

PROTECTION PRODUCTS
Absolute Maximum Rating

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

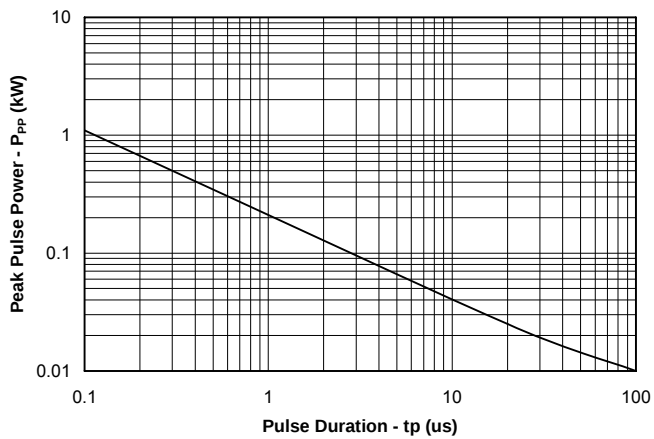
Electrical Characteristics (T=25°C)

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1mA$	6	7.1	8	V
Reverse Leakage Current	I_R	$V_{RWM} = 5V, T=25^\circ C$		0.060	0.25	μA
Forward Voltage	V_F	$I_F = 10mA$		1	1.2	V
Clamping Voltage	V_C	$I_{pp} = 2A, t_p = 8/20\mu s$			12.5	V
Junction Capacitance	C_J	$V_R = 0V, f = 1MHz$			10	pF
Junction Capacitance	C_J	$V_R = 3.3V, f = 1MHz$		4.5		pF

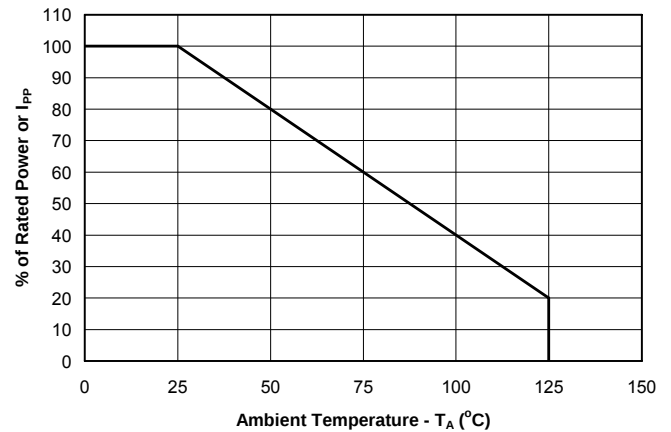
PROTECTION PRODUCTS

Typical Characteristics

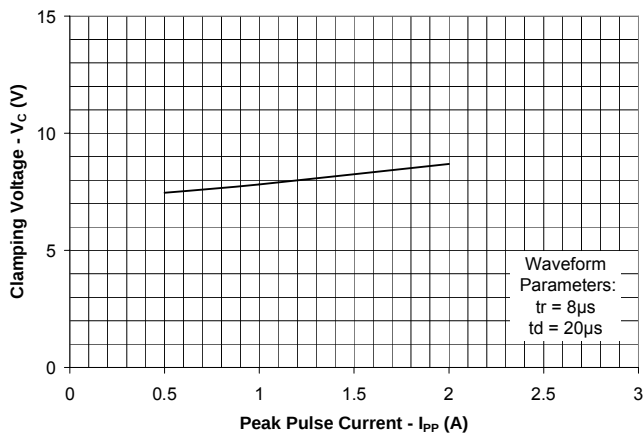
Non-Repetitive Peak Pulse Power vs. Pulse Time



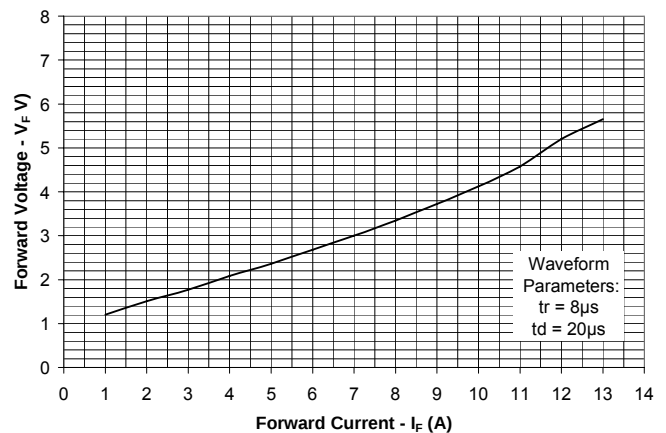
Power Derating Curve



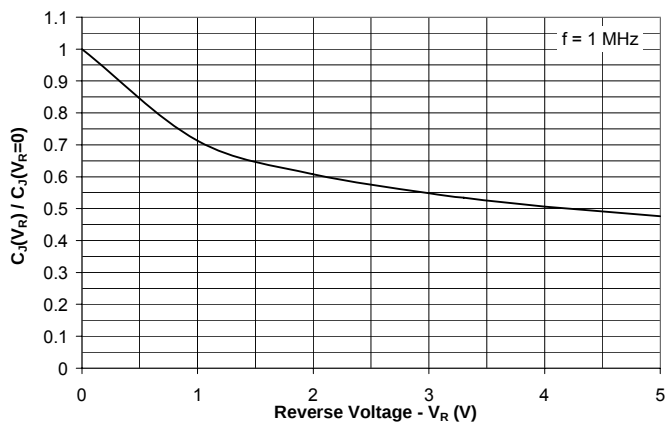
Clamping Voltage vs. Peak Pulse Current



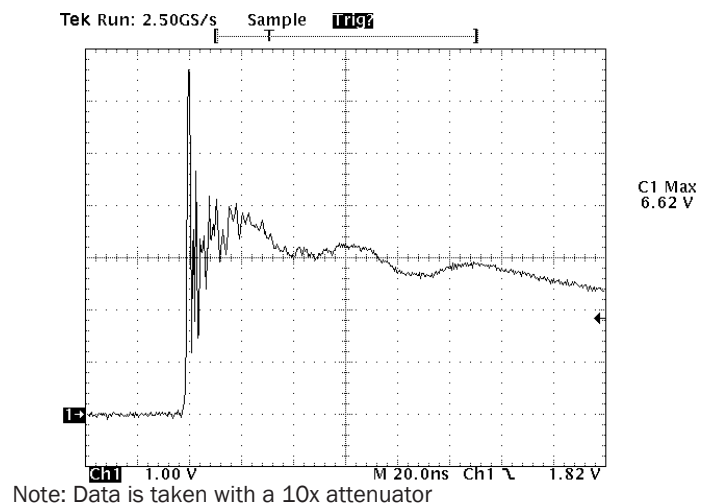
Forward Voltage vs. Forward Current



Normalized Capacitance vs. Reverse Voltage



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



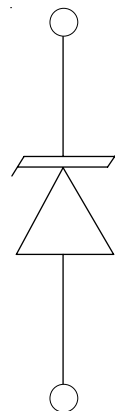
PROTECTION PRODUCTS**Applications Information****Device Connection Options**

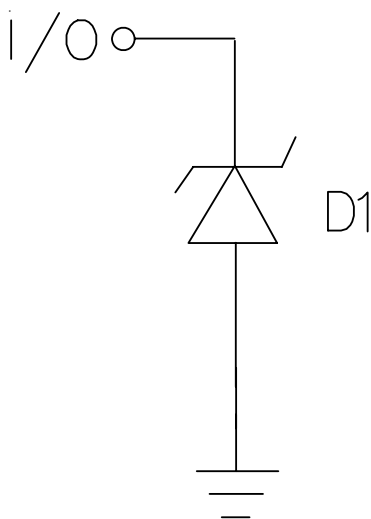
These TVS diodes are designed to protect two data lines. The device is unidirectional and may be used on lines where the signal polarity is above ground. The cathode band should be placed towards the line that is to be protected.

Circuit Board Layout Recommendations for Suppression of ESD.

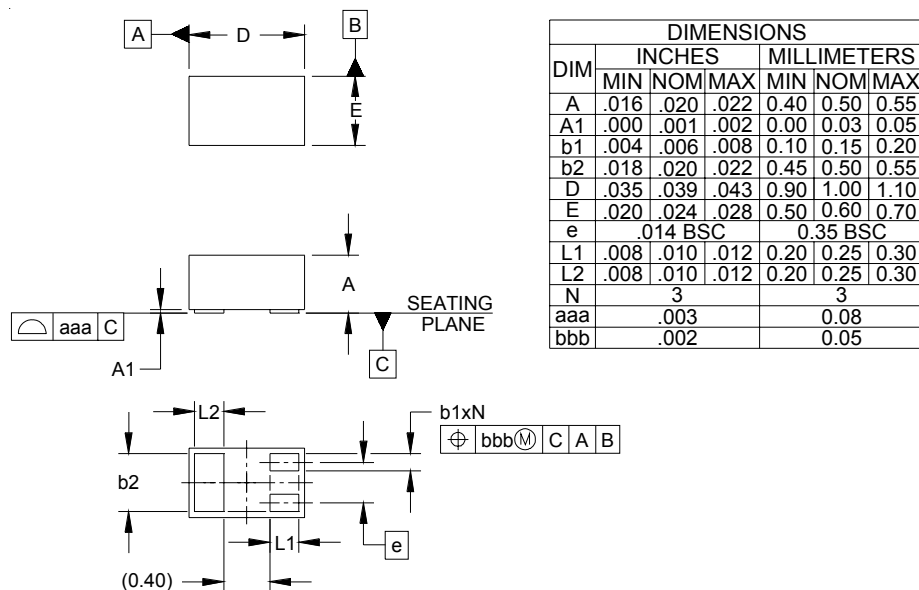
Good circuit board layout is critical for the suppression of ESD induced transients. The following guidelines are recommended:

- Place the TVS near the input terminals or connectors to restrict transient coupling.
- Minimize the path length between the TVS and the protected line.
- Minimize all conductive loops including power and ground loops.
- The ESD transient return path to ground should be kept as short as possible.
- Never run critical signals near board edges.
- Use ground planes whenever possible.

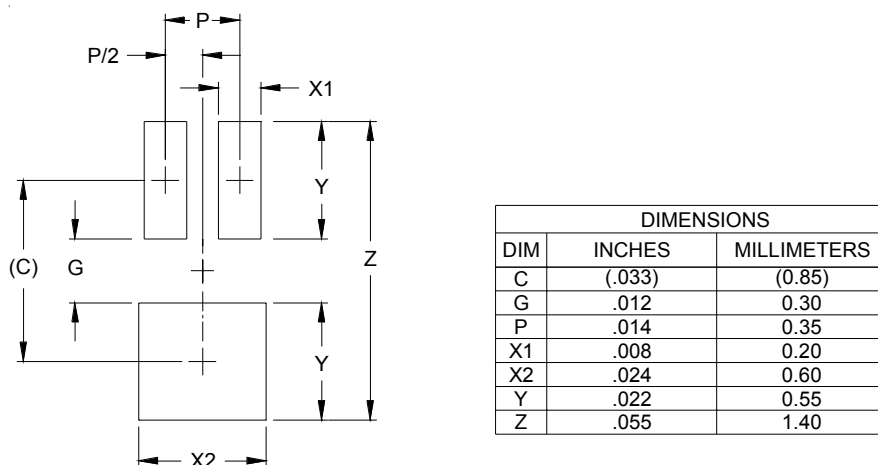
Circuit Diagram

PROTECTION PRODUCTS
Applications Information - Spice Model

uClamp0502P Spice Model

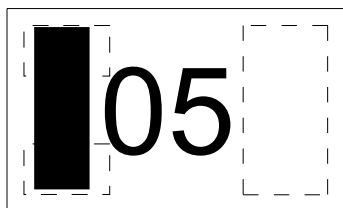
uClamp0502P Spice Parameters		
Parameter	Unit	D1 (TVS)
IS	Amp	2.05e-15
BV	Volt	7.0
VJ	Volt	0.80
RS	Ohm	0.75
IBV	Amp	1.0E-3
CJO	Farad	9e-12
TT	sec	2.541E-9
M	--	0.25
N	--	1.1
EG	eV	1.11

PROTECTION PRODUCTS
Outline Drawing - SLP1006P3

NOTES:

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).

Land Pattern - SLP1006P3

NOTES:

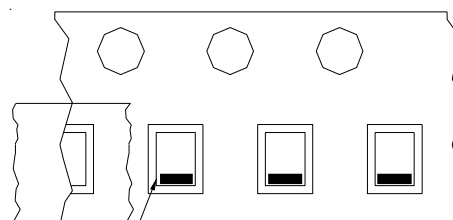
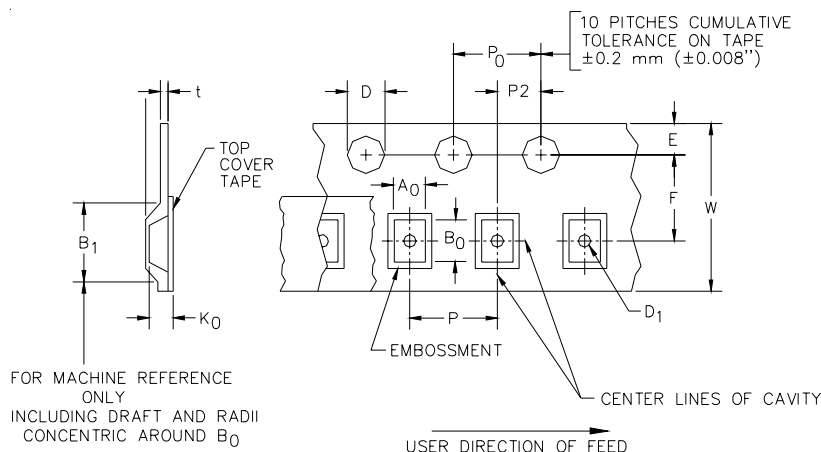
1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY.
CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR
COMPANY'S MANUFACTURING GUIDELINES ARE MET.

PROTECTION PRODUCTS
Marking Code

Ordering Information

Part Number	Working Voltage	Qty per Reel	Reel Size
uClamp0502P.TCT	5V	3,000	7 Inch

Notes:

1) This is a lead-free, RoHS/WEEE compliant product
MicroClamp, uClamp and μ Clamp are marks of Semtech Corporation

Tape and Reel Specification


Pin 1 Location

User Direction of feed

Device Orientation in Tape

A0	B0	K0
0.69 $\pm$ 0.10 mm	1.19 $\pm$ 0.10 mm	0.66 $\pm$ 0.10 mm

Tape Width	B, (Max)	D	D1	E	F	P	P0	P2	T	W
8 mm	4.2 mm (.165)	1.5 $\pm$ 0.1 mm - 0.0 mm (0.59 $\pm$.005 - .000)	0.4 mm $\pm$ 0.25 (.031)	1.750 $\pm$.10 mm (.069 $\pm$.004)	3.5 $\pm$ 0.05 mm (.138 $\pm$.002)	4.0 $\pm$ 0.10 mm (.157 $\pm$.004)	4.0 $\pm$ 0.1 mm (.157 $\pm$.004)	2.0 $\pm$ 0.05 mm (.079 $\pm$.002)	0.254 $\pm$ 0.02 mm (.016)	8.0 mm $\pm$ 0.3 mm - 0.1 mm (.312 $\pm$.012)

Contact Information

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