

## Reliability Monitoring Results

**Quarters:** Q1/2022 to Q4/2022

Based on structural similarity

| Supplier                                                                     |                                                                    | User Part Number                                      |                             |           |            |           |
|------------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------|-----------------------------|-----------|------------|-----------|
| Nexperia B.V.                                                                |                                                                    | 74LV165PW                                             |                             |           |            |           |
| Part Description: 8-bit parallel or serial-in/serial-out shift register      |                                                                    |                                                       |                             |           |            |           |
| Function Family: LV<br>Process family: Super micron<br>Package family: TSSOP |                                                                    |                                                       |                             |           |            |           |
| JESD47 Test                                                                  |                                                                    | Test Conditions                                       | Duration                    | # Lots    | # Quantity | # Rejects |
| # 1                                                                          | TEST<br>Pre- and Post-Stress<br>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<br>Operating Life Extrinsic           | JESD22-A108<br>Tj = 150°C<br>VCCMAX ≤ V ≤ 1.2*VCCMAX  | 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>VCCMAX ≤ V ≤ 1.2*VCCMAX  | ≥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 = VCCMAX | 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) |
|----------------|----------------|----------|---------|------------------------------|------------------------------|------------|
| LV             | TSSOP          | 3272     | 0       | 39                           | 1.2                          | 8.84 E+08  |