

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 PZU4.7BA-Q Part Description										
								Nexperia DHAM Zener				
								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						
		MIL-STD-750-1										
	HTRB	M1038 Method A										
# B1	Bias	Tj = Tjmax, VR = 80 % of rated reverse voltage	1000 hours	250	11400	0						
# DI	DidS		1000 nours	250	11400	U						
		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						
# 010	Steady State Specialisms	10verse current	1000 110013	77	1320	0						
	тс	JESD22-A104										
# A4	Temperature Cycling	-65 °C to Timax, not to exceed 150°C	1000 cycles	311	14080	0						
	, , ,											
	UHAST	JESD22-A118										
# A3 or	Unbiased HAST	Tamb = 130 °C, RH = 85 %	061	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										
l	High Humidity High	Tamb = 85 °C, RH = 85%, VR = 80 % of										
# A2 alt	Temperature Reverse Bias	rated reverse voltage ^[1]	1000 hours	311	14080	0						
		MIL-STD-750 Method 1037										
	IOL	ton = toff, devices powered to insure ΔTj =										
# A5	Intermittent Operating Life	100 °C for 15000 cycles	1000 hours	312	14120	0						
	RSH	JESD22-A111										
# C8	Resistance to Solder Heat	260 °C ± 5 °C	10 s	269	8070	0						
" 610	SD Coldonability	1 CTD 003		10		•						
# C10	Solderability	J-STD-002	445)/	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

^{© 2024} Nexperia B.V.

All information hereunder is per Nexperia's best knowledge. This document does not provide for any representation or warranty express or implied by Nexperia. In case Nexperia has tested the product, this documentation reflects the outcome of the analysis of the actually tested parts only.

nexperia.com