## nexperia

## **Quarterly Reliability Monitoring Results**

Quarters: Q1/2021 to Q4/2021

Based on structural similarity

Supplier		User Part Number						
Nexperia B.V. Name of Laboratory		BAS35						
		Part Description						
		Nexperia DHAM	Small Signal E	Bipolar Diode				
Assembly reliability labs		SMD package						
Based on AEC-Q101 Test		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		
	РС	JESD22-A113 Bake Tamb = 125 °C Soak Tamb = 85 °C, RH = 85%	24 hours 168 hours					
# A1	Preconditioning	Reflow soldering	3 cycles	810	58300	0		
# B1	<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	67	5360	0		
# DI	bido	Tevelse voltage	1000 110015	07	5300	0		
# A4	<b>TC</b> Temperature Cycling	JESD22-A104 -65 °C to Tjmax, not to exceed 150°C	1000 cycles	170	13600	0		
# A3 alt	<b>AC</b> Autoclave	JESD22-A102 Tamb = 121 °C, RH = 100 % Pressure = 205 kPa (29.7 psia)	96 hours	170	13600	0		
" • • • · •	<b>H3TRB</b> High Humidity High Temperature Reverse Bias	JESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of		170	12600	<u>^</u>		
# A2 alt	Temperature Reverse blas	MIL-STD-750 Method 1037	1000 hours	170	13600	0		
# A5	<b>IOL</b> Intermittent Operating Life	ton = toff, devices powered to insure $\Delta Tj$ = 100 °C for 15000 cycles	1000 hours	170	13600	0		
# C0	<b>RSH</b> Resistance to Solder Heat	JESD22-A111 260 °C ± 5 °C	10 -	120	2000	0		
# C8			10 s	130	3900	0		
# C10	<b>SD</b> Solderability	J-STD-002		363	3630	0		

[1] 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 #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	Small Signal Bipolar Diode	5260	0	0.70	1 265 1 00
DIAM		5360	0	0.79	1.26E+09

© 2022 Nexperia B.V.

All information hereunder is per Nexperia's best knowledge. This document does not provide for any nexperia.com 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.