

## TRISIL

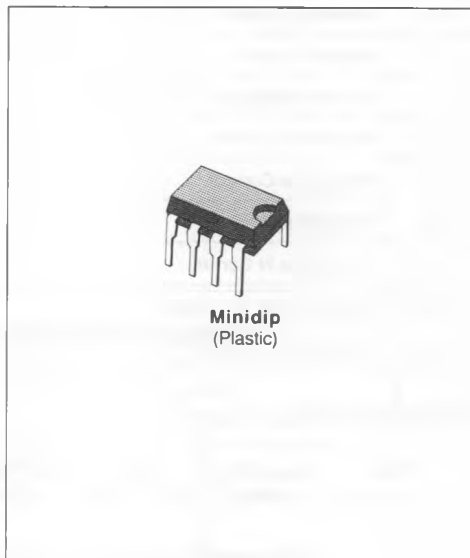
# UNIDIRECTIONAL PROGRAMMABLE VOLTAGE AND CURRENT SUPPRESSOR

- HIGH CURRENT CAPABILITY
- PROGRAMMABILITY BOTH IN VOLTAGE AND CURRENT
- AUTOMATIC RECOVERY

### DESCRIPTION

The L3100B/B1 is a transient overvoltage suppressor/overcurrent arrester designed to protect sensitive components in electronic telephones and telecommunication equipments against transients caused by lightning, induction from power lines, etc.

The L3100B/B1 characteristic, that is its firing voltage and current, can be easily programmed by means of inexpensive external components ; more over, since this device recovers automatically when the surge current falls below a fixed holding current, it may be used on remotely supplied lines. Finally, if destroyed, it becomes a permanent short circuit.



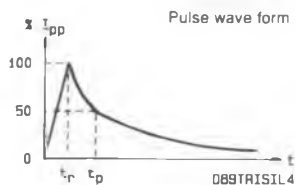
### ABSOLUTE RATINGS (limiting values) ( $T_J = 25\text{ }^\circ\text{C}$ )

Symbol	Parameter		Value	Unit
$I_{pp}$	Peak Pulse Current	1 ms expo	150	A
		8-20 $\mu\text{s}$ expo*	250	
$I_{TSM}$	Non Repetitive Surge Peak on-state Current	$t_p = 10\text{ ms} - \text{Sinus}$	50	A
$di/dt$	Critical Rate of Rise of on-state Current	Non repetitive	100	A/ $\mu\text{s}$
$T_{stg}$ $T_J$	Storage and Junction Temperature Range		- 40 to 150	$^\circ\text{C}$
			150	$^\circ\text{C}$

### THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to Ambient	80	$^\circ\text{C}/\text{W}$

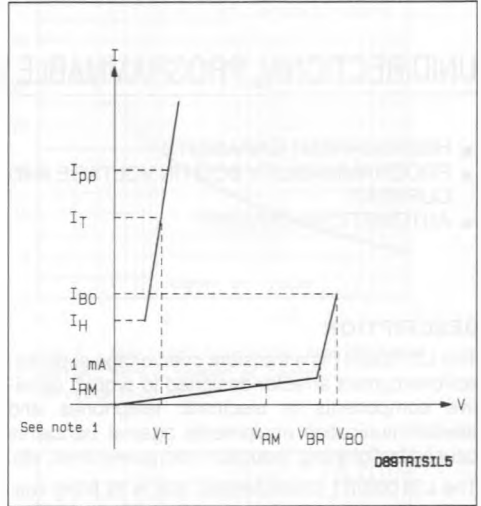
\* ANSI STD C62.



**ELECTRICAL CHARACTERISTICS**

( $T_j = 25\text{ }^\circ\text{C}$ )

Symbol	Parameter
$V_{RM}$	Stand-off Voltage
$V_{BR}$	Breakdown Voltage
$V_{BO}$	Clamping Voltage
$I_H$	Holding Current
$V_T$	On-state Voltage @ $I_T$
$I_{BO}$	Breakover Current
$I_{PP}$	Peak-pulse Current
$V_{GN}$	Gate Voltage
$I_{GN}$	Firing Gate N Current
$V_{RGN}$	Reverse Gate N Voltage
$I_{GP}$	Firing Gate P Current



**OPERATION WITHOUT GATE**

Type	$I_{RM} @ V_{RM}$ max.		$V_{BR}$ @ $I_R$ min. max.			$V_{BO} @ I_{BO}$ max. min. max. See note 2			$I_H$ min.	$V_T$ typ. $I_T = 1\text{ A}$	$C$ max. $V_R = 5\text{ V}$ $F = 1\text{ MHz}$
	( $\mu\text{A}$ )	(V)	(V)	(V)	(mA)	(V)	(mA)	(mA)	(mA)	(V)	(pF)
L3100B/B1	6 40	60 250	255 (3) 265 (4)		1	350	200	500	210 (3) 280 (4)	2	100

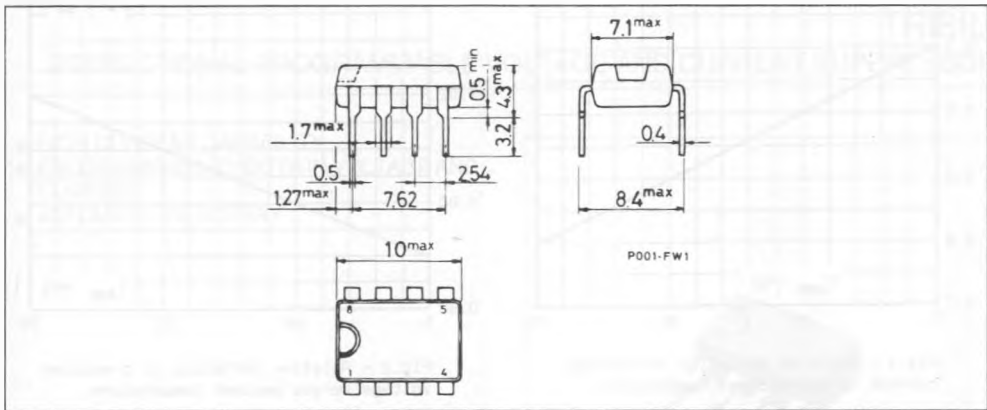
**OPERATION WITH GATES**

Type	$V_{GN}$ (V) $I_G = 200\text{ mA}$		$I_{GN}$ (mA) $V_A - C = 100\text{ V}$		$V_{RGN}$ (V) $I_G = -1\text{ mA}$		$I_{GP}$ (mA) $V_A - C = 100\text{ V}$	
	min.	max.	min.	max.	min.	max.	min.	max.
L3100B/B1	0.6	1.8	30	200	0.7			150

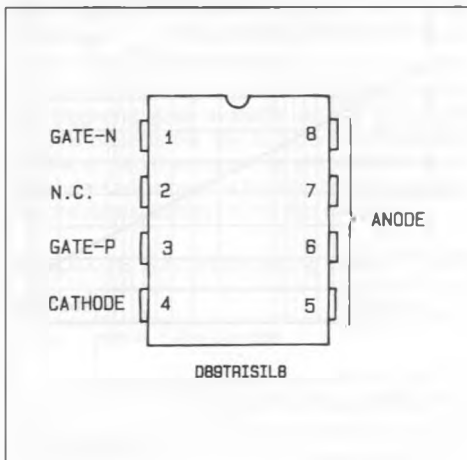
- Notes :**
- Reverse characteristic :  $I_R < 1\text{ mA}$  @  $V_R = 0.7\text{ V}$ .
  - These devices are not designed to function as zeners ; continuous operation between 1 mA and  $I_{BO}$  will damage them.
  - L3100B1
  - L3100B

## PACKAGE MECHANICAL DATA

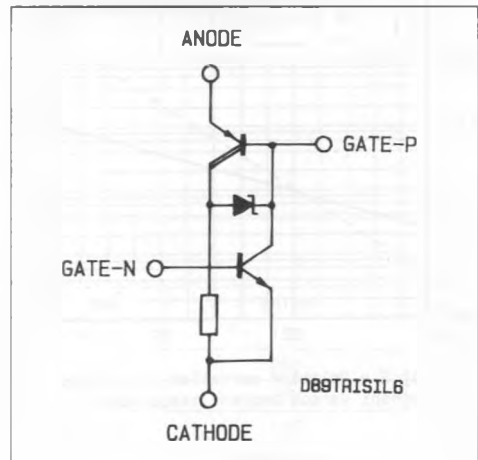
MINIDIP Plastic



## CONNECTION DIAGRAM



## SCHEMATIC DIAGRAM



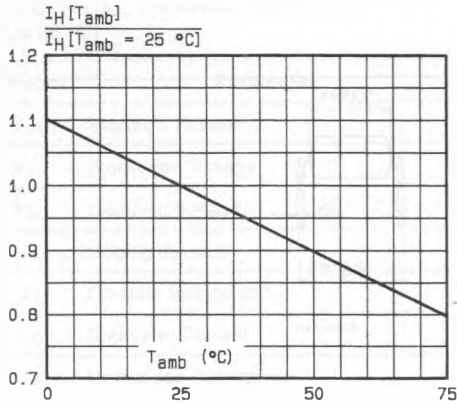


Fig.1 - Relative variation of holding current versus ambient temperature.

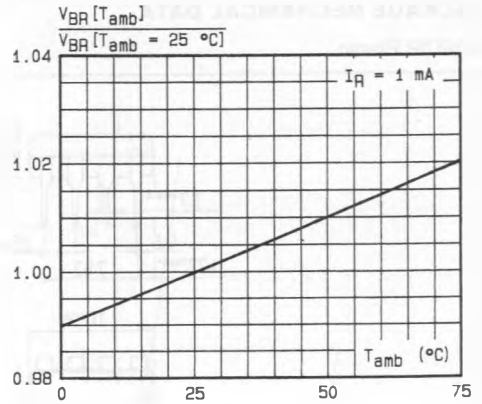


Fig.2 - Relative variation of breakdown voltage versus ambient temperature.

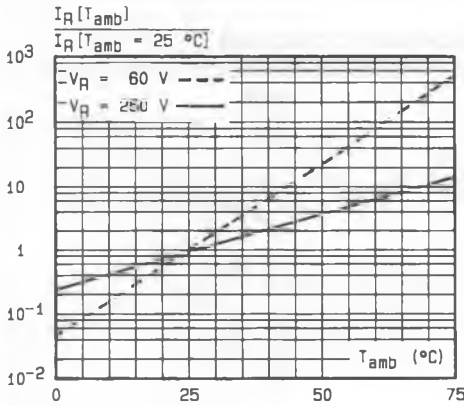


Fig.3 - Relative variation of leakage current versus ambient temperature.

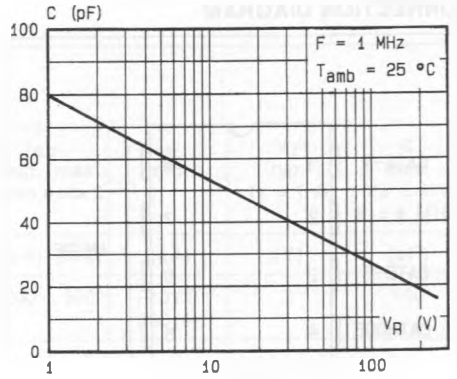


Fig.4 - Junction capacitance versus reverse applied voltage.

D89L3100B1P4