

## **Quarterly Reliability Monitoring Results**

## Quarters: Q1/2022 to Q4/2023

Based on structural similarity

Supplier Nexperia B.V. Name of Laboratory Assembly reliability labs Based on AEC-Q101 Test		User Part Number						
		HPZR-C63-Q						
		Part Description						
		Nexperia DHAM	Zener					
		SMD package						
		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		
		JESD22-A113						
		Bake Tamb = 125 °C	24 hours					
	PC	Soak Tamb = 85 °C, RH = 85%	168 hours					
# A1	Preconditioning	Reflow soldering	3 cycles	1514	64430	0		
		MIL-STD-750-1						
	HTRB	M1038 Method A						
		Tj = Tjmax, VR = 80 % of rated reverse				_		
# B1	Bias	voltage	1000 hours	250	11400	0		
		MIL-STD-750-1						
		M1038 Method B						
" 541	SSOP	Tj = Tjmax, Iz = 100% of max. datasheet	10001		1000			
# B1b	Steady State Operational	reverse current	1000 hours	44	1920	0		
	T-0	JECD22 A104						
	TC Temperature Cycling	JESD22-A104 -65 °C to Timax, not to exceed 150°C	1000	211	1.4000	0		
# A4	remperature Cycling	-63 °C to Tjillax, flot to exceed 130°C	1000 cycles	311	14080	0		
l	UHAST	JESD22-A118						
# A3 or	Unbiased HAST	Tamb = 130 °C, RH = 85 %						
# A3 UI	Official Control	· · · · · · · · · · · · · · · · · · ·	- 96 hours	311	14080	0		
	AC	JESD22-A102 Tamb = 121 °C, RH = 100 %						
# A3 alt	Autoclave	Pressure = 205 kPa (29.7 psia)						
+ AJ all	Addedave	11c33d1c = 203 ki d (23.7 p3id)						
	H3TRB	JESD22-A101						
	High Humidity High	Tamb = 85 °C, RH = 85%, VR = 80 % of						
# A2 alt		rated reverse voltage <sup>[1]</sup>	1000 hours	311	14080	0		
" / LE GIC	F	MIL-STD-750 Method 1037				-		
	IOL	ton = toff, devices powered to insure $\Delta T_j$ =						
# A5	Intermittent Operating Life		1000 hours	312	14120	0		
		,				-		
	RSH	JESD22-A111						
# C8	Resistance to Solder Heat	260 °C ± 5 °C	10 s	269	8070	0		
50	SD					-		
# C10	Solderability	J-STD-002		19	6660	0		

<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 #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	Zener	11400	0	0,37	2,68E+09

© 2024 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