

## DUAL ASYMMETRICAL TRANSIENT SUPPRESSOR

### PRODUCT PREVIEW

#### DESCRIPTION

This Thyristor Surge Suppressor Device is intended for protection of line card inputs. It provides most efficient polarity-dependent asymmetrical surge protection with negative protection voltage higher than positive.

**IMPORTANT:** For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>

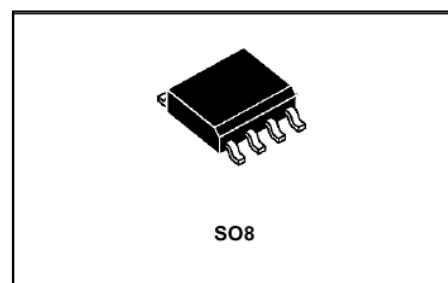
#### COMPLIES WITH THE FOLLOWING STANDARDS:

|                |                 |           |
|----------------|-----------------|-----------|
| CCITT K20:     | 10/700 $\mu$ s  | 1 kV      |
|                | 5/310 $\mu$ s   | 38 A      |
| VDE 0433:      | 10/700 $\mu$ s  | 2 kV      |
|                | 5/310 $\mu$ s   | 50 A      |
| VDE 0878:      | 1.2/50 $\mu$ s  | 1.5 kV    |
|                | 1/20 $\mu$ s    | 40 A      |
| RLM-88         | 0.5/700 $\mu$ s | 1 Kv      |
|                | 0.2/310 $\mu$ s | 38 A      |
| FCC part 68:   | 2/10 $\mu$ s    | 2.5 kv    |
|                | 2/10 $\mu$ s    | 125 A (*) |
| BELLCORE       |                 |           |
| TR-NWT-001089: | 2/10 $\mu$ s    | 2.5 kv    |
|                | 2/10 $\mu$ s    | 125 A (*) |
|                | 10/1000 $\mu$ s | 1 kV      |
|                | 10/1000 $\mu$ s | 40 A (*)  |

#### KEY FEATURES

- DUAL POLARITY-DEPENDENT ASYMMETRICAL TRANSIENT SUPPRESSOR
- PEAK CURRENT:  
 $I_{PP} = 2 \times 25 \text{ A } 10/1000 \mu\text{s}$
- HOLDING CURRENT  $I_H$ :  
110 mA MIN
- BREAKOVER VOLTAGE:  
-250 V, +200 V

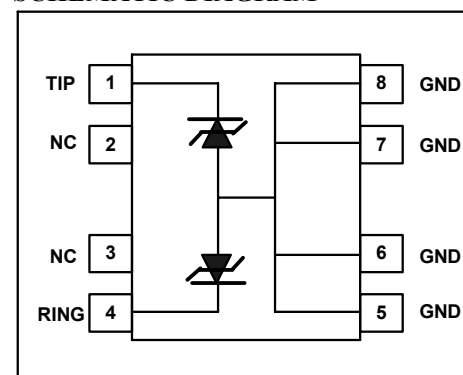
#### APPLICATIONS/BENEFITS



UL94V-0 TCPxx packages comply with requirements of UL94V-0

(\*) with series resistors or PTC.

#### SCHEMATIC DIAGRAM



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**ABSOLUTE LIMITING VALUES**

| Symbol    | Parameter                                  | Conditions                                                | Value              | Unit        |
|-----------|--------------------------------------------|-----------------------------------------------------------|--------------------|-------------|
| $I_{TSP}$ | Non-repetitive on-state peak pulse current | 0.3/300 $\mu$ s RLM-88                                    | +/- 2 X 20         | A           |
| $I_{TSM}$ | Non-repetitive on-state RMS current        | 50/60 Hz AC 0.2 s<br>50/60 Hz AC 5 s<br>50/60 Hz AC 900 s | 4.6<br>1.0<br>0.35 | A<br>A<br>A |
| $T_J$     | Junction temperature range                 |                                                           | -40 +150           | C           |
| $T_{stg}$ | Storage temperature range                  |                                                           | -40 +150           | C           |

**ELECTRICAL CHARACTERISTICS ( $T_J = 0 - 70^\circ\text{C}$ )**

| Parameter   | $V_{DRM}$<br>V |      | $I_{DRM}$<br>$\mu$ A |     | $I_H$<br>mA |      | $I_{BO}$<br>mA |      | $V_{BO}$<br>V |      | $C_p$<br>pF | Notes |
|-------------|----------------|------|----------------------|-----|-------------|------|----------------|------|---------------|------|-------------|-------|
| Terminal    | max            | min  | max                  | min | max         | min  | max            | min  | max           | min  | max         |       |
| Tip-Ground  | +131           | -183 | +10                  | -10 | +110        | -110 | +110           | -110 | +145          | -195 | 100         | 1, 2  |
| Ring-Ground | +131           | -183 | +10                  | -10 | +110        | -110 | +110           | -110 | +145          | -195 | 100         | 1, 2  |

Notes: 1.  $V_{BO}$  and  $I_{BO}$  measurement at AC 50/60 Hz

2.  $C_p$  measurement at  $V_D = -60$  V -0 V,  $V_{AC} = 100$  mV,  $f_{AC} = 100$  KHz

**IMPULSE BREAKDOWN VOLTAGE CHARACTERISTIC VALUES**

| Terminal                 | Tip-Ground<br>V |      | Ring-Ground<br>V |      | Test Condition                                   |
|--------------------------|-----------------|------|------------------|------|--------------------------------------------------|
| Temperature              | min             | max  | min              | max  |                                                  |
| $T_J = 0^\circ\text{C}$  | -250            | +198 | -250             | +198 | 0.3/300 $\mu$ s<br>$\pm 2$ X 2 A<br>per RLM - 88 |
| $T_J = 25^\circ\text{C}$ | -254            | +202 | -254             | +202 |                                                  |
| $T_J = 70^\circ\text{C}$ | -261            | +209 | -261             | +209 |                                                  |



TCP135K2

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**NOTES**