

Quarterly Reliability Monitoring Results

Quarters: Q1/2023 to Q4/2024

Based on structural similarity

| Supplier                  |  | User Part Number  |                                   |           |            |           |
|---------------------------|--|---|-----------------------------------|-----------|------------|-----------|
| Nexperia B.V.             |  | PZU51B  |                                   |           |            |           |
| Name of Laboratory        |  | Part Description  |                                   |           |            |           |
| Assembly reliability labs |  | Nexperia DHAM<br>SMD package  |                                   |           |            |           |
| Test                      |  | Test Conditions   | Duration                          | # Lots    | # Quantity | # Rejects |
| # 1                       | <b>TEST</b><br>Pre- and Post-Stress<br>Electrical Test         | Tamb = 25 °C  | N/A                               | see below | all parts  | see below |
| # 2                       | <b>PC</b><br>Preconditioning                                   | JESD22-A113<br>Bake Tamb = 125 °C<br>Soak Tamb = 85 °C, RH = 85%<br>Reflow soldering          | 24 hours<br>168 hours<br>3 cycles | 1602      | 61540      | 0         |
| # 5                       | <b>HTRB</b><br>High Temperature Reverse<br>Bias                | MIL-STD-750-1<br>M1038 Method A<br>Tj = Tjmax, VR = 80 % of rated reverse<br>voltage          | 1000 hours                        | 256       | 10240      | 0         |
| # 5c                      | <b>SSOP</b><br>Steady State Operational                        | MIL-STD-750-1<br>M1038 Method B<br>Tj = Tjmax, Iz = 100% of max. datasheet<br>reverse current | 1000 hours                        | 51        | 2040       | 0         |
| # 7                       | <b>TC</b><br>Temperature Cycling                               | JESD22-A104<br>-65 °C to Tjmax, not to exceed 150°C   | 500 cycles                        | 337       | 13480      | 0         |
| # 8 or                    | <b>UHAST</b><br>Unbiased HAST                                  | JESD22-A118<br>Tamb = 130 °C, RH = 85 %   | 96 hours                          | 337       | 13480      | 0         |
| # 8a                      | <b>AC</b><br>Autoclave   | JESD22-A102<br>Tamb = 121 °C, RH = 100 %<br>Pressure = 205 kPa (29.7 psia)                    |                                   |           |            |           |
| # 9                       | <b>H3TRB</b><br>High Humidity High<br>Temperature Reverse Bias | JESD22-A101<br>Tamb = 85 °C, RH = 85%, VR = 80 % of<br>rated reverse voltage <sup>[1]</sup>   | 1000 hours                        | 337       | 13480      | 0         |
| # 10                      | <b>IOL</b><br>Intermittent Operating Life                      | MIL-STD-750 Method 1037<br>ton = toff, devices powered to insure ΔTj =<br>100 °C              | 333 hours                         | 337       | 13480      | 0         |
| # 20                      | <b>RSH</b><br>Resistance to Solder Heat                        | JESD22-A111<br>260 °C ± 5 °C  | 10 s                              | 254       | 7620       | 0         |
| # 21                      | <b>SD</b><br>Solderability                                     | J-STD-002   |                                   | 210       | 6300       | 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

| Wafer Fab        | Technology | Quantity | Rejects | Failure Rate (FIT) | MTTF (hrs) |
|------------------|------------|----------|---------|--------------------|------------|
| Nexperia<br>DHAM | Zener      | 10240    | 0       | 0,41               | 2,41E+09   |

© 2025 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.