

Quarterly Reliability Monitoring Results

Quarters: Q3/2021 to Q4/2022

Based on structural similarity

Supplier Nexperia B.V. Name of Laboratory Assembly reliability labs		User Part Number PCMF1HDMI14S Part Description												
									NXP ICN8 Protection INDI					
									WLCSP 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												
		Tj = Tjmax, Vr = 100% of max. datasheet												
# 5	Bias	reverse voltage	1000 hours	68	4040	0								
	TC	JESD22-A104												
# 7	Temperature Cycling	-40 °C to 125°C	1000 cycles	24	1440	0								
		150500 4440												
	UHAST	JESD22-A118												
# 8 or	Unbiased HAST	Tamb = 130 °C, RH = 85 %	96 hours	n.a.	n.a.	n.a.								
		JESD22-A102												
	AC	Tamb = 121 °C, RH = 100 %												
# 8a	Autoclave	Pressure = 205 kPa (29.7 psia)												
		JESD22-A110												
	HAST	Tamb = 130 °C, RH = 85%, VR = 80 % of												
	Highly Accelerated Stress Test	rated reverse voltage ^[1]	10001	2.4	1.110	•								
# 9	rest		1000 hours	24	1440	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	2.2	n 2	2.2								
# 20	SD	200 0 = 3 0	10.5	n.a.	n.a.	n.a.								
# 21	Solderability	J-STD-002												
# 21	Soluei ability			n.a.	n.a.	n.a.								

^[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	4040	0	1,1	9,51E+08

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