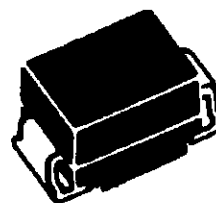


TRISIL FOR LINE CARD PROTECTION

FEATURES

- BIDIRECTIONAL CROWBAR PROTECTION.
- PEAK PULSE CURRENT :
- $I_{PP} = 75 \text{ A}$, $10/1000 \mu\text{s}$.
- HOLDING CURRENT = 150 mA min
- BREAKDOWN VOLTAGE = 200 V min.
- BREAKOVER VOLTAGE = 290 V max.

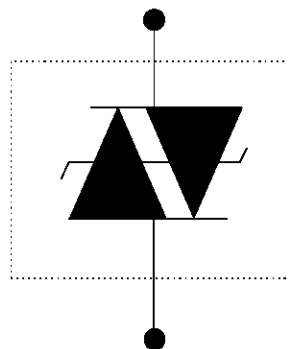


SOD 15
(Plastic)

DESCRIPTION

This protection device has been especially designed to protect subscriber line cards using SLICS without integrated ring generators. The SMTHBT200 device protects ring generator relays against transient overvoltages.

SCHEMATIC DIAGRAM

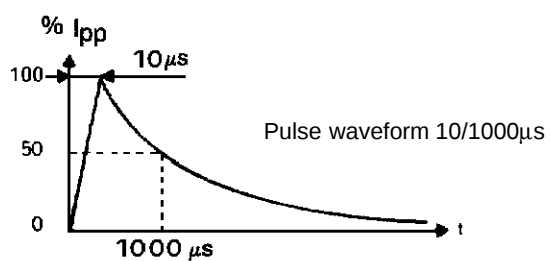


IN ACCORDANCE WITH FOLLOWING STANDARDS :

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

ABSOLUTE RATINGS (limiting values) ($-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$)

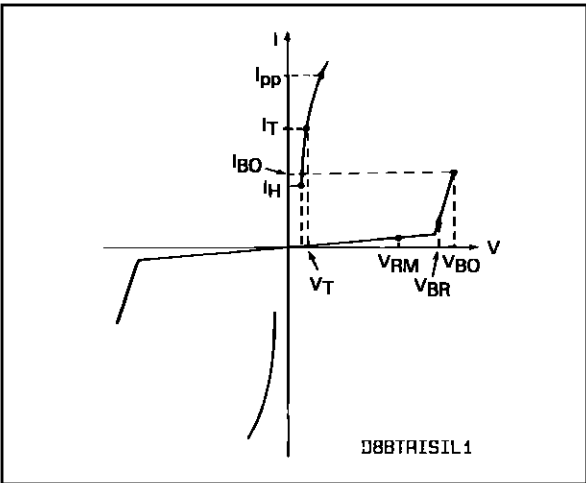
Symbol	Parameter		Value	Unit
I_{PP}	Peak pulse current	10/1000 μs 8/20 μs	75 150	A
I_{TSM}	Non repetitive surge peak on-state current	$t_p = 20 \text{ ms}$	30	A
di/dt	Critical rate of rise of on-state current	Non repetitive	100	A/ μs
dv/dt	Critical rate of rise of off-state voltage	67% V_{BR}	5	KV/ μs
T_{stg} T_j	Storage and operating junction temperature range		- 40 to + 150 150	$^{\circ}\text{C}$ $^{\circ}\text{C}$
T_L	Maximum lead temperature for soldering during 10 s.		260	$^{\circ}\text{C}$


THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{\text{th}}(j-l)$	Junction to leads.	10	$^{\circ}\text{C}/\text{W}$
$R_{\text{th}}(j-a)$	Junction-to-ambient.	75	$^{\circ}\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS

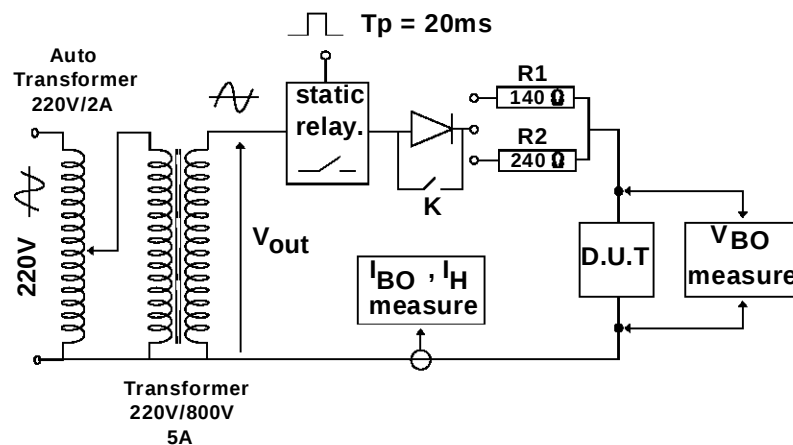
Symbol	Parameter
V_{RM}	Stand-off voltage
V_{BR}	Breakdown voltage
V_{BO}	Breakover voltage
I_H	Holding current
V_T	On-state voltage
I_{BO}	Breakover current
I_{pp}	Peak pulse current



TYPE	I_{RM} @ V_{RM}		V_{BR} @ I_R		V_{BO} @ I_{BO}			I_H	V_T	C
	max		min		max	min	max	min	max	max
	μA	V	V	mA	V	mA	mA	mA	V	pF
SMTHBT200	10	180	200	1	290	150	800	150	8	200

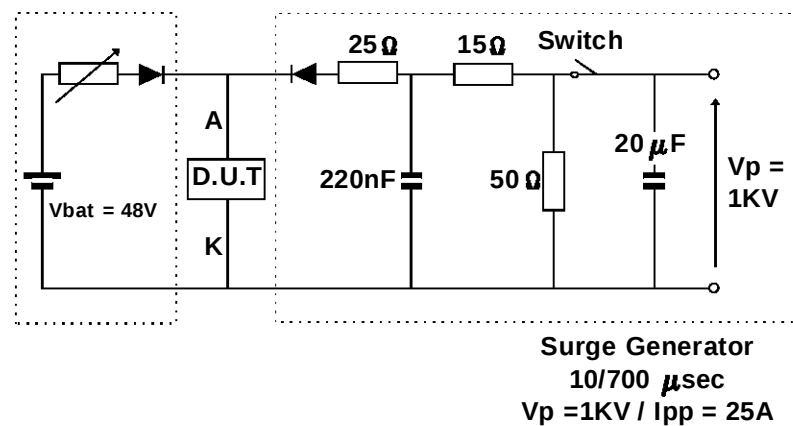
All parameters tested at 25°C, except where indicated

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

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

TEST PROCEDURE :

- Pulse Test duration ($T_p = 20\text{ms}$):
 - For Bidirectional devices = Switch K is closed
 - For Unidirectional devices = Switch K is open.
- V_{OUT} Selection
 - Device with $V_{BR} \leq 150\text{ Volt}$
 - $V_{OUT} = 250\text{ V}_{RMS}$, $R_1 = 140\ \Omega$.
 - Device with $V_{BR} \geq 150\text{ Volt}$
 - $V_{OUT} = 480\text{ V}_{RMS}$, $R_2 = 240\ \Omega$.

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

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 : $I_{pp} = 25\text{A}$, $10/700\ \mu\text{s}$.
- 3) The D.U.T. will come back to the OFF-State within a duration of 50 ms max.

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

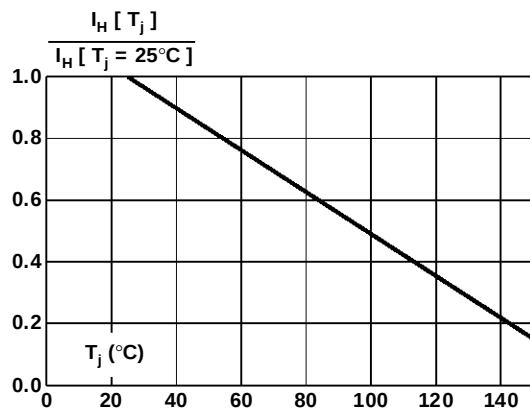


Figure 2 : Non repetitive surge peak on state current versus number of cycles (1 cycle = 20

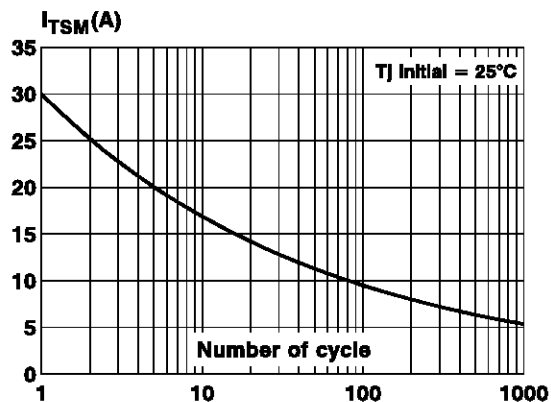


Figure 3 : Peak on state voltage versus peak on state current (typical values).

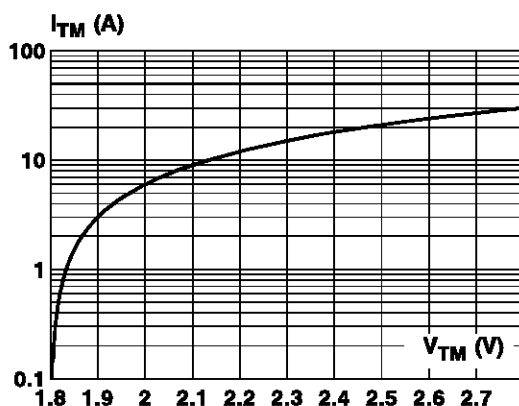
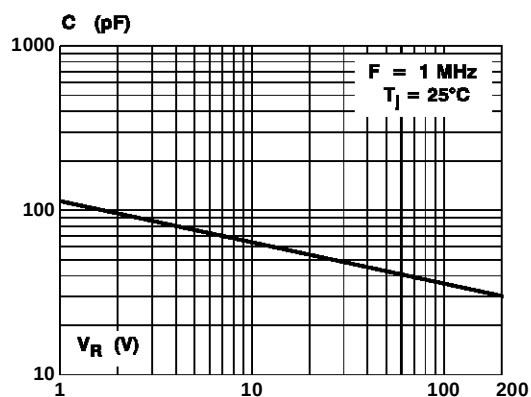
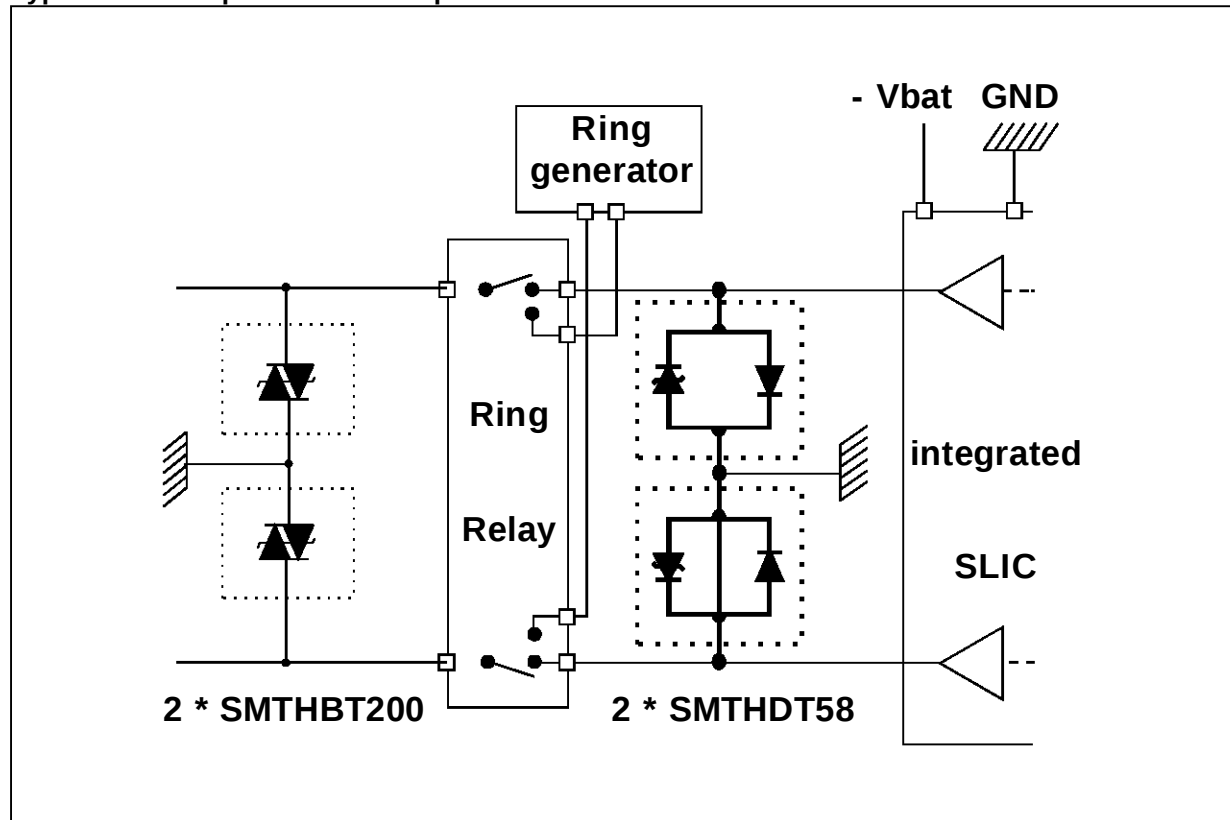


Figure 5 : Capacitance versus reverse applied voltage (typical values).

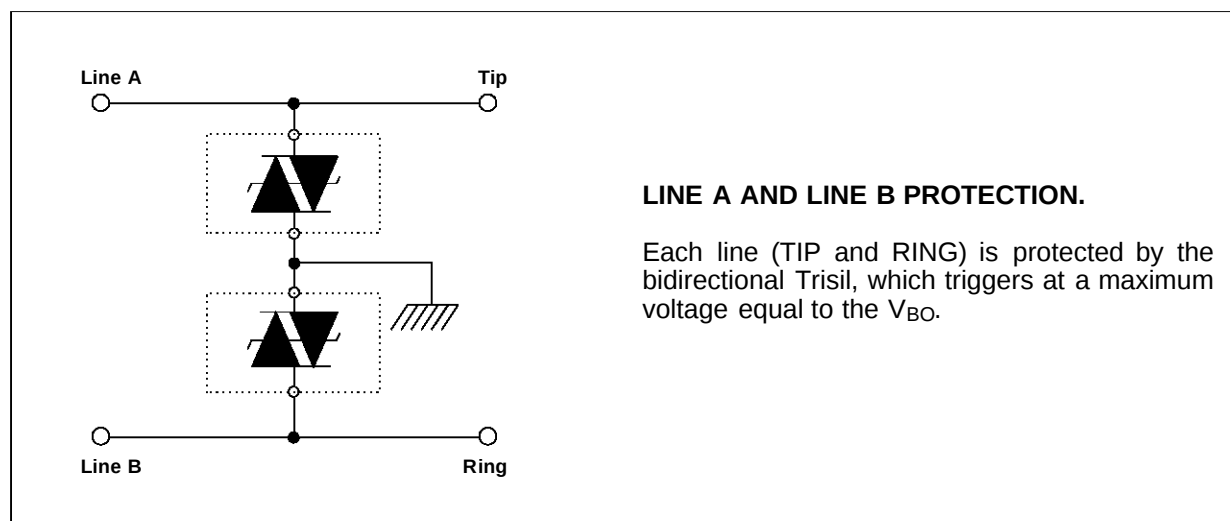


APPLICATION CIRCUIT

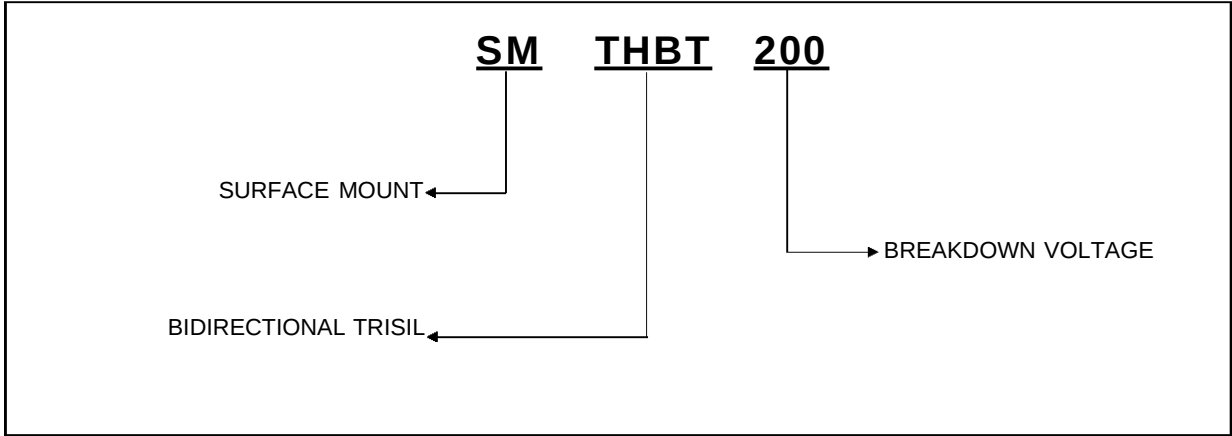
Typical line card protection concept.



FUNCTIONAL DESCRIPTION

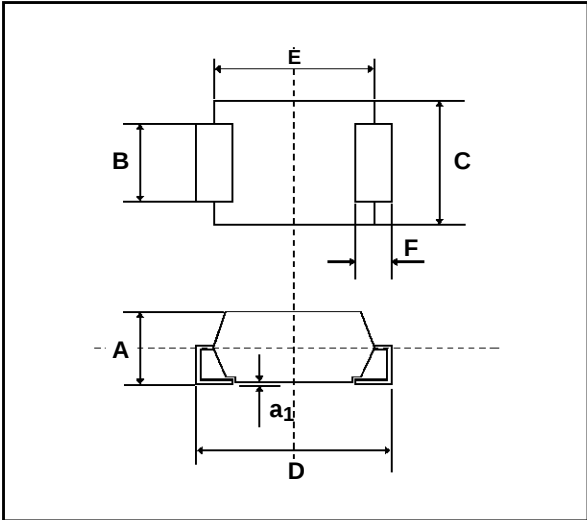


ORDER CODE



MARKING = Logo, WO4

PACKAGE MECHANICAL DATA .
SOD 15 Plastic.



Ref	Millimeters		Inches	
	min	max	min	max
A	2.5	3.1	0.098	0.122
a ₁	-	0.2	-	0.008
B	2.9	3.1	0.114	0.122
C	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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