nexperia

Reliability Monitoring Results

Quarters: Q1/2021 to Q4/2021

Based on structural similarity

Suppl		User Part Number					
Nexperia B.V. 74ALVC32BQ-Q100							
Part	Description: Quad 2-input C	ik gate					
	nction Family: ALVC						
	cess family: Sub micron						
Pa	ckage family: DHVQFN						
166D/	17 Test	Test Conditions	Duration	# Lots	# Quantity	# Deieste	
JESD	TEST	rest conditions	Duration	# LOIS	# Quantity	Rejects	
#1	Pre- and Post-Stress	Tamb = 25 °C	N/A	see below	all parts	see	
	Electrical Test				•	below	
# 2	PC	JESD22-A113	N/A	314	19231	0	
<i>"</i> -	Preconditioning	MSL 1		511	19201	0	
	HTOL EFR	JESD22-A108	48 hours				
# 5a	High Temperature	Tj = 150°C	or	122	29837	0	
	Operating Life Extrinsic	$V_{CCMAX} \le V \le 1.2^* V_{CCMAX}$	168 hours				
	HTOL IFR	JESD22-A108					
# 5b	High Temperature	Tj = 150°C	≥500 hours	70	5655	0	
	Operating Life Intrinsic	$V_{CCMAX} \le V \le 1.2^*V_{CCMAX}$					
# 7	TC	JESD22-A104	≥500 cycles	178	10253	0	
	Temperature Cycling	-65 °C to 150°C	,				
#9	uHAST / HAST	JESD22-A101		150	0070	0	
#9	unbiased or biased High Accelerated Stress Test	Tamb = 130 °C, RH = 85%, V = V _{CCMAX}	96 hours	156	8978	0	
	Accelerated Stress Test	$\mathbf{N} \mathbf{I} = \mathbf{O} \mathbf{J} 70, \mathbf{V} = \mathbf{V} \mathbf{C} \mathbf{C} \mathbf{M} \mathbf{A} \mathbf{X}$					

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	DHVQFN	5655	0	31	0.6	1.68 E+09

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