

Quarterly Reliability Monitoring Results

Quarters: Q1/2022 to Q4/2023

Based on structural similarity

Supplier		User Part Number				
Nexperia B.V.		BZX384-C8V2-Q				
Name of Laboratory		Part Description				
Assembly reliability labs		Nexperia DHAM		Zener		
		SMD package				
Based on AEC-Q101 Test		Test Conditions	Duration	# Lots	# Quantity	# Rejects
	TEST					
# E1	Pre- and Post-Stress Electrical Test	Tamb = 25 °C	N/A	see below	all parts	see below
		JESD22-A113				
		Bake Tamb = 125 °C	24 hours			
# A1	PC Preconditioning	Soak Tamb = 85 °C, RH = 85% Reflow soldering	168 hours 3 cycles	1514	64430	0
		MIL-STD-750-1				
		M1038 Method A				
# B1	HTRB High Temperature Reverse Bias	Tj = Tjmax, VR = 80 % of rated reverse voltage	1000 hours	250	11400	0
		MIL-STD-750-1				
		M1038 Method B				
# B1b	SSOP Steady State Operational	Tj = Tjmax, Iz = 100% of max. datasheet reverse current	1000 hours	44	1920	0
		JESD22-A104				
# A4	TC Temperature Cycling	-65 °C to Tjmax, not to exceed 150°C	1000 cycles	311	14080	0
		JESD22-A118				
# A3 or	UHAST Unbiased HAST	Tamb = 130 °C, RH = 85 %	96 hours	311	14080	0
		JESD22-A102				
# A3 alt	AC Autoclave	Tamb = 121 °C, RH = 100 % Pressure = 205 kPa (29.7 psia)				
		JESD22-A101				
# A2 alt	H3TRB High Humidity High Temperature Reverse Bias	Tamb = 85 °C, RH = 85%, VR = 80 % of rated reverse voltage ^[1]	1000 hours	311	14080	0
		MIL-STD-750 Method 1037				
# A5	IOL Intermittent Operating Life	ton = toff, devices powered to insure ΔTj = 100 °C for 15000 cycles	1000 hours	312	14120	0
		JESD22-A111				
# C8	RSH Resistance to Solder Heat	260 °C ± 5 °C	10 s	269	8070	0
		J-STD-002				
# C10	SD Solderability			19	6660	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)
Nexperia					
DHAM	Zener	11400	0	0,37	2,68E+09

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