

# 0.6um BICMOS Vanguard Qualification Summary

TABLE 1A: LTC4270 QUALIFICATION RESULTS

TEST	SPECIFICATION	SAMPLE SIZE (LOTS X SAMPLE)	RESULTS
High Temperature Operating Life (HTOL)	<b>JEDEC</b> <i>JESD22-A108</i>	3 x 77	Pass
Highly Accelerated Stress Test (HAST)**	<b>JEDEC</b> <i>JESD22-A110</i>	3 x 77	Pass
Temperature Cycle (TC)**	<b>JEDEC</b> <i>JESD22-A104</i>	3 x 77	Pass
Autoclave (AC)**	<b>JEDEC</b> <i>JESD22-A102</i>	3 x 77	Pass
High Temperature Storage Life (HTSL)	<b>JEDEC</b> <i>JESD22-A103</i>	3 x 45	Pass
Early Life Failure Rate (ELFR)	MIL-STD-883, M1015	3 x 800	Pass

TABLE 1B: LTC3850 QUALIFICATION RESULTS

TEST	SPECIFICATION	SAMPLE SIZE (LOTS X SAMPLE)	RESULTS
High Temperature Operating Life (HTOL)	<b>JEDEC</b> <i>JESD22-A108</i>	3 x 77	Pass
Highly Accelerated Stress Test (HAST)**	<b>JEDEC</b> <i>JESD22-A110</i>	3 x 77	Pass
Temperature Cycle (TC)**	<b>JEDEC</b> <i>JESD22-A104</i>	3 x 77	Pass
Autoclave (AC)**	<b>JEDEC</b> <i>JESD22-A102</i>	3 x 77	Pass
High Temperature Storage Life (HTSL)	<b>JEDEC</b> <i>JESD22-A103</i>	3 x 45	Pass
Early Life Failure Rate (ELFR)	MIL-STD-883, M1015	3 x 800	Pass

TABLE 1C: LTC3112 QUALIFICATION RESULTS

TEST	SPECIFICATION	SAMPLE SIZE (LOTS X SAMPLE)	RESULTS
High Temperature Operating Life (HTOL)	<b>JEDEC</b> <i>JESD22-A108</i>	3 x 77	Pass
Highly Accelerated Stress Test (HAST)*	<b>JEDEC</b> <i>JESD22-A110</i>	3 x 77	Pass
Temperature Cycle (TC)*	<b>JEDEC</b> <i>JESD22-A104</i>	3 x 77	Pass
Autoclave (AC)*	<b>JEDEC</b> <i>JESD22-A102</i>	3 x 77	Pass
High Temperature Storage Life (HTSL)	<b>JEDEC</b> <i>JESD22-A103</i>	3 x 45	Pass
Early Life Failure Rate (ELFR)	MIL-STD-883, M1015	3 x 800	Pass



## Vanguard International Semiconductor Corporation

### 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

## Allgemeines

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

Diese DeltaQualifikationsMatrizen wurden durch den Industriearbeitskreis "PCN DeltaQualifikationsMatrix" und den Bautelexperten 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 Bauelementhersteller)

- Diese Tabelle ist nur bei Änderungen anzuwenden. Neuqualifikationen und Sonderqualifikation (z.B. Verfüß von Modulen) sowie Information Notes bleiben von diesen Matrizen unberührt.
- Ist eine Änderung in dieser Tabelle nicht aufgeführt, so ist der Qualifikationsumfang zwischen Kunde und Lieferant abzustimmen.
- Die Matrix der Aktiven Bauelemente ist so aufgebaut, dass zwischen integrierten Halbleitern (AEC-Q100 Rev. H) und diskreten Halbleitern (AEC-Q101 Rev. D1) auszuwählen ist (Zelle D4). Für passive Bauelemente gilt die AEC-Q200. Für LED's gilt die AEC-Q102. Für Multi-Chip-Module gilt die AEC-Q104.
- 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.
- In "Tests, which should be considered for the appropriate process change after selection of condition table" wird die Anpassung der in Betracht zu ziehenden Tests in Folge der Relevanz bezüglich der Änderung berücksichtigt. Dazu ist die Tabelle "Conditions" entsprechend der Auswahl (A/B/C) mit einem (x) zu bewerten.
- In "Suppliers performed tests" dokumentiert der Bauelementhersteller die durchgeführten bzw. geplanten Tests.
- Falls von der Testempfehlung abgewichen wird, so sollten diese Abweichungen vom Bauelementhersteller 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 Bauelementhersteller durchführbar. Zur Evaluierung der Änderung dürfen Ergebnisse aus bereits durchgeführten Untersuchungen herangezogen werden, wenn diese zu einem ähnlichen Bauelement bereits vorliegen (**Generische Daten**).

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

## Information Notes

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

## Wichtige Hinweise

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

Form provided by ZVEI - Revision 4.1 - November 2019

# DeltaQualificationMatrix

## General

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

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

## DeltaQualificationMatrix Application (completion by component manufacturer)

- 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.
- If a change is not listed in this table, the qualification plan has to be defined and agreed between customer and supplier.
- The matrix for Active Components requires the user to choose between integrated circuits (AEC-Q100 Rev. H) and discrete semiconductors (AEC-Q101 Rev. D1) (cell D4). For Passive Components AEC-Q200 is used. For LED's the AEC-Q102 is used. For Multi-Chip-Modules the AEC-Q104 is used.
- 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".
- 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).
- In "Suppliers performed tests" the component manufacturer documents the planned and performed tests.
- In case of deviations from tests, which should be considered this should be notified and commented by the component manufacturer in the area "Reason for exception of tests". Test results in form of generic data (G) are allowed when notified and justified.

## Evaluation Levels are categorized as follows

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

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

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

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

## Information Notes

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

## Important Notes

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

# History of DeQuMa

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

Released by: D20, Revision 4, November 2018

Mark change with an "X"

ID	Type of change	No.	Yes	Assessment of impact on Supply Chain regarding following aspects - contractual agreements - technical feasibility of processability/manufacturability of customer - form, fit, function, quality performance, reliability	Remaining risks within Supply Chain?	Understanding of semiconductor experts	Examples to explain	Elaboration level (A-E)	Further applicable conditions	MATERIAL PERFORMANCE TEST RESULTS on the basis of AEC-Q104 Revision -September 14, 2017																												additional to AEC-Q104	Remarks
										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		
<b>ANY</b> Any change with impact on signed up technical contractual agreements MCM-AN-01 Any change with impact on processability/manufacturability of customer, which is not covered in the matrix below MCM-AN-02																																							
<b>DATA SHEET</b> MCM-DS-01 Change of disclaimer/parameter specification (pin,Pin,Pin,Pin, Pin, Pin) and/or ACCD specifications MCM-DS-02 Correction of data sheet errors MCM-DS-03 Specification of additional parameters																																							
<b>DESIGN</b> MCM-DE-01 Feature modification MCM-DE-02 Change that adds or extracts sub-components from the module BOM																																							
<b>PROCESS / ASSEMBLY / MATERIALS</b> MCM-PA-01 Replacement of any sub-component by a Non-AEC Qualified sub-component MCM-PA-02 Replacement of any sub-component by an AEC Qualified sub-component MCM-PA-03 Replacement of any sub-component by an AEC Qualified sub-component MCM-PA-04 Change with a sub-component that has been qualified MCM-PA-05 Change with a sub-component that has been qualified MCM-PA-06 Substrate change affecting module assembly MCM-PA-07 Change in the processes used in module assembly (e.g., pick & place, the attach, bonding, reflow, excitation, inspection, the conveyor, underfill, the preparation, the clean) MCM-PA-08 Process integrity during assembly MCM-PA-09 Change in material used in module assembly (e.g., wire, wire, conductive, adhesive, solder, epoxy, bump material, die attach material, form var, var, conductive, adhesive, solder paste, resin) MCM-PA-10 Change of direct assembly supplier MCM-PA-11 Change in assembly location MCM-PA-12 Change of product marking																																							
<b>PACKAGING / FINISH</b> MCM-PF-01 Packaging/finish specification change MCM-PF-02 On-pack requirements change MCM-PF-03 Change of conveyor flow, heat MCM-PF-04 Change of labeling MCM-PF-05 Change of labeling date on reel MCM-PF-06 Change of material label without impact on process MCM-PF-07 Change of material label information which affects data processing in customer																																							
<b>EQUIPMENT</b> MCM-EQ-01 Production from a new equipment which uses a different basic technology or which due to its unique form or function can be expected to influence the quality of the production MCM-EQ-02 Production from a new equipment which uses the same basic technology (replacement equipment or extension of existing equipment panel) without change of process MCM-EQ-03 Change in testing pattern Change in test equipment type leading to a different test concept																																							
<b>TEST FLOW</b>																																							









CERAMIC / NANOMATERIAL		MATERIAL	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
		<b>FAS-CER-MA-01</b>	Change of material composition - Ceramic Bricker	P	P	Bricker removal process	C																																	
		<b>FAS-CER-MA-02</b>	Change of material composition - Titanium Bricker	P	F	Bricker removal process	C																																	
		<b>FAS-CER-MA-03</b>	Change of material composition - Electrode	P	F	Electrode change current supply	C																																	
		<b>FAS-CER-MA-04</b>	Change of material composition - Electrode Alkali	P	F	Electrode which only work. (gas, carbon, Ag)	C																																	
		<b>FAS-CER-MA-05</b>	Change of material composition - Electrode Mineral	P	F	Electrode Mineral (only ceramic, inner material)	C																																	
		<b>FAS-CER-MA-06</b>	Change of material composition - Encapsulation	P	F	Encapsulation	C																																	
		<b>FAS-CER-MA-07</b>	Change of material composition - Lead material Termination	P	F	Lead material Termination	C																																	
		<b>FAS-CER-MA-08</b>	Change of material composition - Lead material Termination	F	F	Change to use a different material supplier at component manufacturer	C																																	
		<b>FAS-CER-MA-09</b>	Change of supplier of material	F	F	Change to use a different material supplier at component manufacturer	C																																	
		<b>DESIGN</b>																																						
		<b>FAS-CER-DE-01</b>	Change of termination, surface finish, shape, color, appearance or dimension structure - Lead Termination	I	P	Lead Termination	B																																	
		<b>FAS-CER-DE-02</b>	Change of termination, surface finish, shape, color, appearance or dimension structure - Termination Area	I	P	Termination Area	B																																	
		<b>FAS-CER-DE-03</b>	Change of termination, surface finish, shape, color, appearance or dimension structure - Termination Area	I	P	Termination Area	B																																	
		<b>FAS-CER-DE-04</b>	Change of inner construction - Electrical Thickness	I	P	Electrical Thickness (Electric ins)	C																																	
		<b>FAS-CER-DE-05</b>	Change of inner construction - Layer Thickness	I	P	Layer Thickness (dielectric thickness)	C																																	
		<b>FAS-CER-DE-06</b>	Change of inner construction - Number of Layers	I	P	Number of layers (Electric ins)	C																																	
		<b>PROCESS</b>																																						
		<b>FAS-CER-PR-01</b>	Change in process technology or manufacturing methods - Glue	P	P	Change of Glue	C																																	
		<b>FAS-CER-PR-02</b>	Change in process technology or manufacturing methods - Electrode apply	P	P	Electrode apply (dielectric layer process)	C																																	
		<b>FAS-CER-PR-03</b>	Change in process technology or manufacturing methods - Firing	P	P	Change of firing profile	C																																	
		<b>FAS-CER-PR-04</b>	Change in process technology or manufacturing methods - Termination	P	P	Change of termination - print technology	C																																	
		<b>FAS-CER-PR-05</b>	Change in process technology or manufacturing methods - Particle Size	P	P	Change of particle particle size. Always in combination with FAS-CER-MA-03	C																																	
		<b>FAS-CER-PR-06</b>	Change in process technology or manufacturing methods - Screening/Printing	P	P	Change of screening / printing	C																																	
		<b>FAS-CER-PR-07</b>	Change in process technology or manufacturing methods - Termination	P	P	Change for termination preparation (the printing or the termination layer level)	C																																	
		<b>FAS-CER-PR-08</b>	Process regularly, timing with specification	P	P	Verify within process specification	C																																	
		<b>PACKING / SHIPPING - NEW MATERIAL - CRITICAL DIMENSIONS</b>																																						
		<b>FAS-CER-PA-01</b>	Packing - shipping specification change (inserting of tolerance)	P	P	Change of packing specification	B																																	
		<b>FAS-CER-PA-02</b>	Dry pack requirements change	P	P	Change of drypack requirements	C																																	
		<b>FAS-CER-PA-03</b>	Change of carrier (Dry, roll)	P	P	Change of carrier	B																																	
		<b>PACKING / SHIPPING - VISUAL INSPECTION</b>																																						
		<b>FAS-CER-PI-01</b>	Change of labeling	I	P	Change of labeling, also on reel	B																																	
		<b>FAS-CER-PI-02</b>	Change of product marking	I	P	Marking on device	B																																	
		<b>FAS-CER-PI-03</b>	Change of packaging/shipping specification	P	P	Change in packaging specification which does not decrease a change of dimensions or amount of the packing	C																																	
		<b>LOGISTICS / CAPACITY / TESTING - EQUIPMENT</b>																																						
		<b>FAS-CER-EQ-01</b>	Production from a new equipment/which uses a different technology or which due to its unique form of function (can be expected to influence the integrity of the final product)	P	P	Change in process technique which is not always covered by the product control (covered by the table require also a FCN)	C																																	
		<b>FAS-CER-EQ-02</b>	Production from a new equipment/which uses the same basic technology (implement equipment or extension of existing equipment)	P	P	FCN required for dedicated equipment for sensitive component production	C																																	
		<b>FAS-CER-EQ-03</b>	Change in final test equipment type that uses a different technology	P	P	Change of final test equipment which uses different technology FCN required for dedicated equipment for sensitive parameters	C																																	
		<b>LOGISTICS / CAPACITY / TESTING - PROCESS FLOW</b>																																						
		<b>FAS-CER-PT-01</b>	Manufacturing site transfer or replacement of a part of production process to a different location/site	P	P	Change of manufacturing site. Includes transfer as well as additional site. New transportation route are possible in add affected	B																																	
		<b>FAS-CER-PT-02</b>	Extension or addition of a manufacturing process step	P	P	Change of manufacturing process sequence	C																																	
		<b>LOGISTICS / CAPACITY / TESTING - G-GATE</b>																																						
		<b>FAS-CER-GG-01</b>	Change of test coverage used by the supplier to ensure data sheet compliance (e.g., introduction of electrical measurement test flow, validation/qualification of new testing procedure or sampling)	P	P	Change of test coverage	C																																	
		<b>NEW CAPACITORS NEW</b>																																						
		<b>FAS-FIL-NA-01</b>	Any change with impact on agreed technical contractual agreements	P	F	Related to be used if no other type of change is suitable for the change after agreed																																		
		<b>FAS-FIL-NA-02</b>	Any change with impact on processability/manufacturability of customer, which is not covered in the contract	P	F	Technical interface means component terminals	B																																	
		<b>DATABASE</b>																																						
		<b>FAS-FIL-DB-01</b>	Change of database parameters/electrical specification (res, temp, app, value) and / or AGC/AGC specification	P	F	Change of application relevant information for customer. Critical changes	A																																	
		<b>FAS-FIL-DB-02</b>	Correction of data sheet or issue of errors	I	F	No technical change of product, process or test description of behavior which does not affect the test or which is different from used specifications. Please refer to the test instructions column this type of change does not require a justification request!	A																																	
		<b>FAS-FIL-DB-03</b>	Specification of additional parameters	I	F	Description of a new not previously covered parameter. No technical change of the product. FCN evaluation. FCN risk assessment depending on change to test instructions to provide evidence of additional parameters (test, evaluation)	A																																	
		<b>MATERIAL</b>																																						
		<b>FAS-FIL-MA-01</b>	Change of material composition - Sealing Compound	P	P	Typical change within epoxy or PU, sealing without affect mechanical properties. Note: Change from epoxy resin into PU means that electrical values will be given a new evaluation!	C																																	
		<b>FAS-FIL-MA-02</b>	Change of material composition - Package	P	P	Change material of package	B																																	
		<b>FAS-FIL-MA-03</b>	Change of material composition - Lead/Termination	P	P	Change of Lead/Termination. Note: If change of lead frame material leads to a FCN change, the change of data sheet (FAS-FIL-DB-01) has to be requested!	B																																	
		<b>FAS-FIL-MA-04</b>	Change of material composition - Mold Spray (Schröck)	P	P	Change of Mold Spray (Schröck, like different material like epoxy resin) process for board and lead	C																																	
		<b>FAS-FIL-MA-05</b>	Change of material composition - Film	P	P	Change of film material for board and metal lead	C																																	
		<b>FAS-FIL-MA-06</b>	Change of material composition - Metal Pad	P	P	Change of metal pad for inner electrode	C																																	
		<b>FAS-FIL-MA-07</b>	Change of supplier of material	F	F	Change to use a different material supplier at component manufacturer which are described above	C																																	
		<b>DESIGN</b>																																						
		<b>FAS-FIL-DE-01</b>	Change of termination, surface finish, shape, color, appearance or dimension structure - Lead Termination	I	P	Change of lead diameter thickness	B																																	





Category	Item ID	Description	Impact	Priority	Control	Risk	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	121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