

Quarterly Reliability Monitoring Results

Quarters: Q1/2022 to Q4/2023

Based on structural similarity

Supplier Nexperia B.V. Name of Laboratory Nexperia ATGD Based on AEC-Q101 Test		User Part Number PUSB3BB4 Part Description												
									NXP ICN8 Protection INDI					
									MCD package, Subcon UTAC					
		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								
		JESD22-A113												
		Bake Tamb = 125 °C	24 hours											
	PC	Soak Tamb = 85 °C, RH = 85%	168 hours											
# 2	Preconditioning	Reflow soldering	3 cycles	69	3000	0								
		MIL-STD-750-1												
	HTRB	M1038 Method A												
# 5	Bias	Tj = Tjmax, Vr = 100% of max. datasheet reverse voltage	1000 hours	30	1280	0								
# 3	Dias	reverse voltage	1000 nours	30	1280	U								
	тс	JESD22-A104												
# 7	Temperature Cycling	-65 °C to Timax, not to exceed 150°C	1000 cycles	23	1000	0								
π /			1000 Cycles	23	1000	0								
	UHAST	JESD22-A118												
# 8 or	Unbiased HAST	Tamb = 130 °C, RH = 85 %		23	1000	0								
		JESD22-A102	— 96 hours											
	AC	Tamb = 121 °C, RH = 100 %												
# 8a	Autoclave	Pressure = 205 kPa (29.7 psia)												
	H3TRB	JESD22-A101												
	High Humidity High	Tamb = 85 °C, RH = 85%, VR = 80 % of												
# 9	Temperature Reverse Bias	rated reverse voltage ^[1]	1000 hours	23	1000	0								
		MIL-STD-750 Method 1037												
	IOL	ton = toff, devices powered to insure ΔTj =												
# 10	Intermittent Operating Life	100 °C for 15000 cycles	1000 hours	n.a.	n.a.	n.a.								
	RSH	JESD22-A111												
# 20	Resistance to Solder Heat	260 °C ± 5 °C	10 s	n.a.	n.a.	0								
" 24	SD Soldorability	1 STD 003		24		•								
# 21	Solderability	J-STD-002		21	630	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 #B1) 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	1280	0	3,32	3,01E+08

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