

## VERY LOW VOLTAGE BIDIRECTIONAL THYRISTOR OVERVOLTAGE PROTECTORS

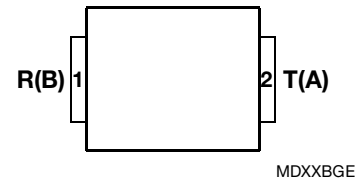


### TISP4011H1BJ VLV Overvoltage Protector Series

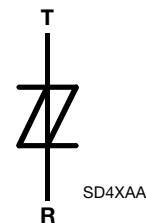
#### General Information

The protector consists of a symmetrical voltage-triggered bidirectional thyristor. Overvoltages are initially clipped by breakdown clamping until the voltage rises to the breakover level, which causes the device to crowbar into a low-voltage on-state condition. This low-voltage on-state causes the current resulting from the overvoltage to be safely diverted through the device. The device switches off when the diverted current falls below the holding current value.

#### SMB Package (Top View)



#### Device Symbol



Terminals T and R correspond to the alternative line designators of A and B

#### Absolute Maximum Ratings, $T_A = 25\text{ }^\circ\text{C}$ (Unless Otherwise Noted)

| Rating                                                                                    | Symbol     | Value                  | Unit             |
|-------------------------------------------------------------------------------------------|------------|------------------------|------------------|
| Repetitive peak off-state voltage                                                         | $V_{DRM}$  | $\pm 5.25$             | V                |
| Non-repetitive peak on-state pulse current<br>10/1000 $\mu\text{s}$<br>2/10 $\mu\text{s}$ | $I_{PPSM}$ | $\pm 100$<br>$\pm 500$ | A                |
| Junction temperature                                                                      | $T_J$      | -40 to +150            | $^\circ\text{C}$ |
| Storage temperature                                                                       | $T_{stg}$  | -55 to +150            | $^\circ\text{C}$ |

#### Electrical Characteristics, $T_A = 25\text{ }^\circ\text{C}$ (Unless Otherwise Noted)

| Parameter                       | Test Conditions                                                | Min. | Typ. | Max. | Unit          |
|---------------------------------|----------------------------------------------------------------|------|------|------|---------------|
| $I_D$ Leakage current           | $V_D = V_{DRM}$                                                |      | 1    | 200  | $\mu\text{A}$ |
| $V_{(BO)}$ Breakover voltage    | $di/dt = \pm 1\text{ mA}/\mu\text{s}$                          |      | 9    | 10.5 | V             |
| $I_{(BO)}$ Breakover current    | $di/dt = \pm 1\text{ mA}/\mu\text{s}$                          |      | 75   | 200  | mA            |
| $V_T$ On-state voltage          | $I_T = \pm 5\text{ A}$                                         |      |      | 3    | V             |
| $I_H$ Holding current           | $I_T = \pm 5\text{ A}$ , $di/dt = \pm 1\text{ mA}/\mu\text{s}$ | 20   | 60   |      | mA            |
| $C_{off}$ Off-state capacitance | $V_d = 0\text{ V}$ , $f = 1\text{ MHz}$ , $1\text{ V}_{rms}$   |      | 110  |      | pF            |

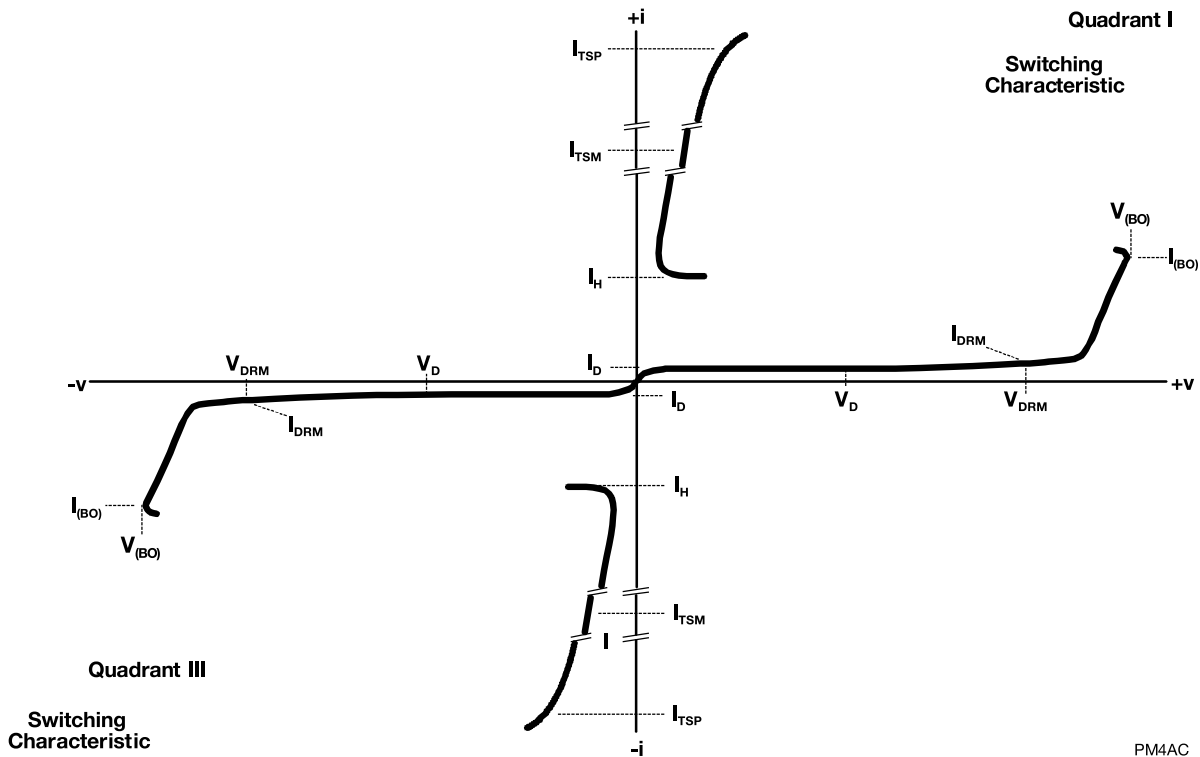
\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

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Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

## Parameter Measurement Information



**Figure 1. Voltage-Current Characteristic for T and R Terminals**  
 All Measurements are Referenced to the R Terminal

PM4AC

## How to Order

| Device       | Package                  | Carrier                  | Order as        |
|--------------|--------------------------|--------------------------|-----------------|
| TISP4011H1BJ | BJ (SMB/DO-214AA J-Bend) | R (Embossed Tape Reeled) | TISP4011H1BJR-S |

## Carrier Information

For production quantities, the carrier will be embossed tape reel pack. Evaluation quantities may be shipped in bulk pack or embossed tape.

| Package | Carrier                 | Standard Quantity |
|---------|-------------------------|-------------------|
| SMB     | Embossed Tape Reel Pack | 3000              |

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