## nexperia

## **Quarterly Reliability Monitoring Results**

Quarters: Q1/2022 to Q4/2023 Based on structural similarity

Supplier Nexperia B.V.		User Part Number PMEG4005CT-Q										
								Name of Laboratory Assembly reliability labs Based on AEC-Q101 Test		Part Description Nexperia DHAM Schottky SMD package		
Test Conditions	Duration	# Lots	# Quantity	# Rejects								
	TEST				<b>C</b>							
	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										
	High Temperature Reverse	Tj = Tjmax, Vr = 100% of max. datasheet										
# B1	Bias	reverse voltage <sup>[1]</sup>	1000 hours	206	9320	0						
	тс	JESD22-A104										
# A4	Temperature Cycling	-65 °C to Tjmax, not to exceed 150°C	1000 cycles	311	14080	0						
	UHAST	JESD22-A118										
# A3 <b>or</b>	Unbiased HAST	Tamb = 130 °C, RH = 85 %	96 hours	311	14080	0						
		JESD22-A102	90 110015	511	14080	0						
	AC	Tamb = 121 °C, RH = 100 %										
# A3 alt	Autoclave	Pressure = 205 kPa (29.7 psia)										
	H3TRB	JESD22-A101										
	High Humidity High	Tamb = 85 °C, RH = 85%, VR = 80 % of										
# A2 alt	Temperature Reverse Bias	rated reverse voltage <sup>[1], [2]</sup>	1000 hours	311	14080	0						
		MIL-STD-750 Method 1037										
	IOL	ton = toff, devices powered to insure $\Delta Tj$ =										
# A5	Intermittent Operating Life	100 °C for 15000 cycles	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		222	6660	0						

The physical limitations of Schottky diodes have to be considered (thermal runaway).
 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

confidence level of <i>n</i> , defated to 55°C, activation energy 0.7 eV, test time 100 to 1000 hours	nce level 60%, derated to 55 °C, activation energy 0.7 eV, t	test time 168 to 1000 nours
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Wafer Fab	Technology	Quantity	Rejects	Failure Rate (FIT)	MTTF (hrs)
Nexperia					
DHAM	Schottky	9320	0	0,46	2,19E+09

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