

# LS5018B LS5060B/LS5120B

 $\mathsf{TRISIL}^\mathsf{TM}$ 

# **FEATURES**

- BIDIRECTIONAL CROWBAR PROTECTION.
- BREAKDOWN VOLTAGES RANGE: 18V, 60V and 120V.
- HOLDING CURRENT = 200mA min.
- HIGH SURGE CURRENT CAPABILITY IPP = 100A 10/1000 μs

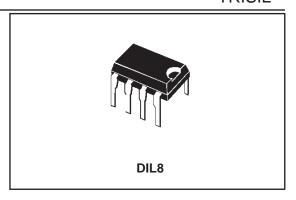
#### **DESCRIPTION**

very low.

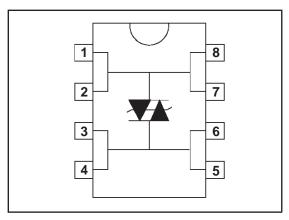
The LS50xxB series has been designed to protect telecommunication equipment against lightning and transients induced by AC power lines. Its high surge current capability makes the LS50xxB a reliable protection device for very exposed equipment, or when series resistors are

### **COMPLIES WITH THE FOLLOWING STANDARDS:**

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



### SCHEMATIC DIAGRAM



# ABSOLUTE MAXIMUM RATINGS (Tamb =25°C)

Symbol	Parameter	Value	Unit	
Ірр	Peak pulse current	10/1000 μs 8/20 μs	100 250	А
Ітѕм	Non repetitive surge peak on-state current	tp = 20 ms	50	А
dl/dt	Critical rate of rise of on-state current	Non repetitive	100	A/μs
dV/dt	Critical rate of rise of off-state voltage V <sub>RM</sub>		5	kV/μs
T <sub>stg</sub> Tj	Storage and operating junction temperature range		- 40 to + 150 150	°C °C
T∟	Maximum lead temperature for soldering	230	°C	

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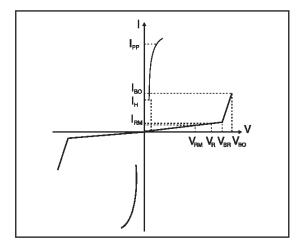
# LS5018B/LS5060B/LS5120B

# THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
R <sub>th</sub> (j-a)	Junction to ambient on printed circuit with recommended pad layout	80	°C/W

# **ELECTRICAL CHARACTERISTICS** (T<sub>amb</sub> =25°C)

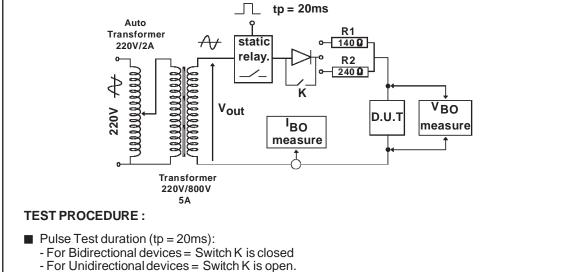
Symbol	Parameter			
IRM	Leakage current at stand-offvoltage			
V <sub>RM</sub>	Stand-offvoltage			
$V_{BR}$	Breakdownvoltage			
V <sub>BO</sub>	Breakover voltage			
Ін	Holding current			
I <sub>BO</sub>	Breakover current			
I <sub>PP</sub>	Peak pulse current			
С	Capacitance			



	I <sub>RM</sub> @	V <sub>RM</sub>	V <sub>BR</sub>	@ <b>I</b> R	V <sub>BO</sub>	@ I <sub>BO</sub>	I <sub>H</sub>	С
Туре	max.		min.		max.	typ.	min.	max.
71.					note 1		note 2	note 3
	μ <b>Α</b>	٧	٧	mA	٧	mA	mA	рF
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

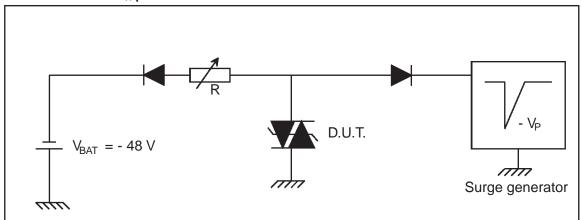
Note 1 : Measured at 50Hz (1 cycle)
Note 2 : See test circuit
Note 3 : V<sub>R</sub> = 5 V, F = 1MHz.

### TEST CIRCUIT 1 FOR IBO and VBO parameters:



- Vour Selection
  - Device with V<sub>BO</sub> < 200 Volt
  - Vout = 250 V<sub>RMs</sub>, R<sub>1</sub> = 140  $\Omega$ . Device with V<sub>BO</sub>  $\geq$  200 Volt
  - - Vout = 480 V<sub>RMS</sub>,  $R_2$  = 240  $\Omega$ .

### TEST CIRCUIT 2 for I<sub>H</sub> parameter.



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

### **TEST PROCEDURE:**

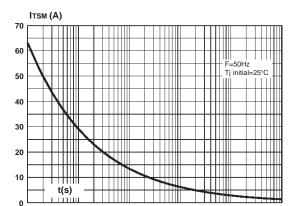
- 1) Adjust the current level at the I<sub>H</sub> value by short circuiting the AK of the D.U.T.
  - 2) Fire the D.U.T with a surge Current : Ipp = 10A,  $10/1000 \mu s$ .
  - 3) The D.U.T will come back off-state within 50 ms max.

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### LS5018B/LS5060B/LS5120B

Figure 1 : Non repetitive surge peak current versus overload duration



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

1E+1

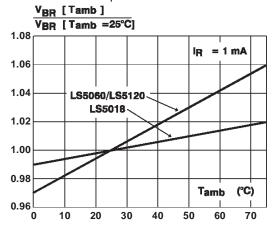
1E+2

1E+3

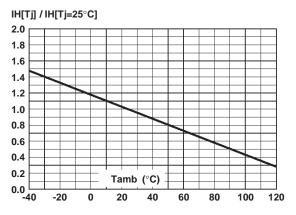
1E+0

1E-1

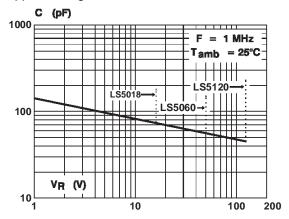
1E-2



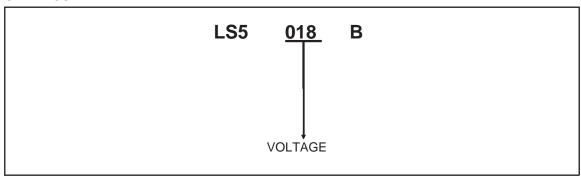
**Figure 2**: Relative variation of holding current versus junction temperature.



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



#### ORDER CODE



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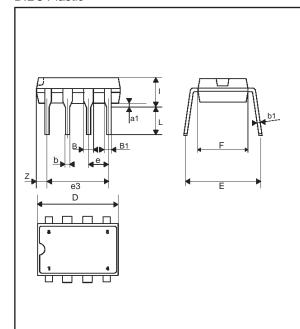
MARKING: Logo, Date Code, part Number.

Packaging: Products supplied in antistatic tubes.

Weight: 0.59g

### PACKAGE MECHANICAL DATA

**DIL 8 Plastic** 



	DIMENSIONS					
REF.	Millimetres		es	Inches		
	Min.	Тур.	Max.	Min.	Тур.	Max.
a1	0.70			0.027		
В	1.39		1.65	0.055		0.065
B1	0.91		1.04	0.036		0.041
b		0.5			0.020	
b1	0.38		0.50	0.015		0.020
D			9.80			0.385
Е		8.8			0.346	
е		2.54			0.100	
е3		7.62			0.300	
F			7.1			0.280
I			4.8			0.189
L		3.3			0.130	
Z	0.44		1.60	0.017		0.063

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