# Product Qualification Report

# IPA50R650CE

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).

**IPA50R650CE** **qualified since 2012**
**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 | | 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

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

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**Document reference**

**n.a.**

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