APPLICATION FOR ESCC QUALIFICATION APPROVAL

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Component Title: TRANSISTORS, POWER, MOSFET, N-CHANNEL, RADHARD BASED ON TYPE BUY15CS

Appl. No. 339

Executive Member: DLR Date: 17/05/2016

Components (including series and families) submitted for Qualification Approval — 1

ESCC COMPONENT. NO.	VARIANTS	RANGE OF COMPONENTS	BASED ON	TEST VEHICLE / S	COMPONENT SIMILAR
520503101R	01	All	BUY15CS23J	BUY15CS23J-01-(ES)	
520503102R	02	All	BUY15CS57A	BUY15CS57A-01(ES)	
520503103R	03	All	BUY15CS23K	BUY15CS23K-01(ES)	
520503104R	04	All	BUY15CS45B	BUY15CS45B-01(ES)	

2 Component Manufacturer
Infineon Technologies AG

3 Location of Manufacturing Plant
Am Campeon 1-12
D-85579 Neubiberg
Germany

4 ESCC Specification used for Qualification
Generic: ESCC 5000
Issue Iss. 6, Jan 2010
Detail/s: ESCC 5205/031
Issue Iss. 1, May 2016

5 Qualification Report Reference and date:
1228LR30, Iss 1, 1228LR31, Iss. 1, 1228LR32, Iss. 1, 1228LR33, Iss. 1
Date: 01/03/2016

6 **PID** used for manufacturing Qualification Lot
Ref No: A63500–L5491–P000-*- 76K5
Issue: 3
Date: 01/09/2015

7 **PID** changes since start of qualification
None ☒
Minor* ☐
Major* ☐
(* Details not published, provided in confidential annex 2.)

8 Current **PID** Verified by G. Joormann
Name of Executive Representative
Ref No: A63500 – GEPID – P000 - * - 76K5 + Det. PID in box 6
Issue 1B / 3
Date 01.03.2014 / 01.09.2015

9 Current Manufacturing facilities surveyed by:
G. Joormann — 08/10/2015
(Name of Executive Responsible) — (Date)
IFX-AUD-2015
Report Reference
Satisfactory: Yes ☒ No ☐ Explain

10 Quality and Reliability Data
Evaluation testing performed Yes ☒ No ☐
Report Ref. No.: 1218ET10 Date: 01/10/2015
Equivalent Data:
Certification:

Failure analysis, DPA, NCCS available Yes ☐ No ☒
CA no 12C15-883 acc. to RA.0010. 900.10

Ref Nos. and purpose:
CA No 12C15-883 per RA.0010.900.10 + Construction Analysis is available from 250V activities (CA0628 (SMD) & CA0654 (TO))

Component Title: TRANSISTORS, POWER, MOSFET, N-CHANNEL, RADHARD BASED ON TYPE BUY15CS

Executive Member: DLR Date: 17/05/2016

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The undersigned hereby certifies on behalf of the ESCC Executive, that the above information is correct; that the appropriate documentation has been evaluated; that full compliance to all ESCC requirements is evidence except as stated in box 13; that the reports and data are available at the ESCC Executive and therefore applies for ESCC qualification status to be given to the component(s) listed herein.

Date: 17/05/2016

G. Joormann

(Signature of the Executive Coordinator)

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Continuation of Boxes above: (Only non-confidential comments)

TD and SEE evaluation test performed as part of the evaluation.

Non compliance to ESCC requirements: 13

No.:	Specification	Paragraph	Non compliance
1	ESCC 5000	F4	no environmenatal / mechanical SG performed

Additional tasks required to achieve full compliance for ESCC qualification or rationale for acceptability of noncompliance: 1. based on similarity with qualified MOSFETs made by the same manufacturer- see QPL 14

Executive Manager Disposition 15

Application Approval: Yes X No ☐

Action / Remarks:

Date:

Signature, ESA Representative

ANNEX 1: LIST OF TESTS DONE TO SUPPORT QUALIFICATION

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Tests conducted in compliance with:

- ESCC 5000 generic specification; Chart F4 (for ESCC/QPL parts);
- Or PID-TFD (for ESCC/QML parts)

Tests vehicle identification/description:

BUY15CS57A-01	BUY15CS23J-01

Detail Specification reference: ESCC 5205/031

Chart F4	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	N° of Rejects	Comments if not performed. Comments on Rejection
Environmental/Mechanical Subgroup	Mechanical shock	☐	MIL-STD-750 TM2016				Similarity with QPL MOSFET
	Vibration	☐	MIL-STD-750 TM2056				Similarity with QPL MOSFET
	Constant acceleration	☐	MIL-STD-750 TM2006				Similarity with QPL MOSFET
	Seal Fine leak Gross leak	☐	MIL-STD-750 TM1071				Similarity with QPL MOSFET
	Electrical Measurement	☐	Intermediate and End-Point Electrical Measurements				Similarity with QPL MOSFET
	External Visual	☐	ESCC Basic spec 20500				Similarity with QPL MOSFET
	Thermal shock	☐	MIL-STD-750 TM1056				Similarity with QPL MOSFET
	Temperature Cycling	☐	MIL-STD-750 TM1051				Similarity with QPL MOSFET
	Moisture Resistance	☐	MIL-STD-750 TM1021				Similarity with QPL MOSFET
	Seal Fine leak Gross leak	☐	MIL-STD-750 TM1071				Similarity with QPL MOSFET
	Electrical Measurement	☐	Intermediate and End-Point Electrical Measurements				Similarity with QPL MOSFET
	External Visual	☐	ESCC Basic spec 20500				Similarity with QPL MOSFET
Endurance Subgroup	Operating Life	☒	ESCC 5000 Para. 8.19	1540A / 1540C	16+19+18	0	
	Electrical Measurement	☒	Intermediate and End-Point Electrical Measurements	1540A / 1540C	20+18	0	
	Seal Fine leak Gross leak	☒	MIL-STD-750 TM1071	1540A / 1540C	20+16+18	0	
	External/Internal Visual Inspection	☒	ESCC Basic spec 20500	1540A / 1540C	16+19+18	0	
	Permanence of Marking	☒	ESCC Basic spec 24800	1540A	6+	0	

NOTES ON THE COMPLETION OF THE APPLICATION FORM FOR ESCC QUALIFICATION APPROVAL

ENTRIES

Form Heading	shall indicate:— the title of the component as given in its detail specification or the name of the series or family; — the entering date; — the serial number and the suffix of the form.
Box 1	shall provide details given in table; in particular there shall be listed - the variants or range of variants; the range of components by using the ESCC code for values tolerances, etc.; the designation given in detail specification as 'based on'; —under Test Vehicle enter either a cross or the specific characteristic capable to identify the component tested; — under component similar enter a cross.
Box 2 and 3	Manufacturer's name and location of plant where the components were manufactured and tested.
Box 4	Generic and detail specifications used during qualification program.
Box 5	Reference to test report(s) submitted in support of application.
Box 6	Enter details to identify the PID that was applicable at the time the qualification lot was manufactured.
Box 7	If the PID was evolved after qualification lot manufacture, adequate details of such evolution shall be provided together with reasons for changes. Major changes shall be clearly marked.
Box 8	The box serves to identify the current PID and the Executive Representative that has verified it together with the date of this occurrence.
Box 9	This box can be completed only after a physical visit to the plant to confirm that the practices, procedures, materials, etc. used in manufacturing the components are as described in the PID. This survey shall be carried out in accordance with the requirements of ESCC Basic Specification No. 20200 and its findings shall be recorded.
Box 10	Details entered shall be sufficient to evidence that an evaluation program according to ESCC Basic Specification No. 22600 has been performed and that the results thereof are summarized in the survey and test reports. If the evaluation program has not been carried out according to established ESCC documents, the applicant Executive Representative shall provide alternative data and declare its assessed degree of satisfactory compliance with the ESCC basic requirements. Reference shall be made to the reports on Destructive Physical Analysis (DPA), Failure Analysis and Non conformance (NCCS) issued during the Evaluation and/or Qualification Phase.
Box 11	Enter the name of the Executive Coordinator and the signature.
Box 12	To be used when there is a need to expand any of the boxes from 1 through 10. Identify box affected and reference the Box 12 in the relevant Box. Box 12 can be broken into 12a, 12b, etc. if several Boxes have to be expanded.
Box 13	Fill table as requested.
Box 14	Fill in any additional tasks required to achieve full compliance.
Box 15	All Executive recommendations on the application itself, special conditions or restrictions, modifications of the QPL or ESCC QML entry, letters to the manufacturer, etc. shall be entered clearly in Box 15, signed by the ESA Representative.
Box 16	Fill in Table as requested.
Box 17	Confidential details of PID changes shall be provided.
Box 18	State noncompliance with reference to specification(s) and paragraph(s). To simplify reference in Box 18 each nonconformance shall be sequentially numbered. If relevant state 'None'
Box 19	Any additional action deemed necessary by the Executive Representative to bring the submitted data to a standard likely to be accepted by the ESCC Executive should be listed herein or the reason(s) to accept the nonconformance.
Box 20	Additional Comments