

## Reliability Results for Product Type 1N4734A

Time period: Q1/2018 to Q4/2018

### Test Results

Test	Conditions	Duration	Quantity	Rejects
<b>TEST</b> # 1 Pre- and Post-Stress Electrical Test	$T_{amb} = 25\text{ °C}$	N/A	all parts	see below
<b>PC</b> # 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
<b>HTRB</b> # 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
<b>TC</b> # 7 Temperature Cycling	JESD22-A104 $-55\text{ °C}$ to $T_{jmax}$ , not to exceed $150\text{ °C}$	1000 cycles	1200	0
<b>AC</b> # 8 Autoclave	JESD22-A102 $T_{amb} = 121\text{ °C}$ , RH = 100 % Pressure = 205 kPa (29.7 psia)	96 hours	800	0
<b>H3TRB</b> # 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.
<b>IOL</b> # 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
<b>RSH</b> # 20 Resistance to Solder Heat	JESD22-A111 $260\text{ °C} \pm 5\text{ °C}$	10 s	320	0
<b>SD</b> # 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  $55\text{ °C}$ , 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