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# TSMBJ0305C-072

## Transient Voltage Protection Device 65 Volts

### Features

- Oxide-Glass passivated Junction
- Bi-Directional protection in a single device
- Surge capabilities up to 50A@10/1000us or 150A@8/20us
- High Off-State impedance and Low On-State voltage
- Plastic material has UL flammability classification 94V-0

### Mechanical Data

- Case : Molded plastic
- Polarity : None cathode band denotes
- Approx Weight : 0.093grams

### Maximum Ratings

| Characteristic                         | Symbol         | Value     | Unit                  |
|--|----------------|-----------|-----------------------|
| Non-repetitive peak impulse current    | $I_{PP}$       | 50A       | 10/1000us             |
| Non-repetitive peak On-state current   | $I_{TSM}$      | 20A       | 8.3ms, one-half cycle |
| Operating temperature range            | $T_{OP}$       | -40~125°C |                       |
| Junction and storage temperature range | $T_J, T_{STG}$ | -55~150°C |                       |

**DO-214AA  
(SMBJ)**

| DIM | INCHES |      | MM   |      | NOTE |
|-----|--------|------|------|------|------|
|     | MIN    | MAX  | MIN  | MAX  |      |
| A   | .078   | .096 | 2.00 | 2.44 |      |
| B   | .077   | .083 | 1.96 | 2.10 |      |
| C   | .002   | .008 | .05  | .20  |      |
| D   | ---    | .02  | ---  | .51  |      |
| E   | .030   | .060 | .76  | 1.52 |      |
| F   | .065   | .091 | 1.65 | 2.32 |      |
| G   | .205   | .220 | 5.21 | 5.59 |      |
| H   | .160   | .180 | 4.06 | 4.57 |      |
| J   | .130   | .155 | 3.30 | 3.94 |      |

**SUGGESTED SOLDER  
PAD LAYOUT**

### Thermal Resistance

| 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 | On recommended pad layout |
| Typical positive temperature coefficient for breakdown voltage | $\Delta V_{BR}/\Delta T_J$ | 0.1%/°C |                           |

# TSMBJ0305C-072

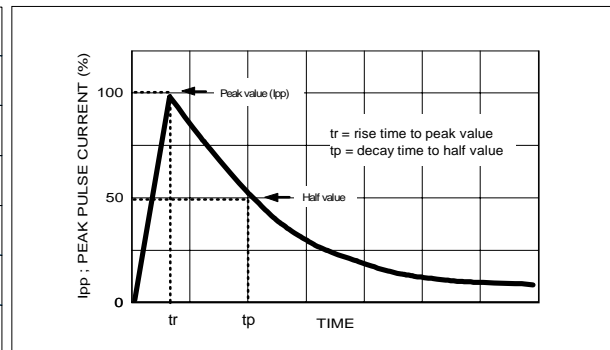


## ELECTRICAL CHARACTERISTIC @25°C Unless otherwise specified

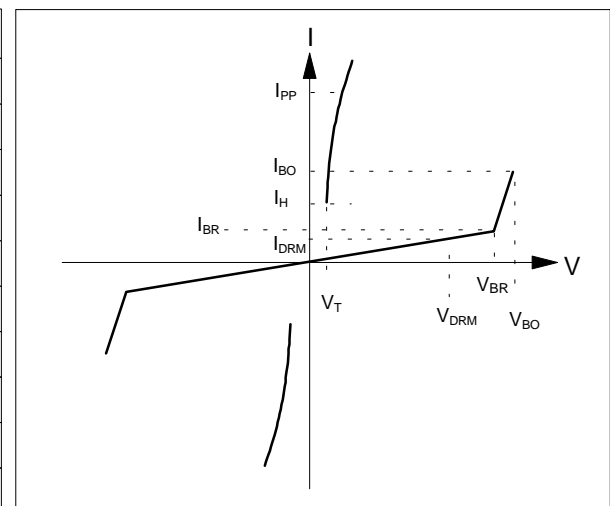
| Parameter      | Rated Repetitive Off-state Voltage | Off-state Leakage Current@V <sub>DRM</sub> | Breakover Voltage | On-State Voltage @I <sub>T</sub> =1.0A | Breakover Current |                  | Holding Current |                 | Off-State Capacitance |
|----------------|------------------------------------|--|-------------------|--|-------------------|------------------|-----------------|-----------------|-----------------------|
|                |                                    |  |                   |  | I <sub>BO</sub>   | I <sub>BO+</sub> | I <sub>H</sub>  | I <sub>H+</sub> |                       |
| Symbol         | V <sub>DRM</sub>                   | I <sub>DRM</sub>                           | V <sub>BO</sub>   | V <sub>T</sub>                         | I <sub>BO</sub>   | I <sub>BO+</sub> | I <sub>H</sub>  | I <sub>H+</sub> | C <sub>J</sub>        |
| Units          | Volts                              | uA   | Volts             | Volts                                  | mA                | mA               | mA              | mA              | pF                    |
| Limit          | Max                                | Max  | Max               | Max                                    | Min               | Max              | Min             | Max             | Typ.                  |
| TSMBJ0305C-072 | 65                                 | 5  | 88                | 5                                      | 50                | 800              | 150             | 800             | 100                   |

## MAXIMUM RATED SURGE WAVEFORM

| Waveform   | Standard      | I <sub>pp</sub> (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  | ITU-T K20/21  | 60                  |
| 10/560 us  | FCC Part 68   | 60                  |
| 10/1000 us | GR-1089-CORE  | 50                  |



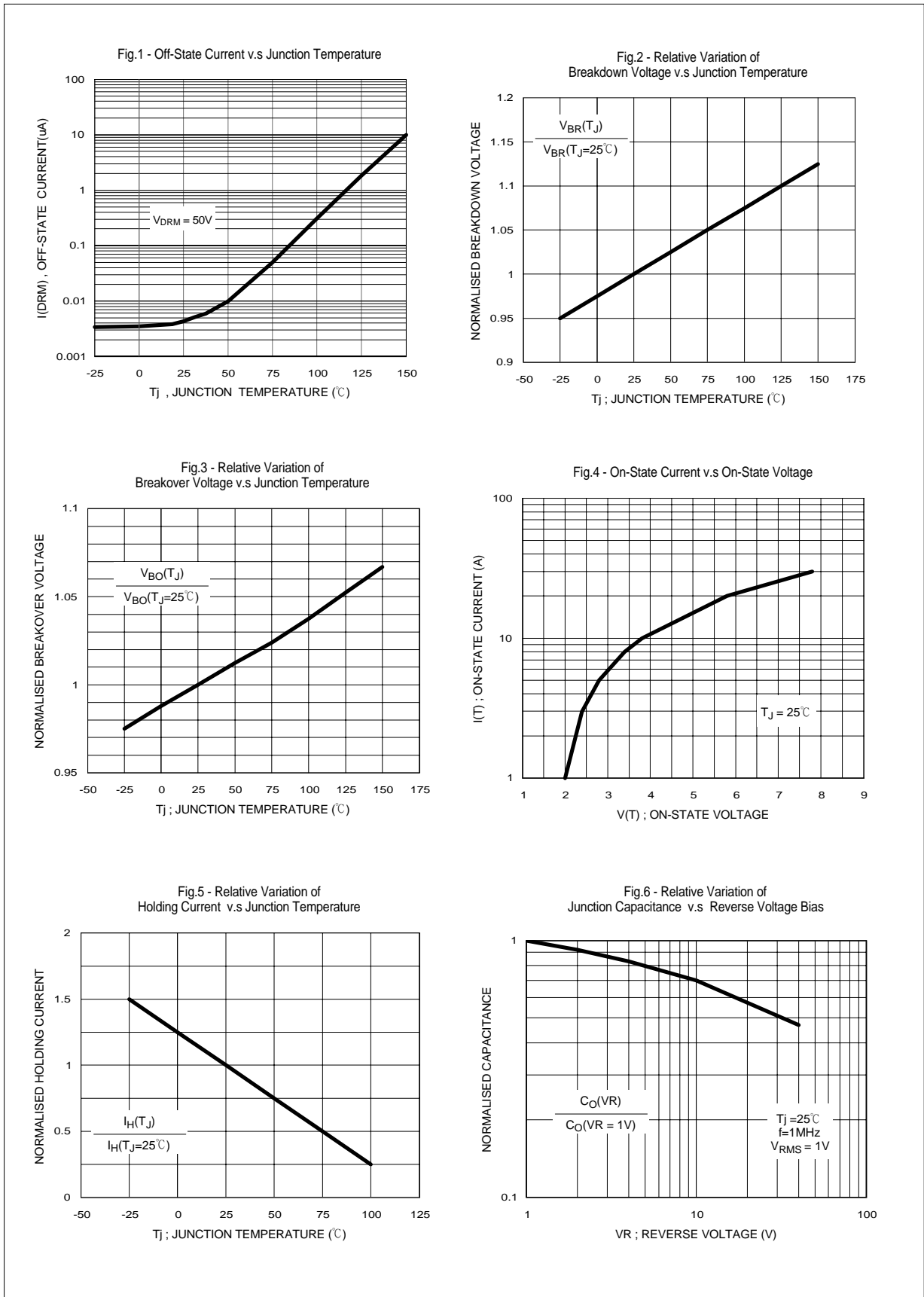
| Symbol           | Parameter                            |         |
|------------------|--------------------------------------|---------|
| V <sub>DRM</sub> | Stand-off voltage                    |         |
| I <sub>DRM</sub> | Leakage current at stand-off voltage |         |
| V <sub>BR</sub>  | Breakdown voltage                    |         |
| I <sub>BR</sub>  | Breakdown current                    |         |
| V <sub>BO</sub>  | Breakover voltage                    |         |
| I <sub>BO</sub>  | Breakover current                    |         |
| I <sub>H</sub>   | Holding current                      | NOTE: 1 |
| V <sub>T</sub>   | On state voltage                     |         |
| I <sub>PP</sub>  | Peak pulse current                   |         |
| C <sub>O</sub>   | Off-state capacitance                | NOTE: 2 |



### NOTE :

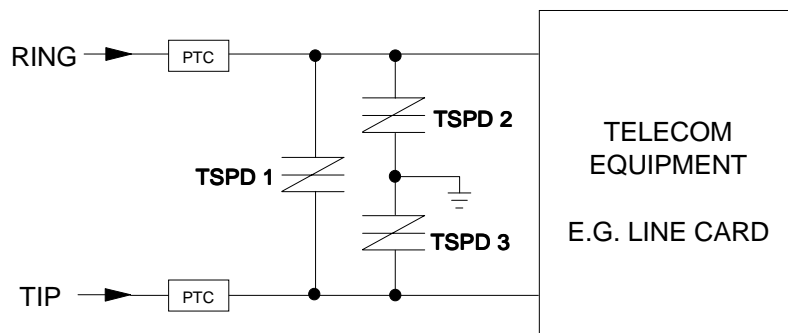
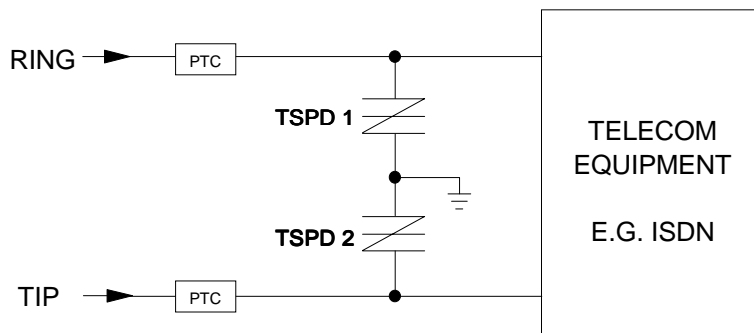
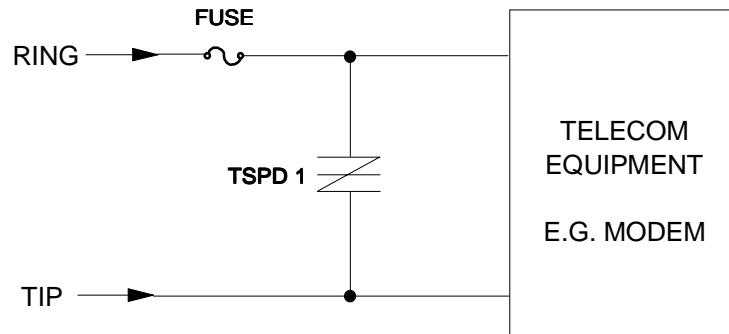
1.  $I_H > (V_L / R_L)$  If this criterion is not obeyed, the TSPD triggers but does not return correctly to high-resistance state. The surge recovery time. It does not exceed 30ms.
2. Off-state capacitance measured at f=1.0MHz, 1.0Vrms signal, VR=2Vdc bias.

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## TYPICAL APPLICATION CIRCUITS



The PTC (Positive Temperature Coefficient) is an overcurrent protection device.