SGS-THOMSON MICROELECTRONICS

L3100B
L3100B1

TRISIL
UNIDIRECTIONAL PROGRAMMABLE VOLTAGE AND CURRENT SUPPRESSOR

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

Minidip
(Plastic)

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 recoveres 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 °C)

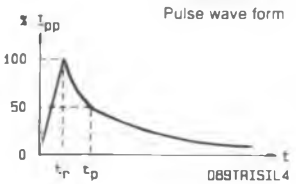
Symbol	Parameter		Value	Unit
I_{pp}	Peak Pulse Current	1 ms expo	150	A
		8-20 µs expo*	250	
I_{TSM}	Non Repetitive Surge Peak on-state Current	t_p = 10 ms – Sinus	50	A
di/dt	Critical Rate of Rise of on-state Current	Non repetitive	100	A/µs
T_{stg} T_j	Storage and Junction Temperature Range		– 40 to 150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

THERMAL RESISTANCE

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

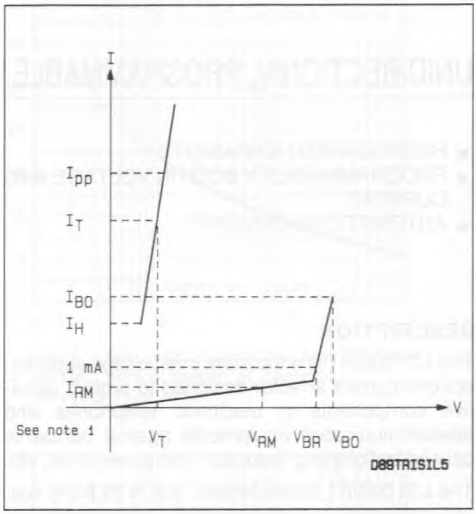
* ANSI STD C62.

Pulse wave form



ELECTRICAL CHARACTERISTICS
(T_j = 25 °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 A	C max. V_R = 5 V F = 1 MHz
	(μA)	(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 mA		I_{GN} (mA) $V_A - C$ = 100 V		V_{RGN} (V) I_G = − 1 mA		I_{GP} (mA) $V_A - C$ = 100 V	
	min.	max.	min.	max.	min.	max.	min.	max.
L3100B/B1	0.6	1.8	30	200	0.7			150

Notes : 1. Reverse characteristic : I_R < 1 mA @ V_R = 0.7V.
2. These devices are not designed to function as zeners ; continuous operation between 1 mA and I_{BO} will damage them.
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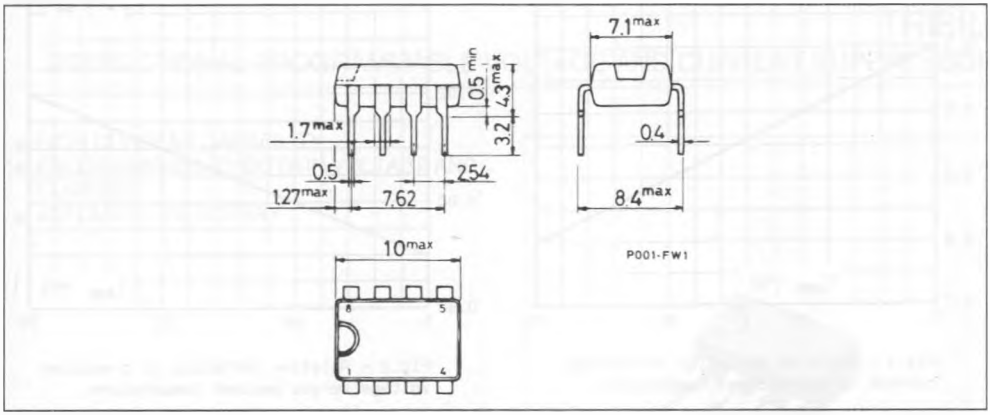
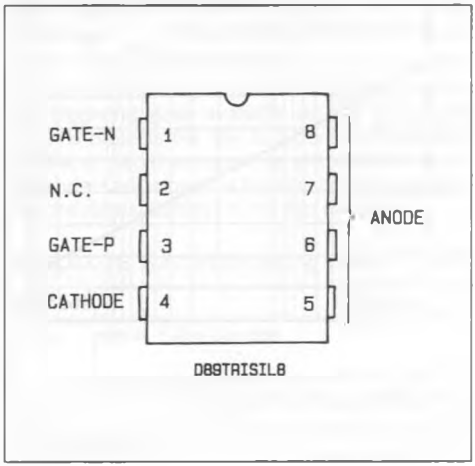
PACKAGE MECHANICAL DATA

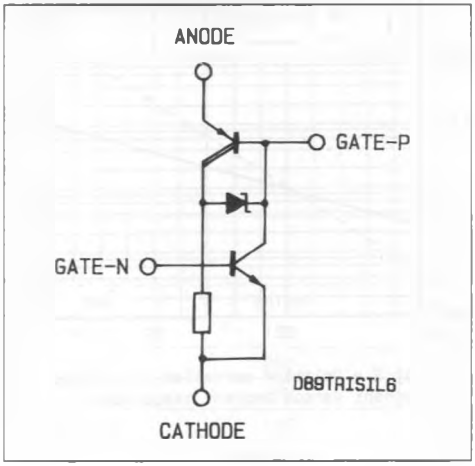
MINIDIP Plastic



CONNECTION DIAGRAM



SCHEMATIC DIAGRAM



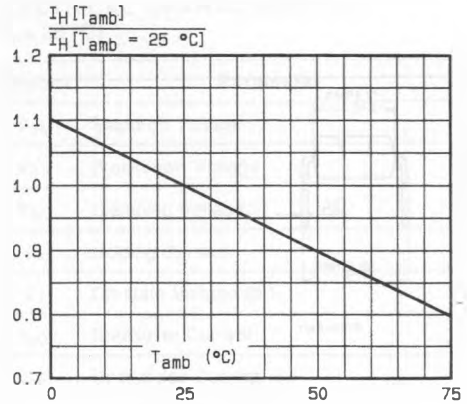


Fig.1 - Relative variation of holding current versus ambient temperature.

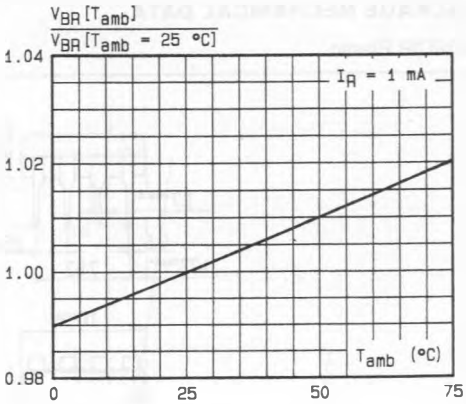


Fig.2 - Relative variation of breakdown voltage versus ambient temperature.

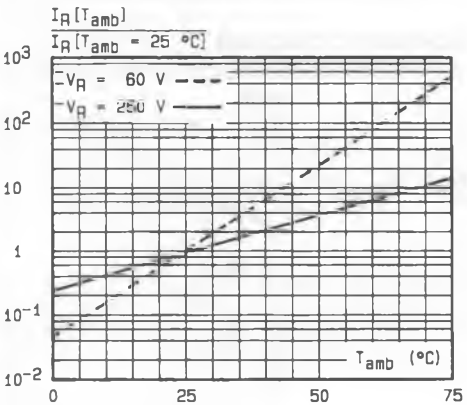


Fig.3 - Relative variation of leakage current versus ambient temperature.

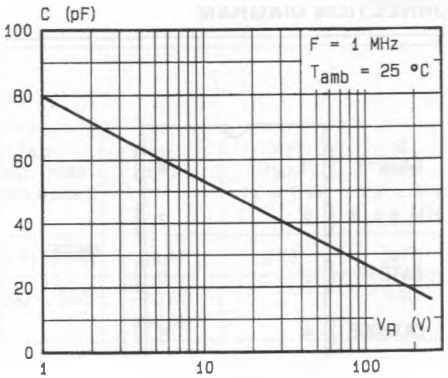


Fig.4 - Junction capacitance versus reverse applied voltage.

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