nexperia

Reliability Monitoring Results

Quarters: Q1/2021 to Q4/2021

Based on structural similarity

Supplier		User Part Number						
Nexperia B.V. Part Description: Configurable gate		74AUP1T98GN						
Part D	escription: Configurable ga	ite with voltage level transia	ation					
Fur	nction Family: AUP							
	ocess family: C075							
Pac	ckage family: XSON							
						#		
JESD4	7 Test	Test Conditions	Duration	# Lots	# Quantity	Rejects		
	TEST					see		
# 1	Pre- and Post-Stress	Tamb = 25 °C	N/A	see below	all parts	below		
	Electrical Test	150000 4110						
# 2	PC Preconditioning	JESD22-A113 MSL 1	N/A	1007	27163	0		
	HTOL EFR	JESD22-A108	48 hours					
# 5a	High Temperature	$T_i = 150^{\circ}C$	or	219	38230	0		
	Operating Life Extrinsic	$V_{CCMAX} \le V \le 1.2^* V_{CCMAX}$	168 hours					
# 5b	HTOL IFR	JESD22-A108						
	High Temperature	Tj = 150°C	≥500 hours	84	6277	0		
	Operating Life Intrinsic	$V_{CCMAX} \leq V \leq 1.2^* V_{CCMAX}$						
# 7	TC Temperature Cycling	JESD22-A104 -65 °C to 150°C	≥500 cycles	548	15036	0		
	uHAST / HAST	JESD22-A101		520	12127	0		
# 9	unbiased or biased High Accelerated Stress Test	Tamb = 130 °C, RH = 85%, V = V _{CCMAX}	96 hours					

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)
AUP	XSON	6277	0	24	0.7	1.5 E+09

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