

**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:
 $I_{PP} = 30 \text{ A}, 10/1000 \mu\text{s}$
- 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

COMPLIES WITH THE FOLLOWING STANDARDS:

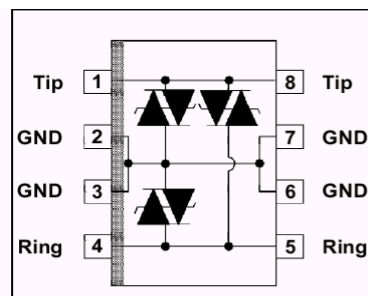
CCITT K17 - K20	10/700 μs	1.5 KV
	5/310 μs	38 A
VDE 0433	10/700 μs	2 KV
	5/310 μs	50 A
VDE 0878	1.2/50 μs	1.5 KV
	1/20 μs	40 A
CNET	0.5/700 μs	1.5 KV
	0.2/310 μs	38 A

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



SO 8

SCHEMATIC DIAGRAM

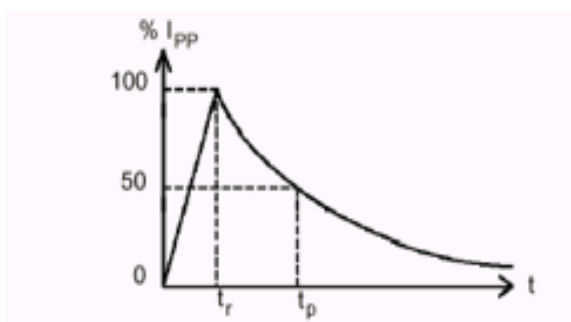


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ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified)

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

Note 1 : Pulse waveform :

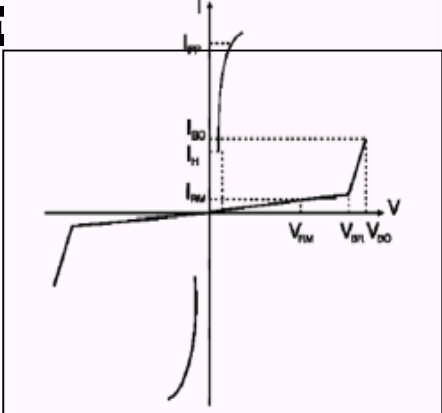
10/1000 μ s $t_r=10\mu$ s $t_p=1000\mu$ s
 5/310 μ s $t_r=5\mu$ s $t_p=310\mu$ s
 2/10 μ s $t_r=2\mu$ s $t_p=10\mu$ s


THERMAL RESISTANCES

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

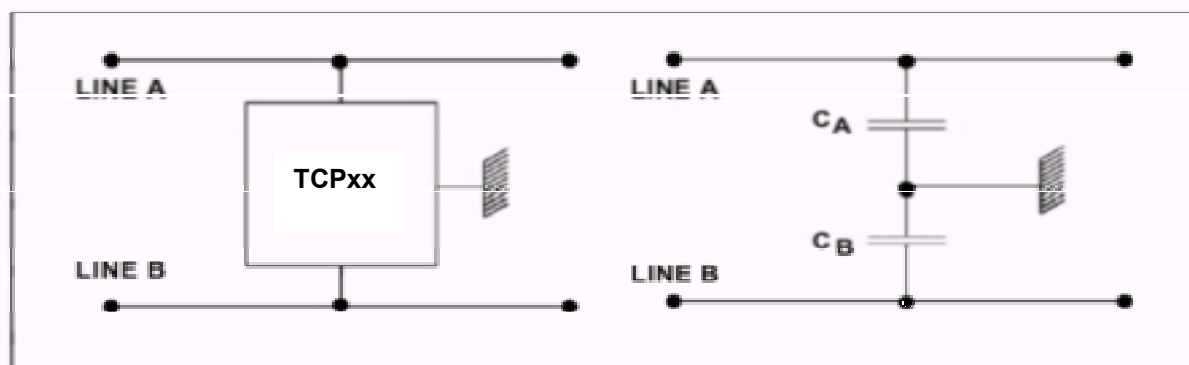
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ELECTRICAL CHARACTERISTICS (T		
Symbol	Parameter	
V_{RM}	Stand-off voltage	
I_{RM}	Leakage current	
V_{BR}	Breakdown voltage	
V_{BO}	Breakover voltage	
I_H	Holding current	
I_{BO}	Breakover current	
I_{PP}	Peak pulse current	
V_F	Forward Voltage Drop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



Types	I_{RM} @ V_{RM}		I_R @ V_{BR}		V_{BO}	V_{BO} dyn	I_{BO}	I_H
	max		min		max	typ	max	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


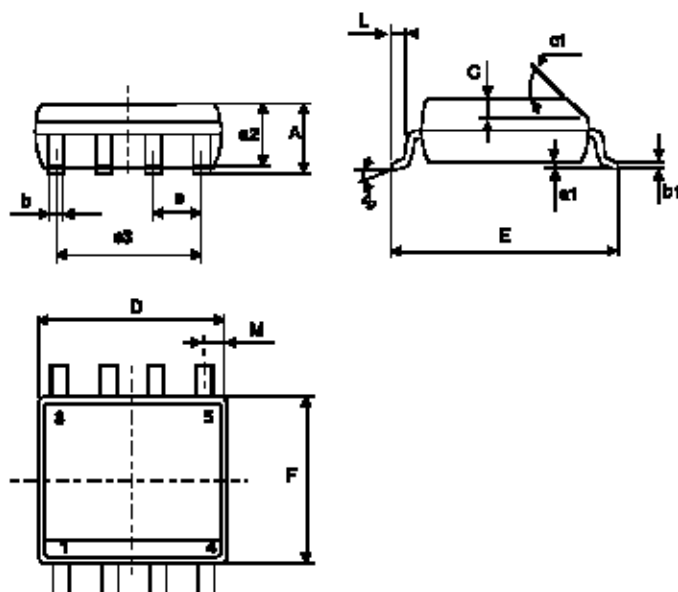
CONFIGURATION	C_A (pF) max	C_B (pF) max	$C_A - C_B$ (pF) max
$V_A = 1V$ $V_B = 56V$	50	30	20
$V_A = 56V$ $V_B = 1V$	30	50	20

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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)					



TCP072E thru TCP120E

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www.Microsemi.com

NOTES