nexperia

Quarterly Reliability Monitoring Results

Quarters: Q1/2021 to Q4/2021

Based on structural similarity

	User Part Number					
	PESD3V3T1BL					
boratory	Part Description					
	Nexperia DHAM	Protection				
liability labs	MCD package					
EC-Q101 Test	Test Conditions	Duration	# Lots	# Quantity	# Rejects	
TEST						
Electrical Test	Tamb = 25 °C	N/A	see below	all parts	see below	
	JESD22-A113					
Preconditioning	Reflow soldering	3 cycles	142	11435	0	
	MIL-STD-750-1					
HTRB	M1038 Method A					
Bias	reverse voltage	1000 hours	117	9360	0	
тс	1FSD22-4104					
Temperature Cycling	-65 °C to Tjmax, not to exceed 150°C	1000 cvcles	53	4225	0	
	1FSD22-A102	,				
AC						
Autoclave	Pressure = 205 kPa (29.7 psia)	96 hours	39	3165	0	
H3TRB	JESD22-A101					
	Tamb = 85 °C, RH = 85%, VR = 80 % of					
		1000 hours	51	4045	0	
	MIL-STD-750 Method 1037					
IOL						
		1000 hours	n.a.	n.a.	n.a.	
	· ·					
RSH	JESD22-A111					
		10 s	n.a.	n.a.	n.a.	
SD					-	
Solderability	J-STD-002		78	780	0	
	Iability labs EC-Q101 Test TEST Pre- and Post-Stress Electrical Test PC Preconditioning HTRB High Temperature Reverse Bias TC Temperature Cycling AC Autoclave H3TRB High Humidity High Temperature Reverse Bias IOL Intermittent Operating Life RSH Resistance to Solder Heat SD	PESD3V3T1BLboratoryPart Description Nexperia DHAM MCD packageEC-Q101 TestTest ConditionsTEST Pre- and Post-Stress Electrical TestTamb = 25 °C JESD22-A113 Bake Tamb = 125 °C Soak Tamb = 85 °C, RH = 85% PreconditioningPC PC BiasSoak Tamb = 85 °C, RH = 85% T = Tjmax, Vr = 100% of max. datasheet reverse voltageTC Temperature CyclingJESD22-A104 T = Tjmax, Vr = 100% of max. datasheet reverse voltageTC JESD22-A102 AC AutoclaveJESD22-A104 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 ^[11] 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 °C	PESD3V3TIBLboratoryPesD3V3TIBLboratoryPart Description Nexperia DHAMProtectioniiability labsMCD packageEC-Q101 TestTest ConditionsDurationTEST Pre- and Post-StressElectrical TestTamb = 25 °CN/AJESD22-A113 Bake Tamb = 125 °C24 hours 168 hoursPCSoak Tamb = 85 °C, RH = 85%168 hoursPCSoak Tamb = 85 °C, RH = 85%168 hoursPCSoak Tamb = 85 °C, RH = 85%168 hoursPreconditioningReflow soldering3 cyclesTHTRBMIL-STD-750-1MIL-STD-750-1MIL-STD-750-1MIL-STD-750-1MIL-STD-750-1MIL-STD-750-1MIL-STD-750-1MIL-STD-760 Method AHigh Temperature ReverseJESD22-A104TESD22-A102ACTamb = 121 °C, RH = 100 %AutoclavePressure = 205 kPa (29.7 psia)96 hoursHTRBJESD22-A101Tamb = 85 °C, RH = 85%, VR = 80 % of rated reverse voltage ^[11] <th c<="" td=""><td>PESD3V3T1BL boratory Part Description Nexperia DHAM Protection Nexperia DHAM Protection Bability labs MCD package Duration # 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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

Fechnology	Quantity	Rejects	Failure Rate (FIT)	MTTF (hrs)
Protection	9360	0	0.45	2.20E+09

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