

## Quarterly Reliability Monitoring Results

Quarters: Q1/2021 to Q4/2021

Based on structural similarity

Supplier		User Part Number				
Nexperia B.V.		PESD1USB3S				
Name of Laboratory		Part Description				
Assembly reliability labs		NXP ICN8 Protection INDI WLCSP package				
Test	Test Conditions	Duration	# Lots	# Quantity	# Rejects	
# 1	<b>TEST</b> Pre- and Post-Stress Electrical Test Tamb = 25 °C	N/A	see below	all parts	see below	
# 5	<b>HTRB</b> High Temperature Reverse Bias MIL-STD-750-1 M1038 Method A Tj = Tjmax, Vr = 100% of max. datasheet reverse voltage	1000 hours	43	3440	0	
# 7	<b>TC</b> Temperature Cycling JESD22-A104 -40 °C to 125°C	1000 cycles	16	1280	0	
# 8	<b>AC</b> Autoclave JESD22-A102 Tamb = 121 °C, RH = 100 % Pressure = 205 kPa (29.7 psia)	96 hours	n.a.	n.a.	n.a.	
# 9	<b>HAST</b> Highly Accelerated Stress Test JESD22-A110 Tamb = 130 °C, RH = 85%, VR = 80 % of rated reverse voltage <sup>[1]</sup>	1000 hours	16	1280	0	
# 10	<b>IOL</b> Intermittent Operating Life MIL-STD-750 Method 1037 ton = toff, devices powered to insure ΔTj = 100 °C for 15000 cycles	1000 hours	n.a.	n.a.	n.a.	
# 20	<b>RSH</b> Resistance to Solder Heat JESD22-A111 260 °C ± 5 °C	10 s	n.a.	n.a.	n.a.	
# 21	<b>SD</b> Solderability J-STD-002		n.a.	n.a.	n.a.	

[1] The maximum applied voltage is limited by test chamber set up and does not exceed 115V.

### Calculation of FIT and MTF

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 INDI	3440	0	1.2	8.10E+08

© 2022 Nexperia B.V.

All information hereunder is per Nexperia's best knowledge. This document does not provide for any representation or warranty express or implied by Nexperia. In case Nexperia has tested the product, this documentation reflects the outcome of the analysis of the actually tested parts only.

[nexperia.com](http://nexperia.com)