

## **Quarterly Reliability Monitoring Results**

## Quarters: Q1/2022 to Q4/2023

Based on structural similarity

Supplier		User Part Number					
Nexperia B.V.		PESD12VW1BCSF					
Name of Laboratory		Part Description					
		NXP ICN8	Protection IND	OI			
Assembly reliability labs		BD package					
Test		Test Conditions	Duration	# Lots	# Quantity	# Rejects	
	TEST						
	Pre- and Post-Stress						
# 1	Electrical Test	Tamb = 25 °C	N/A	see below	all parts	see below	
l		MIL-STD-750-1					
	HTRB	M1038 Method A					
	· .	Tj = Tjmax, Vr = 100% of max. datasheet					
# 5	Bias	reverse voltage	1000 hours	92	4040	0	
	TC	JESD22-A104				_	
# 7	Temperature Cycling	-40 °C to 125°C	1000 cycles	157	6880	0	
	UHAST	JESD22-A118					
# 8 <b>o</b> r	Unbiased HAST	Tamb = 130 °C, RH = 85 %					
# 0 01	Ulibiased HAST		- 96 hours	n.a.	n.a.	n.a.	
		JESD22-A102					
	AC	Tamb = 121 °C, RH = 100 %					
# 8a	Autoclave	Pressure = 205 kPa (29.7 psia)					
		JESD22-A110					
	HAST Highly Accelerated Stress	Tamb = 130 °C, RH = 85%, VR = 80 % of					
# 9	Test	rated reverse voltage <sup>[1]</sup>	1000 hours	156	6840	0	
# 9	resc	<u> </u>	1000 nours	156	0840	U	
	IOL	MIL-STD-750 Method 1037					
	Intermittent Operating Life	ton = toff, devices powered to insure $\Delta Tj$ =					
# 10	Intermittent Operating Life	100 °C for 15000 cycles	1000 hours	n.a.	n.a.	n.a.	
	RSH	JESD22-A111					
# 20	Resistance to Solder Heat	260 °C ± 5 °C	10 s	2.2	n 2		
# 20	SD	200 0 = 3 0	10.5	n.a.	n.a.	n.a.	
# 21	Solderability	J-STD-002		8	240	0	
# 21	Solderability			o	240	U	

<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 # 5) 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)
NXP ICN8 Protection II	DI 4040	0	1,1	9,51E+08

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