

Quarterly Reliability Monitoring Results

Quarters: Q1/2021 to Q4/2021

Based on structural similarity

Supplier		User Part Number				
Nexperia B.V.		PESD5V0F1BRSF				
Name of Laboratory		Part Description				
Assembly reliability labs		Nexperia DHAM BD package Protection Std Bipolar				
Test	Test Conditions	Duration	# Lots	# Quantity	# Rejects	
# 1	TEST Pre- and Post-Stress Electrical Test Tamb = 25 °C	N/A	see below	all parts	see below	
# 5	HTRB High Temperature Reverse Bias MIL-STD-750-1 M1038 Method A Tj = Tjmax, Vr = 100% of max. datasheet reverse voltage	1000 hours	6	480	0	
# 7	TC Temperature Cycling JESD22-A104 -40 °C to 125°C	1000 cycles	67	5360	0	
# 8	AC Autoclave JESD22-A102 Tamb = 121 °C, RH = 100 % Pressure = 205 kPa (29.7 psia)	96 hours	n.a.	n.a.	n.a.	
# 9	HAST Highly Accelerated Stress Test JESD22-A110 Tamb = 130 °C, RH = 85%, VR = 80 % of rated reverse voltage ^[1]	1000 hours	67	5360	0	
# 10	IOL 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	RSH Resistance to Solder Heat JESD22-A111 260 °C ± 5 °C	10 s	n.a.	n.a.	n.a.	
# 21	SD Solderability J-STD-002		12	120	0	

[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)
Nexperia DHAM	Protection Std Bipolar	480	0	8.85	1.13E+08

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