

Quarterly Reliability Monitoring Results

Quarters: Q1/2022 to Q4/2023

Based on structural similarity

Supplier		User Part Number				
Nexperia B.V.		PESD2USB3UX-T				
Name of Laboratory		Part Description		Protection INDI		
Assembly reliability labs		NXP ICN8		SMD package		
Based on AEC-Q101 Test		Test Conditions	Duration	# Lots	# Quantity	# Rejects
<b>TEST</b> Pre- and Post-Stress Electrical Test		Tamb = 25 °C	N/A	see below	all parts	see below
# E1						
<b>PC</b> Preconditioning		JESD22-A113 Bake Tamb = 125 °C Soak Tamb = 85 °C, RH = 85% Reflow soldering	24 hours 168 hours 3 cycles	524	22940	0
# A1						
<b>HTRB</b> High Temperature Reverse Bias		MIL-STD-750-1 M1038 Method A Tj = Tjmax, Vr = 100% of max. datasheet reverse voltage	1000 hours	30	1280	0
# B1						
<b>TC</b> Temperature Cycling		JESD22-A104 -65 °C to Tjmax, not to exceed 150°C	1000 cycles	156	7080	0
# A4						
<b>UHAST</b> Unbiased HAST		JESD22-A118 Tamb = 130 °C, RH = 85 %	96 hours	156	7080	0
# A3 or						
<b>AC</b> Autoclave		JESD22-A102 Tamb = 121 °C, RH = 100 % Pressure = 205 kPa (29.7 psia)				
# A3 alt						
<b>H3TRB</b> High Humidity High Temperature Reverse Bias		JESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of rated reverse voltage <sup>[1]</sup>	1000 hours	156	7080	0
# A2 alt						
<b>IOL</b> Intermittent Operating Life		MIL-STD-750 Method 1037 ton = toff, devices powered to insure ΔTj = 100 °C for 15000 cycles	1000 hours	n.a.	n.a.	n.a.
# A5						
<b>RSH</b> Resistance to Solder Heat		JESD22-A111 260 °C ± 5 °C	10 s	56	1700	0
# C8						
<b>SD</b> Solderability		J-STD-002		56	1700	0
# C10						

[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