nexperia

Quarterly Reliability Monitoring Results

Quarters: Q1/2021 to Q4/2021

Based on structural similarity	

Supplier		User Part Number					
Nexperia B.V.		PESD3V3NW-SF					
Name of Laboratory		Part Description					
		NXP ICN8	Protection INI	DI			
Assembly reliability labs		BD package					
Test		Test Conditions	Duration	# Lots	# Quantity	# Rejects	
	TEST						
	Pre- and Post-Stress						
# 1	Electrical Test	Tamb = 25 °C	N/A	see below	all parts	see below	
		MIL-STD-750-1					
	HTRB	M1038 Method A					
	High Temperature Reverse	Tj = Tjmax, Vr = 100% of max. datasheet					
# 5	Bias	reverse voltage	1000 hours	43	3440	0	
	тс	JESD22-A104					
# 7	Temperature Cycling	-40 °C to 125°C	1000 cycles	67	5360	0	
		JESD22-A102					
	AC	Tamb = 121 °C, RH = 100 %					
# 8	Autoclave	Pressure = 205 kPa (29.7 psia)	96 hours	n.a.	n.a.	n.a.	
	HAST	JESD22-A110					
	Highly Accelerated Stress	Tamb = 130 °C, RH = 85%, VR = 80 % of					
# 9	Test	rated reverse voltage ^[1]	1000 hours	67	5360	0	
		MIL-STD-750 Method 1037	1000 110010	07	5500	0	
	IOL	ton = toff, devices powered to insure ΔT_j =					
# 10	Intermittent Operating Life		1000 hours				
# 10	Internittent Operating Life		1000 nours	n.a.	n.a.	n.a.	
	RSH	JESD22-A111					
# 20	Resistance to Solder Heat	260 °C ± 5 °C	10 s	n a	n	n a	
# 20	SD	200 0 - 5 0	10.5	n.a.	n.a.	n.a.	
# 21	Solderability	J-STD-002		10	120	0	
# 21	Soluerability	3-310-002		12	120	0	

[1] The maximum applied voltage is limited by test chamber set up and does not exceed 115V.

Calculation of FIT and MTTF

Test considered for FIT calculation: High Temperature Reverse Bias (HTRB, Test # 5)

Confidence level 60%, derated to 55 °C, activation energy 0.7 eV, test time 168 to 1000 hours

Wafer Fab	Technology	Quantity	Rejects	Failure Rate (FIT)	MTTF (hrs)
NXP ICN8	Protection INDI	3440	0	1.2	8.10E+08

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