

## **Quarterly Reliability Monitoring Results**

## Quarters: Q1/2022 to Q4/2023

Based on structural similarity

Supplier		User Part Number					
Nexperia B.V.		PMEG3005EJ-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						
	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	
		JECD33 A110					
# A3 <b>or</b>	UHAST Unbiased HAST	JESD22-A118 Tamb = 130 °C, RH = 85 %					
+ A3 01	Olibiased FIAST	· · · · · · · · · · · · · · · · · · ·	- 96 hours	311	14080	0	
		JESD22-A102					
,	<b>AC</b> Autoclave	Tamb = 121 °C, RH = 100 % Pressure = 205 kPa (29.7 psia)					
# A3 alt	Autociave	Pressure = 205 kPa (29.7 psia)					
	H3TRB	JESD22-A101					
	High Humidity High	Tamb = 85 °C, RH = 85%, VR = 80 % of					
# A2 alt		rated reverse voltage <sup>[1], [2]</sup>	1000 hours	311	14080	0	
# AZ dil	. cperature Reverse Blas	MIL-STD-750 Method 1037	1000 110015	J11	14000	U	
	IOL	ton = toff, devices powered to insure $\Delta T_i$ =					
# A5	Intermittent Operating Life		1000 hours	312	14120	0	
, ,,,	2commetene operating the	200 0 10. 15000 Cycles	1000 110015	J12	17120		
	RSH	JESD22-A111					
# C8	Resistance to Solder Heat		10 s	269	8070	0	
	SD		-50	_05	20,0	-	
# C10	Solderability	J-STD-002		222	6660	0	
					2000	~	

<sup>[1]</sup> The physical limitations of Schottky diodes have to be considered (thermal runaway).

## **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	Schottky	9320	0	0,46	2,19E+09

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<sup>[2]</sup> The maximum applied voltage is limited by test chamber set up and does not exceed 115V.