nexperia

Quarterly Reliability Monitoring Results

Quarters: Q3/2021 to Q4/2022

Based on structural similarity

| Supplier | | User Part Number | | | | | |
|--|-----------------------------|--|-------------|-----------------|-----------|----------------|------------|
| Nexperia B.V. Name of Laboratory Assembly reliability labs | | PESD9V0C1BSF Part Description | | | | | |
| | | | | | | | |
| | | BD package | | | | | |
| | | Test | | Test Conditions | Duration | # Lots | # Quantity |
| | TEST | | | | | | |
| | Pre- and Post-Stress | | | | | | |
| # 1 | Electrical Test | Tamb = 25 °C | N/A | see below | all parts | see below | |
| | | MIL-STD-750-1 | | | | | |
| | HTRB | M1038 Method A | | | | | |
| | High Temperature Reverse | Tj = Tjmax, Vr = 100% of max. datasheet | | | | | |
| # 5 | Bias | reverse voltage | 1000 hours | 68 | 4040 | 0 | |
| | | | | | | | |
| | тс | JESD22-A104 | | | | | |
| # 7 | Temperature Cycling | -40 °C to 125°C | 1000 cycles | 109 | 6440 | 0 | |
| | | | | | | | |
| 1 | UHAST | JESD22-A118 | | | | | |
| # 8 or | Unbiased HAST | Tamb = 130 °C, RH = 85 % | | | | | |
| | | JESD22-A102 | — 96 hours | n.a. | n.a. | n.a. | |
| | AC | Tamb = 121 °C, RH = 100 % | | | | | |
| # 8a | Autoclave | Pressure = 205 kPa (29.7 psia) | | | | | |
| | | | | | | | |
| | HAST | JESD22-A110 | | | | | |
| | Highly Accelerated Stress | Tamb = 130 °C, RH = 85%, VR = 80 % of | | | | | |
| # 9 | Test | rated reverse voltage ^[1] | 1000 hours | 108 | 6400 | 0 | |
| | | MIL-STD-750 Method 1037 | | | | - | |
| | IOL | ton = toff, devices powered to insure ΔT_j = | | | | | |
| # 10 | Intermittent Operating Life | | 1000 hours | n.a. | n.a. | n.a. | |
| # 10 | operating Life | | 1000 110013 | 11.0. | | | |
| | RSH | JESD22-A111 | | | | | |
| # 20 | Resistance to Solder Heat | | 10 s | n.a. | n.a. | n.a. | |
| # 20 | SD | 200 0 - 0 0 | 10.5 | 11.a. | 11.a. | 11 . a. | |
| # 21 | Solderability | J-STD-002 | | 18 | 180 | 0 | |
| # 21 | Solderability | 5 510 002 | | 10 | 180 | 0 | |

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

Calculation of FIT and MTTF

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

| NXP ICN8 Protection INDI 4040 0 1 1 9 515+08 | Wafer Fab | Technology | Quantity | Rejects | Failure Rate (FIT) | MTTF (hrs) |
|--|-----------|-----------------|----------|---------|--------------------|------------|
| | NXP ICN8 | Protection INDI | 4040 | 0 | 1,1 | 9,51E+08 |

© 2023 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.