nexperia

Reliability Monitoring Results

Quarters: Q1/2021 to Q4/2021

Based on structural similarity

Suppli	ier	User Part Number							
Nexperia B.V.		74ALVC164245DGG	74ALVC164245DGG						
Part D	escription: 16-bit dual-sup	ply voltage level translating	transceiver (3-s	state)					
Pro	nction Family: ALVC cess family: Sub micron kage family: TSSOP								
JESD4	7 Test	Test Conditions	Duration	# Lots	# Quantity	# Rejects			
	TEST	T. 1 25.00	NI (A			see			
# 1	Pre- and Post-Stress Electrical Test	Tamb = 25 °C	N/A	see below	all parts	below			
# 2	PC Description	JESD22-A113	N/A	863	73980	0			
	Preconditioning HTOL EFR	MSL 1 JESD22-A108	48 hours						
# 5a	High Temperature	$T_j = 150^{\circ}C$	40 Hours or	356	51713	0			
# Ju	Operating Life Extrinsic	$V_{CCMAX} \le V \le 1.2^* V_{CCMAX}$	168 hours	550	51715	0			
# 5b	HTOL IFR	JESD22-A108							
	High Temperature Operating Life Intrinsic	$Tj = 150^{\circ}C$ $V_{CCMAX} \le V \le 1.2^*V_{CCMAX}$	≥500 hours	134	9791	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	9791	0	18	0.5	2.22 E+09

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