

Quarterly Reliability Monitoring Results

Quarters: Q1/2022 to Q4/2023

Based on structural similarity

Supplier		User Part Number					
Nexperia B.V. Name of Laboratory Assembly reliability labs Based on AEC-Q101 Test		BZX84-C20-Q Part Description					
		SMD package					
		Test Conditions	Duration	# Lots	# Quantity	# Rejects	
			TEST				
	Pre- and Post-Stress						
# E1	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				
# A1	Preconditioning	Reflow soldering	3 cycles	1514	64430	0	
ı		MIL-STD-750-1					
	HTRB	M1038 Method A					
	J ,	Tj = Tjmax, VR = 80 % of rated reverse				_	
# B1	Bias	voltage	1000 hours	250	11400	0	
		MIL-STD-750-1					
		M1038 Method B					
	SSOP	Tj = Tjmax, Iz = 100% of max. datasheet				_	
# B1b	Steady State Operational	reverse current	1000 hours	44	1920	0	
		150000 4404					
# 44	TC Temperature Cycling	JESD22-A104 -65 °C to Timax, not to exceed 150°C	1000	211	1.4000	0	
# A4	remperature Cycling	-65 °C to Tjillax, flot to exceed 150 °C	1000 cycles	311	14080	0	
	UHAST	JESD22-A118					
# A3 or	Unbiased HAST	Tamb = 130 °C, RH = 85 %					
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Official Control of the Control of t		-96 hours	311	14080	0	
	AC	JESD22-A102 Tamb = 121 °C, RH = 100 %					
# A3 alt	Autoclave	Pressure = 205 kPa (29.7 psia)					
# A3 dit	Adtociave	11e33dre = 203 ki d (23.7 p3id)					
	H3TRB	JESD22-A101					
	High Humidity High	Tamb = 85 °C, RH = 85%, VR = 80 % of					
# A2 alt		rated reverse voltage ^[1]	1000 hours	311	14080	0	
<u></u>	peratare recreive blus	MIL-STD-750 Method 1037	2000 110013	J11	21000		
	IOL	ton = toff, devices powered to insure ΔT_j =					
	Intermittent Operating Life		1000 hours	312	14120	0	
# A5	intermittent Operating Life	100 0 101 15000 0,000	1000 110013	312	14120	0	
# A5							
# A5	RSH	IESD22-Δ111					
	RSH Resistance to Solder Heat	JESD22-A111 260 °C ± 5 °C	10 s	269	8070	0	
# A5 # C8	RSH Resistance to Solder Heat SD		10 s	269	8070	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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