PAS-NTC-MA-03	Change of material composition - Inner Elechode		Change of inner electrode material (ink P material). Valid in case of multilayer shuckures		с					+ -			1.			+-				- в					1.1		+-					2.5	AID device only
	PAS-NTC-MA-04	Change of material composition - Encapsulation		only.		В	A: Risk assessment on application level, if interaction with other material expected.						_																					meter analyse only necessary if nicipated impact on electrical
	PAS-NTC-MA-04	Change of material composition - Encapsulation	\vdash		e.g. change of coating e.g. change of additives in an insulation.	В	If interaction with other material expected. Plask assessment needed to evaluate compatibility of soldering process.			•	_		+	-			-	- @	9• •			@•	-	-		-		-	-	-		- (2 • an an perfor	Acipated impact on electrical reserce.
	PAS-NTC-MA-05	Change of material composition - Lead material / Termination	Р	Change of lead or outer termination. Change of P lead (finish) material, termination material or attachment material.	e.g. change from SnPb to pure Sn	В	compatibility of soldering process.			-	-	@•	@•	@•		@• -	@•	-		@•	@• @B	- 6	@•	-		-		-	-	-		- 6	№	
	PAS-NTC-MA-06	Change of supplier of material		P Change to a new or additional material supplier at component manufacturer.	e.g. for 2nd source purpose	С					-	•	-				-			-	• B			-		-		-	-	-		- 6	Assur remai	imption material specification sins unchanged. Otherwise see age of material.
	PAS-NTC-DE-01	DESIGN Changes of termination, surface finish, shape, color, appearance or dimension shucture - Lead	_	-	e.g. change lead diameter from 0.5 to 0.4 mm	В				÷											- @B			=				+		_	_			U Hamilan
	PAS-NTC-DE-02	Changes of termination, surface finish, shape, color, appearance or dimension structure -	-	P Change of termination area	e.g. change sead diameter from U.S. to U.4 min e.g. change of termination byer thickness e.g. change in termination dimensions.	B B				+ -	-	@•	+ -	- (D• @•	@• - 	+ -	-			- @B		§•			-		-		-			g∙ ano	components only!
	PAS-NTC-DE-03	Termination Area Changes of termination, surface finish, shape, color, appearance or dimension structure - Internal Connection of termination (surface finish, shape, color, appearance or dimension structure - Internal	-	P Change of inner connection	e.g. change in sermination dimensions e.g. change from soldered connection to welded connection	с				-			@•	@•		@• -	@•	-			@• @B		ğ• @•			-		-	-	-			№	
	PAS-NTC-DE-04	Changes of termination, surface finish, shape, color, appearance or dimension structure - Appearance	1	Change of appearance. P Note: Marking on device is defined as asperate change (PAS-FLM-PV-02).	e.g. change or adding of color on component Mainly in combination with other changes!	В				-	-	-	-	- (20 -		-	-		-		-		-		-		-	-	-		-	-	
	PAS-NTC-DE-05	Changes of inner construction - Electrode		P Change of electrode layer trickness or geometry. For multi-layer technology only.	e.g. change of electrode design	с				@•	@•	-	-	-	- @•		-	- @	2• @•			- 6	Q•	-		-		-	-	-		-	-	
	PAS-NTC-DE-06	Changes of Inner construction - Layer Thickness		P Change of ceramic layer thickness. For multi- layer technology only.		С				_	@•	_	+ -		- @•		+-		2• @•				Q•					+ -						
			Ė							+			+		_		+		_	1 1		_	-											
	PAS-NTC-DE-07	Changes of Inner construction - Number of Layers PROCESS		Change of number of ceramic or electrode layers. For multi-layer technology only. Allways in combination with PAS-NTC-DE-06.	see also layer thickness	С		•		@•	@•	-	1	-	- @•		1	- @	2• @•	<u>' </u>		- @	@•	-		1 - 1		-	-	-		-	-	
		PROCESS Changes in process technology or manufacturing methods - Lamination		P Change of lamination / press technique technique	e.g. stamp press to isostatic press	с				Τ.	@•	-	@•	-			1 -	- 6	2• @•	-	- @B	- 6	D• -	- 1		- 1		-	- 1	-		- 6	2•	
		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				@•	@•	-	-	@•	- @•		-	-	- @•	@•	- @B	-		-		-		-	-	-	-		№	
		Changes in process technology or manufacturing methods - Dicing			e.g. change from cutting to sawing	с								- (- @B		_	-		-		-	-	-			№	
		Changes in process technology or manufacturing methods - Termination		P Change for termination preparation like plating or apply of termination base byer.		В				-							•				• B			-		-		-	-	-	-		№	
		Changes in process technology or manufacturing methods - Electrode apply			e.g. change of inner electrode by down method.	С					-			-							- @B		ე• -	-		-		-	-	-		- 6	№	
		Changes in process technology or manufacturing methods - Assembly	1.	p Change in assembly process for leaded or encapsulated devices.		В				•				-			-	•	• -	-	•	•		-		-		-	-	-		-	-	
		PACKING / SHIPPING - NEW MATERIAL, CRITICAL DIMENSIONS				С				÷			_				÷							-				÷						
		Packing / shipping specification change (lossering of tolerances) Dry pack requirements change			e.g. number of pieces on reel. e.g. change of MSL e.g. change in dry pack assurance (HC, MBB)	B B				1																	1 1							
		Change of carrier (tray, reel)			e.g. change in dry pack assurance (HC, MBB) e.g. change by material e.g. change by geometry.	В																												
		PACKING / SHIPPING - VISUAL INSPECTION											_		\perp		+		+	++							_	+		_			_	
		Change of labeling		P Change of labelling, also on reel.	(f) e.g. additional information (RoHS stamp) (P) e.g. change of customer specific information e.g. change of content of marking	В												•						-					•	-		•		
		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					-	•										•		•		-				•		•	•	
	PAS-NTC-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 specification	•																		-				-						
		LOGISTICS / CAPACITY / TESTING - EQUIPEMENT																															Town o	effort depends on final risk
	PAS-NTC-EQ-01	Production from a new equipmentitod which uses a different technology or which due to its unique form or function can be especied to influence the integrity of the final product	Р	Change in process technique which is not sheady covered above. Note: Changes affecting the product not covered by the table require also a PCN.	e. g. change from wet to dry technology.	с		• •	1 - 1 -		-										· @B	-		-		-		-	-	-		- 6	Performance	earners. ormance test according to affect ess change.
	PAS-NTC-EQ-02	Production from a new equipmentitod which uses the same basic technology (replacement equipment or extension of existing equipment pool)	H	PCN required for dedicated equipment for sensitive component production.	e.g. elimination of manual handling processes	с							П								- @в													effort depends on final risk sament. onmance test according to affect
		equipment or extension of existing equipment pool)				c				H															- -								Perto proce	ormance test according to affect ess change.
	PAS-NTC-EQ-03	Change in final test equipment type that uses a different technology	Р	P Change of final test equipment which use different technology. PCN required for dedicated equipment for sensitive parameters.	e.g. change of tester platform	с		•			-			-			-			-	. @B	-		-		-		-	-	-		- 6	∑• Gage	s R&R / delta correlation
		LOGISTICS / CAPACITY / TESTING - PROCESS FLOW		Change of manufacturing site.	e.g. movement or transfer of manufacturing with or					÷															_					_			_	
	PAS-NTC-PF-01	Manufacturing site transfer or movement of a part of production process to a different location/site	Р	Change of manufacturing site. Includes transfer as well as additional site. Note: Reorganization inside one plantiste is not attacted.	process step(s) to a different location/site.	В		•		٠		٠		•	• •	•	٠	•	• •	٠	• B	٠	•	-				-					№•	
		Elimination or addition of a manufacturing process slep LOGISTICS / CAPACITY / TESTING - Q-GATE	-	P Change of manufacturing process sequence.	e.g. washing / cleaning process e.g. change of order of processes	С		•		1			Ŀ											-						•		- (∑• Chara produ	sclerisation depends on impact scion flow.
		LOGISTICS / CAPACITY / TESTING - Q-GATE																																