

Reliability Monitoring Results

Quarters: Q1/2021 to Q4/2021

Based on structural similarity

Supplier		User Part Number				
Nexperia B.V.		74ALVCH162601DGG				
Part Description: 18-bit universal bus transceiver with bus hold and 30 ohm termination resistors; positive-edge trigger (3-state)						
Function Family: ALVC Process family: Sub micron Package family: TSSOP						
JESD47 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	863	73980	0
# 5a	HTOL EFR High Temperature Operating Life Extrinsic	JESD22-A108 Tj = 150°C V _{CCMAX} ≤ V ≤ 1.2*V _{CCMAX}	48 hours or 168 hours	122	29837	0
# 5b	HTOL IFR High Temperature Operating Life Intrinsic	JESD22-A108 Tj = 150°C V _{CCMAX} ≤ V ≤ 1.2*V _{CCMAX}	≥500 hours	70	5655	0
# 7	TC Temperature Cycling	JESD22-A104 -65 °C to 150°C	≥500 cycles	478	37734	0
# 9	uHAST / HAST unbiased or biased High Accelerated Stress Test	JESD22-A101 Tamb = 130 °C, RH = 85%, V = V _{CCMAX}	96 hours	462	36246	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)
ALVC	TSSOP	5655	0	31	0.6	1.68 E+09