

# Product Qualification Report

## FF1400R12IP4P

PrimePACK™ 3

### 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 **IEC standards** 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 **IEC Standard** and assessed as PASS

For further information about comparable products, please contact the nearest Infineon Technologies office ([www.infineon.com](http://www.infineon.com)).

## FF1400R12IP4P PrimePACK™ 3

Part of family qualification for:

FFxx00R12Ix4, FFxx00R12Ix4P, FFxx00R12Ix4D

FDxx00R12Ix4D, DFxx00R12Ix4D

(Ix = IP, IE)

Test Description	Abbr.	Condition	Devices	Result
High Temperature Reverse Bias IEC 60747-9 *)	HTRB	1.000 h $V_{CE} = 0,9 \times V_{CES}$ (DC) $V_{CE} = 1.080$ V $T_{vj} = T_{vj\ op\ max}$	≥ 72 dies	PASS
High Temperature Gate Stress IEC 60747-9 *)	HTGS	1.000 h $V_{GE} = \pm 20$ V (DC) $T_a = T_{vj\ op\ max}$	≥ 72 dies	PASS
High Humidity High Temperature Reverse Bias IEC 60749-5 *)	H3TRB	1.000 h $T_a = 85$ °C; RH = 85% $V_{CE} = 80$ V (DC)	≥ 72 dies	PASS
Power Cycling [sec.] IEC 60749-34	PC	100.000 Cycles $\Delta T_{vj} = 80$ K $T_{vj\ max} = T_{vj\ op\ max}$	≥ 6 modules	PASS
Thermal Cycling (passive test) Internal Guideline	TC	10.000 Cycles $\Delta T_c = 80$ K	≥ 8 modules	PASS
Thermal Shock Test (two chamber) IEC 60749-25	TST	100 Cycles $T_{a=} -40$ °C to + 150 °C	≥ 8 modules	PASS
Vibration (Sine Sweep) IEC 60068-2-6 *)	VIB	5 h each direction (x, y, z) $f = 5 \dots 200$ Hz $f1 = 5 \dots 13$ Hz: $A = 7,5$ mm (const.) $f2 = 13 \dots 200$ Hz: $a = 50$ m/s <sup>2</sup> $v = 1$ Octave/min.	≥ 3 modules	PASS
ESD-Level (HBM) JESD22-A114	HBM	$R = 1.5$ kΩ; $C = 100$ pF	≥ 3 modules	Class 2 2.000 V to < 4.000 V

### Notes:

\*) Standards are taken as a reference; slight variations from the standards according to Infineon regulations may occur.

#### Trademarks

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

**Edition 2018-11-21**

**Published by**

**Infineon Technologies AG**

**81726 München, Germany**

**© 2019 Infineon Technologies AG.**

**All Rights Reserved.**

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

**Email: [erratum@infineon.com](mailto: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 ("Beschaffheitsgarantie").

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](http://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.