Microsemi
SANTA ANA DIVISION

TCP072E thru TCP120E

TRIPOLAR PROTECTION FOR ISDN INTERFACES

PRODUCT PREVIEW

DESCRIPTION

This Thyristor Surge Suppressor dedicated devices for SLIC interface and high speed data telecom line protection. Equivalent to a Tripolar TSPD with low capacitance.

These devices provide :

- low capacitance from lines to ground, allowing high speed transmission without signal attenuation.
- good capacitance balance between lines in order to ensure longitudinal balance.
- fixed breakdown voltage in both common and differential modes.
- the same surge current capability in both common and differential modes.
- A particular attention has been given to the internal wire bonding.The"4-point" configuration ensures a reliable protection, eliminating overvoltages introduced by the parasitic inductances of the wiring (Ldi/dt), especially for very fast transient overvoltages.

KEY FEATURES

- BIDIRECTIONAL TRIPLE CROWBAR PROTECTION
- PEAK PULSE CURRENT: I_{PP} = 30 A, 10/1000 µs
- BREAKDOWN VOLTAGE:
  TCP072E: 60 V
  TCP080E: 80 V
  TCP082E: 70 V
  TCP7120E: 120 V
- AVAILABLE IN SO8 PACKAGES
- LOW DYNAMIC BREAKOVER VOLTAGE:
  TCP072E: 80 V
  TCP080E: 150 V
  TCP082E: 90 V
  TCP120E: 200 V

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

APPLICATIONS/BENEFITS

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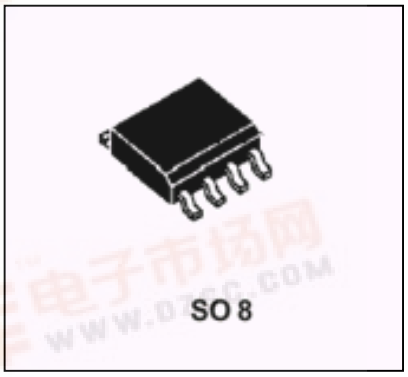
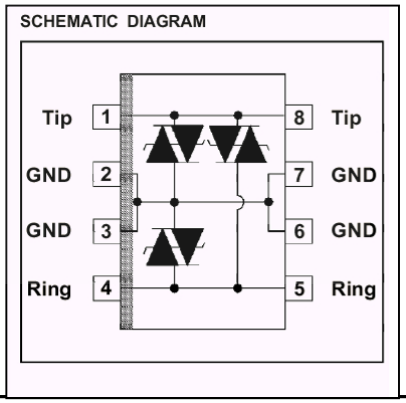
COMPLIES WITH THE FOLLOWING STANDARDS:

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



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



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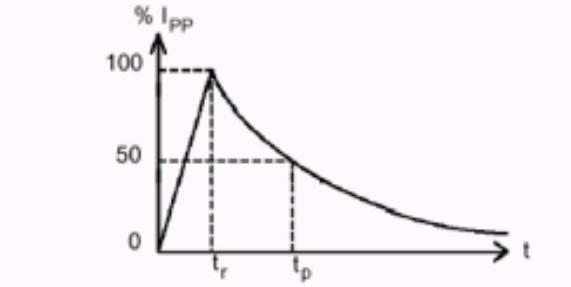
ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified)				
Symbol	**Parameter**		**Value**	**Unit**
I_{PP}	Peak pulse current (see note 1)	10/1000 µs 5/320 µs 2/10 µs	30 40 90	A
I_{TSM}	Non repetitive surge peak on-state current (F = 50 Hz).	tp = 10 ms t = 1 s	8 3.5	A
T_{stg} T_j	Storage temperature range Maximum junction temperature		-55 to + 150 150	°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**
$R_{th\ (j\text{-}a)}$	Junction to ambient	SO 8	170	°C/W

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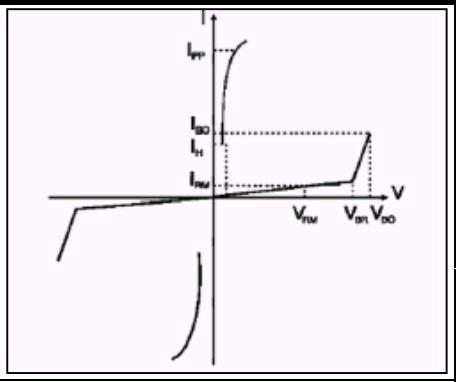
ELECTRICAL CHARACTERISTICS (Tamb= 25°C)

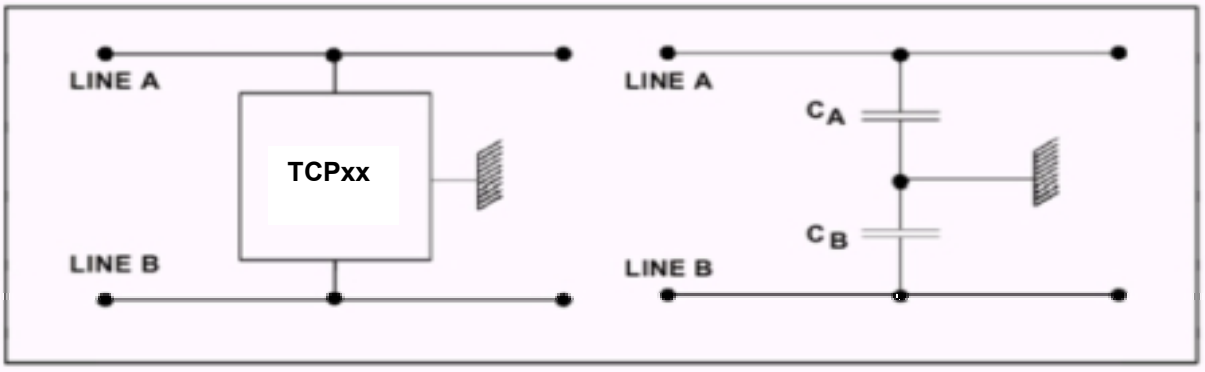
Symbol	Parameter
V_{RM}	Stand-off voltage
I_{RM}	Leakage current
V_{BR}	Breakdown voltage
V_{BO}	Breakover voltage
I_H	Holding current
I_{BO}	Breakover current
I_{PP}	Peak pulse current
V_F	Forward Voltage Drop
C	Capacitance



Types	I_{RM} @ V_{RM} max		I_R @ V_{BR} min		V_{BO} max note 1	V_{BO} dyn typ	I_{BO} max note 1	I_H min
	µA	V	mA	V	V	V	mA	mA
TCP072E	10	56	1	60	72	80	800	150
TCP080E	10	70	1	80	120	150	800	150
TCP082E	10	66	1	70	82	90	800	150
TCP120E	10	105	1	120	180	200	800	150

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

CAPACITANCES CHARACTERISTICS



CONFIGURATION	C_A (pF) max	C_B (pF) max	$C_A - C_B$ (pF) max
V_A =1V V_B =56V	50	30	20
V_A = 56V V_B= 1V	30	50	20

NOTES