nexperia

Quarterly Reliability Monitoring Results

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

	User Part Number				
	BZX84W-C75-Q				
boratory	Part Description				
	Nexperia DHAM	Zener			
liability labs	SMD package				
EC-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				
	,			<i></i>	
Preconditioning		3 CYCIES	1514	64430	0
5 ,	5 5 7	1000 hours	250	11400	0
Bids	5	1000 110013	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	14090	0
remperature Reverse Blas		1000 Hours	211	14080	U
TO					
	, , ,	1000 hours	312	14120	0
internition operating Life		1000 1100/3	512	11120	<u> </u>
RSH	JESD22-A111				
Resistance to Solder Heat	260 °C ± 5 °C	10 s	269	8070	0
SD					
Solderability	J-STD-002		19	6660	0
	iboratory iiability labs EC-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 IOL Intermittent Operating Life RSH Resistance to Solder Heat SD	boratoryPart Description Nexperia DHAM SMD packageIiability 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 solderingHTRB High Temperature Reverse BiasMIL-STD-750-1 MIL-STD-750-1 M1038 Method A 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 UHAST Unbiased HASTJESD22-A104 -65 °C to Tjmax, not to exceed 150°CUHAST UutoclaveJESD22-A104 Tamb = 130 °C, RH = 85 % JESD22-A102 AC AutoclaveAC High Humidity High Temperature Reverse BiasJESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of rated reverse voltage ^[1] MIL-STD JESD22-A102JESD22-A104 Tamb = 121 °C, RH = 100 % Pressure = 205 kPa (29.7 psia)H3TRB 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 \pm 5 °CSD	bioratoryPart Description Nexperia DHAMZenerliability labsSMD packageZenerEC-Q101 TestTest ConditionsDurationTEST Pre- and Post-Stress Electrical TestTamb = 25 °CN/AJESD22-A113 Bake Tamb = 125 °C24 hoursBake Tamb = 125 °C24 hoursPCSoak Tamb = 85 °C, RH = 85%168 hoursPreconditioningReflow soldering3 cyclesHTRB High Temperature ReverseMIL-STD-750-1 M1038 Method A1000 hoursMIL-STD-750-1 M1038 Method A1000 hoursSteady State OperationalTi = Tjmax, VR = 80 % of rated reverse voltage1000 hoursTC Temperature CyclingJESD22-A104 -65 °C to Tjmax, not to exceed 150°C1000 cyclesUHAST Unbiased HASTJESD22-A104 Tamb = 130 °C, RH = 85 % JESD22-A10296 hoursAC AutoclaveJESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of rated reverse voltage ^[11] 1000 hoursH3TRB High Humidity High Temperature Reverse BiasJESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of rated reverse voltage ^[11] 1000 hoursIOL Intermittent Operating Life100 °C for 15000 cycles1000 hoursRSH Resistance to Solder HeatJESD22-A111 260 °C \pm 5 °C10 s	bioratoryPart 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 hours24 hoursPCSoak Tamb = 85 °C, RH = 85%168 hoursPreconditioningReflow soldering3 cycles1514HTRB High Temperature Reverse BiasMIL-STD-750-1 MIL-STD-750-1 MI038 Method A1000 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-A102 Pressure = 205 kPa (29.7 pisia)96 hours311H3TRB High Humidity High Temperature Reverse BiasJESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of rated reverse voltage ⁽¹⁾ 1000 hours311ML-STD-750 Method 1037 ton = toff, devices powered to insure ΔT j = Intermittent Operating LifeJESD22-A111 200 °C ± 5 °C1000 hours312RSH Resistance to Solder HeatJESD2-A1111 200 °C ± 5 °C10 s269269SD	boratoryPart Description Nexperia DHAMZenerIdability labsSMD packageEC-Q101 TestTest ConditionsDuration# Lots# QuantityTEST Pre- and Post-Stress Electrical TestTamb = 25 °CN/Asee belowall partsJESD22-A113 Bake Tamb = 125 °C24 hours68 hours9PCSoak Tamb = 85 °C, RH = 85%168 hours151464430PTRE High Temperature Reverse BlasMIL-STD-750-1 M1038 Method A Ti = Timax, VR = 80 % of rated reverse voltage1000 hours25011400TC Temperature Reverse UstageJESD22-A104 reverse current1000 hours441920TC Temperature CyclingJESD22-A104 reverse current1000 cycles31114080UHAST Unbiased HASTJESD22-A104 ramb = 121 °C, RH = 85 % Prescure 205 kPa (29.7 psia)96 hours31114080ML-STD-750 th M138 Method B Steady State OperationalJESD22-A104 reverse current96 hours31114080UHAST Unbiased HASTJESD22-A104 ramb = 121 °C, RH = 85 % rated reverse voltage ¹¹¹ 96 hours31114080ML-STD-750 Method 1037 Temperature Reverse BiaJESD22-A101 ramb = 35 °C, RH = 85 %, VR = 80 % of rated reverse voltage ¹¹¹ 1000 hours31114080KSH Resistance to Solder HeatJESD22-A111 260 °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

(FIT) MTTF (hrs)
2,68E+09

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