

LS5018B LS5060B/LS5120B

TRISIL

FEATURES

- BIDIRECTIONAL CROWBAR PROTECTION.
- BREAKDOWN VOLTAGE RANGE: FROM 18 V To 120 V.
- HOLDING CURRENT = 200 mA min.
- HIGH SURGE CURRENT CAPABILITY IPP = 100A 10/1000 μs

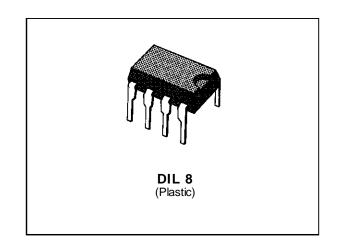
DESCRIPTION

The LS50xxB series has been designed to protect telecommunication equipment against lightning and transients induced by AC power lines.

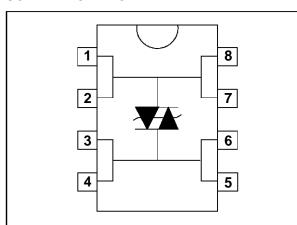
Its high surge current capability makes the LS50xxB a reliable protection device for very exposed equipment, or when series resistors are very low.

IN ACCORDANCE WITH FOLLOWING STANDARDS:

| CCITT K17 - K20 | { | 10/700 μs 5/310 μs | 1.5 kV 38 A |
|-----------------|---|--------------------------|----------------|
| VDE 0433 | { | 10/700 μs 5/200 μs | 2 kV 50 A |
| CNET | { | 0.5/700 μs 0.2/310 μs | 1.5 kV 38 A |



SCHEMATIC DIAGRAM



ABSOLUTE RATINGS (limiting values) (- $40^{\circ}C \le T_{amb} \le +85^{\circ}C$)

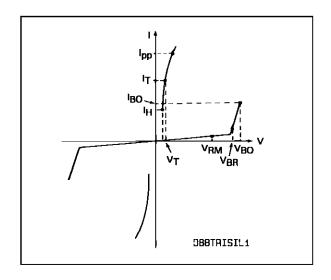
| Symbol | Parameter | Value | Unit | |
|------------------------|--|-----------------------|------------|-------|
| lpp | Peak pulse current | 10/1000 μs 8/20 μs | 100 250 | А |
| ITSM | Non repetitive surge peak on-state current | tp = 20 ms | 50 | А |
| di/dt | Critical rate of rise of on-state current | Non repetitive | 100 | A/μs |
| dv/dt | Critical rate of rise of off-state voltage | 67% V _{BR} | 5 | KV/μs |
| T _{stg} Tj | Storage and operating junction temperature ran | - 40 to + 150 150 | °C | |

THERMAL RESISTANCE

| Symbol | Parameter | Value | Unit |
|-----------------------|---------------------|-------|------|
| R _{th} (j-a) | Junction-to-ambient | 80 | °C/W |

ELECTRICAL CHARACTERISTICS.

| Symbol | Parameter | | | | | |
|-----------------|-----------------------|--|--|--|--|--|
| V _{RM} | Stand-off voltage | | | | | |
| V _{BR} | Breakdown voltage | | | | | |
| VBO | Breakover voltage | | | | | |
| lΗ | Holding current | | | | | |
| VT | On-state voltage @ IT | | | | | |
| I _{BO} | Breakover current | | | | | |
| lpp | Peak pulse current | | | | | |



| Туре | I _{RM} @ V _{RM} | | VBR | @ I R | V _{BO} | @ | Во | lн | ٧T | С |
|---------|-----------------------------------|-----|-----|--------------|-----------------|--------|------|--------|--------|--------|
| | max | | min | | max | min | max | min | max | max |
| | | | | | | note 1 | | note 1 | note 2 | note 3 |
| | μ Α | ٧ | ٧ | mA | V | mA | mA | mA | ٧ | pF |
| LS5018B | 5 | 16 | 17 | 1 | 22 | | 1300 | 200 | 3 | 150 |
| LS5060B | 10 | 50 | 60 | 1 | 85 | | 1000 | 200 | 3 | 150 |
| LS5120B | 20 | 100 | 120 | 1 | 180 | 500 | 1250 | 250 | 3 | 150 |

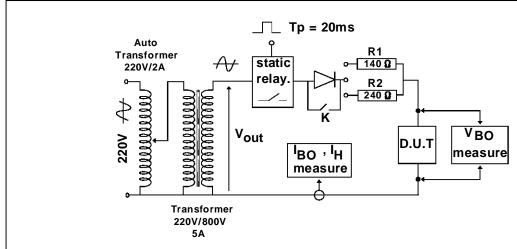
All parameters tested at 25°C, except where indicated.

See the reference test circuit for $I_H,\ I_{BO}$ and V_{BO} parameters. Square pulse $T_P=500\mu s$ - $I_T=1A.$ $V_R=5\ V,\ \ F=1MHz.$

Note 2:

Note 3:

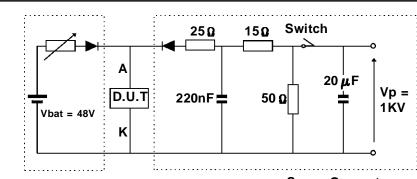
REFERENCE TEST CIRCUIT FOR IH, IBO and VBO parameters:



TEST PROCEDURE:

- Pulse Test duration (Tp = 20ms):
 - For Bidirectional devices = Switch K is closed
 - For Unidirectional devices = Switch K is open.
- Vour Selection
 - Device with $V_{BR} \le 150 \text{ Volt}$
 - Vout = 250 V_{RMS}, R_1 = 140 Ω .
 - Device with $V_{BR} \ge 150 \text{ Volt}$
 - $V_{OUT} = 480 V_{RMS}$, $R_2 = 240 \Omega$.

FUNCTIONAL HOLDING CURRENT (IH) TEST CIRCUIT = GO - NOGO TEST.



Surge Generator 10/700 µsec Vp =1KV / Ipp = 25A

This is a GO-NOGO Test which allows to confirm the holding current (I_H) level in a functional test circuit. This test can be performed if the reference test circuit can't be implemented.

TEST PROCEDURE:

- 1) Adjust the current level at the I_H value by short circuiting the AK of the D.U.T.
 - 2) Fire the D.U.T with a surge Current : Ipp = 25A, $10/700 \mu s$.
 - 3) The D.U.T will come back to the OFF-State within a duration of 50 ms max.



Figure 1: Non repetitive surge peak on state current versus number of cycles. (with sinusoïdal pluse: F = 50 Hz).

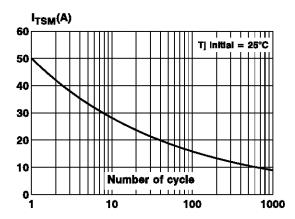


Figure 2: Relative variation of holding current versus ambient temperature.

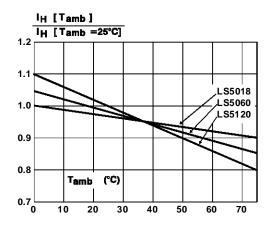


Figure 3 : Relative variation of breakdown voltage versus ambient temperature.

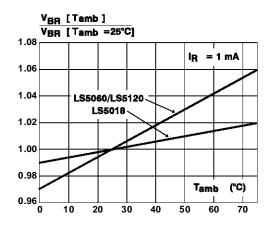
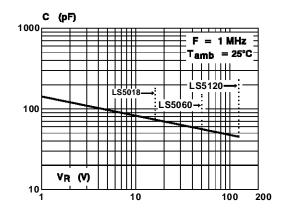
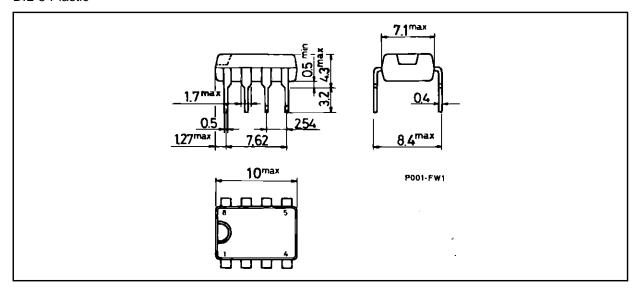


Figure 4: Junction capacitance versus reverse applied voltage.



PACKAGE MECHANICAL DATA (in millimeters).

DIL 8 Plastic



MARKING: Logo, Date Code,part Number.

PACKAGING: Products supplied in antistatic tubes.

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