

Reliability Results for Product Type BZV55-B33

Time period: Q1/2018 to Q4/2018

Test Results

Test	Conditions	Duration	Quantity	Rejects
TEST # 1 Pre- and Post-Stress Electrical Test	$T_{amb} = 25\text{ °C}$	N/A	all parts	see below
PC # 2 Preconditioning	JESD22-A113 Bake $T_{amb} = 125\text{ °C}$ Soak $T_{amb} = 85\text{ °C}$, RH = 85% Reflow soldering	24 hours 168 hours 3 cycles	3520	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	960	0
TC # 7 Temperature Cycling	JESD22-A104 -55 °C to T_{jmax} , not to exceed 150°C	1000 cycles	1200	0
AC # 8 Autoclave	JESD22-A102 $T_{amb} = 121\text{ °C}$, RH = 100 % Pressure = 205 kPa (29.7 psia)	96 hours	800	0
H3TRB # 9 High Humidity High Temperature Reverse Bias	JESD22-A101 $T_{amb} = 85\text{ °C}$, RH = 85%, $V_R > 80\%$ of rated reverse voltage	1000 hours	n.a.	n.a.
IOL # 10 Intermittent Operating Life	MIL-STD-750 Method 1037 $t_{on} = t_{off}$, devices powered to insure $\Delta T_j = 100\text{ °C}$ for 15000 cycles	1000 hours	1520	0
RSH # 20 Resistance to Solder Heat	JESD22-A111 260 °C \pm 5 °C	10 s	320	0
SD # 21 Solderability	J-STD-002		760	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
Phenitec	Zener / Protection	960	0	4.43 FIT	25788 years