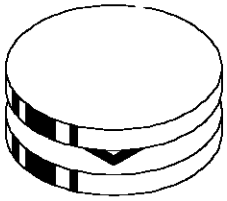
SGS-THOMSON MICROELECTRONICS

SA100 SERIES

SURGE ARRESTORS

FEATURES

- SOLID STATE SURGE ARRESTOR
- VOLTAGE RANGE = 200 V TO 265 V
- TIGHT VOLTAGE TOLERANCE
- FAST RESPONSE TIME
- VERY LOW AND STABLE LEAKAGE CURRENT
- REPETITIVE SURGE CAPABILITY Ipp = 100 A, 10/1000 µs
- FAIL-SAFE WHEN DESTROYED



BUTTON CELL

DESCRIPTION

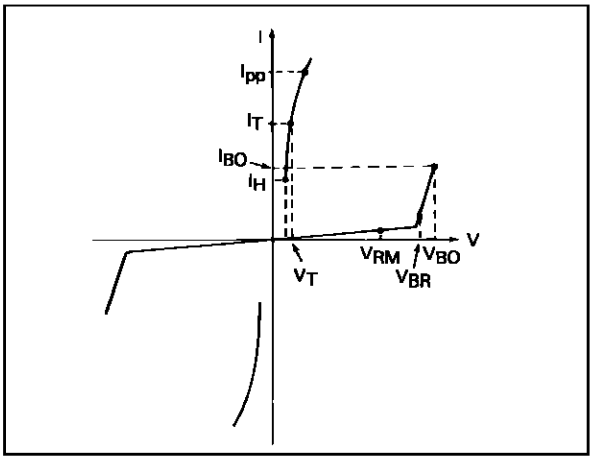
Bidirectional device used for primary protection in telecom equipments.
Providing long service life, and adapted for sensitive electronic equipments protection.
If destroyed the component will continue to guarantee a protection with a permanent short circuit, meaning "fail save criteria" . This particular behaviour will also allow an easy failure detection on the line.

ABSOLUTE RATINGS (limiting values) - 40°C < T_{amb} < +80°C

Symbol	Parameter		Value	Unit
I_{PP}	Peak Pulse Current.	10/1000 µs	100	A
		8/20 µs	200	A
	Fail Save Criteria.	8/20 µs	10	kA
I_{TSM}	Non Repetitive Surge Peak on-state Current One cycle.	60 Hz	30	A
		50Hz	25	A
	Non Repetitive Surge Peak on-state Current F = 50 Hz.	1s	14	A
		2s	10	A
dv/dt	Critical Rate of Rise of on-state Voltage.	67% V_{BR}	10	kV/µs
T_L	Maximum Lead Temperature to Soldering During 10 s.		250	°C

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

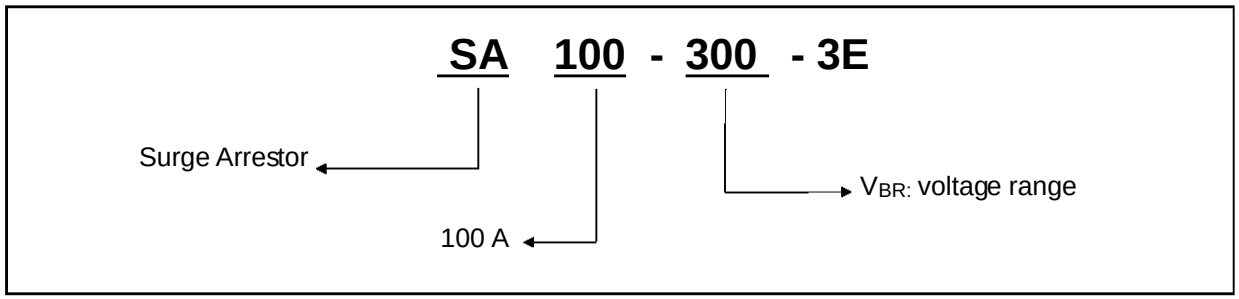


Type	I_{RM} @ V_{RM} max		V_{BR} @ I_R min.		V_{BO} max. note 1	VBO max. note 2	VBO max. note 3	I_{BO} min. note 1	I_H min. note 1	V_T max. note 4	C max. note 5
	(µA)	(V)	(V)	(mA)	(V)	(V)	(V)	(mA)	(mA)	(V)	pF
SA100-230	10	170	200	1	265	350	350	200	260	3.5	200
SA100-300	10	225	265	1	400	400	400	200	260	3.5	200

All parameters tested at 25°C, except where indicated.

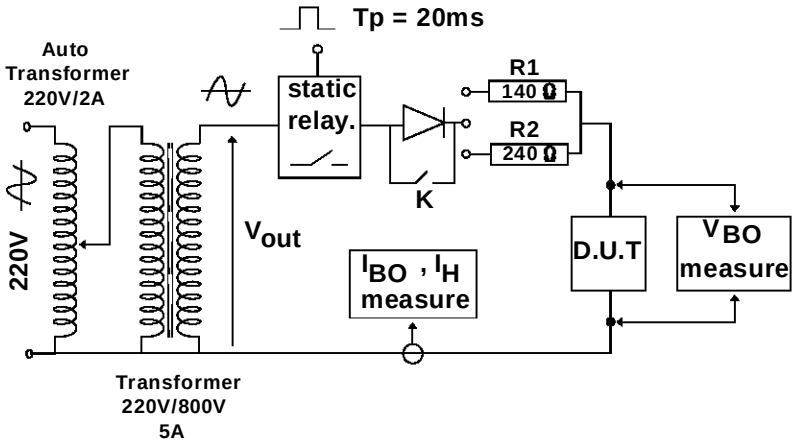
Note 1 : See the reference test circuit for I_H, I_{BO} and V_{BO} parameters
Note 2 : V_{RISE} = 100V/µs.
Note 3 : V_{RISE} = 1KV/µs, di/dt < 10A/µs, I_{PP}= 10A.
Note 4 : Square pulse, T_P = 500 µs, I_T = 5 A.
Note 5 : V_R = 0 V, F = 1 MHz..

ORDER CODE



Product Availability is Submitted to Restricted Conditions- Consult Factory.

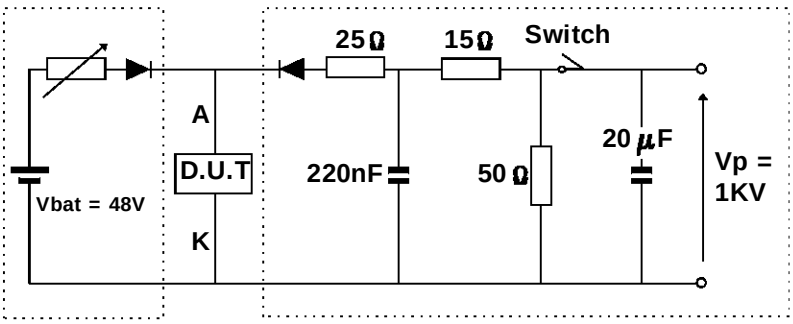
REFERENCE TEST CIRCUIT FOR I_H, I_{BO} and V_{BO} parameters :



TEST PROCEDURE :

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

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



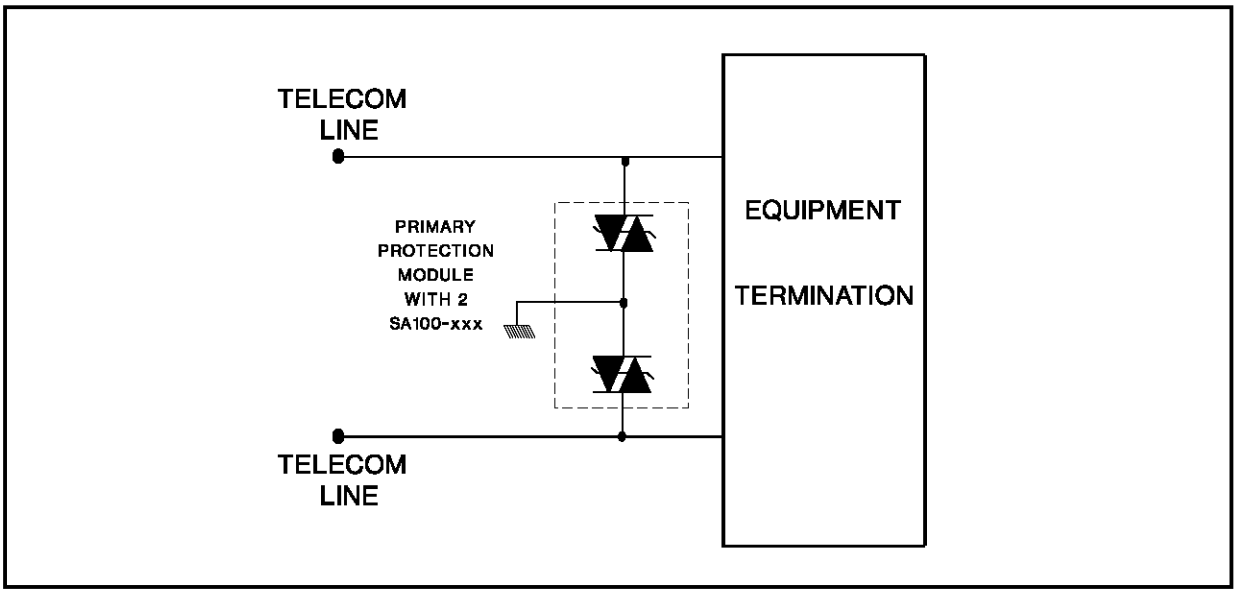
Surge Generator
10/700 µsec
Vp =1KV / Ipp = 25A

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 :

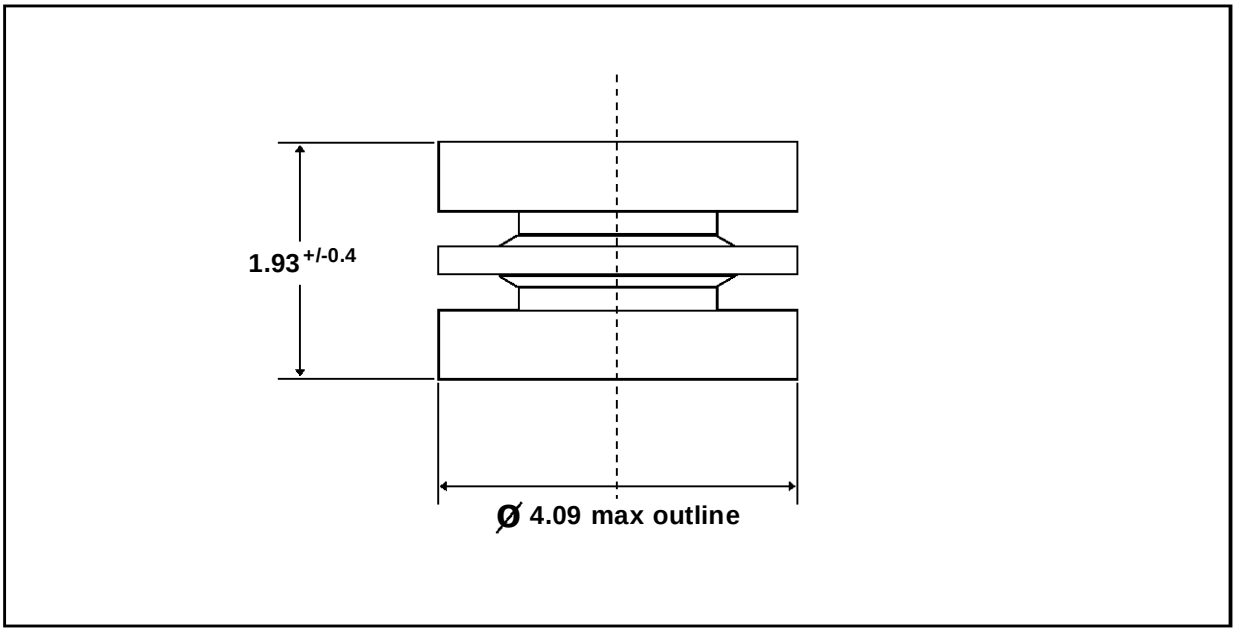
- 1) Adjust the current level at the I_H value by short circuiting the AK of the D.U.T.
  2) Fire the D.U.T with a surge Current : Ipp = 25A , 10/700 µs.
  3) The D.U.T will come back to the OFF-State within a duration of 50 ms max.

APPLICATION DIAGRAM



MECHANICAL DATA

BUTTON CELL (Millimeters)



Packaging : Products are supplied in tubes.