

## **Quarterly Reliability Monitoring Results**

## Quarters: Q1/2022 to Q4/2023

Based on structural similarity

Supplier Nexperia B.V. Name of Laboratory Assembly reliability labs Based on AEC-Q101 Test		User Part Number BZX384-C27-Q Part Description										
									Nexperia DHAM			
									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						
I		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						
		MIL-STD-750-1										
	HTRB	M1038 Method A										
# B1	Bias	Tj = Tjmax, VR = 80 % of rated reverse voltage	1000 hauma	250	11400	0						
# DI	DidS		1000 hours	250	11400	U						
		MIL-STD-750-1										
	SSOP	M1038 Method B Tj = Tjmax, Iz = 100% of max. datasheet										
# B1b	Steady State Operational	reverse current	1000 hours	44	1920	0						
# 010	Steady State operational	Toronso current	1000 110013	7-7	1320	0						
	тс	JESD22-A104										
# A4	Temperature Cycling	-65 °C to Timax, not to exceed 150°C	1000 cycles	311	14080	0						
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	UHAST	JESD22-A118										
# A3 <b>or</b>	Unbiased HAST	Tamb = 130 °C, RH = 85 %	06.1	244	1 1000							
		JESD22-A102	- 96 hours	311	14080	0						
	AC	Tamb = 121 °C, RH = 100 %										
# A3 alt	Autoclave	Pressure = 205 kPa (29.7 psia)										
	H3TRB	JESD22-A101										
	High Humidity High	Tamb = 85 °C, RH = 85%, VR = 80 % of										
# A2 alt	Temperature Reverse Bias		1000 hours	311	14080	0						
		MIL-STD-750 Method 1037										
	IOL	ton = toff, devices powered to insure $\Delta Tj$ =										
# A5	Intermittent Operating Life	100 °C for 15000 cycles	1000 hours	312	14120	0						
	B.C	750000 4444										
" 60	RSH	JESD22-A111		260	0070	•						
# C8	Resistance to Solder Heat	260 °C ± 5 °C	10 s	269	8070	0						
# 610	SD Soldorability	J-STD-002		10	6660	0						
# C10	Solderability		4451/	19	6660	0						

<sup>[1]</sup> 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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