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Reliability Results for Product Type PBSS4032SPN

Time period: Q1/2018 to Q4/2018

Test Results

Test		Conditions	Duration	Quantity	Rejects				
# 1	TEST Pre- and Post-Stress Electrical Test	T _{amb} = 25 °C	N/A	all parts	see below				
# 2	PC Preconditioning	JESD22-A113 Bake T_{amb} = 125 °C Soak T_{amb} = 85 °C, RH = 85% Reflow soldering	24 hours 168 hours 3 cycles	35200	0				
# 5	HTRB High Temperature Reverse Bias	MIL-STD-750-1 M1038 Method A $T_j = T_{jmax}$, Vr = 100% of max. datasheet reverse voltage	1000 hours	9680	0				
# 7	TC Temperature Cycling	JESD22-A104 -55 °C to T _{jmax} , not to exceed 150°C	1000 cycles	8800	0				
# 8	AC Autoclave	JESD22-A102 T _{amb} = 121 °C, RH = 100 % Pressure = 205 kPa (29.7 psia)	96 hours	8800	0				
# 9	H3TRB High Humidity High Temperature Reverse Bias	JESD22-A101 T_{amb} = 85 °C, RH = 85%, V_R > 80 % of rated reverse voltage	1000 hours	8800	0				
# 10	IOL Intermittent Operating Life	MIL-STD-750 Method 1037 t_{on} = t_{off} , devices powered to insure ΔT_j = 100 °C for 15000 cycles	1000 hours	8800	0				
# 20	RSH Resistance to Solder Heat	JESD22-A111 260 °C ± 5 °C	10 s	2760	0				
# 21	SD Solderability	J-STD-002 Test method B and D		1950	0				

Calculation of FIT and MTBF

Test considered for FIT calculation: High Temperature Reverse Bias (HTRB, Test # 5) Confidence level 60%, derated to 55 °C, activation energy 0.7 eV, test time 168 to 1000 hours

Wafer Fab	Technology	Quantity	Rejects	Failure Rate	e MTBF
Nexperia DHAM	Small Signal Bipolar	9680	0	0.44 FIT	260034 years

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