

Quarterly Reliability Monitoring Results

Quarters: Q3/2021 to Q4/2022

Based on structural similarity

	PZU18B1A-Q					
oratory	Part Description					
	Nexperia DHAM	Zener				
ability labs	SMD package					
C-Q101 Test	Test Conditions	Duration	# Lots	# Quantity	# Rejects	
TEST						
Pre- and Post-Stress						
Electrical Test	Tamb = 25 °C	N/A	see below	all parts	see below	
	JESD22-A113					
	•		1160			
Preconditioning	<u> </u>	3 cycles	1168	66640	0	
UTOD						
		1000 hours	108	11960	0	
Bid3		1000 110013	130	11300	0	
SSOP						
Steady State Operational	reverse current	1000 hours	24	1760	0	
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тс	JESD22-A104					
Temperature Cycling	-65 °C to Tjmax, not to exceed 150°C	1000 cycles	240	14800	0	
UHAST	JESD22-A118					
Unbiased HAST	Tamb = 130 °C, RH = 85 %	96 hours	240	14800	0	
	JESD22-A102	30 Hours	240	14000	O	
AC	Tamb = 121 °C, RH = 100 %					
Autoclave	Pressure = 205 kPa (29.7 psia)					
, ,					_	
Temperature Reverse Bias		1000 hours	240	14800	0	
701						
		1000	264	16720	0	
Intermittent Operating Life	100 °C for 15000 cycles	1000 nours	264	16/20	0	
рец	JECD22 A111					
		10.0	104	EE20	0	
	200 C = 3 C	10.5	104	3320	U	
	1-STD-002		501	5010	0	
	PC-Q101 Test TEST Pre- and Post-Stress Electrical Test PC Preconditioning HTRB High Temperature Reverse Bias SSOP Steady State Operational TC Temperature Cycling UHAST Unbiased HAST AC Autoclave H3TRB High Humidity High Temperature Reverse Bias IOL Intermittent Operating Life RSH Resistance to Solder Heat SD Solderability	ability labs CCQ101 Test Test Conditions TEST Pre- and Post-Stress Electrical Test Tamb = 25 °C JESD22-A113 Bake Tamb = 125 °C PC Soak Tamb = 85 °C, RH = 85% Preconditioning MIL-STD-750-1 M1038 Method A High Temperature Reverse Bias MIL-STD-750-1 M1038 Method B Tj = Tjmax, VR = 80 % of rated reverse voltage MIL-STD-750-1 M1038 Method B Tj = Tjmax, Iz = 100% of max. datasheet reverse current TC JESD22-A104 Temperature Cycling JESD22-A104 Temperature Cycling AC Temperature Tycling AC Autoclave H3TRB High Humidity High Temperature Reverse Bias MIL-STD-750 · 1 M1038 Method B Tj = Tjmax, Iz = 100% of max. datasheet reverse current TC JESD22-A104 -65 °C to Tjmax, not to exceed 150°C UHAST JESD22-A104 Autoclave AC Autoclave MIL-STD-750 KH = 85 % JESD22-A101 Tamb = 121 °C, RH = 100 % Pressure = 205 kPa (29.7 psia) MIL-STD-750 Method 1037 ton = toff, devices powered to insure ΔTj = 100 °C for 15000 cycles RSH Resistance to Solder Heat Z60 °C ± 5 °C SD Solderability J-STD-002	SMD package	SMD package SMD package	SMD package SMD package	

^[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	11960	0	0,36	2,82E+09

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