



TCP058A thru TCP120A

DUAL ASYMETRICAL TRANSIENT SUPPRESSOR

PRODUCT PREVIEW

DESCRIPTION

This Thyristor Surge Suppressor device has been especially designed to protect subscriber line cards against overvoltage. Two diodes clamp positive overloads while negative surges are suppressed by two protection thyristors.

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 ($L di/dt$), especially for very fast transient overvoltages.

KEY FEATURES

- DUAL ASYMETRICAL TRANSIENT SUPPRESSOR
- PEAK PULSE CURRENT:
 $I_{pp}=40A, 10/1000\mu s$
- HOLDING CURRENT: 150mA min.
- BREAKDOWN VOLTAGE:
TCP058A: 58 V
TCP065A: 65 V
TCP072A: 60 V
TCP082A: 70 V
TCP080A: 80 V
TCP120A: 120 V
- LOW DYNAMIC CHARACTERISTICS
- STAND CCITT K20 AND LSSGR

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

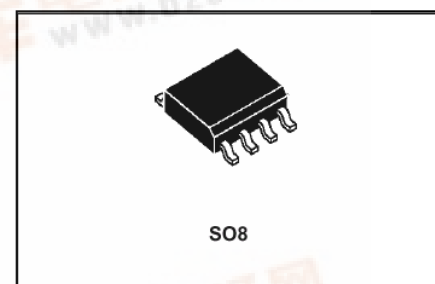
COMPLIES WITH THE FOLLOWING STANDARDS:

CCITT K20:	10/700 μs	1 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
I3124:	0.5/700 μs	1 Kv
	0.2/310 μs	38 A
FCC part 68:	02/10 μs	2.5 kv
	02/10 μs	125 A (*)
BELLCORE		
TR-NWT-001089:	02/10 μs	2.5 kv
	02/10 μs	125 A (*)
	10/1000 μs	1 kV
	10/1000 μs	40 A (*)

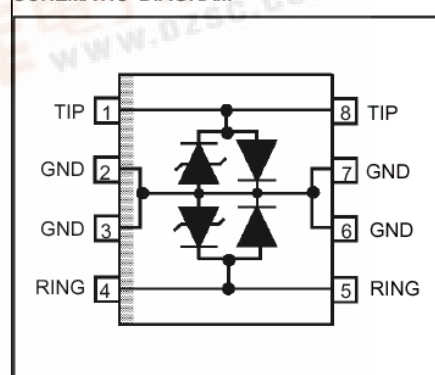
(*) with series resistors or PTC.

APPLICATIONS/BENEFITS

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SCHEMATIC DIAGRAM



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





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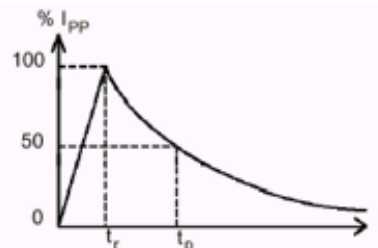
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ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^{\circ}\text{C}$)

Symbol	Parameter	Value	Unit
I_{PP}	Peak pulse current (see note 1)	10/1000 μs	40
		5/310 μs	50
		2/10 μs	125
I_{TSM}	Non repetitive surge peak on-state current $F = 50\text{ Hz}$	$t = 300\text{ ms}$	10
		$t = 1\text{ s}$	50
		$t = 5\text{ s}$	1
I_{TSM}	$F=50\text{Hz}$, 60x1s, 2mn between pulse	1	A
T_{stg}	Storage temperature range	-55 to + 150	$^{\circ}\text{C}$
T_j	Maximum junction temperature	150	$^{\circ}\text{C}$
T_L	Maximum lead temperature for soldering during 10s	260	$^{\circ}\text{C}$

Note 1: Pulse waveform:

10/1000 μs $t_r = 10\text{ }\mu\text{s}$ $t_p = 1000\text{ }\mu\text{s}$
5/310 μs $t_r = 5\text{ }\mu\text{s}$ $t_p = 310\text{ }\mu\text{s}$
2/10 μs $t_r = 2\text{ }\mu\text{s}$ $t_p = 10\text{ }\mu\text{s}$



THERMAL RESISTANCES

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

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25^{\circ}\text{C}$)

Symbol	Parameter
V_{RM}	Stand-off voltage
I_{RM}	Leakage current at stand-off voltage
V_{BR}	Breakdown voltage
V_{BO}	Breakover voltage
I_H	Holding current
V_F	Forward voltage drop
V_{FP}	Peak forward voltage
I_{BO}	Breakover current
I_{PP}	Peak pulse current
C	Capacitance
αT	Temperature coefficient



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1 - PARAMETERS RELATED TO DIODE LINE / GND

Symbol	Test Conditions	Min	Typ	Max	Unit
V_F	$I_F=1A$ $t_p=100 \mu s$			2	V

2 - PARAMETERS RELATED TO PROTECTION THYRISTOR

Types	I_{RM} @ V_{RM}		I_R @ V_{BR}		V_{BO}	I_{BO}		I_H	C
	max		min		max	min	max	min	max
	μA	V	mA	V	V	V	mA	mA	pF
TCP058A	10	56	1	58	80	100	400	150	100
TCP065A	10	63	1	65	85	100	400	150	100
TCP072A	10	56	1	60	72	100	400	150	100
TCP082A	10	66	1	70	82	100	400	150	100
TCP080A	10	70	1	80	120	100	400	150	100
TCP120A	10	105	1	120	180	100	400	150	100



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www.Microsemi.com

NOTES