

**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.

**KEY FEATURES**

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

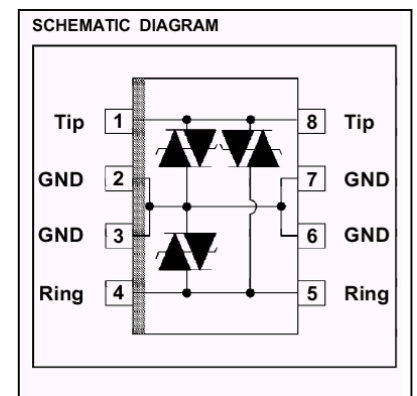
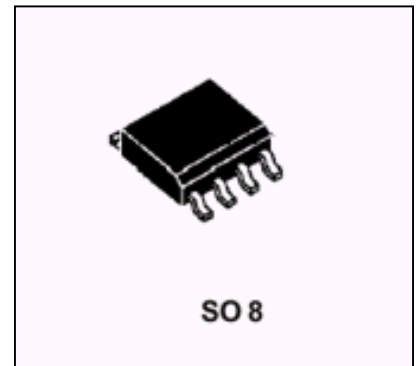
**APPLICATIONS/BENEFITS**

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

**COMPLIES WITH THE FOLLOWING STANDARDS:**

CCITT K17 - K20	10/700 $\mu\text{s}$	1.5 KV
	5/310 $\mu\text{s}$	38 A
VDE 0433	10/700 $\mu\text{s}$	2 KV
	5/310 $\mu\text{s}$	50 A
VDE 0878	1.2/50 $\mu\text{s}$	1.5 KV
	1/20 $\mu\text{s}$	40 A
CNET	0.5/700 $\mu\text{s}$	1.5 KV
	0.2/310 $\mu\text{s}$	38 A



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

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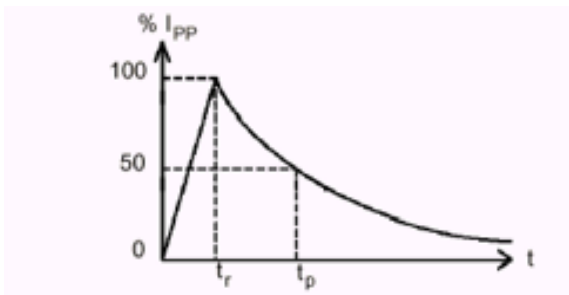
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**ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified)**

Symbol	Parameter	Value	Unit
$I_{PP}$	Peak pulse current (see note 1)	10/1000 $\mu$ s	30
		5/320 $\mu$ s	40
		2/10 $\mu$ s	90
$I_{TSM}$	Non repetitive surge peak on-state current (F = 50 Hz).	$t_p = 10$ ms	8
		$t = 1$ s	3.5
$T_{stg}$	Storage temperature range	-55 to + 150	$^{\circ}$ C
$T_j$	Maximum junction temperature	150	
$T_L$	Maximum lead temperature for soldering during 10s	260	$^{\circ}$ C

**Note 1 : Pulse waveform :**

10/1000 $\mu$ s    $t_r=10\mu$ s    $t_p=1000\mu$ s  
 5/310 $\mu$ s    $t_r=5\mu$ s    $t_p=310\mu$ s  
 2/10 $\mu$ s    $t_r=2\mu$ s    $t_p=10\mu$ s



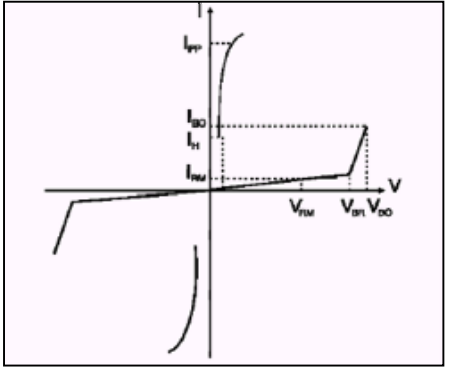
**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient	SO 8 170	$^{\circ}$ C/W

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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									



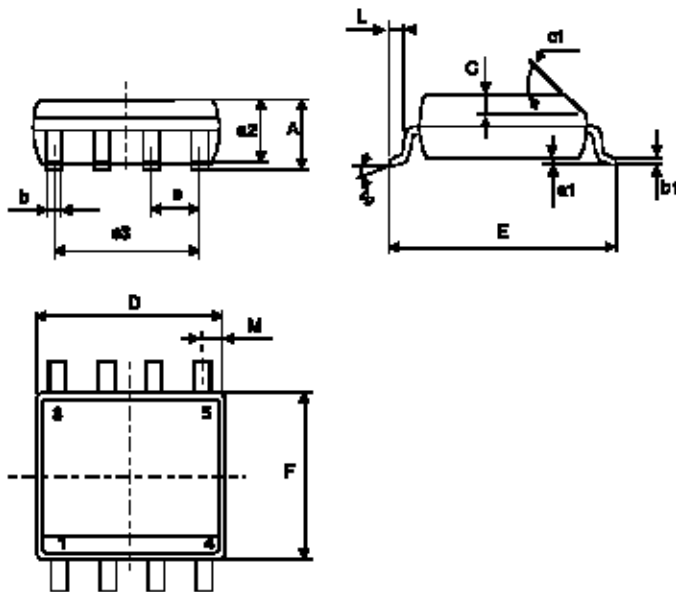
Types	$I_{RM}$ @ $V_{RM}$		$I_R$ @ $V_{BR}$		$V_{BO}$	$V_{BO}$	$I_{BO}$		$I_H$	$C_P$
	max		min		max	dyn typ	min	max	min	max
	$\mu A$	V	mA	V	V	V	mA	mA	mA	pF
TCP009E	10	5	1	9	12	15	50	400	50	30

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

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**PACKAGE MECHANICAL DATA**  
SO-8 (Plastic)



REF.	DIMENSIONS					
	Millimetres			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.069
a1	0.1		0.25	0.004		0.010
a2			1.65			0.065
b	0.35		0.48	0.014		0.019
b1	0.19		0.25	0.007		0.010
C		0.50			0.020	
c1	45° (typ)					
D	4.8		5.0	0.189		0.197
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		3.81			0.150	
F	3.8		4.0	0.15		0.157
L	0.4		1.27	0.016		0.050
M			0.6			0.024
S	8° (max)					



SANTA ANA DIVISION

TCP009E

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[www.Microsemi.com](http://www.Microsemi.com)

NOTES