# Product Qualification Report

# IPP039N10N5

Trench >=100V

## 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).

**qualified since January 2017**

# IPP039N10N5
# PG-TO220-3
# MSL: N/A

### Electrical Stress Test Results:

| Test Description | Abbr. | Condition | Duration | Lots/SS | Fail/Qty | Result |
|---|---|---|---|---|---|---|
| High Temperature Reverse Bias<br>JESD22 A108 | HTRB | Ta = 150°C/175°C **<br>$V_{DS} = V_{DS,max}$ | 1000 h | 3 x 77 | 0 / 231 | PASS |
| High Temperature Gate Bias<br>JESD22 A108 | HTGB | Ta = 150°C/175°C **<br>$V_{GS} \geq \pm 80\% V_{GS,max}$ | 1000 h | 3 x 77 | 0 / 231 | PASS |
| High Humidity High Temperature Reverse Bias<br>JESD22 A101 | H3TRB* | Ta = 85°C<br>RH = 85%<br>$V_{DS} = 80\% V_{DS,max}$ | 1000 h | 3 x 77 | 0 / 231 | PASS |
| Intermitted Operational Life Test<br>MIL-STD 750 / Meth.1037 | IOL* | Delta T =100K | 15000 cyc. | 3 x 77 | 0 / 231 | PASS |
| ESD (HBM)<br>JESD22-A114 | HBM**** | 2<br>( 2000 V to < 4000 V ) | | 1 x 3 | 0 / 3 | PASS |
| ESD (CDM)<br>JESD22-C101 | CDM**** | C3<br>( > 1000 V ) | | 1 x 3 | 0 / 3 | PASS |

### Environmental Stress Test Results:

| Test Description | Abbr. | Condition | Duration | Lots/SS | Fail/Qty | Result |
|---|---|---|---|---|---|---|
| Pre-conditioning (SMD device only)<br>J-STD020 / JESD22 A113 | PC | MSL and 3x<br>reflow 260°C | | 3 x 308 | 0 / 924 | PASS |
| Resistance to Solder Heat (TH device only)<br>JESD B-106 | SHR | Solder dip<br>Ts=260°C<br>3x 10 sec | | 3x 22 | 0 / 66 | PASS |
| Temperature Cycling<br>JESD22 A104 | TC* | -55°C to +150°C | 1000 cyc. | 3 x 77 | 0 / 231 | PASS |
| Autoclave***<br>JESD22 A102<br>**or**<br>Unbiased Highly Accelerated Stress Test ***<br>JESD22 A118 | AC*<br><br><br>UHAST* | Ta=121°C<br>RH=100%<br><br>Ta = 130°C<br>RH = 85% | 96 h | 3 x 77 | 0 / 231 | PASS |

### Mechanical Stress Test Results:

| Test Description | Abbr. | Condition | Duration | Lots/SS | Fail/Qty | Result |
|---|---|---|---|---|---|---|
| Physical Dimensions<br>JESD B-100 | PD | | | 3 x 10 | 0 / 30 | PASS |
| Solderability<br>J-STD-002 | SD | | | 3 x 5 | 0 / 15 | PASS |

**Notes:**

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

** Specifically used stress temperature is according to product capability documented in the product datasheet

*** Selection of used stress test depending on specific availability of respective reliability stress equipment

**** ESD classification calculated based on an empirical model extracted per technology/package

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**Document reference**

**n.a.**

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