

Excellent Integrated System Limited

Stocking Distributor

Click to view price, real time Inventory, Delivery & Lifecycle Information:

[STMicroelectronics](#)

[THDT6511DRL](#)

For any questions, you can email us directly:

sales@integrated-circuit.com



THDT6511D

Application Specific Discretes TRANSIENT VOLTAGE SUPPRESSOR A.S.D.™ FOR SLIC PROTECTION

FEATURES

- DUAL ASYMETRICAL TRANSIENT SUPPRESSOR
- PEAK PULSE CURRENT : $I_{PP} = 40A$, 10/100 μs
- 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.

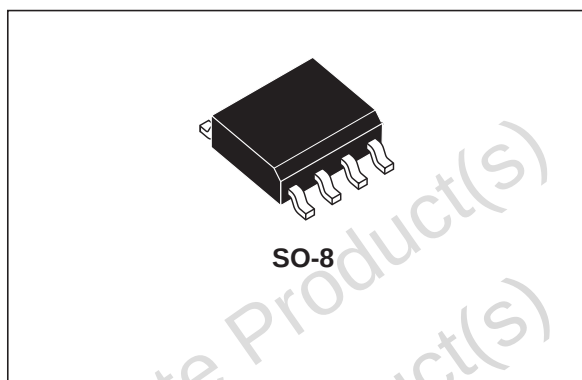
Two diodes clamp positive overloads while negative surges are suppressed by two protection thyristors.

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 on the wiring ($L di/dt$), especially for very fast transient overvoltages.

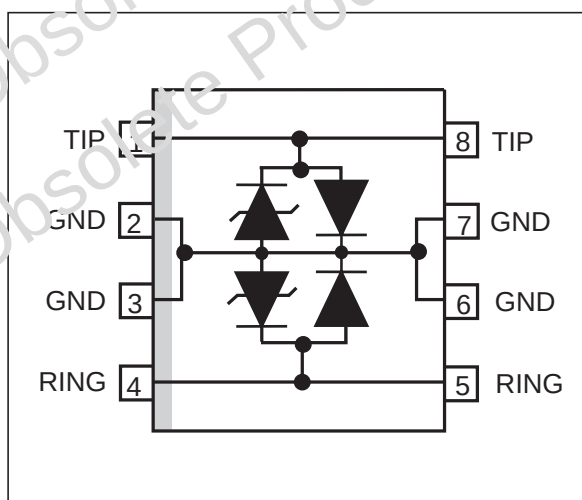
COMPLIES WITH THE FOLLOWING STANDARDS :

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



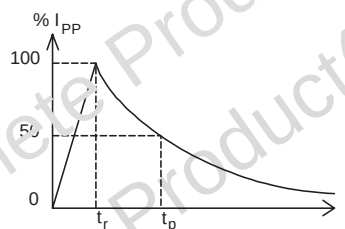
THDT6511D

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

Symbol	Parameter	Value	Unit
I_{PP}	Peak pulse current (see note 1)	10/1000 μs 5/310 μs 2/10 μs	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	$^{\circ}\text{C}$
T_L	Maximum lead temperature for soldering during 10s	260	$^{\circ}\text{C}$

Note 1 : Pulse waveform :

10/1000 μs	$t_r=10\mu\text{s}$	$t_p=1000\mu\text{s}$
5/310 μs	$t_r=5\mu\text{s}$	$t_p=310\mu\text{s}$
2/10 μs	$t_r=2\mu\text{s}$	$t_p=10\mu\text{s}$



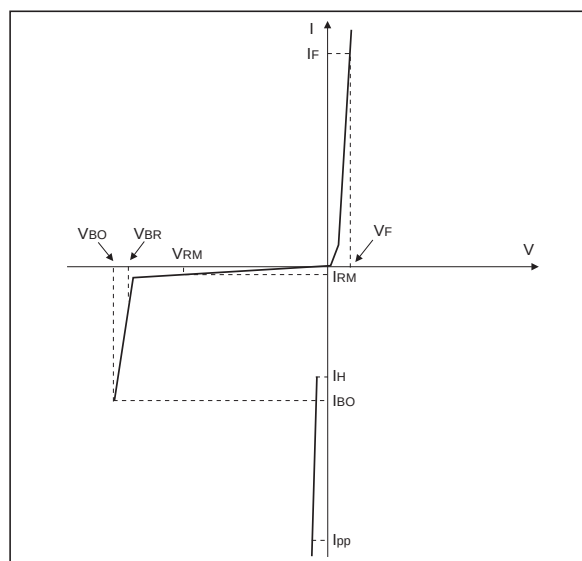
THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient	170	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS

($T_{amb} = 25^{\circ}\text{C}$)

Symbol	Parameter
$V_{I'M}$	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



THDT6511D

1 - PARAMETERS RELATED TO DIODE LINE / GND

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

NA : Non Available

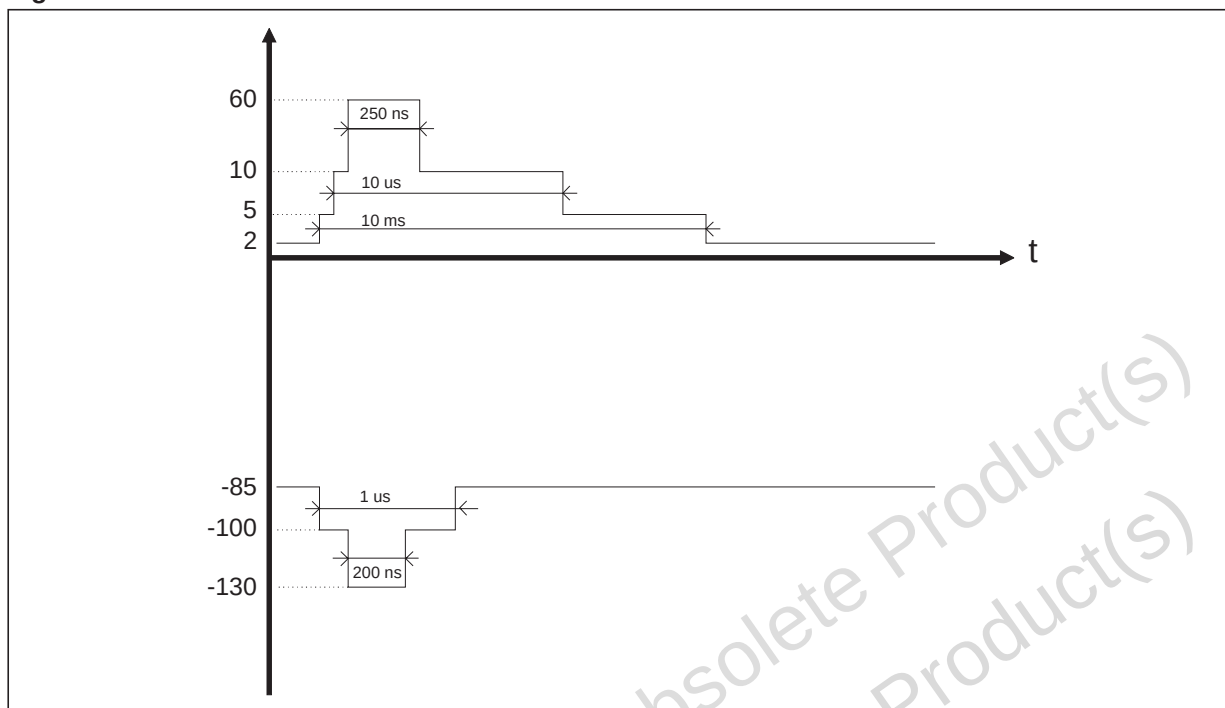
2 - PARAMETERS RELATED TO PROTECTION THYRISTOR

Symbol	Tests conditions	Min.	Typ.	Max.	Unit
V_{BR}	$I_R = 1\text{ mA}$	65			V
V_{BO}		68		35	V
I_{RM}	$V_{RM} = 63\text{ V}$			100	μA
I_{BO}	$t_p = 100\text{ }\mu\text{s}$	110		450	mA
I_{BO}	$F = 50\text{ Hz}$ $R_G = 600\text{ }\Omega$			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			kV / μs

THDT6511D

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

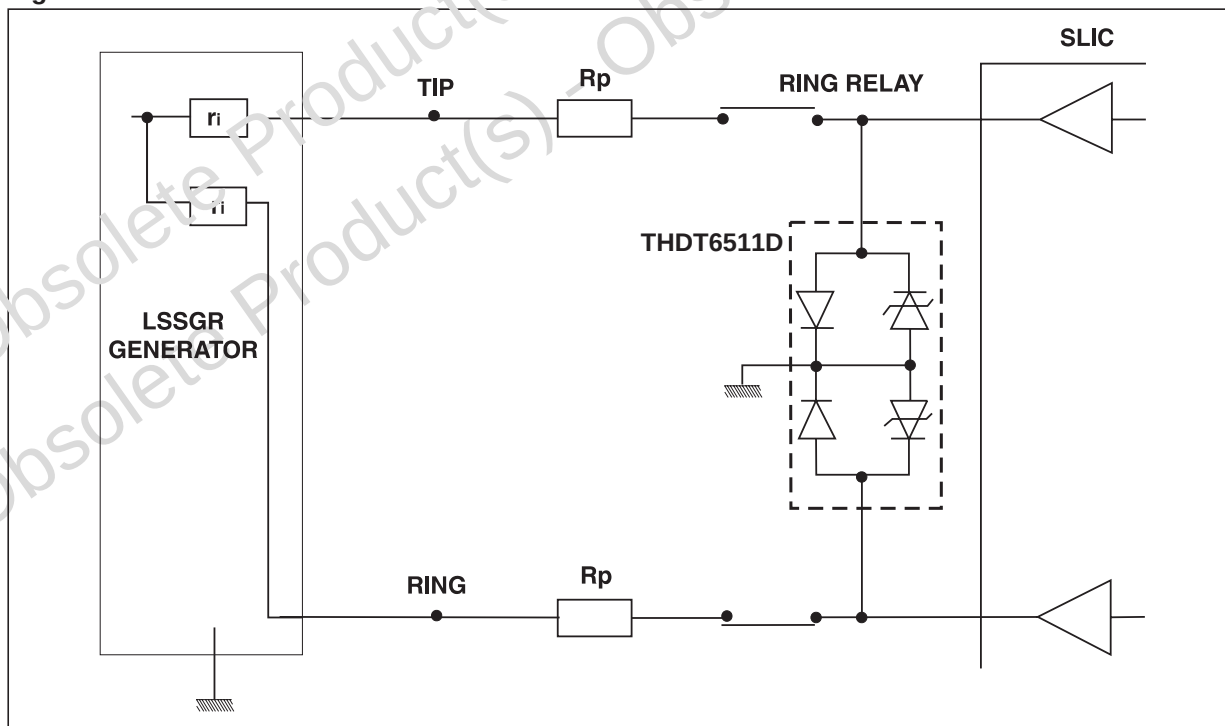
Figure 1 :



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

LSSGR TEST DIAGRAM

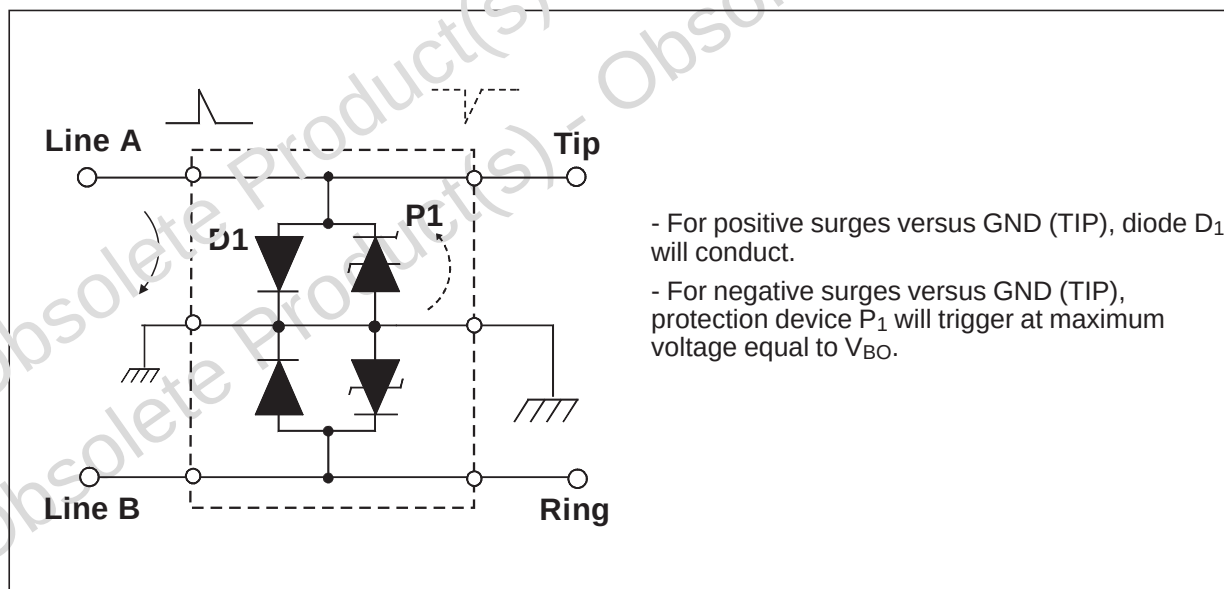
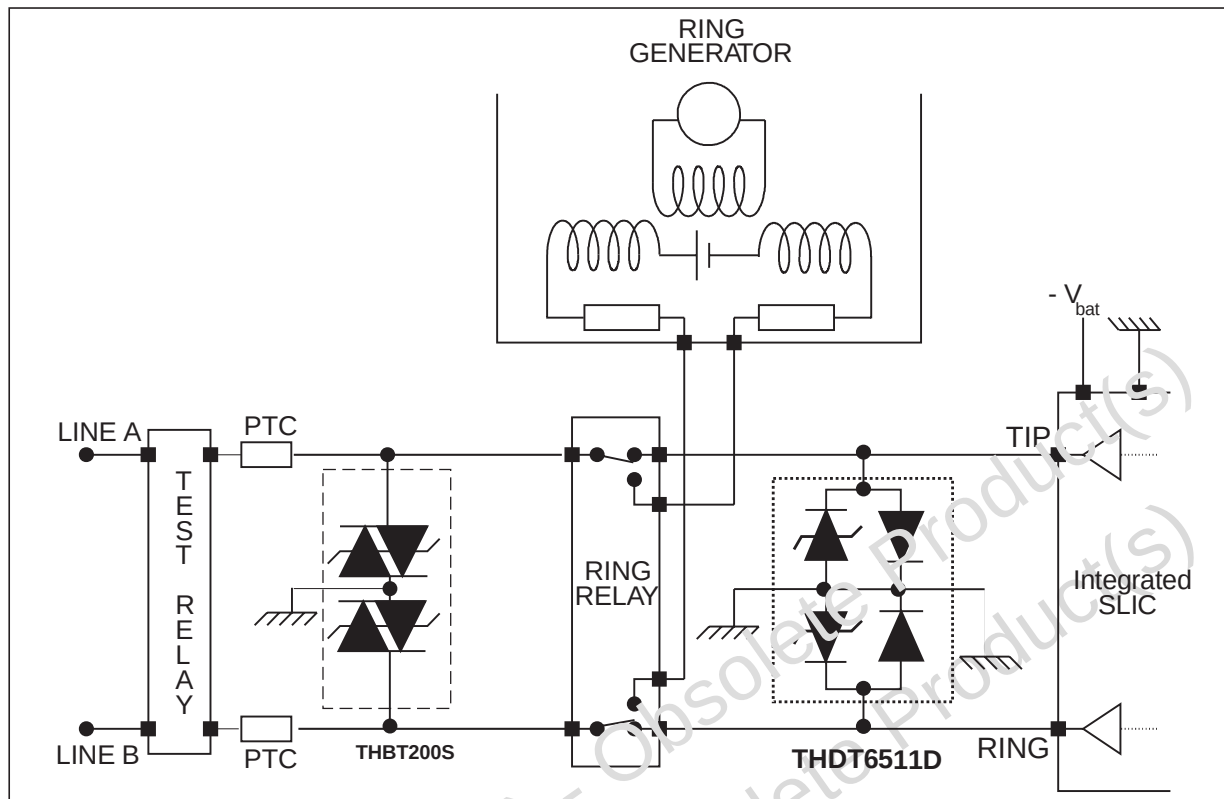
Figure 2 :



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

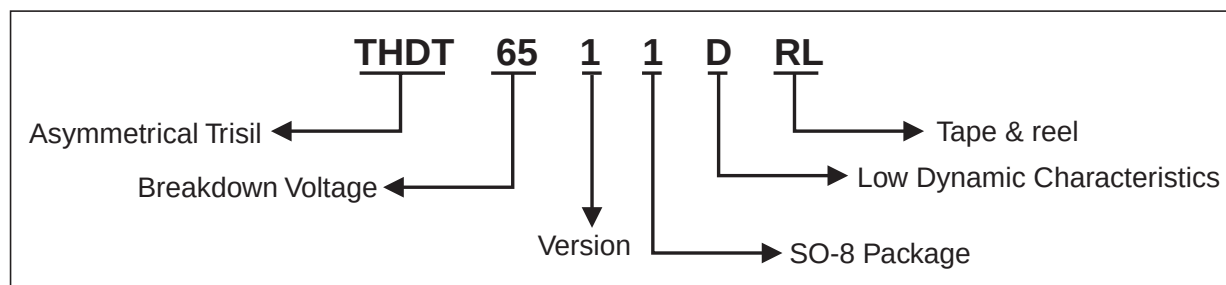
THDT6511D

TYPICAL APPLICATION



THDT6511D

ORDER CODE



PACKAGE MECHANICAL DATA.

SO-8 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, STMicroelectronics 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 STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics

© 2001 STMicroelectronics - Printed in Italy - All rights reserved.

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia
Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A.

<http://www.st.com>