# Product Qualification Report

# IPAN50R500CE

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

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).

# IPAN50R500CE
# PG-TO220-3
# MSL: NA; through hole device

**qualified since 2012**

**Electrical Stress Test Results:**

| Test Description | Abbr. | Condition | Duration | Lots/SS | Fail/Qty | Result |
|---|---|---|---|---|---|---|
| Parametric Verification | PV | -55°C, +25°C, +150°C | | 6 x 30<br>5 x 50<br>1 x 77 | 0 / 180<br>0 / 250<br>0 / 77 | PASS |
| High Temperature Reverse Bias<br>JESD22 A108 | HTRB* | Ta ≥ 150°C<br>$V_{DS}$ ≥ 400V | 500 h | 12 x 77 | 0 / 924 | PASS |
| High Temperature Gate Bias<br>JESD22 A108 | HTGB* | Ta = 150°C<br>$V_{GS}$ = +/-20V | 500 h | 12 x 77 | 0 / 924 | PASS |
| High Humidity High Temp.<br>Reverse Bias<br>JESD22 A101 | H3TRB* | Ta = 85°C<br>rh = 85%<br>$V_{DS}$ = 80V | 500 h | 12 x 77 | 0 / 924 | PASS |
| Intermitted Operational Life Test<br>MIL-STD 750 / Meth.1037 | IOL* | Delta T =100K | 7500 cyc | 12 x 77 | 0 / 924 | PASS |
| ESD (HBM)<br>JESD22-A114 | HBM | Class 1B<br>500V to < 1000V | | | | PASS |
| ESD (CDM)<br>JESD22-C101 | CDM | Class C3<br>≥ 1000V | | | | PASS |

**Environmental Stress Test Results:**

| Test Description | Abbr. | Condition | Duration | Lots/SS | Fail/Qty | Result |
|---|---|---|---|---|---|---|
| Pre-conditioning<br>J-STD020 / JESD22 A113 | PC | MSL and 3 x reflow | | 7 x 462 | 0 / 3234 | PASS |
| Temperature Cycling<br>JESD22 A104 | TC* | -55°C to +150°C | 500 cyc | 12 x 77 | 0 / 924 | PASS |
| Autoclave<br>JESD22 A102 | AC* | Ta = 121°C<br>rh = 100% | 96 h | 12 x 77 | 0 / 924 | PASS |
| Wave solder simulation<br>for SMD devices<br>JESD22 A111 | WS* | T=260°C / 1 x 10sec and<br>Temperature Cycling<br>-55°C to +150°C; 100 cyc. | | 6 x 30 | 0 / 180 | PASS |

**Notes:**

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

**Trademarks**
All referenced product or service names and trademarks are the property of their respective owners.

**Edition 2016-01-22**

**Published by**

**Infineon Technologies AG**

**81726 München, Germany**

**© 2018 Infineon Technologies AG. All Rights Reserved.**

**Do you have a question about this document?**

**Email: erratum@infineon.com**

**Document reference**

**n.a.**

**IMPORTANT NOTICE**

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffenheitsgarantie").

With respect to any examples, hints or any typical values stated herein and/or any information regarding the application of the product, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

In addition, any information given in this document is subject to customer's compliance with its obligations stated in this document and any applicable legal requirements, norms and standards concerning customer's products and any use of the product of Infineon Technologies in customer's applications.

The data contained in this document is exclusively intended for technically trained staff. It is the responsibility of customer's technical departments to evaluate the suitability of the product for the intended application and the completeness of the product information given in this document with respect to such application.

For further information on the product, technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies office (**www.infineon.com**).

**WARNINGS**

Due to technical requirements products may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by Infineon Technologies in a written document signed by authorized representatives of Infineon Technologies, Infineon Technologies' products may not be used in any applications where a failure of the product or any consequences of the use thereof can reasonably be expected to result in personal injury.