

## **Quarterly Reliability Monitoring Results**

## Quarters: Q1/2021 to Q4/2021

Based on structural similarity

Supplier		User Part Number						
Nexperia B.V.  Name of Laboratory		PZU10BA Part Description						
Assembly reliability labs		SMD package						
Based on AEC-Q101 Test		Test Conditions	Duration	# Lots	# Quantity	# Rejects		
	TEST							
# E1	Pre- and Post-Stress Electrical Test	Tamb = 25 °C	N/A	see below	all parts	see below		
# []	Liectrical rest	IESD22-A113	N/A	see below	all parts	see below		
		Bake Tamb = 125 °C	24 hours					
	PC	Soak Tamb = 85 °C, RH = 85%	168 hours					
# A1	Preconditioning	Reflow soldering	3 cycles	810	58300	0		
		MIL-STD-750-1						
	HTRB	M1038 Method A						
# B1	Bias	Tj = Tjmax, Vr = 100% of max. datasheet reverse voltage	1000 hours	138	11040	0		
# 61	5.00	MIL-STD-750-1	1000 110013	130	11040	0		
		M1038 Method B						
	SSOP	Tj = Tjmax, Iz = 100% of max. datasheet						
# B1b	Steady State Operational	reverse current	1000 hours	20	1600	0		
	TC Temperature Cycling	JESD22-A104				_		
# A4	remperature Cycling	-65 °C to Tjmax, not to exceed 150°C	1000 cycles	170	13600	0		
	AC	JESD22-A102 Tamb = 121 °C, RH = 100 %						
# A3 alt	Autoclave	Pressure = 205 kPa (29.7 psia)	96 hours	170	13600	0		
	H3TRB	JESD22-A101						
	High Humidity High	Tamb = 85 °C, RH = 85%, VR = 80 % of						
# A2 alt	Temperature Reverse Bias	rated reverse voltage <sup>[1]</sup>	1000 hours	170	13600	0		
	TO:	MIL-STD-750 Method 1037						
# A5	IOL Intermittent Operating Life	ton = toff, devices powered to insure $\Delta Tj$ = 100 °C for 15000 cycles	1000 hours	170	13600	0		
# A3	Intermittent Operating Life	100 C 101 10000 Cycles	TOOO Hours	1/0	13000	U		
	RSH	JESD22-A111						
# C8	Resistance to Solder Heat		10 s	130	3900	0		
	SD							
# C10	Solderability	J-STD-002		363	3630	0		

<sup>[1]</sup> 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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