

## **Quarterly Reliability Monitoring Results**

## Quarters: Q1/2021 to Q4/2021

Based on structural similarity

Supplier Nexperia B.V. Name of Laboratory		User Part Number					
		PESD3V3L1UL					
		Part Description					
		Nexperia DHAM	Protection				
Assembly reliability labs		MCD package					
Based on AEC-Q101 Test		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					
	PC	Bake Tamb = 125 °C Soak Tamb = 85 °C, RH = 85%	24 hours 168 hours				
# A1	Preconditioning	Reflow soldering	3 cycles	142	11435	0	
# A1	Treconditioning	MIL-STD-750-1	5 cycles	142	11433	U	
	HTRB	M1038 Method A					
		Tj = Tjmax, Vr = 100% of max. datasheet					
# B1	Bias	reverse voltage	1000 hours	117	9360	0	
	тс	JESD22-A104					
# A4	Temperature Cycling	-65 °C to Tjmax, not to exceed 150°C	1000 cycles	53	4225	0	
		JESD22-A102					
	AC	Tamb = 121 °C, RH = 100 %					
# A3 alt	Autoclave	Pressure = 205 kPa (29.7 psia)	96 hours	39	3165	0	
		JECD33 A101					
	H3TRB	JESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of					
# A2 alt	High Humidity High Temperature Reverse Bias	rated reverse voltage <sup>[1]</sup>	1000	F-1	4045	0	
F AZ ait	Temperature Reverse Dias		1000 hours	51	4045	0	
	IOL	MIL-STD-750 Method 1037 ton = toff, devices powered to insure $\Delta T_j$ =					
# A5	Intermittent Operating Life		1000 hours	n.a.	n.a.	n.a.	
# A3	zamina zpanamia zmo		1000 110015	ma.	11.0.	ma.	
	RSH	JESD22-A111					
# C8	Resistance to Solder Heat	260 °C ± 5 °C	10 s	n.a.	n.a.	n.a.	
	SD						
# C10	Solderability	J-STD-002		78	780	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	Protection	9360	0	0.45	2.20E+09

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