Product Qualification Report

IRL40S212

Trench ULV

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

Qualified according to **JEDEC Standard** and assessed as PASS

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

Qualified 2020

IRL40S212
PG-TO263-3
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} = 80% $V_{DS,max}$	1000h	3 x 77	0 / 231	PASS
High Temperature Gate Bias JESD22 A108	HTGB	Ta = 150°C/175°C** V_{GS} =80% $V_{GS,max}$	1000h	3 x 77	0 / 231	PASS
Temperature Humidity Bias*** JESD22 A101 **Or** Biased Highly Accelerated Stress Test*** JESD22 A110	THB* HAST*	Ta = 85°C RH = 85% V_{DS} = 80% $V_{DS,max}$ **** Ta = 130°C RH = 85% V_{DS} = 80% $V_{DS,max}$ ****	1000 h 96h	3 x 77	0 / 231	PASS
Intermitted Operational Life Test MIL-STD 750 / Meth.1037	IOL*	Delta T=100K	8572 cycles	3 x 77	0 / 231	PASS
ESD (HBM). JESD22 A114	HBM	3A (4000 V to < 8000 V)				
ESD (CDM). JESD22 C101	CDM	C3 (> 1000 V)				

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		4 x 231	0 / 924	PASS
Temperature Cycling JESD22 A104	TC*	-55°C to +150°C	1000 cycles	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%	 96h	3 x 77	0 / 231	PASS

Notes:

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

** According to product datasheet Tj maximum rating

*** Selection based on equipment and hardware availability

**** See AEC Q101 Rev. D1 Table 2 for reference

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Document reference

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