nexperia

Quarterly Reliability Monitoring Results

Quarters: Q1/2022 to Q4/2023 Based on structural similarity

	BZX38450-C8V2-Q				
ratory	Part Description				
	Nexperia DHAM	Zener			
ility labs	SMD package				
Q101 Test	Test Conditions	Duration	# Lots	# Quantity	# Rejects
TEST					
Pre- and Post-Stress					
Electrical Test	Tamb = 25 °C	N/A	see below	all parts	see below
	JESD22-A113				
Preconditioning	5	3 cycles	1514	64430	0
5 1	5 5 ,	10001	250		
Bias	5	1000 hours	250	11400	0
		1000 hours	4.4	1020	0
Steady State Operational		1000 nours	44	1920	0
10	155022 4104				
		1000 cyclos	211	14090	0
remperature eyening		1000 Cycles	511	14000	0
UHAST	1FSD22-4118				
	,	-96 hours 311	311	14080	0
AC					
Autoclave					
	······································				
H3TRB	JESD22-A101				
	Tamb = 85 °C, RH = 85%, VR = 80 % of				
		1000 hours	311	14080	0
IOL	ton = toff, devices powered to insure $\Delta T_i =$				
		1000 hours	312	14120	0
RSH	JESD22-A111				
Resistance to Solder Heat	260 °C ± 5 °C	10 s	269	8070	0
SD					
Solderability	J-STD-002		19	6660	0
	Q101 Test TEST Pre- and Post-Stress Electrical Test PC Preconditioning HTRB High Temperature Reverse Bias SSOP Steady State Operational TC Temperature Cycling UHAST Unbiased HAST AC Autoclave H3TRB High Humidity High Temperature Reverse Bias TOL Intermittent Operating Life RSH Resistance to Solder Heat SD	Ility labs SMD package Q101 Test Test Conditions TEST Tamb = 25 °C Pre- and Post-Stress JESD22-A113 Bake Tamb = 125 °C Soak Tamb = 85 °C, RH = 85% PC Soak Tamb = 85 °C, RH = 85% Preconditioning Reflow soldering MIL-STD-750-1 MID38 Method A High Temperature Reverse Tj = Tjmax, VR = 80 % of rated reverse Bias voltage MIL-STD-750-1 M1038 Method B TJ = Tjmax, IZ = 100% of max. datasheet reverse current TC JESD22-A104 Steady State Operational FSD22-A104 Temperature Cycling -65 °C to Tjmax, not to exceed 150 °C UHAST JESD22-A102 Tamb = 130 °C, RH = 85 % JESD22-A102 AC Tamb = 121 °C, RH = 100 % Autoclave Pressure = 205 kPa (29.7 psia) H3TRB JESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of rated reverse voltage ^[1] MIL-STD-75.0 Method 1037 ton = toff, devices powered to insure Δ Tj = Intermittent Operating Life 100 °C for 15000 cycles Resistanc	ND packageQ101 TestTest ConditionsDurationTEST Pre- and Post-StressTamb = 25 °CN/AJESD22-A113 Bake Tamb = 125 °C24 hoursDecompositionBake Tamb = 125 °C24 hoursPCSoak Tamb = 85 °C, RH = 85%168 hoursPreconditioningReflow soldering3 cyclesMIL-STD-750-1 M1038 Method AMIL-STD-750-1HTRBM1038 Method AHigh Temperature Reverse BiasTj = Tjmax, VR = 80 % of rated reverse voltageSSOPTj = Tjmax, Iz = 100% of max. datasheet reverse current1000 hoursTCJESD22-A104 -65 °C to Tjmax, not to exceed 150°C1000 cyclesUHASTJESD22-A104 -65 °C to Tjmax, not to exceed 150°C1000 cyclesUHASTJESD22-A102 Tamb = 130 °C, RH = 85 % JESD22-A10296 hoursACTamb = 121 °C, RH = 100 % Pressure = 205 kPa (29.7 psia)96 hoursHTRBJESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of rated reverse voltage ^[1] 1000 hoursHIL-STD-750 Method 1037 ton = toff, devices powered to insure Δ Tj = 1000 hours1000 hoursRSH Resistance to Solder Heat260 °C ± 5 °C 20 °C ± 5 °C10 s	ility labsSMD packageQ101 TestTest ConditionsDuration# LotsTFEST Pre- and Post-StressTamb = 25 °CN/Asee belowJESD22-A113 Bake Tamb = 125 °C24 hours Dake Tamb = 85 °C, RH = 85%168 hours 168 hoursPCSoak Tamb = 85 °C, RH = 85%168 hoursPreconditioningReflow soldering3 cycles1514HTRBMLI-STD-750-1 M1038 Method A1000 hours250High Temperature ReverseTj = Tjmax, VR = 80 % of rated reverse1000 hours250SSOPTj = Tjmax, IZ = 100% of max. datasheet reverse current1000 hours44TCJESD22-A104 -65 °C to Tjmax, not to exceed 150°C1000 cycles311UHASTJESD22-A102 Tamb = 130 °C, RH = 85 % JESD22-A10296 hours311ACTamb = 121 °C, RH = 100 % AutoclaveTamb = 121 °C, RH = 85 % JESD2-A10296 hours311HIRBJESD22-A101 Tamb = 85 °C, RH = 85 %, VR = 80 % of rated reverse voltage ^[1] 1000 hours311HIRB High Humidity High Tamb = 85 °C, RH = 85%, VR = 80 % of rated reverse voltage ^[1] 1000 hours311ML-STD-750 Method 1037 ton = toff, devices powered to insure Δ Tj = Intermittent Operating Life100 °C for 15000 cycles1000 hours312RSH Resistance to Solder HeatJESD22-A111 260 °C ± 5 °C10 s269269SD	NUMSMD packageQ101 TestTest ConditionsDuration# Lots# QuantityTEST Pre- and Post-StressTamb = 25 °CN/Asee belowall partsJESD22-A113 Bake Tamb = 125 °C24 hourssee belowall partsPCSoak Tamb = 85 °C, RH = 85%168 hoursPartsPreconditioningReflow soldering3 cycles151464430MIL-STD-750-1 Milo38 Method A High Temperature ReverseMIL-STD-750-1 Milo38 Method B Tj = Tjmax, VR = 80 % of rated reverse voltage1000 hours25011400SSOPMIL-STD-750-1 Milo38 Method B Tj = Tjmax, 12 = 100% of max. datasheet reverse current1000 hours441920TCJESD22-A104 -65 °C to Tjmax, not to exceed 150°C1000 cycles31114080UHAST JESD2-A102JESD22-A102 Tamb = 121 °C, RH = 85 % Tamb = 121 °C, RH = 85 % Pressure = 205 kPa (29.7 psia)96 hours31114080MIL-STD-750 Method 1037 ton = toff, devices powered to insure ΔT_j = Intermittent Operating LifeJESD22-A101 Tamb = 85 °C, RH = 85 %, VR = 80 % of Tamb = 121 °C, RH = 85 %, VR = 80 % of Tamb = 85 °C, RH = 85 %, VR = 80 % of Tamb = 85 °C, RH = 85 %, VR = 80 % of Tamb = 85 °C, RH = 85 %, VR = 80 % of Tamb = 85 °C, RH = 85 %, VR = 80 % of Tamb = 100 °C for 15000 cycles31114080MIL-STD-750 Method 1037 ton = toff, devices powered to insure ΔT_j = Intermittent Operating LifeJESD22-A111 ton = toff, devices powered to insure ΔT_j = Intermittent Operating LifeJESD22-A111 ton = toff (devices powered to insure ΔT_j = Intermittent t

[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

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