

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 PZU3.0BA-Q Part Description											
									Nexperia DHAM	Zener	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											
		Tj = Tjmax, VR = 80 % of rated reverse				_							
# B1	Bias	voltage	1000 hours	250	11400	0							
		MIL-STD-750-1											
		M1038 Method B											
" D41	SSOP	Tj = Tjmax, Iz = 100% of max. datasheet	10001		1000								
# B1b	Steady State Operational	reverse current	1000 hours	44	1920	0							
	тс	JESD22-A104											
# A4	Temperature Cycling	-65 °C to Timax, not to exceed 150°C	1000 eveles	211	14000	0							
# A4	remperature Cycling	-03 C to Tjillax, flot to exceed 130 C	1000 cycles	311	14080	0							
İ	UHAST	JESD22-A118											
# A3 or	Unbiased HAST	Tamb = 130 °C, RH = 85 %											
# A3 UI	Official Control	JESD22-A102	- 96 hours	311	14080	0							
	AC	Tamb = 121 °C, RH = 100 %											
# A3 alt	Autoclave	Pressure = 205 kPa (29.7 psia)											
7 715 tile													
	НЗТRВ	JESD22-A101											
	High Humidity High	Tamb = 85 °C, RH = 85%, VR = 80 % of											
# A2 alt		rated reverse voltage ^[1]	1000 hours	311	14080	0							
	,	MIL-STD-750 Method 1037				-							
	IOL	ton = toff, devices powered to insure ΔT_j =											
# A5	Intermittent Operating Life		1000 hours	312	14120	0							
		,			-								
	RSH	JESD22-A111											
# C8	Resistance to Solder Heat	260 °C ± 5 °C	10 s	269	8070	0							
	SD												
# C10	Solderability	J-STD-002		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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