## nexperia

## **Reliability Monitoring Results**

## Quarters: Q1/2022 to Q4/2022

Based on structural similarity

| Suppl   |   | User Part Number  |                             |           |            |              |  |  |  |
|---|---|---|-----------------------------|-----------|------------|--------------|--|--|--|
| Nexperia B.V. 74HCT2G66DP-Q100   Part Description: Dual single-pole. single-throw analog switch; TTL enabled Image: Comparison of the second se |   |   |                             |           |            |              |  |  |  |
| Fur<br>Pro  | nction Family: HC(T)<br>ocess family: Super micron<br>ckage family: TSSOP |   |                             |           |            |              |  |  |  |
| JESD4   | 17 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                         | 1070      | 83683      | 0            |  |  |  |
| # 5a  | HTOL EFR<br>High Temperature<br>Operating Life Extrinsic                  | JESD22-A108<br>Tj = 150°C<br>$V_{CCMAX} \le V \le 1.2*V_{CCMAX}$  | 48 hours<br>or<br>168 hours | 63        | 23993      | 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                  | 59        | 3272       | 0            |  |  |  |
| # 7   | TC<br>Temperature Cycling   | JESD22-A104<br>-65 °C to 150°C                                    | ≥500 cycles                 | 549       | 43127      | 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                    | 521       | 40556      | 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) |
|-------------------|-------------------|----------|---------|---------------------------------|---------------------------------|------------|
| HC(T)             | TSSOP             | 3272     | 0       | 39                              | 1.2                             | 8.84 E+08  |

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