

Quarterly Reliability Monitoring Results

Quarters: Q1/2021 to Q4/2021

Based on structural similarity

Supplier Nexperia B.V. Name of Laboratory		User Part Number BZV90-C16 Part Description												
										Nexperia DHAM	Zener			
								Assembly reliability labs Based on AEC-Q101 Test		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	24 5											
	PC	Bake Tamb = 125 °C Soak Tamb = 85 °C, RH = 85%	24 hours 168 hours											
# A1	Preconditioning	Reflow soldering	3 cycles	810	58300	0								
		MIL-STD-750-1												
	HTRB	M1038 Method A												
		Tj = Tjmax, Vr = 100% of max. datasheet												
# B1	Bias	reverse voltage	1000 hours	138	11040	0								
		MIL-STD-750-1												
	SSOP	M1038 Method B Tj = Tjmax, Iz = 100% of max. datasheet												
# B1b	Steady State Operational	reverse current	1000 hours	20	1600	0								
# 010	Steady State Specialisms	Tovelse darrent	1000 110013	20	1000	0								
	тс	JESD22-A104												
# A4	Temperature Cycling	-65 °C to Tjmax, not to exceed 150°C	1000 cycles	170	13600	0								
		JESD22-A102												
	AC	Tamb = 121 °C, RH = 100 %												
# A3 alt	Autoclave	Pressure = 205 kPa (29.7 psia)	96 hours	170	13600	0								
		JECD22 4101												
	H3TRB High Humidity High	JESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of												
# A2 alt	Temperature Reverse Bias		1000 hours	170	13600	0								
# MZ all	. cperatare neverse blas	MIL-STD-750 Method 1037	1000 110015	170	13000	U								
	IOL	ton = toff, devices powered to insure ΔT_i =												
# A5	Intermittent Operating Life		1000 hours	170	13600	0								
	RSH	JESD22-A111												
# C8	Resistance to Solder Heat	260 °C ± 5 °C	10 s	130	3900	0								
" 610	SD California brillian	1 CTD 003												
# C10	Solderability	J-STD-002		363	3630	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	11040	0	0.38	2.60E+09

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