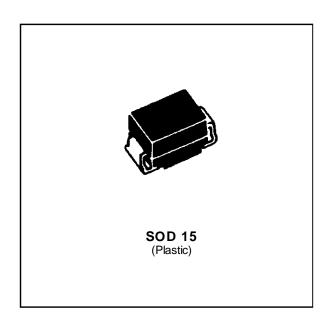


SMTHDT58

TRISIL FOR SLIC PROTECTION

FEATURES

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

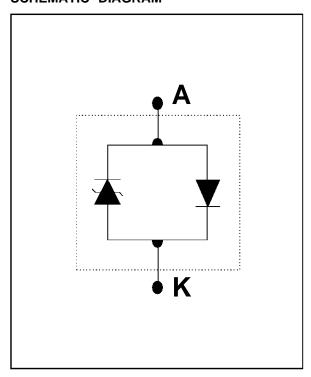


DESCRIPTION

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

A diode clips positive overloads and a crowbar device protects againts negative surges.

SCHEMATIC DIAGRAM

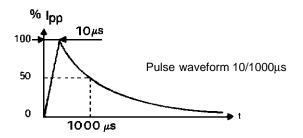


IN ACCORDANCE WITH FOLLOWING STANDARDS:

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

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	tp = 20 ms	30	Α
IFSM	Non repetitive surge peak forward current	30	А	
di/dt	Critical rate of rise of on-state current	Non repetitive	100	A/μs
dv/dt	Critical rate of rise of off-state voltage	5	KV/μs	
T _{stg} T _j	Storage and operating junction temperature rar	- 40 to + 150 150	°C °C	
TL	Maximum lead temperature for soldering during	260	°C	

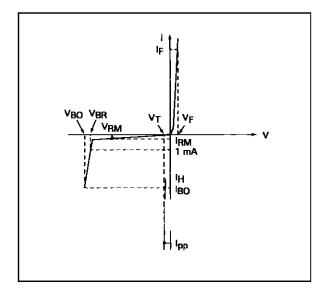


THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th} (j-l)	Junction to leads	10	°C/W
R _{th} (j-a)	Junction-to-ambiant	75	°C/W

ELECTRICAL CHARACTERISTICS

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



PARAMETER RELATED TO THE DIODE.

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

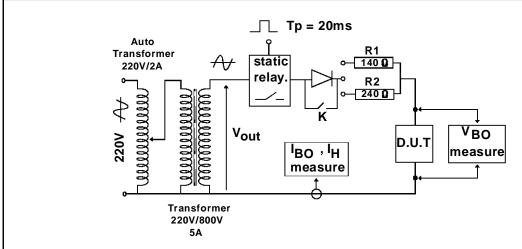
PARAMETERS RELATED TO THE PROTECTION THYRISTOR.

TYPE	IRM @	₽ V _{RM}	VBR	@ I R	Vво	@	lво	lн	VT	С
	m	ax	min		max	min	max	min	max	max
						note1		note1	note2	note3
	μ Α	V	٧	mA	v	mA	mA	mA	٧	рF
SMTHDT58	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.

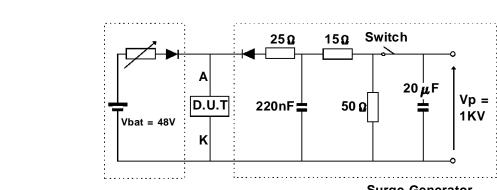
REFERENCE TEST CIRCUIT FOR I_H, I_{BO} and V_{BO} parameters :



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 $V_{BR} \le 150 \text{ Volt}$
 - 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 cant'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 : Ipp = 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.

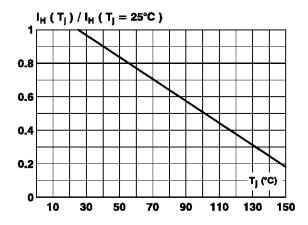


Figure 3: Peak on state voltage versus peak on state current (typical values).

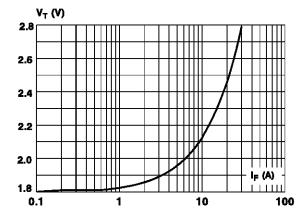


Figure 5: Capacitance versus reverse applied voltage (typical values).

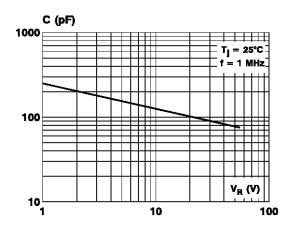


Figure 2: Non repetitive surge peak on state current versus number of cycles (1 cycle = 20

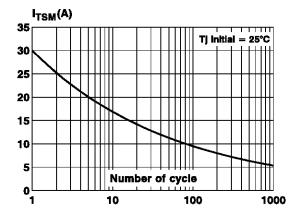
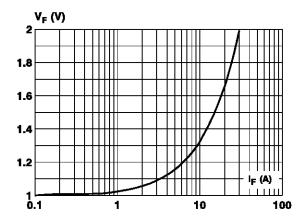
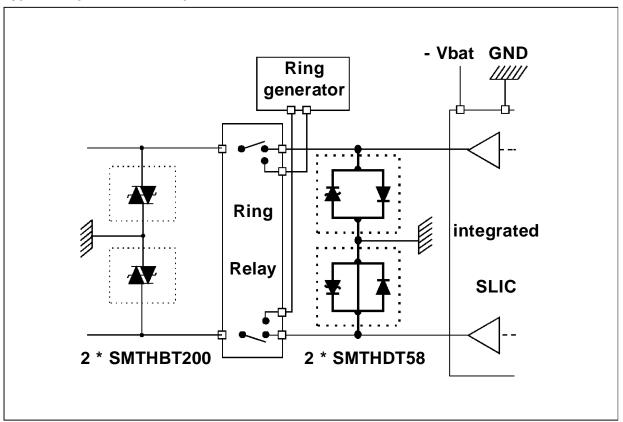


Figure 4: Peak forward voltage drop versus peak forward current (typical values).

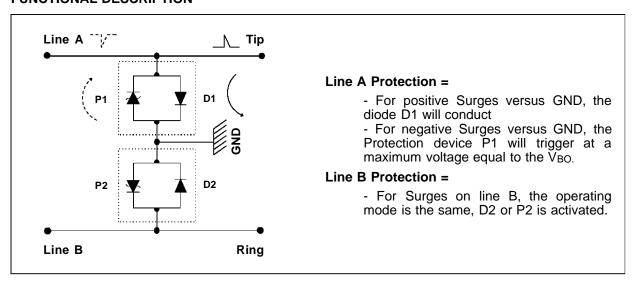


APPLICATION CIRCUIT

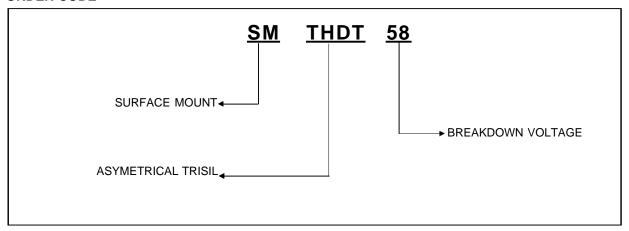
Typical slic protection concept



FUNCTIONAL DESCRIPTION



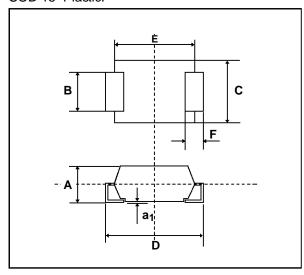
ORDER CODE



MARKING = Logo, WO1 A white band indicates the cathode.

PACKAGE MECHANICAL DATA.

SOD 15 Plastic.



Ref	Millim	neters	Inches		
	min	max	min	max	
Α	2.5	3.1	0.098	0.122	
a ₁	-	0.2	-	0.008	
В	2.9	3.1	0.114	0.122	
С	4.8	5.2	0.190	0.200	
D	7.6	8.0	0.300	0.315	
E	6.3	6.6	0.248	0.259	
F	1.3	1.7	0.051	0.067	

Packaging: Standard packaging is in film.

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