nexperia

Reliability Monitoring Results

Quarters: Q1/2021 to Q4/2021

Based on structural similarity

Suppl	ier	User Part Number					
Nexperia B.V. 74HC273D-Q100							
Part D	Description: Octal D-type fli	p-flop with reset; positive-e	edge trigger				
Pro	nction Family: HC(T) ocess family: Super micron ckage family: SO						
JESD4	17 Test	Test Conditions	Duration	# Lots	# Quantity	# Rejects	
# 1	TEST Pre- and Post-Stress	Tamb = 25 °C	N/A	see below	all parts	see	
# 1	Electrical Test		N/A	See Delow	all parts	below	
# 2	PC Preconditioning	JESD22-A113 MSL 1	N/A	378	26431	0	
	HTOL EFR	JESD22-A108	48 hours				
# 5a	High Temperature Operating Life Extrinsic	$Tj = 150^{\circ}C$ $V_{CCMAX} \le V \le 1.2^*V_{CCMAX}$	or 168 hours	128	38474	0	
# 5b	HTOL IFR High Temperature	JESD22-A108 Tj = 150°C	≥500 hours	76	5079	0	
	Operating Life Intrinsic	$V_{CCMAX} \le V \le 1.2^* V_{CCMAX}$					
# 7	TC Temperature Cycling	JESD22-A104 -65 °C to 150°C	≥500 cycles	49	15770	4	
# 9	uHAST / HAST unbiased or biased High Accelerated Stress Test	JESD22-A101 Tamb = 130 °C, RH = 85%, V = V _{CCMAX}	96 hours	187	10661	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)
HC(T)	SO	5079	0	24	0.7	1.57 E+09

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