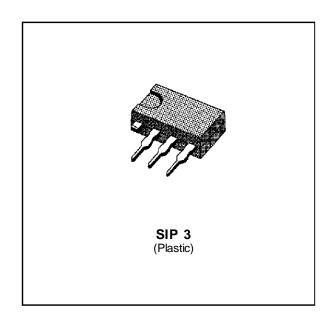


THDT58S

TRISIL FOR SLIC PROTECTION

FEATURES

- CROWBAR PROTECTION
- DUAL ASYMETRICAL TRANSIENT SUPPRESSOR
- PEAK PULSE CURRENT:
 - $-I_{PP} = 75 \text{ A}, 10/1000 \text{ }\mu\text{s}.$
- HOLDING CURRENT = 150 mA min
- BREAKDOWN VOLTAGE = 58 V.
- BREAKOVER VOLTAGE = 80V max.



DESCRIPTION

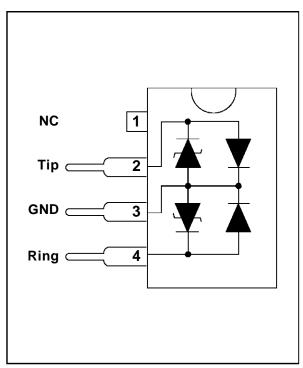
This device has been especially designed to protect subscriber line card interfaces (SLIC) against transient overvoltages.

Its ion-implanted technology confers excellent electrical characteristics on it.

This is why this device easily fits the main protection standards which are related to the overvoltages on telecom lines.

This product is compatible with TO202 and TO220 packages.

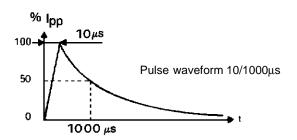
SCHEMATIC DIAGRAM



IN ACCORDANCE WITH FOLLOWING STANDARDS:

ABSOLUTE RATINGS (limiting values) (-40°C \leq T_{amb} \leq + 85°C)

Symbol	Parameter	Value	Unit	
lpp	Peak pulse current	10/1000 μs 8/20 μs	75 150	А
ITSM	Non repetitive surge peak on-state current	30	А	
IFSM	Non repetitive surge peak forward current	tp = 20 ms	30	А
di/dt	Critical rate of rise of off-state current	100	A/μs	
dv/dt	Critical rate of rise of off-state voltage	5	KV/μs	
T _{stg} Tj	Storage and operating junction temperature ran	- 40 to + 150 + 150	°C °C	
TL	Maximum lead temperature for soldering during	260	°C	

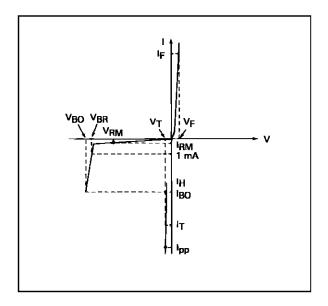


THERMAL RESISTANCE

Symb	ы	Parameter	Value	Unit
R _{th} (j-	a) Junction-to-ambie	nt	70	°C/W

ELECTRICAL CHARACTERISTICS

Symbol	Parameter		
V _{RM}	Stand-off voltage		
VBR	Breakdown voltage		
VBO	Breakover voltage		
lн	Holding current		
VT	On-state voltage		
VF	Forward Voltage Drop		
I _{BO}	Breakover current		
IPP Peak pulse current			



PARAMETER RELATED TO THE DIODE LINE/GND

Symbol	Test conditions	Value	Unit
VF	Square pulse, $tp = 500 \mu s IF = 5 A$.	5	V

PARAMETERS RELATED TO THE PROTECTION THYRISTOR

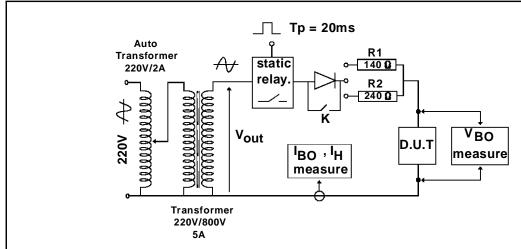
Туре	IRM @	[®] V _{RM}	VBR	@ I R	VBO	@	ВО	lн	٧T	С
	max		min		max	min	max	min	max	max
						note1		note1	note2	note3
	μ Α	V	٧	mA	V	mA	mA	mA	٧	рF
THDT58S	10	56	58	1	80	150	800	150	5	400

All parameters tested at 25°C, except where indicated

Note 1 : See the reference test circuit for I_H, I_{BO} and V_{BO} parameters. Note 2 : Square pulse Tp = $500 \, \mu s$ - I_T = 5A. Note 3 : V_R = 1V, F = 1MHz.



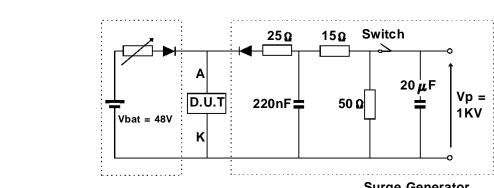
REFERENCE TEST CIRCUIT FOR I_H, I_{BO} and V_{BO} parameters :



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} ≤ 150 Volt
 - Vout = 250 V_{RMS}, R_1 = 140 Ω .
 - Device with $V_{BR} \ge 150 \text{ Volt}$
 - Vout = 480 V_{RMS}, R_2 = 240 Ω .

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



Surge Generator $10/700 \mu sec$ 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 : lpp = 25A, $10/700 \mu s$.
 - 3) The D.U.T will come back to the OFF-State withing a duration of 50 ms max.

Figure 1: Relative variation of holding current versus junction temperature.

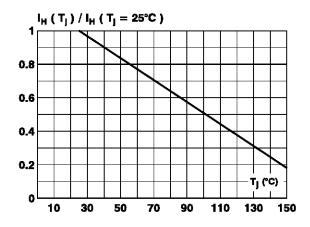


Figure 3: Peak on state voltage versus peak on state current (typical values).

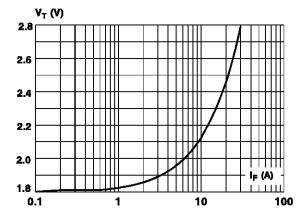


Figure 5: Capacitance versus reverse applied voltage (typical values).

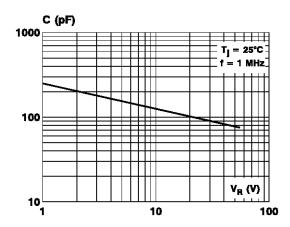


Figure 2: Non repetitive surge peak on state current versus number of cycles (1 cycle = 20 ms.

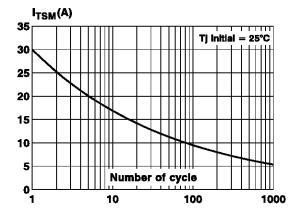
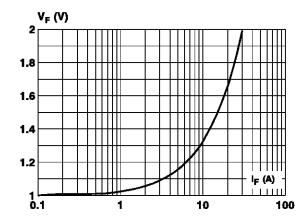
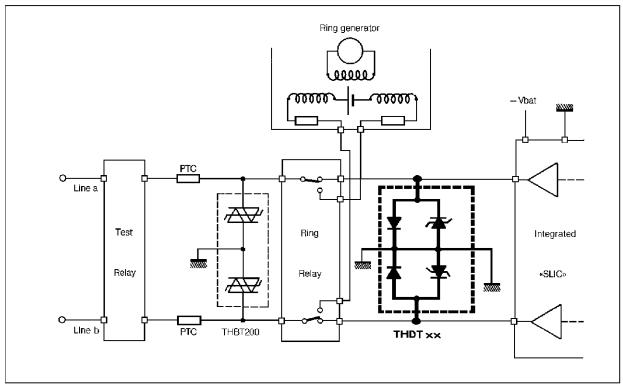


Figure 4: Peak forward voltage drop versus peak forward current (typical values).

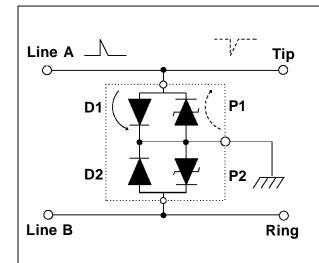


APPLICATION CIRCUIT

Typical slic protection concept



FUNCTIONAL DESCRIPTION



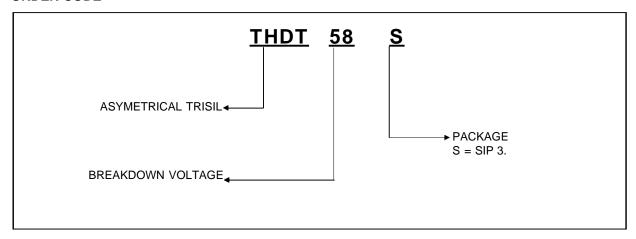
Line A Protection =

- For positive Surges versus GND, the diode D1 will conduct
- For negative Surges versus GND, the Protection device P1 will trigger at a maximum voltage equal to the V_{BO}.

Line B Protection =

- For Surges on line B, the operating mode is the same, D2 or P2 is activated.

ORDER CODE

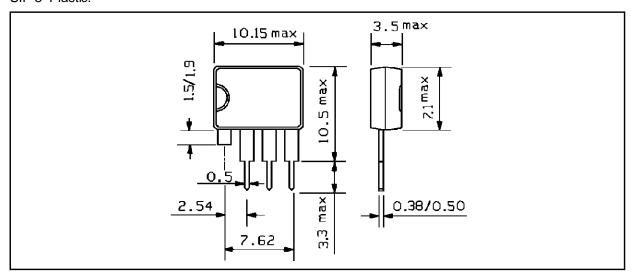


MARKING

Package	Туре	Marking		
SIP3	THDT58S	THDT58S		

PACKAGE MECHANICAL DATA (in millimeters)

SIP 3 Plastic.



Packaging: Products supplied in antistatic tubes.

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