nexperia

Reliability Monitoring Results

Quarters: Q1/2022 to Q4/2022

Based on structural similarity

| Suppl | lier | User Part Number | | | | | | |
|---------------|--|--|-----------------------------|-----------|------------|--------------|--|--|
| Nexperia B.V. | | 74ABT04D | | | | | | |
| Part D | Description: Hex inverter | | | | | | | |
| Pro | nction Family: ABT ocess family: Sub micron ckage family: SO | | | | | | | |
| JESD4 | 47 Test | Test Conditions | Duration | # Lots | # Quantity | # Rejects | | |
| # 1 | TEST Pre- and Post-Stress Electrical Test | Tamb = 25 °C | N/A | see below | all parts | see below | | |
| # 2 | PC Preconditioning | JESD22-A113 MSL 1 | N/A | 460 | 29380 | 0 | | |
| # 5a | HTOL EFR High Temperature Operating Life Extrinsic | JESD22-A108 Tj = 150°C V _{CCMAX} \leq V \leq 1.2*V _{CCMAX} | 48 hours or 168 hours | 132 | 33268 | 0 | | |
| # 5b | HTOL IFR High Temperature Operating Life Intrinsic | JESD22-A108 Tj = 150°C $V_{CCMAX} \le V \le 1.2*V_{CCMAX}$ | ≥500 hours | 89 | 7065 | 0 | | |
| # 7 | TC Temperature Cycling | JESD22-A104 -65 °C to 150°C | ≥500 cycles | 69 | 17630 | 4 | | |
| # 9 | uHAST / HAST unbiased or biased High Accelerated Stress Test | JESD22-A101 Tamb = 130 °C, RH = 85%, V = V _{CCMAX} | 96 hours | 202 | 11750 | 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) |
|-------------------|-------------------|----------|---------|---------------------------------|---------------------------------|------------|
| ABT | SO | 7065 | 0 | 28 | 0.5 | 2.07 E+09 |

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