Product Qualification Report

BSS139I

Small Signal MosFETs

Description

This product qualification report describes the characteristics of the product with respect to quality and reliability.

The qualification sample selection was done on production lots which were manufactured and tested on standard production processes and meet the defined requirements.

The qualification test results of those products as outlined in this document are based on **JEDEC** for target applications and may reference existing qualification results of similar products. Such referencing is justified by the structural similarity of the products.

Qualification Assessment

Fully qualified according to **JEDEC** for **Industrial Applications** and assessed as PASS

For further information about comparable products, please contact the nearest Infineon Technologies office (www.infineon.com).

qualified since February 2021

BSS139I
PG-SOT23-3
MSL: 1, 260°C

Electrical Stress Test Results:

Test Description	Abbr.	Condition	Duration	Lots/SS	Fail/Qty	Result
High Temperature Reverse Bias JESD22 A108	HTRB	Ta = 150°C/175°C ** $V_{DS} = V_{DS,max}$	1000 h	3 x 77	0 / 231	PASS
High Temperature Gate Bias JESD22 A108	HTGB	Ta = 150°C/175°C ** $V_{GS} \geq \pm 80\% V_{GS,max}$	1000 h	3 x 77	0 / 231	PASS
High Humidity High Temperature Reverse Bias JESD22 A101	H3TRB*	Ta = 85°C RH = 85% $V_{DS} = 80\% V_{DS,max}$	1000 h	3 x 77	0 / 231	PASS
Intermitted Operational Life Test MIL-STD 750 / Meth.1037	IOL*	Delta T =100K	15000 cyc.	3 x 77	0 / 231	PASS
ESD (HBM) JESD22-A114	HBM****	0B (125 V to < 250 V)		1 x 3	0 / 3	PASS
ESD (CDM) JESD22-C101	CDM****	C3 (> 1000 V)		1 x 3	0 / 3	PASS

Environmental Stress Test Results:

Test Description	Abbr.	Condition	Duration	Lots/SS	Fail/Qty	Result
Pre-conditioning (SMD device only) J-STD020 / JESD22 A113	PC	MSL and 3x reflow 260°C		3 x 308	0 / 924	PASS
Resistance to Solder Heat (TH device only) JESD B-106	SHR	Solder dip Ts=260°C 3x 10 sec		3x 22	0 / 66	PASS
Temperature Cycling JESD22 A104	TC*	-55°C to +150°C	1000 cyc.	3 x 77	0 / 231	PASS
Autoclave*** JESD22 A102 **or** Unbiased Highly Accelerated Stress Test *** JESD22 A118	AC* UHAST*	Ta=121°C RH=100% Ta = 130°C RH = 85%	96 h	3 x 77	0 / 231	PASS

Mechanical Stress Test Results:

Test Description	Abbr.	Condition	Duration	Lots/SS	Fail/Qty	Result
Physical Dimensions JESD B-100	PD			3 x 10	0 / 30	PASS
Solderability J-STD-002	SD			3 x 5	0 / 15	PASS

Notes:

* For SMD devices reliability stress tests are performed after preconditioning test (PC) according to JESD22

** Specifically used stress temperature is according to product capability documented in the product datasheet

*** Selection of used stress test depending on specific availability of respective reliability stress equipment

**** ESD classification calculated based on an empirical model extracted per technology/package

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Document reference

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