nexperia

Reliability Monitoring Results

Quarters: Q1/2021 to Q4/2021

Based on structural similarity

Suppli	ier	User Part Number						
Nexperia B.V. 74AHCT541ABQ								
Part D	escription: Octal buffer/line	e driver; TTL enabled (3-sta	ate)					
Pro	nction Family: AHC(T) cess family: Sub micron :kage family: DHVQFN							
JESD4	7 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	314	19231	0		
" E	HTOL EFR	JESD22-A108	48 hours	356	51713	0		
# 5a	High Temperature Operating Life Extrinsic	$Tj = 150^{\circ}C$ $V_{CCMAX} \le V \le 1.2^*V_{CCMAX}$	or 168 hours					
# 5b	HTOL IFR High Temperature Operating Life Intrinsic	JESD22-A108 Tj = 150°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	178	10253	0		
# 9	uHAST / HAST unbiased or biased High Accelerated Stress Test	JESD22-A101 Tamb = 130 °C, RH = 85%, V = V _{CCMAX}	96 hours	156	8978	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)
AHC(T)	DHVQFN	9791	0	18	0.5	2.22 E+09

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