## Maximum Ratings @$T_A$ = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitance load, derate current by 20%.

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Non-Repetitive Peak Impulse Current @10/1000us | $I_{pp}$ | 30 | A |
| Non-Repetitive Peak On-State Current @8.3ms (one-half cycle) | $I_{TSM}$ | 15 | A |
| Typical Positive Temperature Coefficient for Breakdown Voltage | $\Delta VBR/\Delta T_J$ | 0.1 | %/°C |

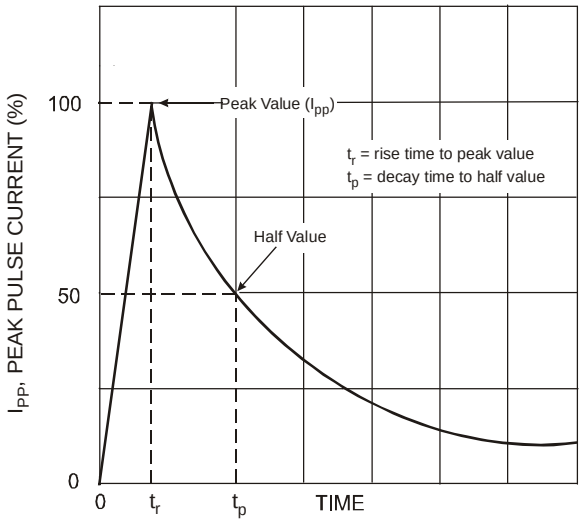
## Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Thermal Resistance, Junction to Lead | $R_{\theta JL}$ | 30 | °C/W |
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 120 | °C/W |
| Junction Temperature Range | $T_J$ | -40 to +150 | °C |
| Storage Temperature Range | $T_{STG}$ | -55 to +150 | °C |

## Maximum Rated Surge Waveform

| Waveform | Standard | Ipp (A) |
|---|---|---|
| 2/10 us | GR-1089-CORE | 200 |
| 8/20 us | IEC 61000-4-5 | 150 |
| 10/160 us | FCC Part 68 | 100 |
| 10/700 us (Note 4) | ITU-T, K.20/K.21 | 60 |
| 10/560 us | FCC Part 68 | 50 |
| 10/1000 us | GR-1089-CORE | 30 |

Notes: 4. Applied 2kV, 10/700 us waveform



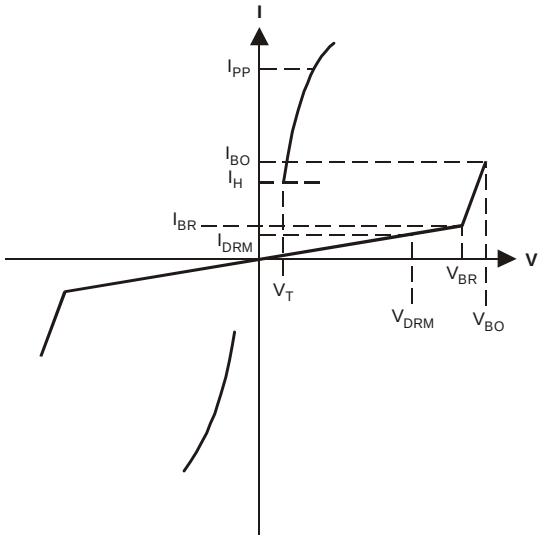

## Electrical Characteristics @$T_A$ = 25°C unless otherwise specified

| Part Number | Maximum Rated Repetitive Off-State Voltage | Maximum Off-State Leakage Current @ $V_{DRM}$ | Maximum Breakover Voltage | Maximum On-State Voltage @ $I_T$ = 1A | Breakover Current $I_{BO}$ | | Holding Current $I_H$ | | Typical Off-State Capacitance | Marking Code |
|---|---|---|---|---|---|---|---|---|---|---|
| | $V_{DRM}$ (V) | $I_{DRM}$ (uA) | $V_{BO}$ (V) | $V_T$ (V) | Min (mA) | Max (mA) | Min (mA) | Max (mA) | $C_O$ (pF) | |
| TB0640L | 58 | 5 | 77 | 3.5 | 50 | 800 | 150 | 800 | 100 | T064L |
| TB0720L | 65 | 5 | 88 | 3.5 | 50 | 800 | 150 | 800 | 100 | T072L |
| TB0900L | 75 | 5 | 98 | 3.5 | 50 | 800 | 150 | 800 | 100 | T090L |
| TB1100L | 90 | 5 | 130 | 3.5 | 50 | 800 | 150 | 800 | 60 | T110L |
| TB1300L | 120 | 5 | 160 | 3.5 | 50 | 800 | 150 | 800 | 60 | T130L |
| TB1500L | 140 | 5 | 180 | 3.5 | 50 | 800 | 150 | 800 | 60 | T150L |
| TB1800L | 160 | 5 | 220 | 3.5 | 50 | 800 | 150 | 800 | 60 | T180L |
| TB2300L | 190 | 5 | 265 | 3.5 | 50 | 800 | 150 | 800 | 40 | T230L |
| TB2600L | 220 | 5 | 300 | 3.5 | 50 | 800 | 150 | 800 | 40 | T260L |
| TB3100L | 275 | 5 | 350 | 3.5 | 50 | 800 | 150 | 800 | 40 | T310L |
| TB3500L | 320 | 5 | 400 | 3.5 | 50 | 800 | 150 | 800 | 40 | T350L |

## Electrical Characteristics @$T_A$ = 25°C unless otherwise specified

| Symbol | Parameter |
|---|---|
| $V_{DRM}$ | Stand-off Voltage |
| $I_{DRM}$ | Leakage current at stand-off voltage |
| $V_{BR}$ | Breakdown voltage |
| $I_{BR}$ | Breakdown current |
| $V_{BO}$ | Breakover voltage |
| $I_{BO}$ | Breakover current |
| $I_H$ | Holding current (Note 5) |
| $V_T$ | On state voltage |
| $I_{PP}$ | Peak pulse current |
| $C_O$ | Off-state capacitance (Note 6) |

Notes: 5. $I_H > (V_L/R_L)$ If this criterion is not obeyed, the TSPD triggers but does not return correctly to high-resistance state. The surge recovery time does not exceed 30ms.
6. Off-state capacitance measured at f = 1.0MHz, 1.0$V_{RMS}$ signal, $V_R = 2V_{DC}$ bias.



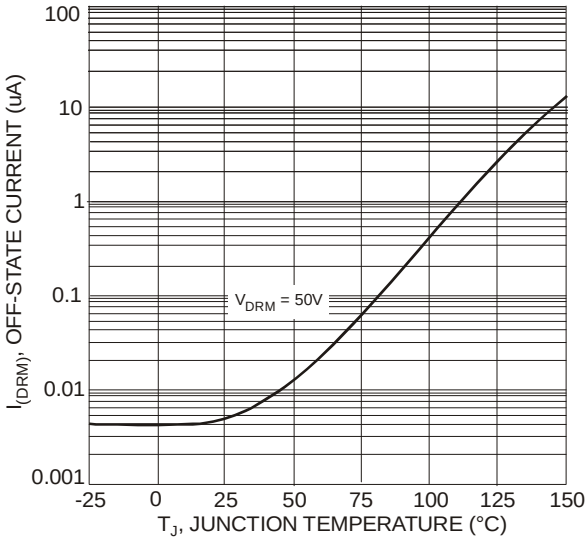




Fig. 1 Off-State Current vs. Junction Temperature

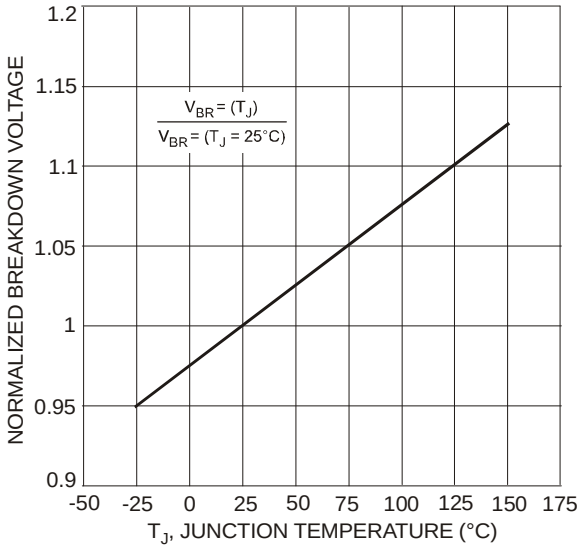



Fig. 2 Relative Variation of Breakdown Voltage vs. Junction Temperature

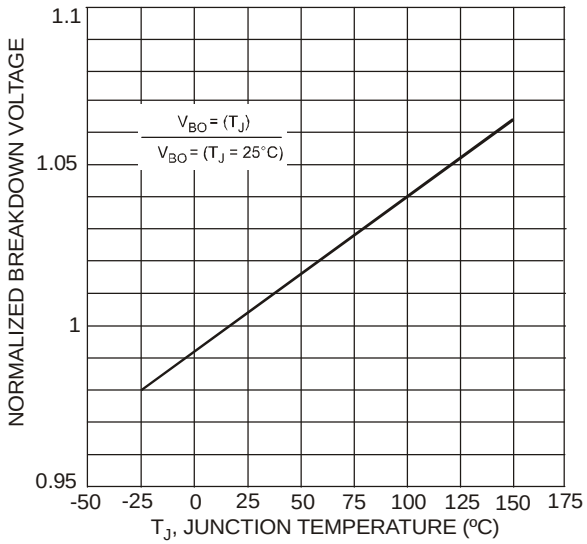



Fig. 3 Relative Variation of Breakover Voltage vs. Junction Temperature

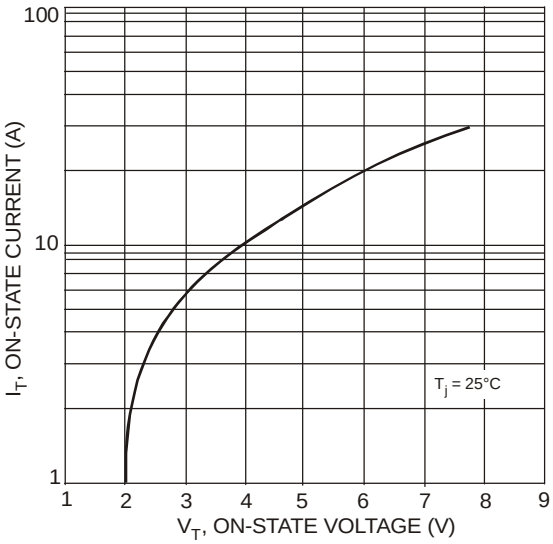



Fig. 4 On-State Current vs. On-State Voltage

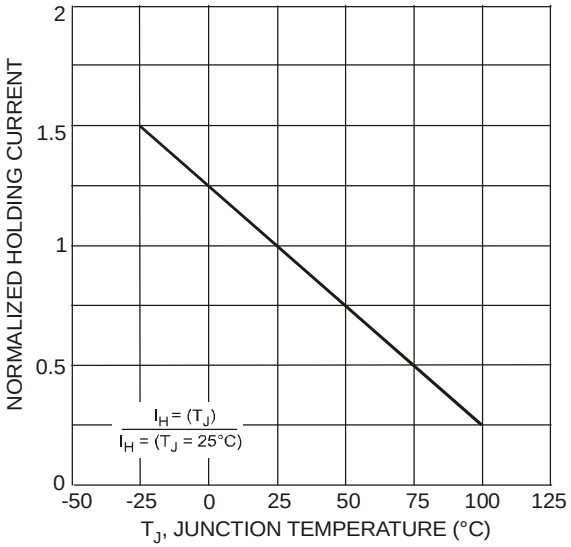



Fig. 5 Relative Variation of Holding Current vs. Junction Temperature

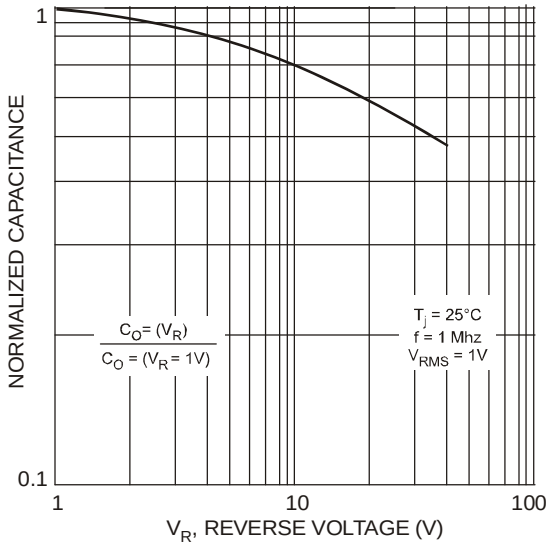
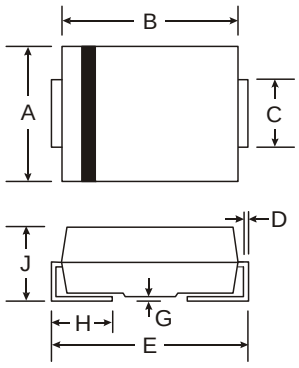


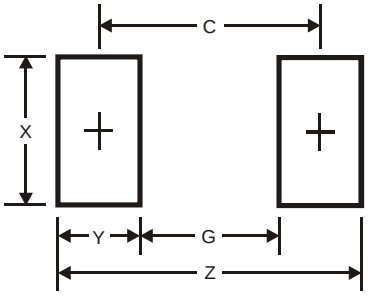

Fig. 6 Relative Variation of Junction Capacitance vs. Reverse Voltage Bias

## Package Outline Dimensions




| SMB | | |
|---|---|---|
| **Dim** | **Min** | **Max** |
| **A** | 3.30 | 3.94 |
| **B** | 4.06 | 4.57 |
| **C** | 1.96 | 2.21 |
| **D** | 0.15 | 0.31 |
| **E** | 5.00 | 5.59 |
| **G** | 0.05 | 0.20 |
| **H** | 0.76 | 1.52 |
| **J** | 2.00 | 2.50 |
| **All Dimensions in mm** | | |

## Suggested Pad Layout




| SMB Dimensions | Value (in mm) |
|---|---|
| Z | 6.8 |
| G | 1.8 |
| X | 2.3 |
| Y | 2.5 |
| C | 4.3 |