

Quarterly Reliability Monitoring Results

Quarters: Q1/2020 to Q4/2020

Based on structural similarity

Supplier		User Part Number				
Nexperia B.V.		BAT54QC				
Name of Laboratory		Part Description				
Assembly reliability labs		Nexperia DHAM Schottky MCD package				
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	
# 2	PC Preconditioning JESD22-A113 Bake Tamb = 125 °C Soak Tamb = 85 °C, RH = 85% Reflow soldering	24 hours 168 hours 3 cycles	99	7920	0	
# 5	HTRB High Temperature Reverse Bias MIL-STD-750-1 M1038 Method A Tj = Tjmax, Vr = 100% of max. datasheet reverse voltage ^[1]	1000 hours	97	7760	0	
# 7	TC Temperature Cycling JESD22-A104 -65 °C to Tjmax, not to exceed 150°C	1000 cycles	24	1920	0	
# 8	AC Autoclave JESD22-A102 Tamb = 121 °C, RH = 100 % Pressure = 205 kPa (29.7 psia)	96 hours	24	1920	0	
# 9	H3TRB High Humidity High Temperature Reverse Bias JESD22-A101 Tamb = 85 °C, RH = 85%, VR > 80 % of rated reverse voltage ^[1]	1000 hours	26	2080	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	25	2000	0	
# 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 Test method B and D		42	420	0	

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

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	Schottky	7760	0	0,55	1,83E+09

© 2021 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