Product Qualification Report

SPA21N50C3

CoolMOS™

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).

SPA21N50C3 **qualified since 2003**
PG-TO220-3
MSL: NA; through hole device

Electrical Stress Test Results:

Test Description	Abbr.	Condition	Duration	Lots/SS	Fail/Qty	Result
Parametric Verification	PV	-55°C, +25°C, +150°C		2 x 30	0 / 60	PASS
High Temperature Reverse Bias JESD22 A108	HTRB*	Ta ≥ 150°C V_{DS} ≥ 720V	1000 h	4 x 77	0 / 308	PASS
High Temperature Gate Bias JESD22 A108	HTGB*	Ta = 150°C V_{GS} = +/-20V	1000 h	4 x 77	0 / 308	PASS
High Humidity High Temp. Reverse Bias JESD22 A101	H3TRB*	Ta = 85°C rh = 85% V_{DS} = 80V	1000 h	4 x 77	0 / 308	PASS
Intermitted Operational Life Test MIL-STD 750 / Meth.1037	IOL*	Delta T =100K	10000 cyc	2 x 77 1 x 45	0 / 154 0 / 45	PASS
ESD (HBM) JESD22-A114	HBM	Class 2 2000V to < 4000V				PASS
ESD (CDM) JESD22-C101	CDM	Class C3 ≥ 1000V				PASS

Environmental Stress Test Results:

Test Description	Abbr.	Condition	Duration	Lots/SS	Fail/Qty	Result
Pre-conditioning J-STD020 / JESD22 A113	PC	MSL and 3 x reflow				
Temperature Cycling JESD22 A104	TC*	-55°C to +150°C	1000 cyc	4 x 77	0 / 308	PASS
Autoclave JESD22 A102	AC*	Ta = 121°C rh = 100%	96 h	4 x 77	0 / 308	PASS

Mechanical Stress Test Results:

Test Description	Abbr.	Condition	Duration	Lots	Fail/Qty	Result
Destructive Physical Analysis	DPA	samples from AC or UHAST & TC		4	0 / 4	PASS

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

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Document reference

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