# Reliability Monitoring Results

**Quarters:** Q1/2022 to Q4/2022
Based on structural similarity

| **Supplier** | **User Part Number** |
|---|---|
| Nexperia B.V. | 74HCT2G66DP-Q100 |

**Part Description:** Dual single-pole. single-throw analog switch; TTL enabled

Function Family: HC(T)
Process family: Super micron
Package family: TSSOP

| **JESD47 Test** | | **Test Conditions** | **Duration** | **# Lots** | **# Quantity** | **# Rejects** |
|---|---|---|---|---|---|---|
| # 1 | **TEST**<br>Pre- and Post-Stress Electrical Test | Tamb = 25 °C | N/A | see below | all parts | see below |
| # 2 | **PC**<br>Preconditioning | JESD22-A113<br>MSL 1 | N/A | 1070 | 83683 | 0 |
| # 5a | **HTOL EFR**<br>High Temperature Operating Life Extrinsic | JESD22-A108<br>Tj = 150°C<br>$V_{CCMAX} \leq V \leq 1.2*V_{CCMAX}$ | 48 hours<br>or<br>168 hours | 63 | 23993 | 0 |
| # 5b | **HTOL IFR**<br>High Temperature Operating Life Intrinsic | JESD22-A108<br>Tj = 150°C<br>$V_{CCMAX} \leq V \leq 1.2*V_{CCMAX}$ | ≥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 Accelerated Stress Test | JESD22-A101<br>Tamb = 130 °C,<br>RH = 85%, V = $V_{CCMAX}$ | 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 Family** | **Package Family** | **Quantity** | **Rejects** | **Extrinsic Failure Rate (PPM)** | **Intrinsic Failure Rate (FIT)** | **MTTF (hrs)** |
|---|---|---|---|---|---|---|
| HC(T) | TSSOP | 3272 | 0 | 39 | 1.2 | 8.84 E+08 |