Product Qualification Report

IMW40R045M2H

CoolSiC™

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).

IMW40R045M2H **qualified 2024**
PG-TO247-3
MSL: not applicable

Electrical Stress Test Results:

Test Description	Abbr.	Condition	Duration	Lots/SS	Fail/Qty	Result
Parametric Verification	PV	-55°C, +25°C, +150°C		3 x 30	0 / 90	PASS
High Temperature Reverse Bias JESD22 A108	HTRB*	Ta = 175°C V_{DS} = 100% VDS max	1000 h	3 x 77	0 / 231	PASS
High Temperature Gate Stress JESD22 A108	HTGS*	Ta = 175°C V_G = -7 V, + 23 V	1000 h	3 x 77	0 / 231	PASS
High Humidity High Temp. Reverse Bias JESD22 A101	H3TRB*	Ta = 85°C rh = 85% V_{DS} = 80% VDS 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) JEDEC JS-001	HBM	Class 1B (500 V to < 1000 V)				PASS
ESD (CDM) JEDEC JS-002	CDM	Class C3 (> 1000 V)				PASS

Environmental Stress Test Results:

Test Description	Abbr.	Condition	Duration	Lots/SS	Fail/Qty	Result
Pre-conditioning JESD22 A113	PC	MSL and 3 x reflow		N.A.	N.A.	N.A.
Temperature Cycling JESD22 A104	TC*	-55°C to +150°C	1000 cyc	3 x 77	0 / 231	PASS
Unbiased Highly Accelerated Stress Test JESD22 A118	UHAST*	Ta = 130°C rh = 85%	96 h	3 x 77	0 / 231	PASS

Mechanical Stress Test Results:

Test Description	Abbr.	Condition	Duration	Lots	Fail/Qty	Result
Destructive Physical Analysis	DPA	samples from UHAST & TC		3	0 / 3	PASS

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

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