nexperia

Reliability Monitoring Results

Quarters: Q1/2021 to Q4/2021

Based on structural similarity

Suppl	ier	User Part Number				
Nexper	ria B.V.	74LVC138AD				
Part D	Description: 3-to-8 line deco	oder/demultiplexer; invertin	g			
Pro	nction Family: LVC ocess family: Sub micron ckage family: SO					
JESD4	17 Test	Test Conditions	Duration	# Lots	# Quantity	# Rejects
	TEST	T 25.00				see
# 1	Pre- and Post-Stress Electrical Test	Tamb = 25 °C	N/A	see below	all parts	below
# 2	PC	JESD22-A113	N/A	378	26431	0
	Preconditioning	MSL 1				
<i>#</i> Га		JESD22-A108	48 hours	250	51713	0
# 5a	High Temperature Operating Life Extrinsic	$Tj = 150^{\circ}C$ $V_{CCMAX} \le V \le 1.2^*V_{CCMAX}$	or 168 hours	356	51/13	0
	HTOL IFR	JESD22-A108	100			
# 5b	High Temperature	$T_j = 150^{\circ}C$	≥500 hours	134	9791	0
	Operating Life Intrinsic TC	$V_{CCMAX} \le V \le 1.2^*V_{CCMAX}$ JESD22-A104				
# 7	Temperature Cycling	-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)
LVC	SO	9791	0	18	0.5	2.22 E+09

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