

Quarterly Reliability Monitoring Results

Quarters: Q1/2022 to Q4/2023

Based on structural similarity

| Supplier | | User Part Number | | | | |
|---------------------------|--|--|-----------|------------|-----------|--|
| Nexperia B.V. | | PESD3V3R1BBSF | | | | |
| Name of Laboratory | | Part Description | | | | |
| Assembly reliability labs | | NXP ICN8 Protection INDI BD package | | | | |
| Test | Test Conditions | Duration | # Lots | # Quantity | # Rejects | |
| # 1 | TEST Pre- and Post-Stress Electrical Test Tamb = 25 °C | N/A | see below | all parts | see below | |
| # 5 | HTRB High Temperature Reverse Bias MIL-STD-750-1 M1038 Method A Tj = Tjmax, Vr = 100% of max. datasheet reverse voltage | 1000 hours | 92 | 4040 | 0 | |
| # 7 | TC Temperature Cycling JESD22-A104 -40 °C to 125°C | 1000 cycles | 157 | 6880 | 0 | |
| # 8 or | UHAST Unbiased HAST JESD22-A118 Tamb = 130 °C, RH = 85 % | 96 hours | n.a. | n.a. | n.a. | |
| # 8a | AC Autoclave JESD22-A102 Tamb = 121 °C, RH = 100 % Pressure = 205 kPa (29.7 psia) | | | | | |
| # 9 | HAST Highly Accelerated Stress Test JESD22-A110 Tamb = 130 °C, RH = 85%, VR = 80 % of rated reverse voltage ^[1] | 96 hours | 156 | 6840 | 0 | |
| # 10 | IOL Intermittent Operating Life MIL-STD-750 Method 1037 ton = toff, devices powered to insure ΔTj = 100 °C for 15000 cycles | 1000 hours | n.a. | n.a. | n.a. | |
| # 20 | RSH Resistance to Solder Heat JESD22-A111 260 °C ± 5 °C | 10 s | n.a. | n.a. | n.a. | |
| # 21 | SD Solderability J-STD-002 | | 8 | 240 | 0 | |

[1] The maximum applied voltage is limited by test chamber set up and does not exceed 115V.

Calculation of FIT and MTF

Test considered for FIT calculation: High Temperature Reverse Bias (HTRB, Test # 5)

Confidence level 60%, derated to 55 °C, activation energy 0.7 eV, test time 168 to 1000 hours

| Wafer Fab | Technology | Quantity | Rejects | Failure Rate (FIT) | MTTF (hrs) |
|-----------|-----------------|----------|---------|--------------------|------------|
| NXP ICN8 | Protection INDI | 4040 | 0 | 1,1 | 9,51E+08 |

© 2024 Nexperia B.V.

All information hereunder is per Nexperia's best knowledge. This document does not provide for any representation or warranty express or implied by Nexperia. In case Nexperia has tested the product, this documentation reflects the outcome of the analysis of the actually tested parts only.

nexperia.com