nexperia

Quarterly Reliability Monitoring Results

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

	User Part Number				
	BZX58550-C2V4-Q				
boratory	Part Description				
	Nexperia DHAM	Zener			
liability labs	SMD package				
	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				
	Bake Tamb = 125 °C	24 hours			
	,				
Preconditioning		3 cycles	1514	64430	0
5 1	5 5 7	1000 hours	250	11400	0
Dias	5	1000 110015	230	11400	0
SSOP					
Steady State Operational	reverse current	1000 hours	44	1920	0
тс	JESD22-A104				
Temperature Cycling	-65 °C to Tjmax, not to exceed 150°C	1000 cycles	311	14080	0
UHAST	JESD22-A118				
Unbiased HAST	Tamb = 130 °C, RH = 85 %	96 hours	311	14080	0
	JESD22-A102				
Autoclave	Pressure = 205 kPa (29.7 psia)				
		1000 hours	211	14080	0
remperature Reverse Dias		1000 1100/5	211	14000	0
TOL					
	, , ,	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
	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 IOL Intermittent Operating Life RSH Resistance to Solder Heat SD	boratoryPart Description Nexperia DHAM SMD packageIability labsSMD packageEC-Q101 TestTest ConditionsTEST Pre- and Post-Stress Electrical TestTamb = 25 °CJESD22-A113 Bake Tamb = 125 °C Soak Tamb = 85 °C, RH = 85% PreconditioningBeflow solderingMIL-STD-750-1 M1038 Method A High Temperature Reverse BiasMIL-STD-750-1 MIL-STD-750-1 M1038 Method B Tj = Tjmax, VR = 80 % of rated reverse voltageSSOP Steady State OperationalMIL-STD-750-1 M1038 Method B Tj = Tjmax, Iz = 100% of max. datasheet reverse currentTC Temperature CyclingJESD22-A104 -65 °C to Tjmax, not to exceed 150°CUHAST Unbiased HASTJESD22-A104 Tamb = 130 °C, RH = 85 % JESD22-A102 AC AutoclaveAC HaTRB High Humidity High Temperature Reverse BiasJESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of rated reverse voltage ^[1] MIL-STD-750 Method 1037 ton = toff, devices powered to insure Δ Tj = 100 °C for 15000 cyclesRSH Resistance to Solder Heat SDJESD22-A111 260 °C ± 5 °CSD	boratoryPart Description Nexperia DHAMZenerliability labsSMD packageZenerEC-Q101 TestTest ConditionsDurationTEST Pre- and Post-Stress Electrical TestTamb = 25 °CN/APCSoak Tamb = 125 °C24 hoursPCSoak Tamb = 85 °C, RH = 85%168 hoursPreconditioningMIL-STD-750-1168 hoursHTRB High Temperature ReverseMIL-STD-750-11000 hoursBiasVillas Method A1000 hoursTCJESD22-A1041000 hoursSteady State OperationalTamb = 130 °C, RH = 85 %1000 hoursTCJESD22-A104 -65 °C to Tjmax, not to exceed 150°C1000 cyclesUHASTJESD22-A104 -65 °C to Tjmax, not to exceed 150°C96 hoursAC AutoclaveTamb = 130 °C, RH = 85 % JESD22-A101 Tamb = 130 °C, RH = 85 %, VR = 80 % of rated reverse voltage ^[1] 96 hoursMIL-STD-750 Method 1037 ton = toff, devices powered to insure ΔT j = IO00 hours1000 hoursMIL-STD-750 Method 1037 ton = toff, devices powered to insure ΔT j = IO0 hours1000 hoursRSH RSH RSH SDJESD22-A111 260 °C ± 5 °C10 s	boratoryPart Description Nexperia DHAM SMD packageZenerliability labsSMD packageEC-Q101 TestTest ConditionsDuration# LotsTEST Pre- and Post-Stress Electrical TestTamb = 25 °CN/Asee belowJESD22-A113 Bake Tamb = 125 °C24 hourssee belowPCSoak Tamb = 85 °C, RH = 85%168 hoursPreconditioningReflow soldering3 cycles1514HTRB High Temperature Reverse BiasTj = Tjmax, VR = 80 % of rated reverse voltage1000 hours250SSOPTj = Tjmax, IZ = 100% of max. datasheet reverse current1000 hours44TC Temperature CyclingJESD22-A104 -65 °C to Tjmax, not to exceed 150°C1000 cycles311UHAST Unbiased HASTJESD22-A118 Tamb = 130 °C, RH = 85 % JESD22-A10296 hours311AC AutoclaveJESD22-A101 Tamb = 121 °C, RH = 100 % AutoclaveJESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of rated reverse voltage ^[1] 1000 hours311H3TRB High Humidity High Tamb = 85 °C, RH = 85%, VR = 80 % of rated reverse voltage ^[1] 1000 hours311MIL-STD-750 Method 1037 ton = toff, devices powered to insure Δ Tj = Intermittent Operating LifeJESD22-A111 260 °C \pm 5 °C10 s269SDSDJESD22-A111JESD22-A111 260 °C \pm 5 °C10 s269	boratoryPart Description Nexperia DHAM SMD packageZenerEC-0101 TestTest ConditionsDuration# Lots# QuantityTEST Pre- and Post-Stress Electrical TestTamb = 25 °CN/Asee belowall partsJESD22-A113 Bake Tamb = 125 °C24 hoursall partsJESD22-A113PC PreconditioningSoak Tamb = 85 °C, RH = 85%168 hours151464430HTRB High Temperature Reverse biasMIL-STD-750-11000 hours25011400MIL-STD-750-1 M1038 Method A Tj = Tjimax, VR = 80 % of rated reverse voltage1000 hours25011400TC Temperature CyclingJESD22-A104 -65 °C to Tjimax, not to exceed 150°C1000 hours441920TC Temperature CyclingJESD22-A104 -65 °C to Tjimax, not to exceed 150°C1000 cycles31114080UHAST Unbiased HASTJESD22-A104 Tamb = 121 °C, RH = 85 % Pressure 205 KPa (29.7 psia)96 hours31114080HTRB High Humidity High Temperature Reverse BiaJESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of Tarted reverse Voltage ^[1] 1000 hours31114080ML-STD-750 Method 1037 Tom = toff, devices powered to insure ΔT j = Intermittent Operating Life 100 °C for 15000 cycles1000 hours31214120RSH Resistance to Solder Heat SDJESD22-A111 Z60 °C ± 5 °C10 s2698070

[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

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