



# LS5018B LS5060B/LS5120B

TRISIL™

## FEATURES

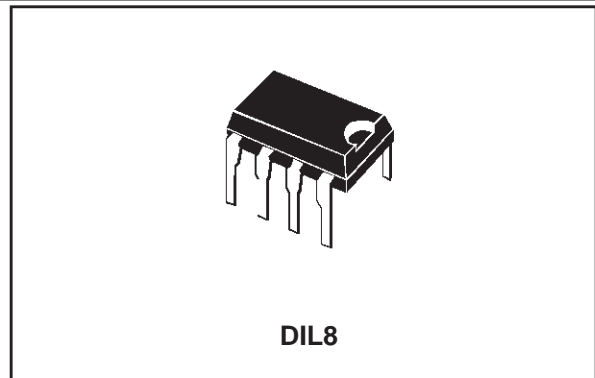
- BIDIRECTIONAL CROWBAR PROTECTION.
- BREAKDOWN VOLTAGES RANGE:  
18V, 60V and 120V.
- HOLDING CURRENT = 200mA min.
- HIGH SURGE CURRENT CAPABILITY  
 $I_{PP} = 100A$  10/1000 $\mu s$

## DESCRIPTION

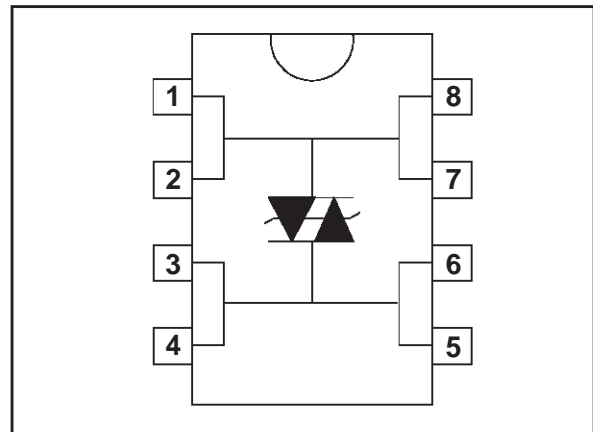
The LS50xxB series has been designed to protect telecommunication equipment against lightning and transients induced by AC power lines. Its high surge current capability makes the LS50xxB a reliable protection device for very exposed equipment, or when series resistors are very low.

## COMPLIES WITH THE FOLLOWING STANDARDS:

CCITT K17 - K20	10/700	$\mu s$	1.5 kV
	5/310	$\mu s$	38 A
VDE 0433	10/700	$\mu s$	2 kV
	5/200	$\mu s$	50 A
CNET	0.5/700	$\mu s$	1.5 kV
	0.2/310	$\mu s$	38 A



## SCHEMATIC DIAGRAM



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

Symbol	Parameter		Value	Unit
$I_{PP}$	Peak pulse current	10/1000 $\mu s$ 8/20 $\mu s$	100 250	A
$I_{TSM}$	Non repetitive surge peak on-state current	$t_p = 20$ ms	50	A
dI/dt	Critical rate of rise of on-state current	Non repetitive	100	A/ $\mu s$
dV/dt	Critical rate of rise of off-state voltage	$V_{RM}$	5	kV/ $\mu s$
$T_{stg}$ $T_j$	Storage and operating junction temperature range		- 40 to + 150 150	$^{\circ}C$ $^{\circ}C$
$T_L$	Maximum lead temperature for soldering during 10s		230	$^{\circ}C$

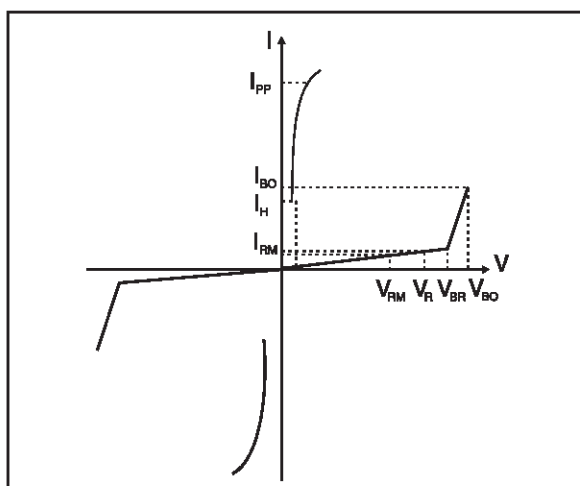
## LS5018B/LS5060B/LS5120B

### THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient on printed circuit with recommended pad layout	80	$^{\circ}C/W$

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

Symbol	Parameter
$I_{RM}$	Leakage current at stand-off voltage
$V_{RM}$	Stand-off voltage
$V_{BR}$	Breakdown voltage
$V_{BO}$	Breakover voltage
$I_H$	Holding current
$I_{BO}$	Breakover current
$I_{PP}$	Peak pulse current
C	Capacitance



Type	$I_{RM} @ V_{RM}$ max.		$V_{BR} @ I_H$ min.		$V_{BO} @ I_{BO}$ max. typ. note 1		$I_H$ min. note 2	C max. note 3
	$\mu A$	V	V	mA	V	mA	mA	pF
LS5018B	5	16	17	1	22	1300	200	150
LS5060B	10	50	60	1	85	1000	200	150
LS5120B	20	100	120	1	180	1250	250	150

**Note 1 :** Measured at 50Hz (1 cycle)

**Note 2 :** See test circuit

**Note 3 :**  $V_R = 5 V$ ,  $F = 1MHz$ .

**TEST CIRCUIT 1 FOR  $I_{BO}$  and  $V_{BO}$  parameters :**

**TEST PROCEDURE :**

- Pulse Test duration ( $t_p = 20\text{ms}$ ):
  - For Bidirectional devices = Switch K is closed
  - For Unidirectional devices = Switch K is open.
- $V_{OUT}$  Selection
  - Device with  $V_{BO} < 200$  Volt
    - $V_{OUT} = 250 V_{RMS}$ ,  $R_1 = 140 \Omega$ .
  - Device with  $V_{BO} \geq 200$  Volt
    - $V_{OUT} = 480 V_{RMS}$ ,  $R_2 = 240 \Omega$ .

**TEST CIRCUIT 2 for  $I_H$  parameter.**

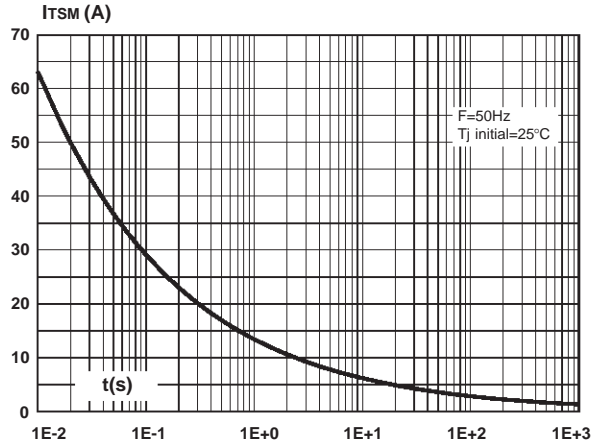
This is a GO-NOGO Test which allows to confirm the holding current ( $I_H$ ) level in a functional test circuit.

**TEST PROCEDURE :**

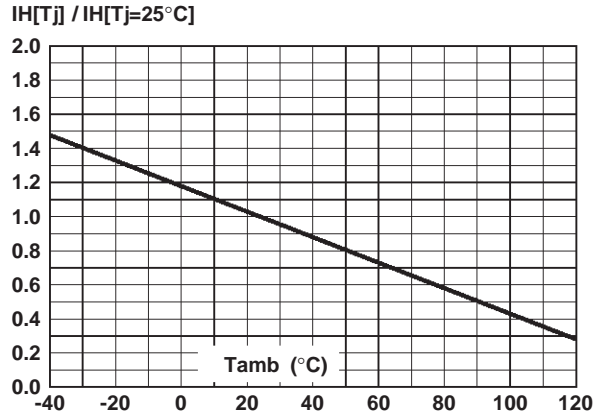
- 1) Adjust the current level at the  $I_H$  value by short circuiting the AK of the D.U.T.
- 2) Fire the D.U.T with a surge Current :  $I_{pp} = 10A$  ,  $10/1000 \mu s$ .
- 3) The D.U.T will come back off-state within 50 ms max.

**LS5018B/LS5060B/LS5120B**

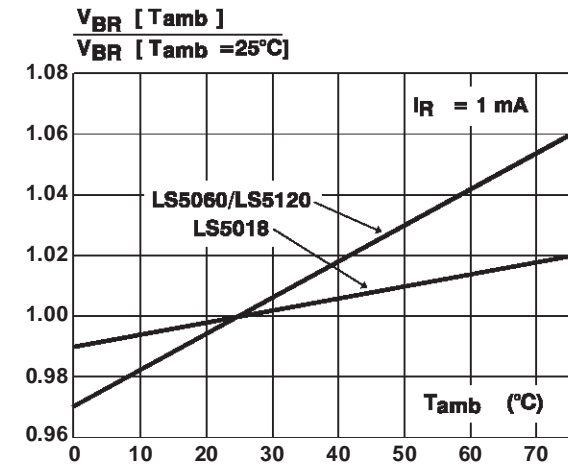
**Figure 1** : Non repetitive surge peak current versus overload duration



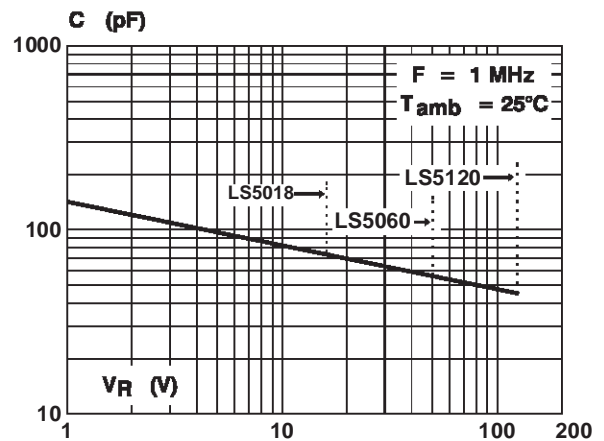
**Figure 2** : Relative variation of holding current versus junction temperature.



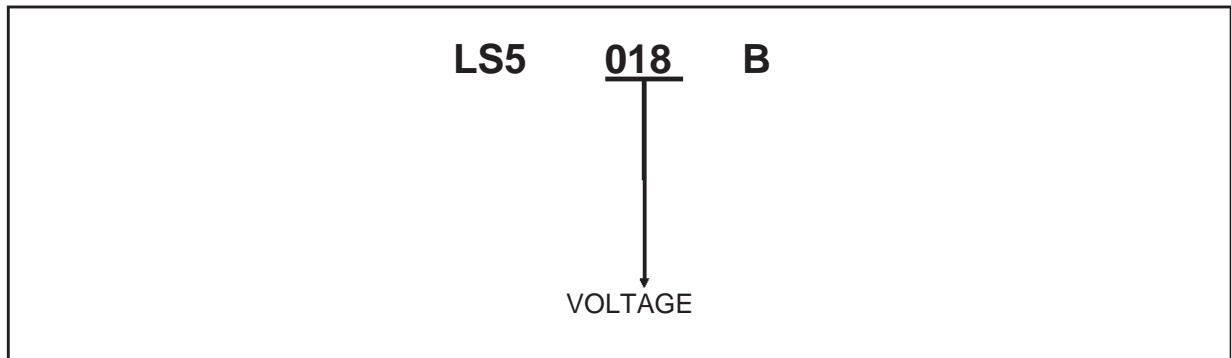
**Figure 3** : Relative variation of breakdown voltage versus ambient temperature.



**Figure 4** : Junction capacitance versus reverse applied voltage.



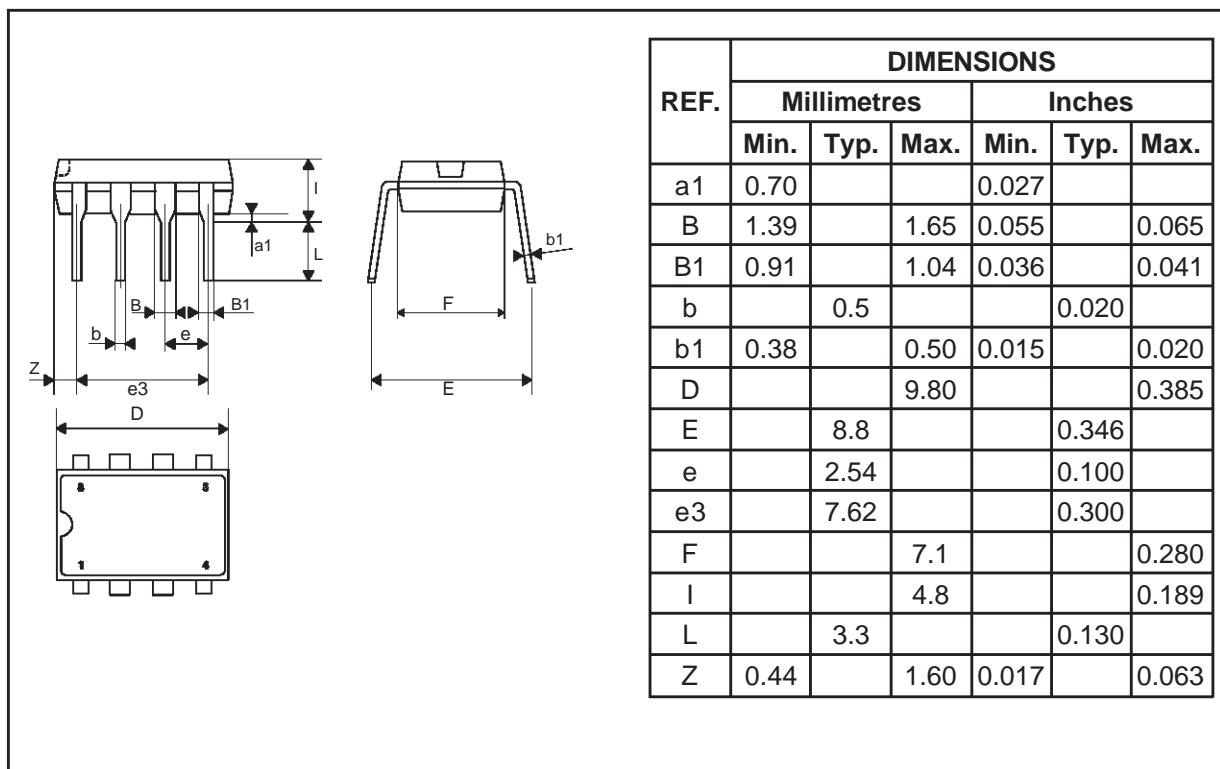
**ORDER CODE**



**MARKING** : Logo, Date Code, part Number.

**Packaging** : Products supplied in antistatic tubes.  
**Weight** : 0.59g

**PACKAGE MECHANICAL DATA**  
 DIL 8 Plastic



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