Microsemi
SANTA ANA DIVISION

# TCP009E

## TRANSIENT SUPPRESSOR FOR XDSL AND DATA LINES

**PRODUCT PREVIEW**

### DESCRIPTION

Transient suppressor TCP009 is dedicated to XDSL, T1, Ethernet, and data lines protection. Important features - very low breakover voltage combined with low capacitance. May be used as a triple or a single bi-directional suppressor – see schematic diagram.

This product provides:

- low capacitance, allowing high speed signal transmissions with low losses
- low dynamic breakover voltage, protecting submicron microelectronic circuitry
- Compliance with BELLCORE 1089-GR requirements for intrabuilding lightning and power fault surges.

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

### KEY FEATURES

- BIDIRECTIONAL TRIPLE CROWBAR PROTECTION
- PEAK PULSE CURRENT: $I_{PP}$ = 30 A, 10/1000 µs
- BREAKDOWN VOLTAGE: 9 V
- AVAILABLE IN SO8 PACKAGES
- LOW DYNAMIC BREAKOVER VOLTAGE: 15 V @ 2/10 µs
- Low Capacitance: 30 pF

### APPLICATIONS/BENEFITS

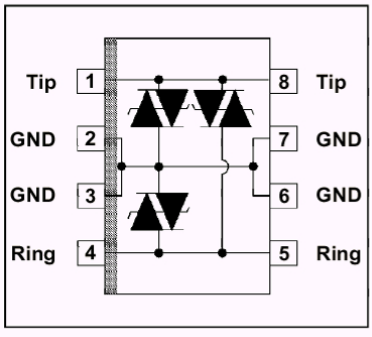
-

### COMPLIES WITH THE FOLLOWING STANDARDS:

| | | |
|---|---|---|
| CCITT K17 - K20 | 10/700 µs | 1.5 KV |
| | 5/310 µs | 38 A |
| VDE 0433 | 10/700 µs | 2 KV |
| | 5/310 µs | 50 A |
| VDE 0878 | 1.2/50 µs | 1.5 KV |
| | 1/20 µs | 40 A |
| CNET | 0.5/700 µs | 1.5 KV |
| | 0.2/310 µs | 38 A |

SO 8

SCHEMATIC DIAGRAM




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







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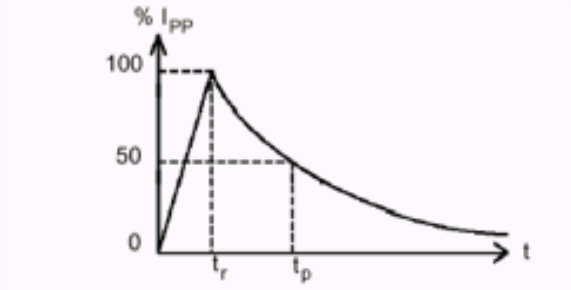
# TRANSIENT SUPPRESSOR FOR XDSL AND DATA LINES

**PRODUCT PREVIEW**

| ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified) | | | | |
|---|---|---|---|---|
| **Symbol** | **Parameter** | | **Value** | **Unit** |
| $I_{PP}$ | Peak pulse current (see note 1) | 10/1000 µs<br>5/320 µs<br>2/10 µs | 30<br>40<br>90 | A |
| $I_{TSM}$ | Non repetitive surge peak on-state current (F = 50 Hz). | tp = 10 ms<br>t = 1 s | 8<br>3.5 | A |
| $T_{stg}$<br>$T_j$ | Storage temperature range<br>Maximum junction temperature | | -55 to + 150<br>150 | °C |
| $T_L$ | Maximum lead temperature for soldering during 10s | | 260 | °C |

**Note 1 : Pulse waveform :**

| | | |
|---|---|---|
| 10/1000µs | tr=10µs | tp=1000µs |
| 5/310µs | tr=5µs | tp=310µs |
| 2/10µs | tr=2µs | tp=10µs |



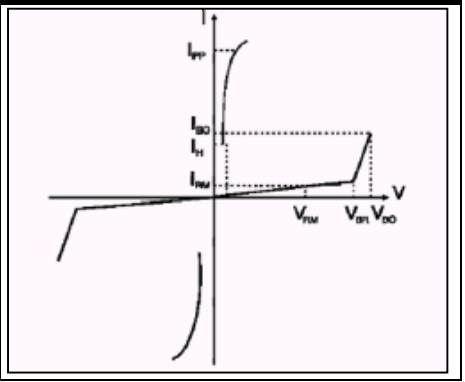

| THERMAL RESISTANCES | | | | |
|---|---|---|---|---|
| **Symbol** | **Parameter** | | **Value** | **Unit** |
| $R_{th\ (j-a)}$ | Junction to ambient | SO 8 | 170 | °C/W |

# TRANSIENT SUPPRESSOR FOR XDSL AND DATA LINES

**PRODUCT PREVIEW**

## ELECTRICAL CHARACTERISTICS (Tamb= 25°C)

| Symbol | Parameter |
|---|---|
| $V_{RM}$ | Stand-off voltage |
| $I_{RM}$ | Leakage current |
| $V_{BR}$ | Breakdown voltage |
| $V_{BO}$ | Breakover voltage |
| $I_H$ | Holding current |
| $I_{BO}$ | Breakover current |
| $I_{PP}$ | Peak pulse current |
| $V_F$ | Forward Voltage Drop |
| C | Capacitance |




| Types | $I_{RM}$ @ $V_{RM}$ max | | $I_R$ @ $V_{BR}$ min | | $V_{BO}$ max note 1 | $V_{BO}$ dyn typ | $I_{BO}$ min note 1 | $I_{BO}$ max note 1 | $I_H$ min | $C_P$ max |
|---|---|---|---|---|---|---|---|---|---|---|
| | µA | V | mA | V | V | V | mA | mA | mA | pF |
| TCP009E | 10 | 5 | 1 | 9 | 12 | 15 | 50 | 400 | 50 | 30 |

**Note 1 :** Surge test according to CCITT 1.5kV,10/700 ms between Tip or Ring and ground.

NOTES





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