

Reliability Results for Product Type PBSS4041SP

Time period: Q1/2018 to Q4/2018

Test Results

Test	Conditions	Duration	Quantity	Rejects
TEST # 1 Pre- and Post-Stress Electrical Test	T _{amb} = 25 °C	N/A	all parts	see below
PC # 2 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
HTRB # 5 High Temperature Reverse Bias	MIL-STD-750-1 M1038 Method A T _j = T _{jmax} , V _r = 100% of max. datasheet reverse voltage	1000 hours	9680	0
TC # 7 Temperature Cycling	JESD22-A104 -55 °C to T _{jmax} , not to exceed 150°C	1000 cycles	8800	0
AC # 8 Autoclave	JESD22-A102 T _{amb} = 121 °C, RH = 100 % Pressure = 205 kPa (29.7 psia)	96 hours	8800	0
H3TRB # 9 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
IOL # 10 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
RSH # 20 Resistance to Solder Heat	JESD22-A111 260 °C ± 5 °C	10 s	2760	0
SD # 21 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	MTBF
Nexperia DHAM	Small Signal Bipolar	9680	0	0.44 FIT	260034 years