nexperia

Quarterly Reliability Monitoring Results

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

	User Part Number				
	BZX585-B5V1-Q				
ooratory	Part Description				
	Nexperia DHAM	Zener			
ability labs	SMD package				
C-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
PC Preconditioning	JESD22-A113 Bake Tamb = 125 °C Soak Tamb = 85 °C, RH = 85% Reflow soldering	24 hours 168 hours 3 cycles	1514	64430	0
HTRB High Temperature Reverse Bias	MIL-STD-750-1 M1038 Method A Tj = Tjmax, VR = 80 % of rated reverse voltage	1000 hours	250	11400	0
SSOP Steady State Operational	MIL-STD-750-1 M1038 Method B Tj = Tjmax, Iz = 100% of max. datasheet reverse current	1000 hours	44	1920	0
TC Temperature Cycling	JESD22-A104 -65 °C to Tjmax, not to exceed 150°C	1000 cycles	311	14080	0
UHAST Unbiased HAST	JESD22-A118 Tamb = 130 °C, RH = 85 %	96 hours	311	14080	0
AC Autoclave	JESD22-A102 Tamb = 121 °C, RH = 100 % Pressure = 205 kPa (29.7 psia)				
H3TRB High Humidity High Temperature Reverse Bias	JESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of rated reverse voltage ^[1]	1000 hours	311	14080	0
IOL	MIL-STD-750 Method 1037 ton = toff, devices powered to insure ΔTj =				0
RSH	JESD22-A111	1000 110013	512	17120	
	260 °C ± 5 °C	10 s	269	8070	0
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	BZX585-BSV1-Q Docratory Part Description Nexperia DHAM ability labs SMD package CC-Q101 Test Test Conditions TEST Pre- and Post-Stress Electrical Test Tamb = 25 °C JESD22-A113 Bake Tamb = 125 °C JESD22-A113 Bake Tamb = 85 °C, RH = 85% Preconditioning Reflow soldering MIL-STD-750-1 HTRB M1038 Method A High Temperature Reverse Bias Tj = Tjmax, VR = 80 % of rated reverse Bias SSOP Tj = Tjmax, IZ = 100% of max. datasheet reverse current TC JESD22-A104 reverse current TC JESD22-A104 reverse current MAST JESD22-A104 JESD22-A102 AC Tamb = 130 °C, RH = 85 % Autoclave Pressure = 205 kPa (29.7 psia) H3TRB JESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of remperature Reverse Bias JESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of remperature Reverse Bias JESD22-A101 Tamb = 85 °C, RH = 85%, VR = 80 % of restruct reverse voltage ^[1] MIL-STD-750 Method 1037 tol MIL-STD-750 Method 1037 ton = toff, devices powered to insure ΔTj = Intermittent Operating Life JESD22-A111 Resistance to Solder Heat RSH JESD22-A111 Resistance to Solder Heat JESD22-A111 260 °C ± 5 °C <td>BZX585-B5V1-QporatoryPart Description Nexperia DHAMZenerability labsSMD packageSMD packageSC-Q101 TestTest ConditionsDurationTEST Pre- and Post-StressTamb = 25 °CN/AElectrical TestTamb = 25 °C24 hoursBake Tamb = 125 °C24 hoursPCSoak Tamb = 85 °C, RH = 85%168 hoursPreconditioningReflow soldering3 cyclesHTRBM10.38 Method A168 hoursHigh Temperature ReverseTj = Tjmax, VR = 80 % of rated reverse1000 hoursSSOPTj = Tjmax, Iz = 100% of max. datasheet1000 hoursTCJESD22-A1041000 hoursSteady State OperationalJESD22-A10496 hoursUHASTJESD22-A10296 hoursACTamb = 121 °C, RH = 85 %96 hoursJESD22-A102Tamb = 121 °C, RH = 85 %96 hoursACTamb = 121 °C, RH = 100 %1000 hoursHIRBJESD22-A1011000 % of rated reverse voltageHigh Humidity HighTamb = 85 °C, RH = 85%, VR = 80 % of1000 hoursImperature Reverse Biasrated reverse voltage^[11]1000 hoursMIL-STD-750 Method 1037100100 °C for 15000 cycles1000 hoursRSHJESD22-A111360 °C ± 5 °C10 sRSHJESD22-A111260 °C ± 5 °C10 s</td> <td>BZX585-B5V1-QporatoryPart Description Nexperia DHAM Nexperia DHAM SMD packageZenerability labsSMD packageCQ101 TestTest ConditionsDuration# LotsTEST Pre- and Post-StressTamb = 25 °CN/Asee belowElectrical TestTamb = 25 °CN/Asee belowPCSoak Tamb = 85 °C, RH = 85%168 hoursPreconditioningReflow soldering3 cycles1514HTRBMIL-STD-750-1 M1038 Method AMIL-STD-750-1 M1038 Method B1000 hours250SSOPTj = Tjmax, VR = 80 % of rated reverse biasvoltage1000 hours44TCJESD22-A104 reverse current1000 hours44TCJESD22-A104 reverse current96 hours311Unblased HASTJESD22-A118 Tamb = 121 °C, RH = 85 % JESD22-A10296 hours311MACTamb = 121 °C, RH = 100 % rated reverse blas96 hours311MIL-STD-750 fm M1L-STD-750 Method 1037 ton = toff, devices powered to insure ΔTj = Immerature Reverse BlasJESD22-A101 rated reverse voltage¹¹1000 hours311MIL-STD-750 Method 1037 ton = toff, devices powered to insure ΔTj = Immerature Reverse BlasJESD2-A111 rate 85 °C, RH = 80 % of rated reverse voltage¹¹1000 hours312RSH Resistance to Solder HeatJESD2-A111 Z60 °C ± 5 °C10 s269269SDSDSubmatriceseSubmatriceseSubmatricese</td> <td>BZX585-BSV1-QPart Description Nexperia DHAM SMD packageability labsSMD packageCOLOI TestTest ConditionsDuration# Lots# QuantityTEST Pre- and Post-Stress Electrical TestTamb = 25 °CN/Asee belowall partsJESD22-A113 Bake Tamb = 125 °CQ4 hours 168 hoursJESD22-A113 Bake Tamb = 85 °C, RH = 85%168 hoursPCSoak Tamb = 85 °C, RH = 85%168 hoursPreconditioningReflow soldering3 cycles151464430MIL-STD-750-1 M1038 Method AMIL-STD-750-1 M1038 Method AHigh Femperature Reverse BiasJI = Tjmax, VR = 80 % of rated reverse BiasJI = Tymax, VR = 80 % of rated reverseSteady State OperationalThe - 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[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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