

TRISIL FOR SLIC PROTECTION

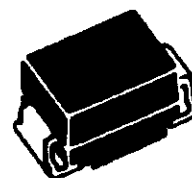
FEATURES

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

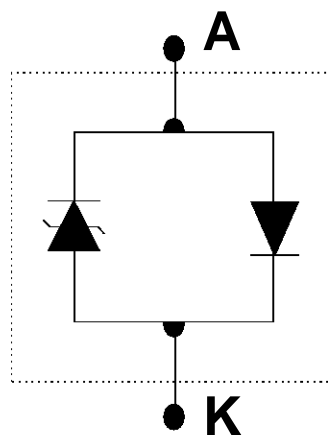


SOD 15
(Plastic)

IN ACCORDANCE WITH FOLLOWING STANDARDS :

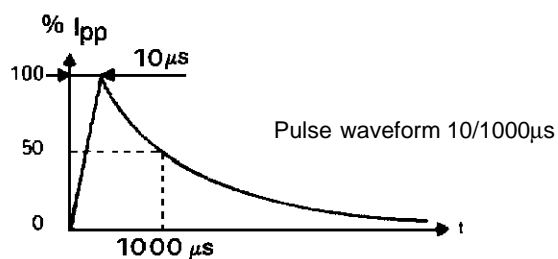
CCITT K17 - K20	{	10/700 μs	1.5 kV
		5/310 μs	38 A
VDE 0433	{	10/700 μs	2 kV
		5/200 μs	50 A
CNET	{	0.5/700 μs	1.5 kV
		0.2/310 μs	38 A

SCHEMATIC DIAGRAM



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

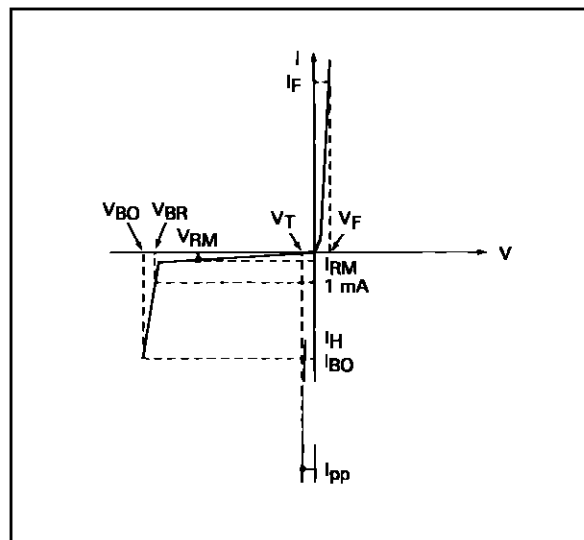
Symbol	Parameter		Value	Unit
I_{PP}	Peak pulse current	10/1000 μs 8/20 μs	75 150	A
I_{TSM}	Non repetitive surge peak on-state current	$t_p = 20 \text{ ms}$	30	A
I_{FSM}	Non repetitive surge peak forward current	$t_p = 20 \text{ ms}$	30	A
di/dt	Critical rate of rise of on-state current	Non repetitive	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
V_F	Forward Voltage Drop
I_{BO}	Breakover current
I_{PP}	Peak pulse current



PARAMETER RELATED TO THE DIODE.

Symbol	Test conditions	Value	Unit
V_F	Square pulse, $t_p = 500 \mu s$, $I_F = 5 A$.	5	V

PARAMETERS RELATED TO THE PROTECTION THYRISTOR.

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
					note1			note1	note2	note3
	μA	V	V	mA	V	mA	mA	mA	V	pF
SMTHDT58	10	56	58	1	80	150	800	150	5	400

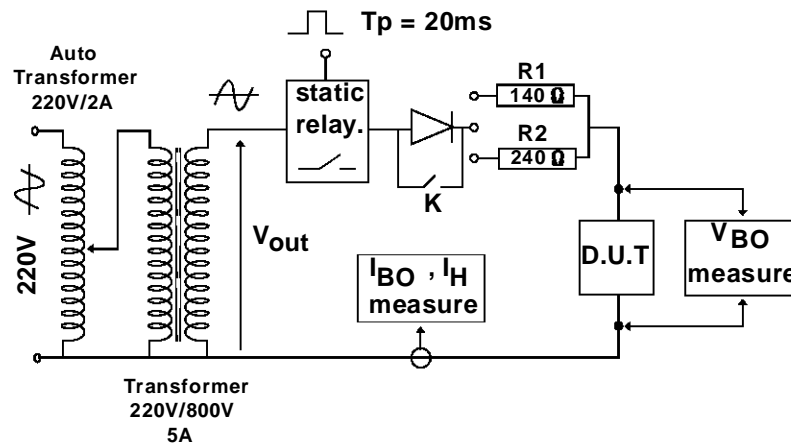
All parameters tested at 25°C, except where indicated

Note 1 : See the reference test circuit for I_H , I_{BO} and V_{BO} parameters.

Note 2 : Square pulse $T_p = 500 \mu s$ - $I_T = 5 A$.

Note 3 : $V_R = 1 V$, $F = 1 MHz$.

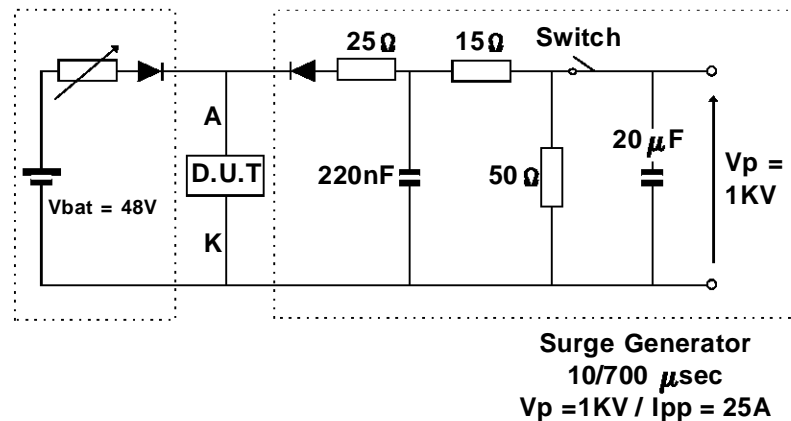
REFERENCE TEST CIRCUIT FOR I_H , I_{BO} and V_{BO} parameters :



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 $V_{BR} \leq 150\text{ Volt}$
 - $V_{OUT} = 250 V_{RMS}$, $R_1 = 140\ \Omega$.
 - Device with $V_{BR} \geq 150\text{ Volt}$
 - $V_{OUT} = 480 V_{RMS}$, $R_2 = 240\ \Omega$.

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 : $I_{pp} = 25A$, $10/700 \mu s$.
- 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.

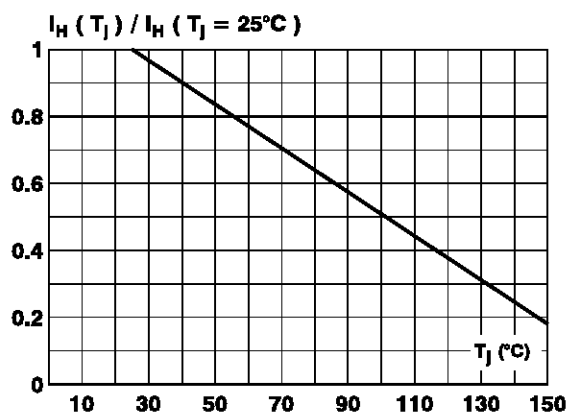


Figure 2 : Non repetitive surge peak on state current versus number of cycles (1 cycle = 20

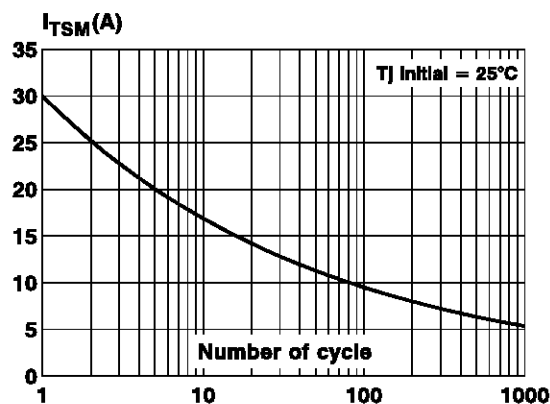


Figure 3 : Peak on state voltage versus peak on state current (typical values).

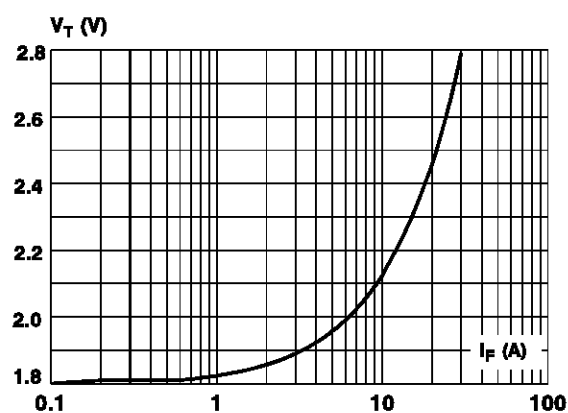


Figure 4 : Peak forward voltage drop versus peak forward current (typical values).

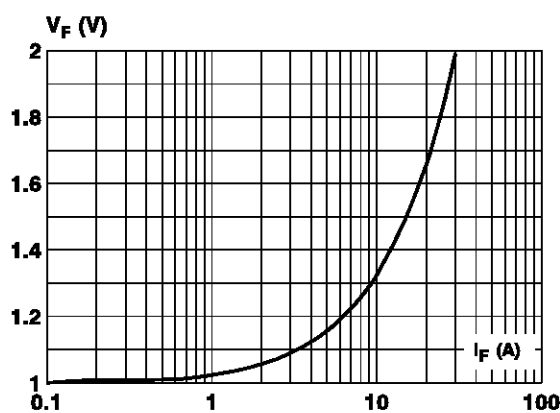
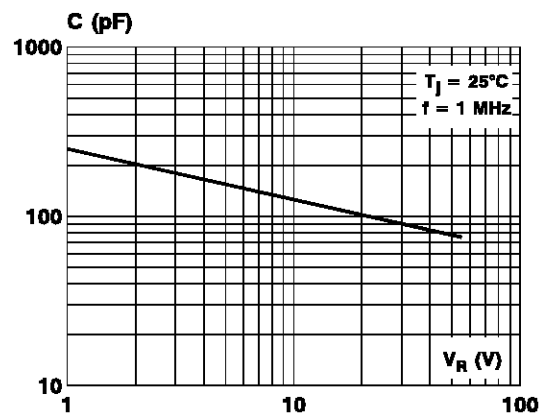
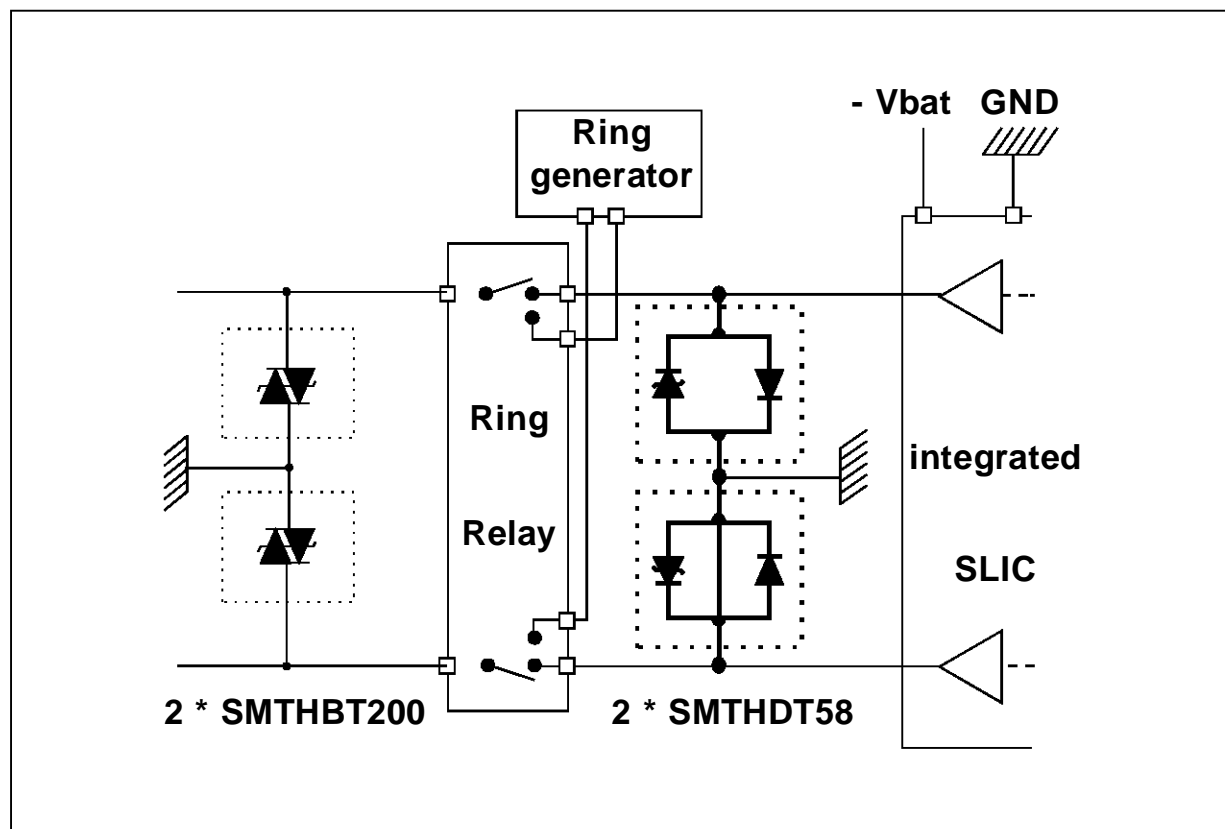


Figure 5 : Capacitance versus reverse applied voltage (typical values).

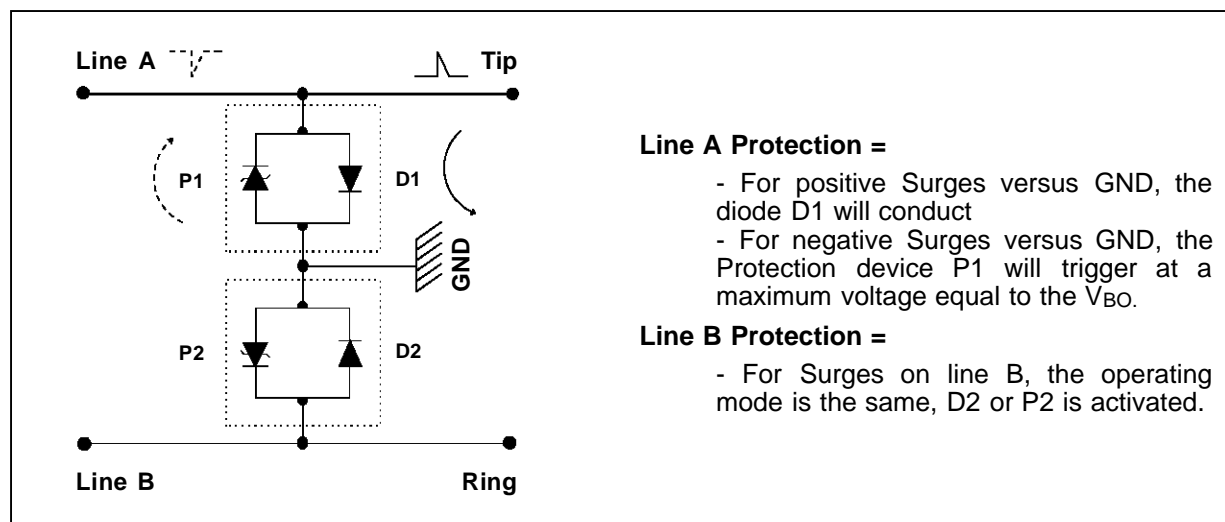


APPLICATION CIRCUIT

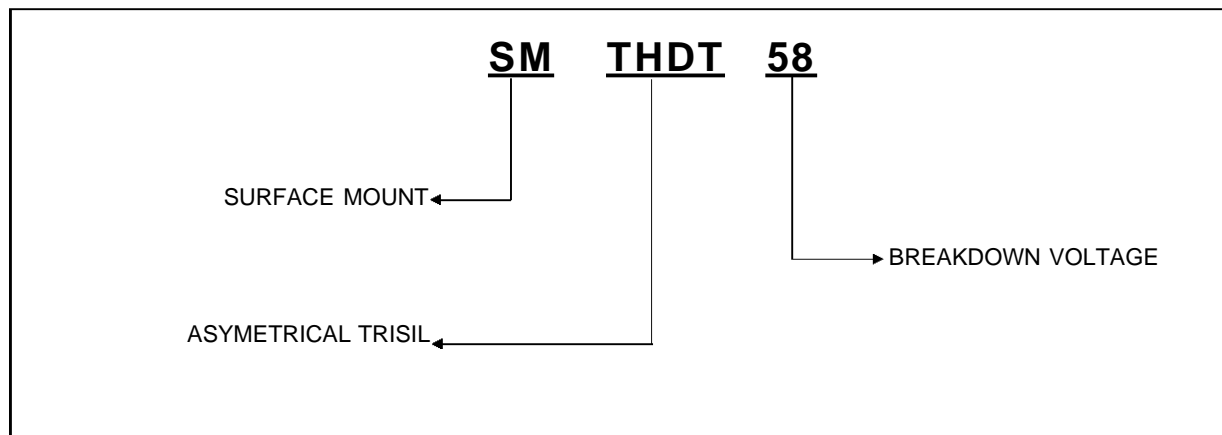
Typical slic protection concept



FUNCTIONAL DESCRIPTION



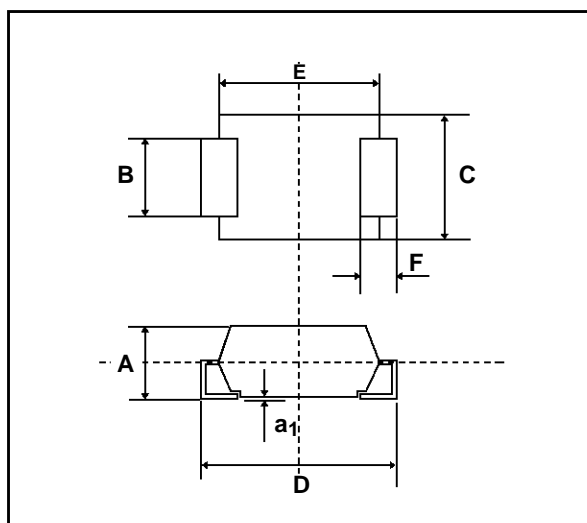
ORDER CODE



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

PACKAGE MECHANICAL DATA .

SOD 15 Plastic.



Ref	Millimeters		Inches	
	min	max	min	max
A	2.5	3.1	0.098	0.122
a1	-	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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