

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 PZU10B2A-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									
l	BC.	Bake Tamb = 125 °C	24 hours								
# A1	PC Preconditioning	Soak Tamb = 85 °C, RH = 85% Reflow soldering	168 hours 3 cycles	1514	64430	0					
# A1	rreconditioning	MIL-STD-750-1	5 Cycles	1314	04430	0					
	HTRB	M1038 Method A									
		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					
	TC	JESD22-A104				_					
# A4	Temperature Cycling	-65 °C to Tjmax, not to exceed 150°C	1000 cycles	311	14080	0					
	UHAST	JESD22-A118									
# A3 or	Unbiased HAST	Tamb = 130 °C, RH = 85 %									
" 713 GI	onblased (1)(S)	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	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					
		JECD22 4444									
# 60	RSH Desistance to Solder Heat	JESD22-A111	10 -	260	0070	0					
# C8	Resistance to Solder Heat	260 °C ± 5 °C	10 s	269	8070	0					
# C10	SD Solderability	J-STD-002		10	6660	0					
# C10	Soluerability		4451/	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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