nexperia

Reliability Monitoring Results

Quarters: Q1/2022 to Q4/2022

Based on structural similarity

Supplie	er	User Part Number							
Nexperia	a B.V.	NPIC6C596PW-Q100	NPIC6C596PW-Q100						
Part D	escription: 8-bit serial-in/s	erial or parallel-out shift re	gister with outpu	t register LED driv	ver (3-state)				
Proc	iction Family: NPIC cess family: C050 kage family: TSSOP								
JESD42	7 Test	Test Conditions	Duration	# Lots	# Quantity	# Rejects			
	TEST					see			
# 1	Pre- and Post-Stress Electrical Test	Tamb = 25 °C	N/A	see below	all parts	below			
# 2	PC Preconditioning	JESD22-A113 MSL 1	N/A	1070	83683	0			
# 5a	HTOL EFR	JESD22-A108	48 hours						
	High Temperature	Tj = 150°C	or	59	13806	0			
	Operating Life Extrinsic	$V_{CCMAX} \le V \le 1.2^* V_{CCMAX}$	168 hours						
# 5b	HTOL IFR High Temperature Operating Life Intrinsic	JESD22-A108 Tj = 150°C VCCMAX $\leq V \leq 1.2*V_{CCMAX}$	≥500 hours	38	3294	0			
# 7	TC Temperature Cycling	JESD22-A104 -65 °C to 150°C	≥500 cycles	549	43127	0			
# 9	uHAST / HAST unbiased or biased High Accelerated Stress Test	JESD22-A101 Tamb = 130 °C, RH = 85%, V = V _{CCMAX}	96 hours	521	40556	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)
NPIC	TSSOP	3294	0	67	1.2	8.93 E+08

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