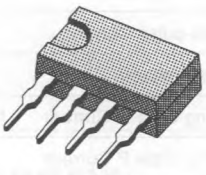
SGS-THOMSON MICROELECTRONICS

L3121B

TRISIL

BIDIRECTIONAL PROGRAMMABLE VOLTAGE AND CURRENT SUPPRESSOR

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



SIP-4
(Plastic)

DESCRIPTION

The L3121B is a bidirectional transient overvoltage/overcurrent protections derived from the programmable L3101B to provide full feature protection for the subscriber line interface.

Full programmability is allowed through access to the triggering gate available on the chips. The L3121B protects the line to ground either against positive or negative transients with external and independent adjustment of the threshold voltages (zener or external battery) in the two directions.

ABSOLUTE RATINGS (limiting values) (T_j = 25 °C)

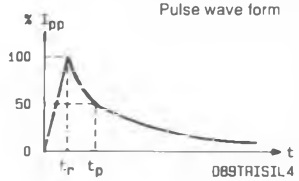
Symbol	Parameter		Value	Unit
I_{pp}	Peak Pulse Current	1 ms expo	150	A
		8-20 µs expo*	250	
I_{TSM}	Non Repetitive Surge Peak on-state Current	t_p = 10 ms Sinus	50	A
di/dt	Critical Rate of Rise of on-state Current	Non repetitive	100	A/µs
T_{stg} T_j	Storage and Junction Temperature Range		– 40 to 150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

THERMAL RESISTANCE

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

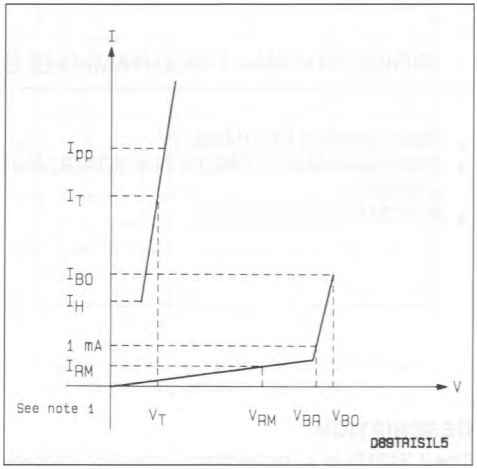
* ANSI STD C62.

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_G	Gate Voltage
I_{GN}	Firing Gate N Current
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.	typ.	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)
L3121B	5 8	60 90	100		1	180	200	500	150	2	200

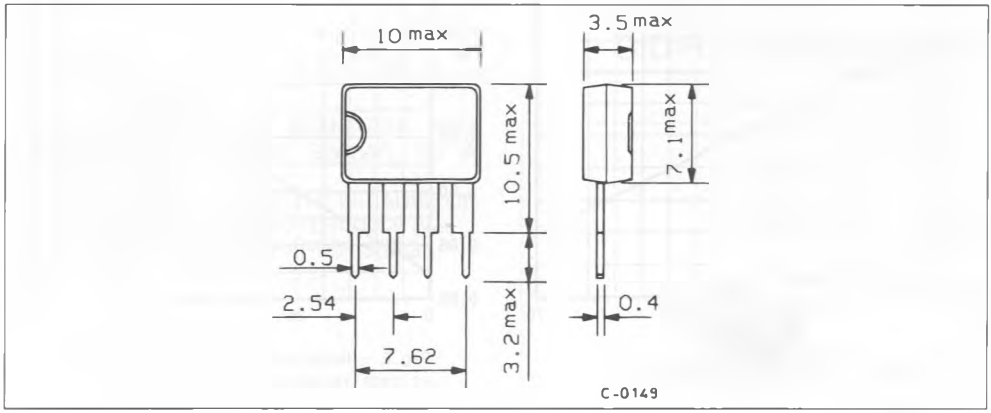
OPERATION WITH GATES

Type	V_G (V) I_G = 200 mA		I_{GN} (mA) V_A – C = 60 V		I_{GP} (mA) V_A – C = 60 V	
	min.	max.	min.	max.	min.	max.
L3121B	0.6	1.8	80	200		180

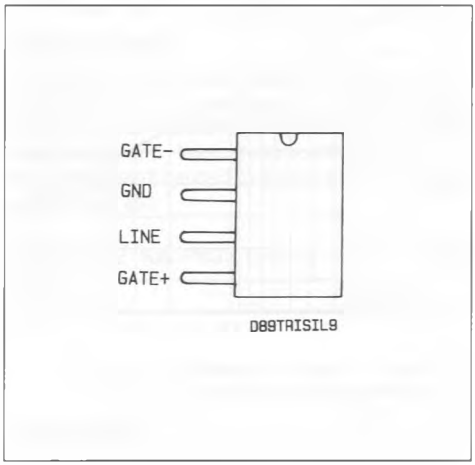
Notes : 1. Same characteristic both sides.
2. These devices are not designed to function as zeners ; continuous operation between 1 mA and I_{BO} will damage then.

PACKAGE MECHANICAL DATA

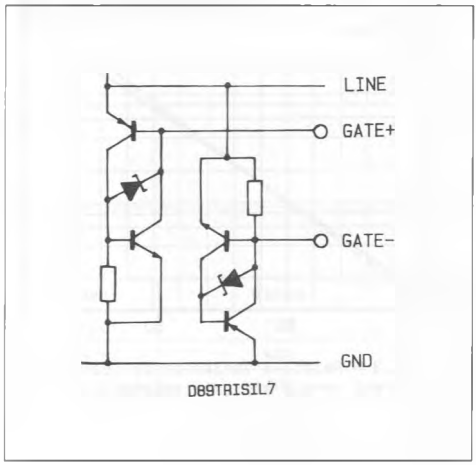
SIP-4 Plastic



CONNECTION DIAGRAM



SCHEMATIC DIAGRAM



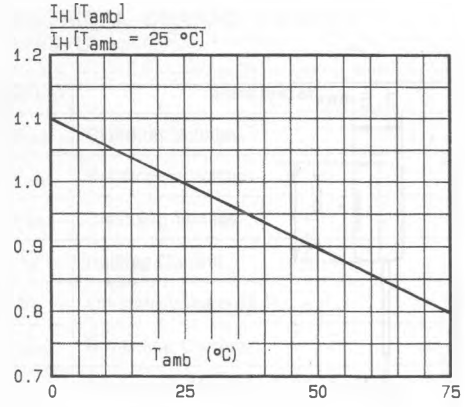


Fig.1 - Relative variation of holding current versus ambient temperature.

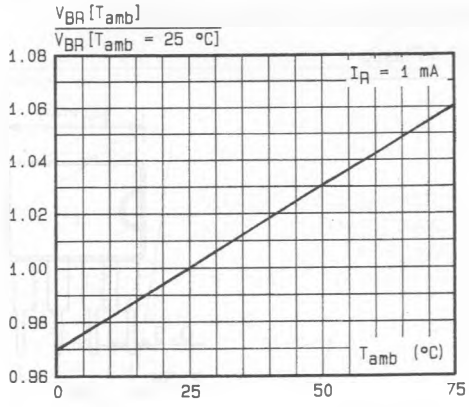


Fig.2 - Relative variation of breakdown voltage versus ambient temperature.

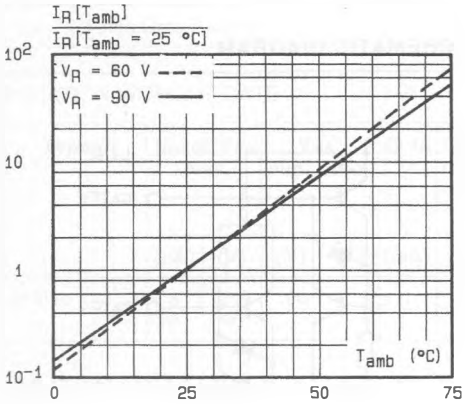


Fig.3 - Relative variation of leakage current versus ambient temperature.

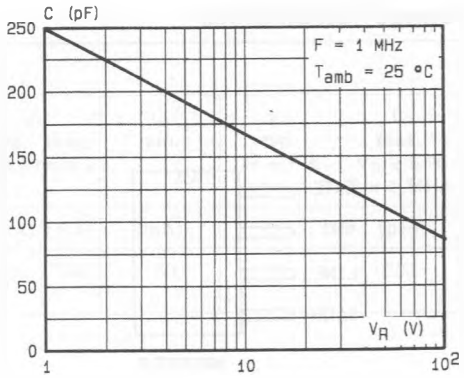


Fig.4 - Junction capacitance versus reverse applied voltage.

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