## nexperia

## **Reliability Monitoring Results**

## Quarters: Q1/2021 to Q4/2021

Based on structural similarity

| Suppli        | er   | User Part Number   |                             |           |            |              |  |  |  |
|---------------|--|--|-----------------------------|-----------|------------|--------------|--|--|--|
| Nexperia B.V. |  | 74AUP3G14DC  | 74AUP3G14DC                 |           |            |              |  |  |  |
| Part D        | escription: Triple inverter;                                       | Schmitt-trigger  |                             |           |            |              |  |  |  |
| Pro           | action Family: AUP<br>cess family: C075<br>kage family: VSSOP      |  |                             |           |            |              |  |  |  |
| JESD4         | 7 Test   | Test Conditions  | Duration                    | # Lots    | # Quantity | #<br>Rejects |  |  |  |
| # 1           | <b>TEST</b><br>Pre- and Post-Stress<br>Electrical Test             | Tamb = 25 °C   | N/A                         | see below | all parts  | see<br>below |  |  |  |
| # 2           | <b>PC</b><br>Preconditioning                                       | JESD22-A113<br>MSL 1   | N/A                         | 256       | 11144      | 0            |  |  |  |
| # 5a          | HTOL EFR<br>High Temperature<br>Operating Life Extrinsic           | JESD22-A108<br>Tj = 150°C<br>V <sub>CCMAX</sub> $\leq$ V $\leq$ 1.2*V <sub>CCMAX</sub> | 48 hours<br>or<br>168 hours | 219       | 38230      | 0            |  |  |  |
| # 5b          | HTOL IFR<br>High Temperature<br>Operating Life Intrinsic           | JESD22-A108<br>Tj = 150°C<br>$V_{CCMAX} \le V \le 1.2*V_{CCMAX}$                       | ≥500 hours                  | 84        | 6277       | 0            |  |  |  |
| # 7           | TC<br>Temperature Cycling  | JESD22-A104<br>-65 °C to 150°C   | ≥500 cycles                 | 129       | 5396       | 0            |  |  |  |
| # 9           | uHAST / HAST<br>unbiased or biased High<br>Accelerated Stress Test | JESD22-A101<br>Tamb = 130 °C,<br>RH = 85%, V = V <sub>CCMAX</sub>                      | 96 hours                    | 140       | 5748       | 0            |  |  |  |

## **Calculation of PPM, FIT and MTTF**

Test considered for PPM calculation: High Temperature Operating LifeTest Extrinsic (HTOL EFR, Test # 5a above) Test considered for FIT and MTTF calculations: High Temperature Operating LifeTest Intrinsic(HTOL IFR, Test # 5b above)

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

| Product<br>Family | Package<br>Family | Quantity | Rejects | Extrinsic<br>Failure Rate (PPM) | Intrinsic<br>Failure Rate (FIT) | MTTF (hrs) |
|-------------------|-------------------|----------|---------|---------------------------------|---------------------------------|------------|
| AUP               | VSSOP             | 6277     | 0       | 24                              | 0.7                             | 1.5 E+09   |

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.