

Application Specific Discretes
A.S.D.TM

TRANSIENT VOLTAGE SUPPRESSOR
FOR SLIC PROTECTION

PRELIMINARY DATASHEET

FEATURES

- DUALASYMETRICAL TRANSIENT SUPPRESSOR
- PEAK PULSE CURRENT : $I_{PP} = 40A, 10/100\mu s$
- HOLDING CURRENT : 150 mA min.
- BREAKDOWN VOLTAGE : 65 V min.
- LOW DYNAMIC CHARACTERISTICS
- STAND CCITT K20 AND LSSGR

DESCRIPTION

This device has been especially designed to protect subscriber line cards against overvoltage.

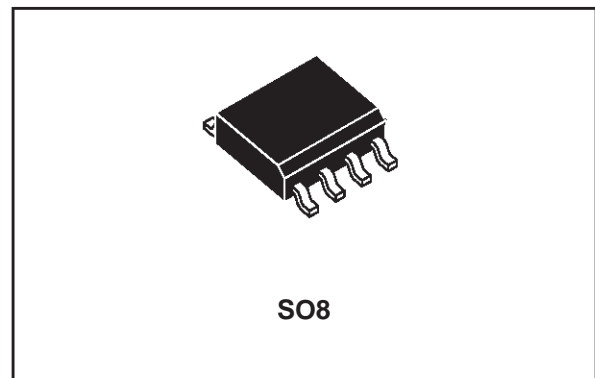
Two diodes clamp positive overloads while negative surges are suppressed by two protection thyristors.

A particular attention has been given to the internal wire bonding. The "4-point" configuration ensures a reliable protection, eliminating overvoltages introduced by the parasitic inductances of the wiring (Ldi/dt), especially for very fast transient overvoltages.

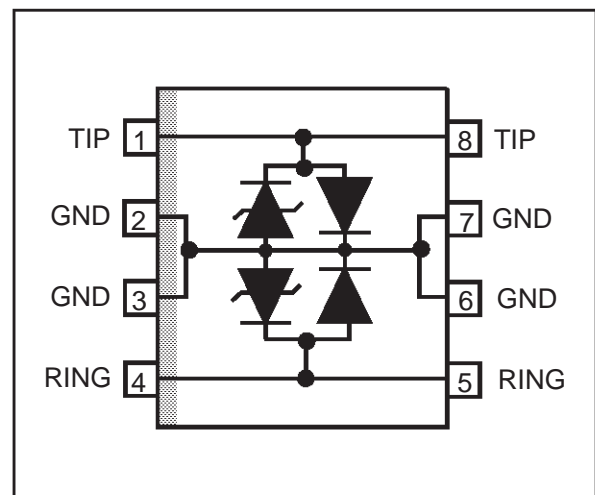
COMPLIES WITH THE FOLLOWING STANDARDS :

CCITT K20 :	10/700 μs	1kV
	5/310 μs	38A
VDE 0433 :	10/700 μs	2kV
	5/310 μs	50A
VDE 0878 :	1.2/50 μs	1.5kV
	1/20 μs	40A
I3124 :	0.5/700 μs	1kV
	0.2/310 μs	38A
FCC part 68 :	2/10 μs	2.5kV
	2/10 μs	125A (*)
BELLCORE TR-NWT-001089 :	2/10 μs	2.5kV
	2/10 μs	125A (*)
	10/1000 μs	1kV
	10/1000 μs	40A (*)

(*) with series resistors or PTC.



SCHEMATIC DIAGRAM



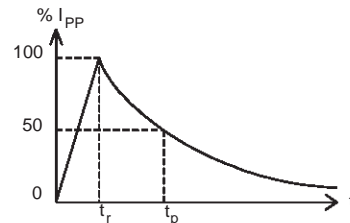
THDT6511D

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25°C)

Symbol	Parameter	Value	Unit
I _{PP}	Peak pulse current (see note 1)	10/1000µs 5/310µs 2/10µs	A
I _{TSM}	Non repetitive surge peak on-state current F = 50 Hz	t = 300 ms t = 1 s t = 5 s	A
I _{TSM}	F = 50 Hz, 60 x 1 s, 2 mn between pulse	1	A
T _{stg} T _j	Storage temperature range Maximum junction temperature	- 55 to + 150 150	°C
T _L	Maximum lead temperature for soldering during 10s	260	°C

Note 1 : Pulse waveform :

10/1000µs	t _r =10µs	t _p =1000µs
5/310µs	t _r =5µs	t _p =310µs
2/10µs	t _r =2µs	t _p =10µs



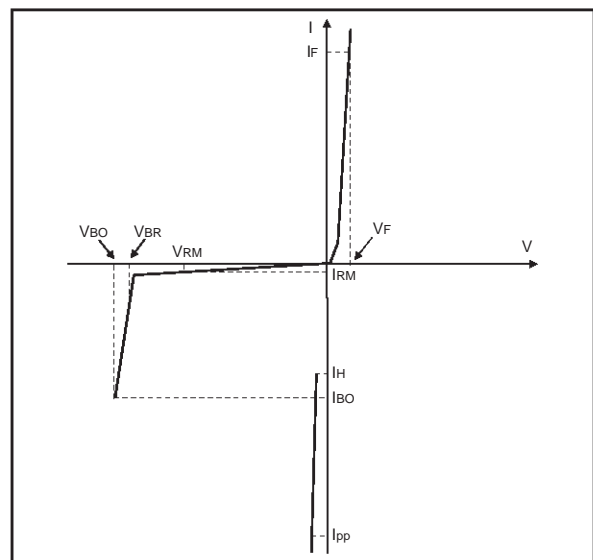
THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th (j-a)}	Junction to ambient	170	°C/W

ELECTRICAL CHARACTERISTICS

(T_{amb} = 25°C)

Symbol	Parameter
V _{RM}	Stand-off voltage
I _{RM}	Leakage current at stand-off voltage
V _{BR}	Breakdown voltage
V _{BO}	Breakover voltage
I _H	Holding current
V _F	Forward voltage drop
V _{FP}	Peak forward voltage
I _{BO}	Breakover current
I _{PP}	Peak pulse current
C	Capacitance
αT	Temperature coefficient



1 - PARAMETERS RELATED TO DIODE LINE / GND

Symbol	Test conditions	Min.	Typ.	Max.	Unit
V_F	$I_F = 1 \text{ A}$ $t_p = 100 \mu\text{s}$			2	V
V_{FP}	see curve fig. 1	NA	NA	NA	V

NA : Non Available

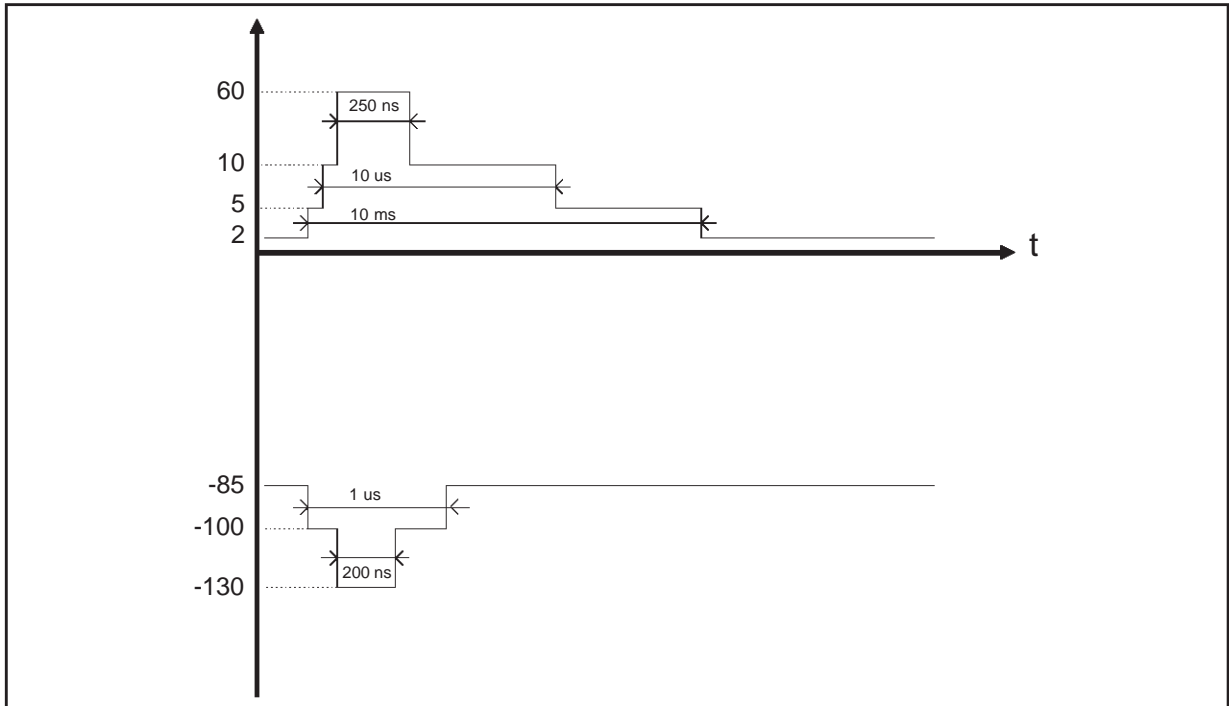
2 - PARAMETERS RELATED TO PROTECTION THYRISTOR

Symbol	Tests conditions	Min.	Typ.	Max.	Unit
V_{BR}	$I_R = 1 \text{ mA}$	65			V
V_{BO}		68		85	V
I_{RM}	$V_{RM} = 63 \text{ V}$			100	μA
I_{BO}	$t_p = 100 \mu\text{s}$	110		450	mA
I_{BO}	$F = 50 \text{ Hz}$ $R_G = 600 \Omega$			500	mA
I_H		150			mA
α_T			15		$10^{-4}/^\circ\text{C}$
C	$V_D = 100 \text{ mV}_{RMS}$ $F = 1 \text{ KHz}$			500	pF
dV/dt	Linear ramp up to 67 % of V_{BR}	5			$\text{kV} / \mu\text{s}$

THDT6511D

DYNAMIC CHARACTERISTICS : V_{FP} and V_{BO}

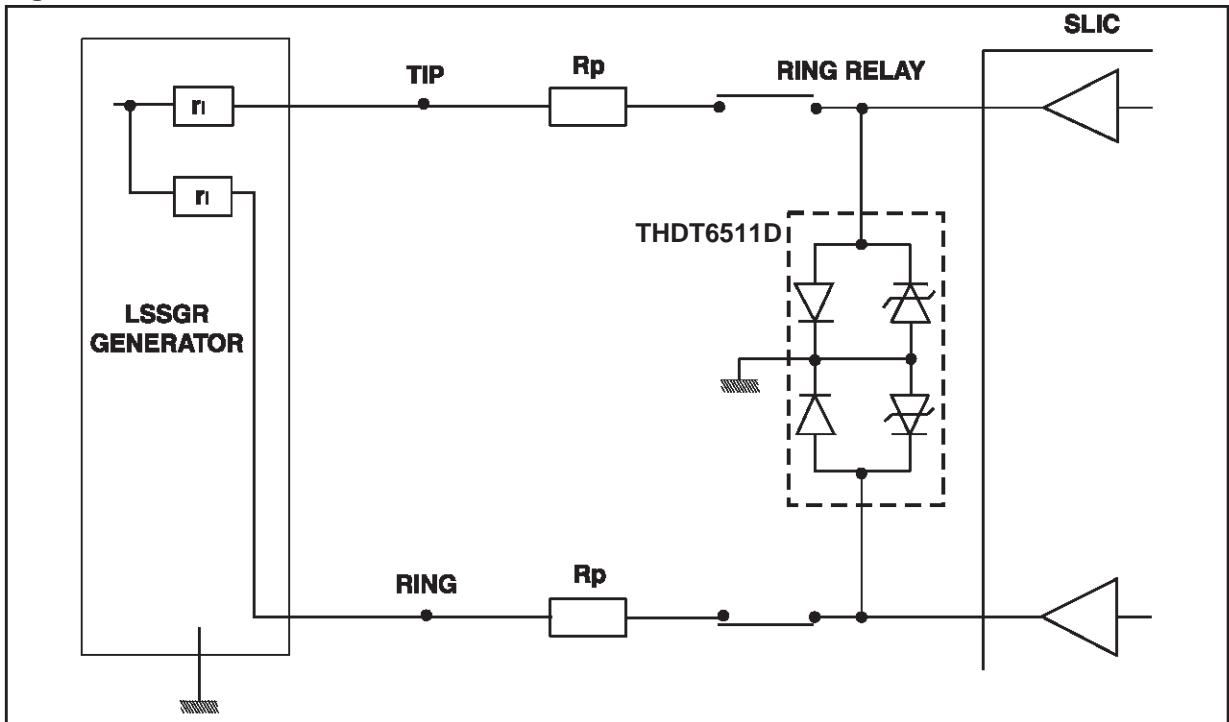
Figure 1 :



Under lightning and power crossing test, the device limits the transient voltage to the values indicated in the figure

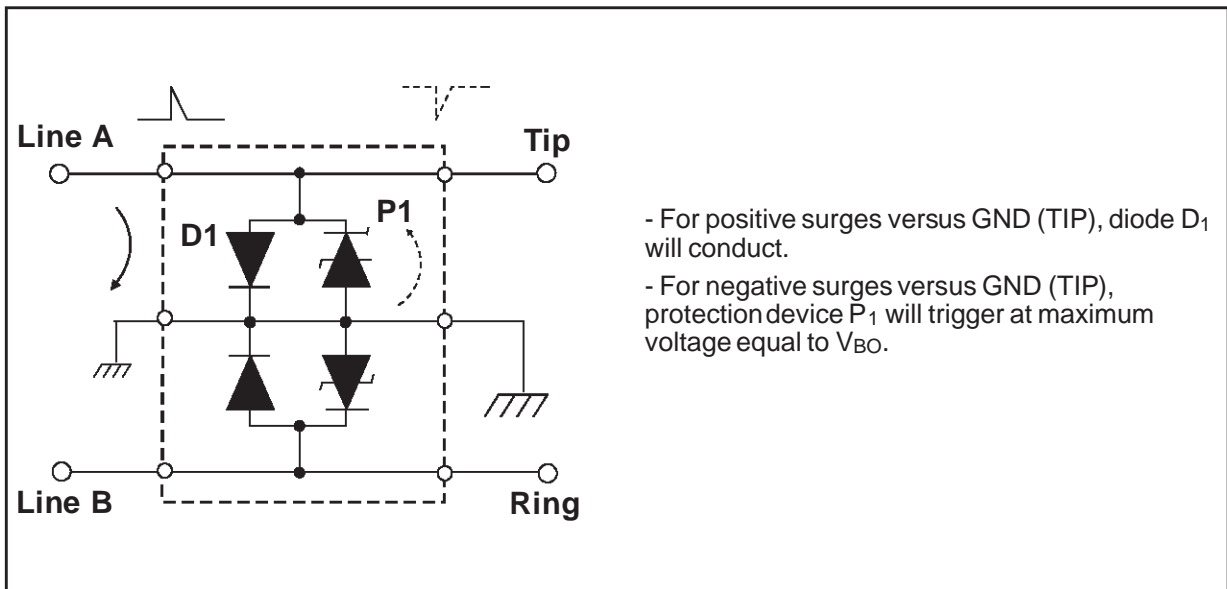
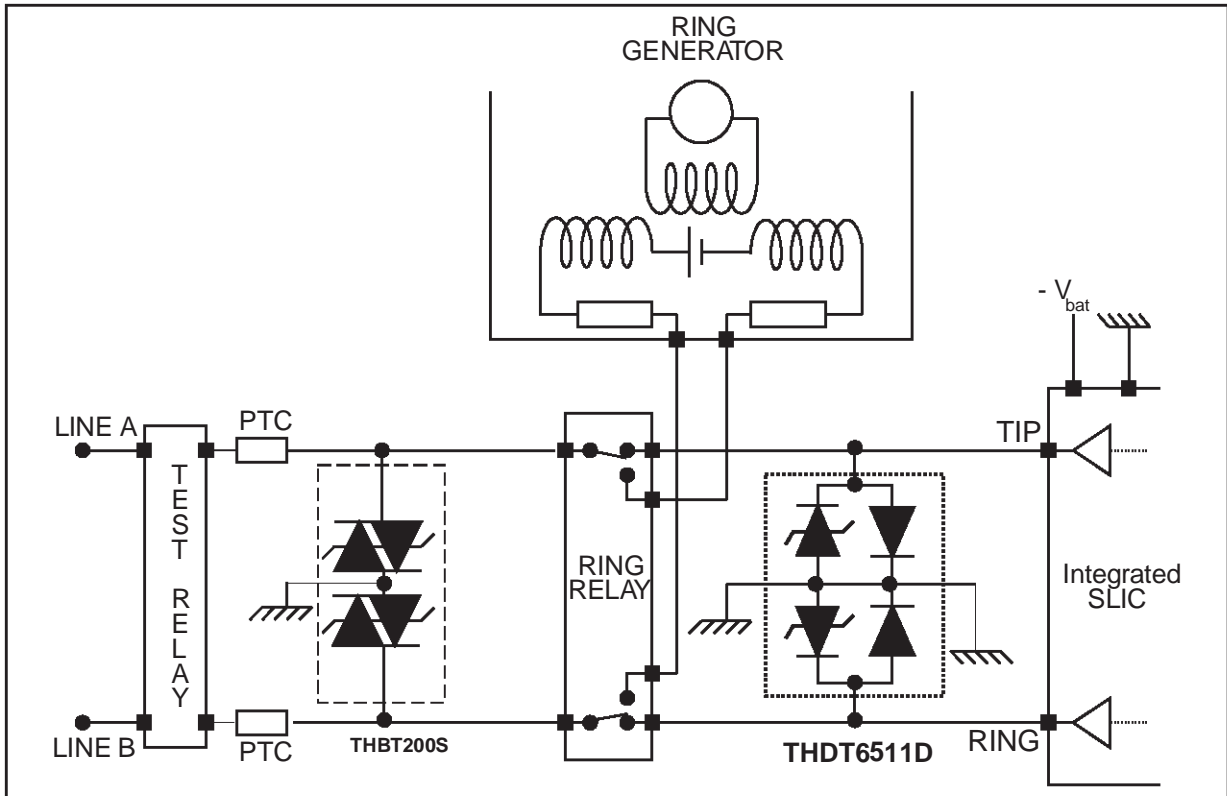
LSSGR TEST DIAGRAM

Figure 2 :



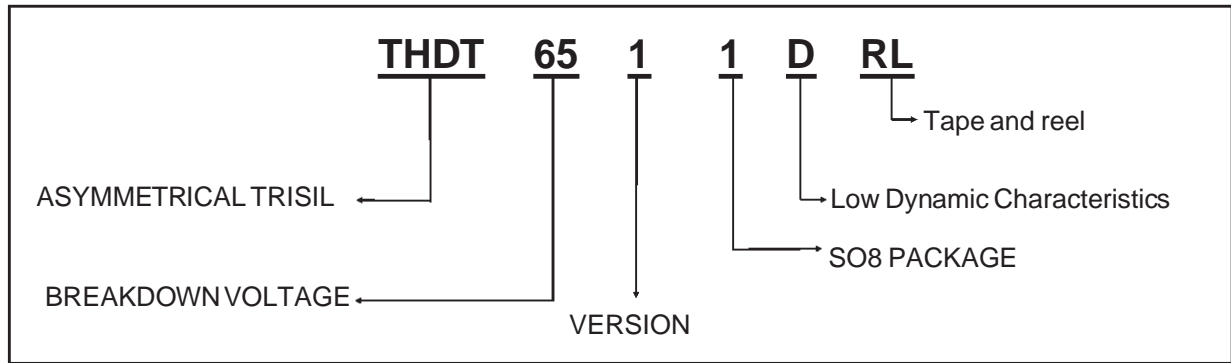
To stand the LSSGR test requirements, R_p must be $\geq 15 \Omega$

TYPICAL APPLICATION

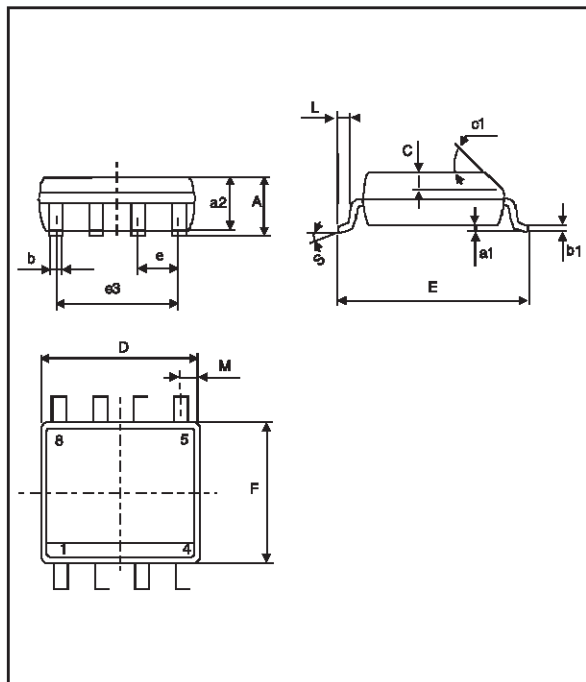


THDT6511D

ORDER CODE



PACKAGE MECHANICAL DATA. SO8 Plastic



REF.	DIMENSIONS					
	Millimetres			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.069
a1	0.1		0.25	0.004		0.010
a2			1.65			0.065
b	0.35		0.48	0.014		0.019
b1	0.19		0.25	0.007		0.010
C		0.50			0.020	
c1	45° (typ)					
D	4.8		5.0	0.189		0.197
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		3.81			0.150	
F	3.8		4.0	0.15		0.157
L	0.4		1.27	0.016		0.050
M			0.6			0.024
S	8° (max)					

MARKING : DT651D

PACKAGING : Products supplied in antistatic tube or tape and reel.

Weight : 0.08g

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1998 SGS-THOMSON Microelectronics - Printed in Italy - All rights reserved.

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - France - Germany - Italy - Japan - Korea - Malaysia - Malta - Morocco
The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.