

PROTECTION PRODUCTS
Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 8/20\mu s$)	P_{pk}	200	Watts
Peak Pulse Current ($t_p = 8/20\mu s$)	I_{pp}	4	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	25 15	kV
Operating Temperature	T_J	-55 to +125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

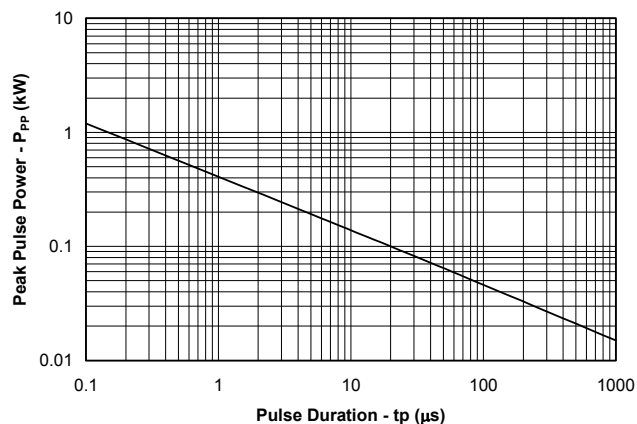
Electrical Characteristics (T=25°C)

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}	Pin 1 or Pin 2 to Pin 3 and Between Pins 1 and 2			24	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1mA$ Pin 1 or Pin 2 to Pin 3 and Between Pins 1 and 2	26.7			V
Reverse Leakage Current	I_R	$V_{RWM} = 24V, T=25^\circ C$ Pin 1 or Pin 2 to Pin 3 and Between Pins 1 and 2			1	μA
Clamping Voltage	V_C	$I_{pp} = 1A, t_p = 8/20\mu s$ Pin 1 to Pin 2			45	V
Clamping Voltage	V_C	$I_{pp} = 4A, t_p = 8/20\mu s$ Pin 1 or Pin 2 to Pin 3			50	V
Clamping Voltage	V_C	$I_{pp} = 4A, t_p = 8/20\mu s$ Pin 1 to Pin 2			55	V
Junction Capacitance	C_j	$V_R = 0V, f = 1MHz$ Pin 1 to Pin 2		0.60	0.9	pF
Junction Capacitance	C_j	$V_R = 0V, f = 1MHz$ Pin 1 or Pin 2 to Pin 3			1.5	pF

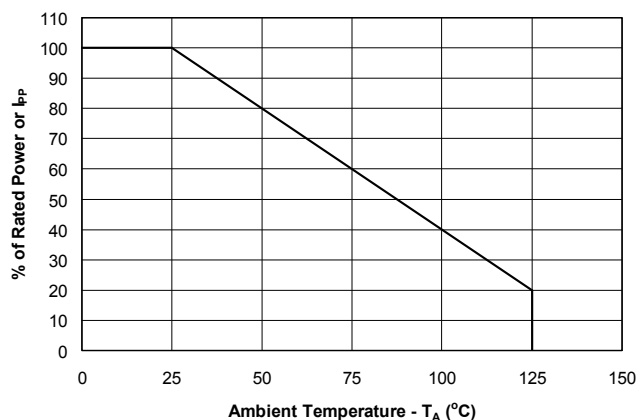
PROTECTION PRODUCTS

Typical Characteristics

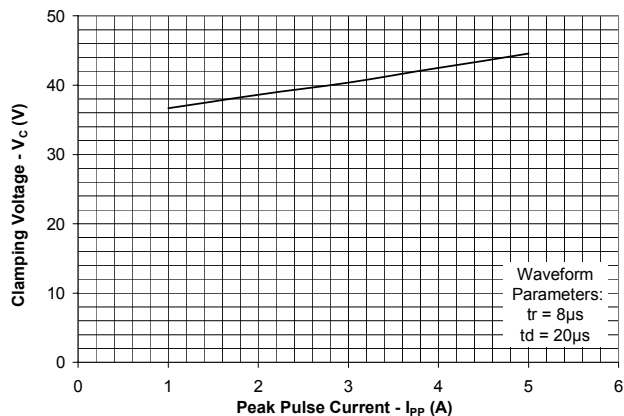
Non-Repetitive Peak Pulse Power vs. Pulse Time



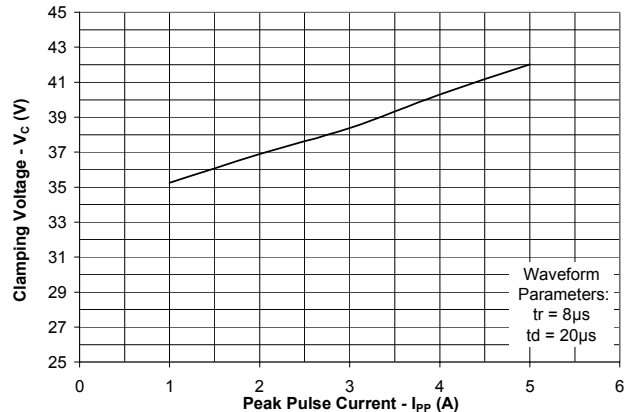
Power Derating Curve



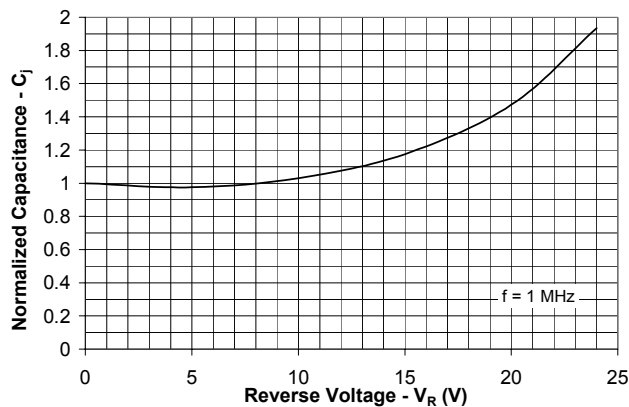
**Clamping Voltage vs. Peak Pulse Current
Pin 1 to Pin 2**



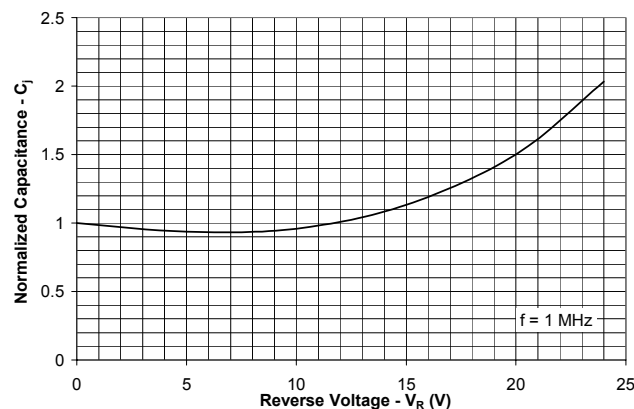
**Clamping Voltage vs. Peak Pulse Current
Pin 1 or Pin 2 to Pin 3**



**Normalized Capacitance vs. Reverse Voltage
Pin 1 or Pin 2 to Pin 3**



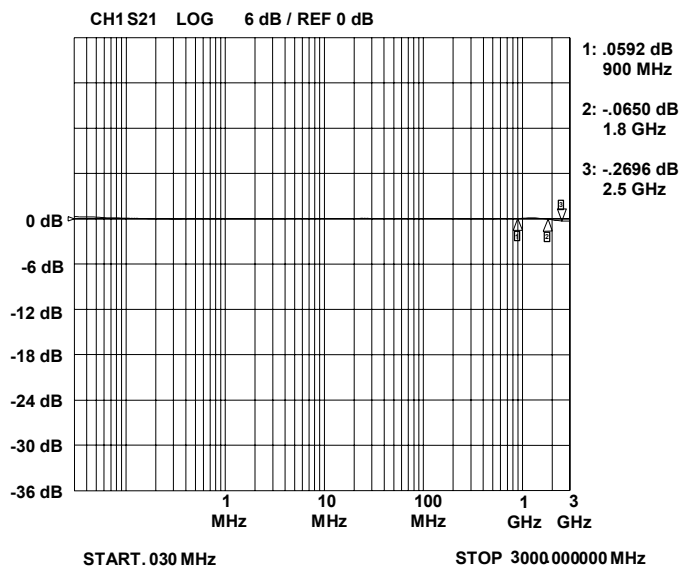
**Normalized Capacitance vs. Reverse Voltage
Pin 1 to Pin 2**



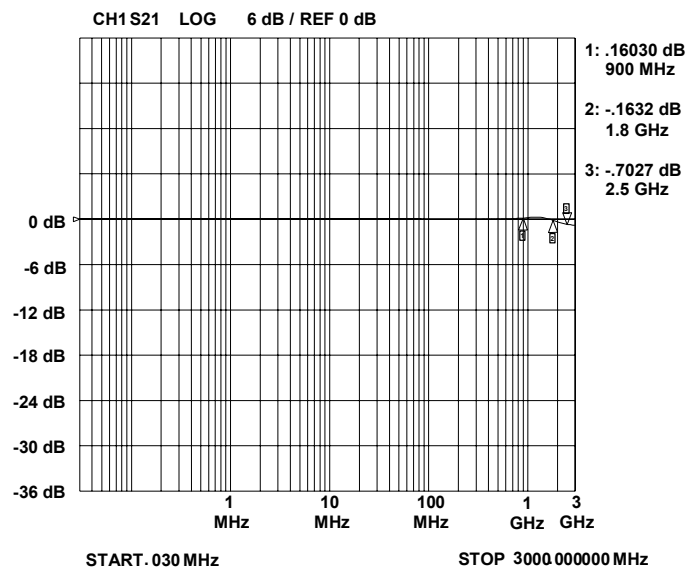
PROTECTION PRODUCTS

Typical Characteristics

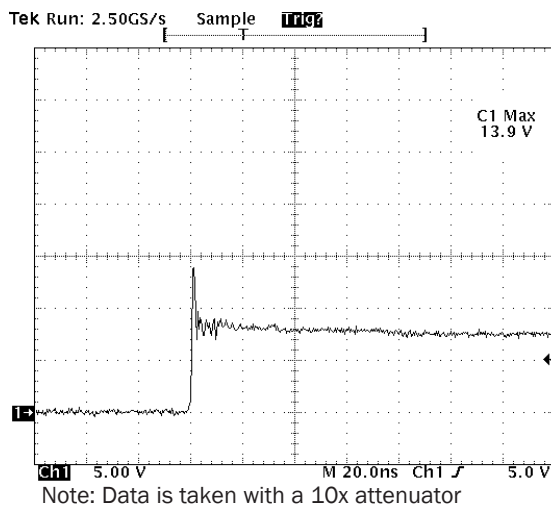
Insertion Loss S21 (Pin 1 to Pin 2)



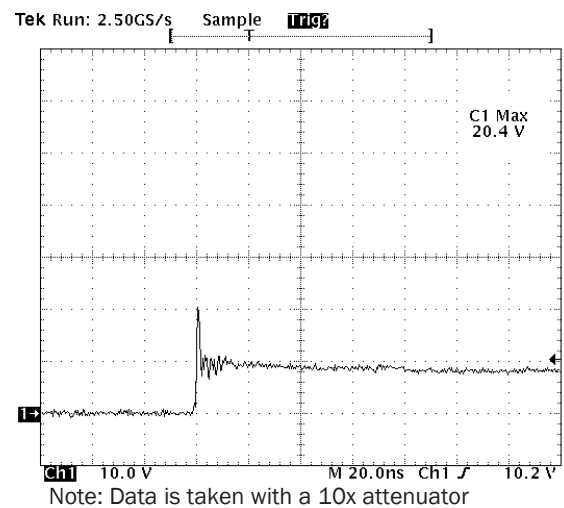
Insertion Loss S21 (Pin 1 or Pin 2 to Pin 3)



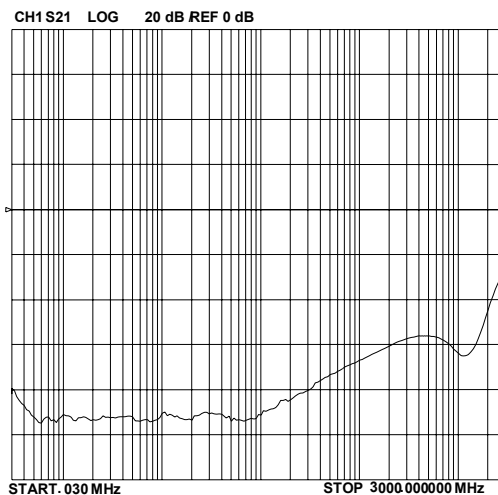
ESD Response (4kV Contact per IEC 61000-4-2)



ESD Response (8kV Contact per IEC 61000-4-2)



Analog Crosstalk



PROTECTION PRODUCTS**Applications Information****Device Connection Options**

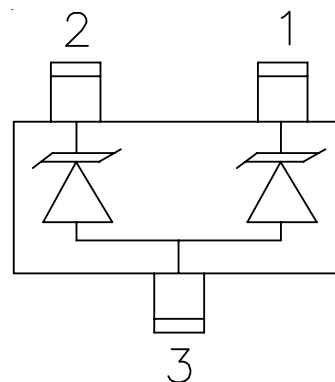
This device is optimized for protection of 1 line operating in excess of 3GHz. It may also be used to protect two lines operating in excess of 2.0GHz. The device is connected as follows:

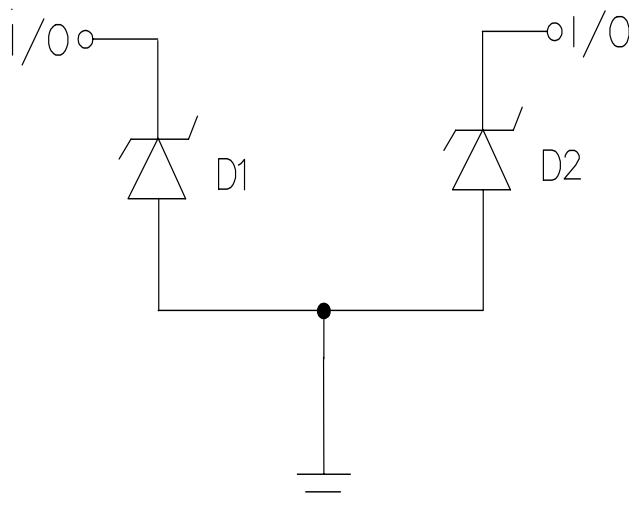
Protection for one line with $<1\text{pF}$ capacitance can be achieved by connecting one data line to either pin 1 or pin 2 with the other pin connected to ground. Pin 3 is not connected. The connection to ground should be made directly to a ground plane. The path length should also be kept as short as possible to minimize parasitic inductance.

Protection of two lines is achieved by connecting data lines at pins 1 & 2. Pin 3 is connected to ground. The connection to ground should be made directly to a ground plane. The path length should also be kept as short as possible to minimize parasitic inductance.

Matte Tin Lead Finish

Matte tin has become the industry standard lead-free replacement for SnPb lead finishes. A matte tin finish is composed of 100% tin solder with large grains. Since the solder volume on the leads is small compared to the solder paste volume that is placed on the land pattern of the PCB, the reflow profile will be determined by the requirements of the solder paste. Therefore, these devices are compatible with both lead-free and SnPb assembly techniques. In addition, unlike other lead-free compositions, matte tin does not have any added alloys that can cause degradation of the solder joint.

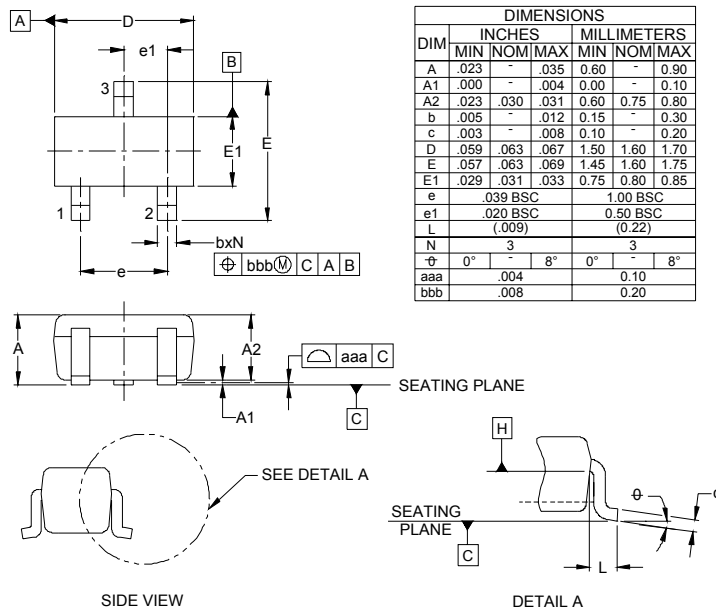
Figure 1. Pin Configuration

PROTECTION PRODUCTS
Applications Information - Spice Model

RClamp2402B Spice Model
Table 1 - RClamp2402B Spice Parameters

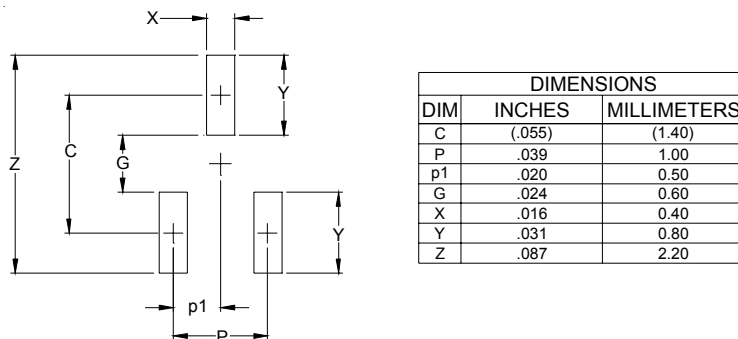
Parameter	Unit	D1 (TVS)	D2 (TVS)
IS	Amp	1.93E-14	1.93E-14
BV	Volt	32.4	32.4
VJ	Volt	0.68	0.68
RS	Ohm	2.04	2.04
IBV	Amp	1.0E-3	1.0E-3
CJO	Farad	0.73E-12	0.73E-12
TT	sec	2.541E-9	2.541E-9
M	--	0.412	0.412
N	--	1.1	1.1
EG	eV	1.11	1.11

PROTECTION PRODUCTS

Outline Drawing -SC-75 (SOT-523)



Land Pattern -SC-75 (SOT-523)

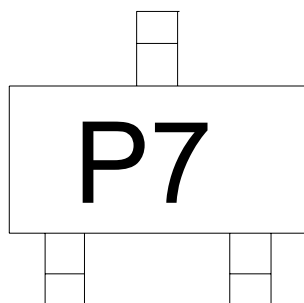


NOTES:

- THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY
CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR
COMPANY'S MANUFACTURING GUIDELINES ARE MET.

PROTECTION PRODUCTS

Marking

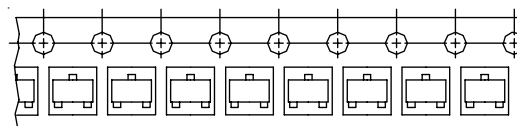
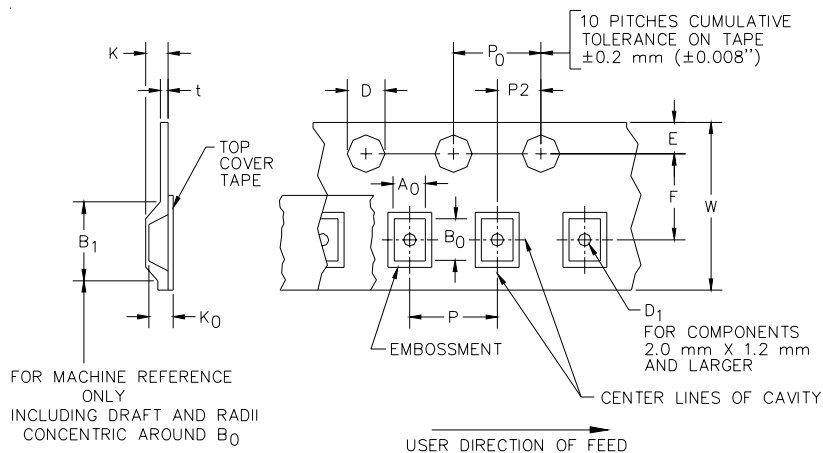


Ordering Information

Part Number	Lead Finish	Qty per Reel	Reel Size
RClamp2402B.TCT	Pb Free	3,000	7 Inch

RailClamp and RClamp are registered marks of Semtech Corporation

Tape and Reel Specification



Device Orientation in Tape

Tape Width	B, (Max)	D	D1 (MIN)	E	F	K (MAX)	P	P0	P2	T(MAX)	W
8 mm	4.2 mm (.165)	1.5 + 0.1 mm - 0.0 mm (0.59 +.005 - .000)	1.0 mm (.039)	1.750±.10 mm (.069±.004)	3.5±0.05 mm (.138±.002)	2.4 mm (.094)	4.0±0.1 mm (.157±.00- 4)	4.0±0.1 mm (.157±.00- 4)	2.0±0.05mm (.079±.002)	0.4 mm (.016)	8.3 mm (.312±.012)

Contact Information

Semtech Corporation
Protection Products Division
200 Flynn Rd., Camarillo, CA 93012
Phone: (805)498-2111 FAX (805)498-3804