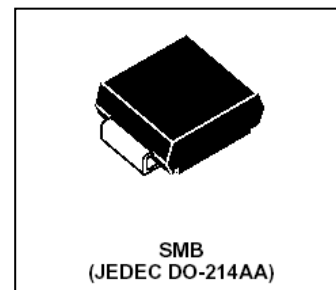


## Thyristor Surge Protector

### Features

- Bi-directional crowbar transient voltage protection
- High surge capability
- High off-state impedance, Low leakage current
- Short-circuit failure mode
- Low on-state voltage



### Main Application

RS's thyristor surge protector devices are designed to help protect sensitive telecommunication equipment from the hazards caused by lightning, power contact, and power induction. These devices enable equipment to comply with various regulatory requirements including GR 1089, ITU K.20, K.21 and K.45, IEC 60950, UL 60950, and TIA-968-A (formerly known as FCC Part 68).

Typical application including:

- Central office switching equipment, Analog and digital linecards (xDSL, T1/E1, ISDN...).
- Customer Premises Equipment (CPE) such as phones, fax machines, modems, POS terminals, PBX systems and caller ID adjunct boxes.
- Primary protection modules including Main Distribution Frames (MDF), building entrance equipment and station protection modules.
- Access network equipment such as remote terminals, line repeaters, multiplexers, cross-connects, WAN equipment, Network Interface Devices (NID).
- Data lines and security systems.
- CATV line amplifiers and power inserters.
- Sprinkler systems.

### Absolute Maximum Ratings (TA =25°C)

Parameter	Symbol	Value	Unit
Non-repetitive peak impulse current 10/1000 μs (Telcordia GR-1089-CORE)	I <sub>PPSM</sub>	100	A
Non-repetitive peak impulse Voltage 10/700μs (ITU-T K.20, K.21 & K.44, K.45)	V <sub>PPSM</sub>	6000	V
Operating Junction Temperature range	T <sub>J</sub>	-55 to + 150	°C
Storage Temperature range	T <sub>s</sub>	-55 to + 150	°C

**Electrical Parameters (T<sub>A</sub> =25°C)**

Part Number	Marking code	V <sub>DRM</sub>	I <sub>DRM</sub>	V <sub>BO</sub>	I <sub>BO</sub>	V <sub>T</sub>	I <sub>T</sub>	C <sub>o</sub>	I <sub>H</sub>
		Max.	Max.	Max.	Max.	Max.	Max.	Typ.	Min.
		V	µA	V	mA	V	A	pF	mA
<b>RSOS4 -100/15CS</b>	W 02SC	15	5	25	800	4	2.2	110	50
<b>RSOS4 -100/25CS</b>	W 03SC	25	5	40	800	4	2.2	110	50
<b>RSOS4 -100/58CS</b>	W 06SC	58	5	77	800	4	2.2	100	120
<b>RSOS4 -100/65CS</b>	W 07SC	65	5	88	800	4	2.2	100	120
<b>RSOS4 -100/75CS</b>	W 09SC	75	5	98	800	4	2.2	90	120
<b>RSOS4 -100/90CS</b>	W 11SC	90	5	130	800	4	2.2	80	120
<b>RSOS4 -100/100CS</b>	W 12SC	100	5	130	800	4	2.2	80	120
<b>RSOS4 -100/120CS</b>	W 14SC	120	5	160	800	4	2.2	80	120
<b>RSOS4 -100/140CS</b>	W 15SC	140	5	180	800	4	2.2	80	120
<b>RSOS4 -100/170CS</b>	W 18SC	170	5	220	800	4	2.2	60	120
<b>RSOS4 -100/180CS</b>	W 20SC	180	5	220	800	4	2.2	60	120
<b>RSOS4 -100/190CS</b>	W 23SC	190	5	260	800	4	2.2	60	120
<b>RSOS4 -100/220CS</b>	W 26SC	220	5	300	800	4	2.2	60	120
<b>RSOS4 -100/230CS</b>	W 28SC	230	5	290	800	4	2.2	60	120
<b>RSOS4 -100/270CS</b>	W 31SC	270	5	350	800	4	2.2	60	120
<b>RSOS4 -100/320CS</b>	W 35SC	320	5	400	800	4	2.2	60	120
<b>RSOS4 -100/350CS</b>	W 36SC	350	5	460	800	4	2.2	45	120
<b>RSOS4 -100/400CS</b>	W 42SC	400	5	540	800	4	2.2	45	120
<b>RSOS4 -100/440CS</b>	W 45SC	440	5	600	800	4	2.2	45	120

**V<sub>DRM</sub>**: Stand-off voltage, is measured at I<sub>DRM</sub>.

**I<sub>DRM</sub>**: Leakage current at V<sub>DRM</sub>.

**V<sub>BO</sub>**: Breakover voltage, is measured at 100V/µs.

**I<sub>BO</sub>**: Breakover current.

**V<sub>T</sub>**: On-state voltage.

**I<sub>T</sub>**: On-state current.

**C<sub>o</sub>**: Off-state capacitance.

**I<sub>H</sub>**: Holding current.

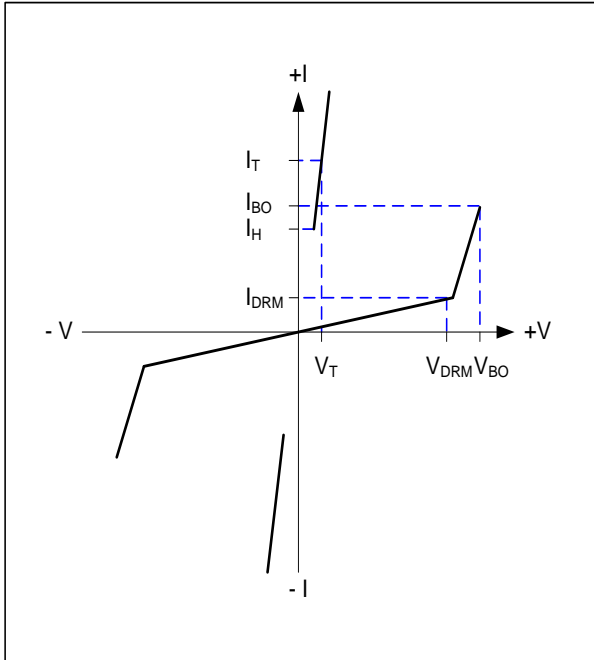
**I<sub>PP</sub>**: Peak pulse current, is a repetitive surge rating and is guaranteed for the life of the product.

**V<sub>ppsm</sub>**: Peak pulse voltage, is a repetitive surge rating and is guaranteed for the life of the product

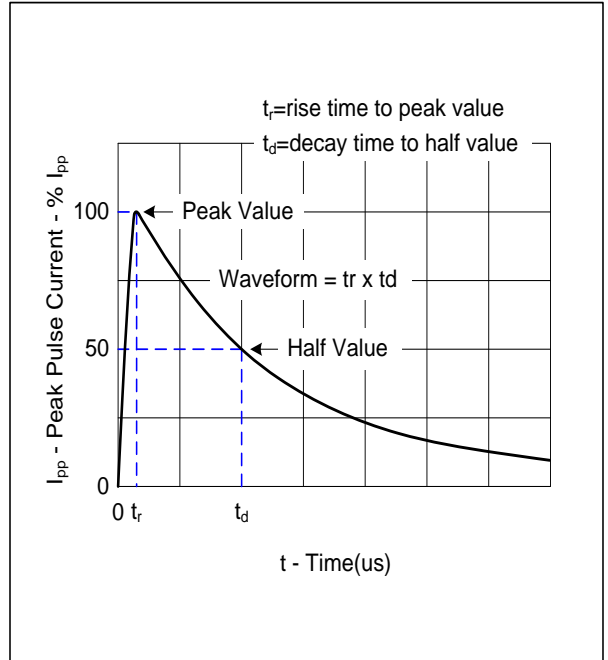
**General Notes:**

- All measurements are made at an ambient temperature of 25 °C. I<sub>PP</sub> applies to -40 °C through +85 °C temperature range.
- RSOS4 devices are bi -directional. All electrical parameters and surge ratings apply to forward and reverse polarities.
- Special voltage (V<sub>BO</sub> and V<sub>DRM</sub>) and holding current (I<sub>H</sub>) requirements are available up on request. Off-state capacitance is measured at 1 MHz with a 2 V bias

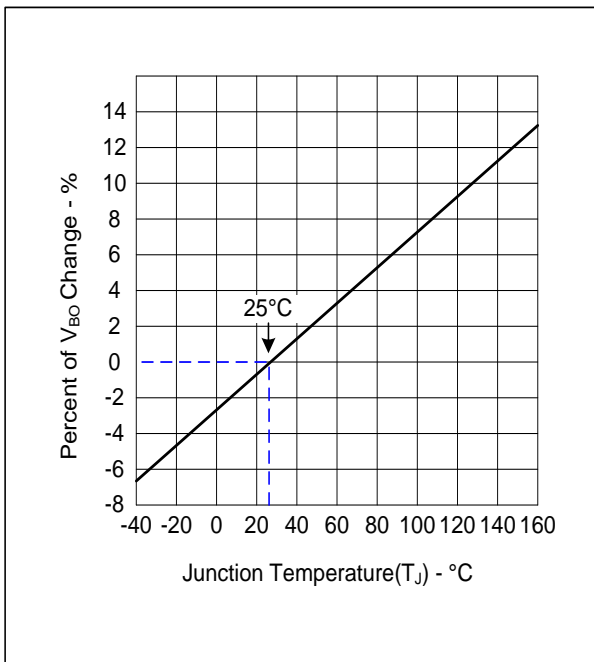
Electrical Characteristics Curves



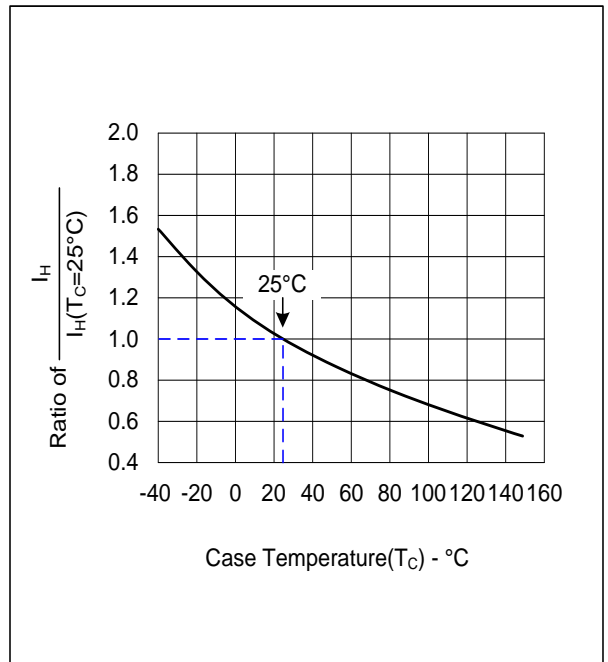
V - I Characteristics



$t_r \times t_d$  Pulse Waveform



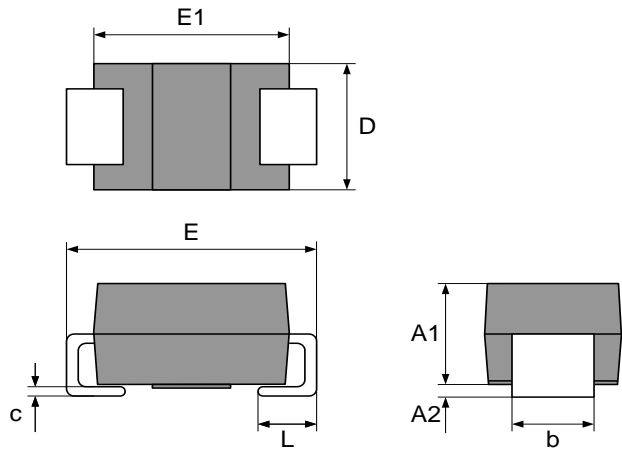
Normalized  $V_{BO}$  Change versus Junction Temperature



Normalized DC Holding Current versus Case Temperature

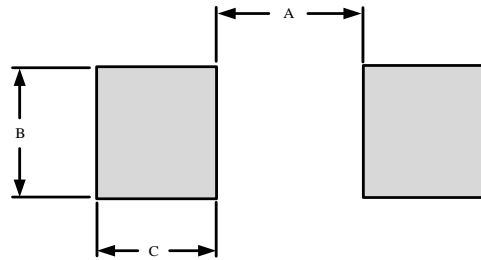
**Product Dimensions**

Ref. (mm)	Min.	Max.
A1	1.90	2.45
A2	0.05	0.20
b	1.95	2.20
c	0.15	0.41
E	5.10	5.60
E1	4.05	4.60
D	3.30	3.95
L	0.75	1.60

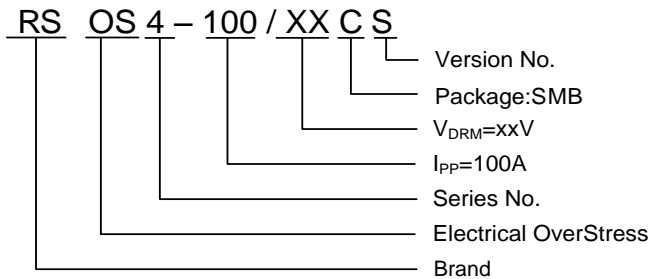


**Recommended Solder Pad Layout**

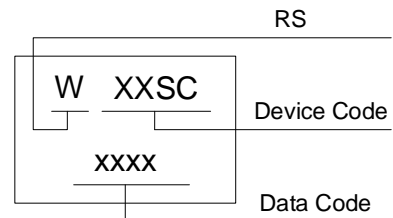
DIM(mm)	MILLIMETERS
A	2.20
B	2.80
C	2.20



**Part Numbering System**



**Marking:**



**Package Information**

Package Type	Description	Quantity (pcs)	Standard
SMB	Tape & Reel Pack	2500	EIA-481-D