

PROTECTION PRODUCTS

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 8/20\mu s$)	P_{pk}	80	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}	+/- 20 +/- 12	kV
Operating Temperature	T_J	-55 to +125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

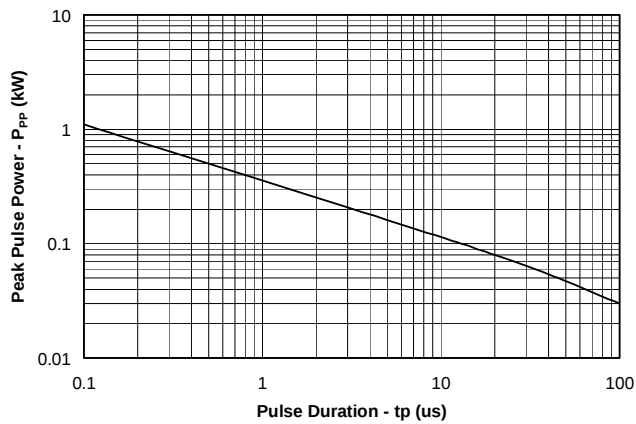
Electrical Characteristics (T=25°C)

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1mA$	6	9.3	11	V
Reverse Leakage Current	I_R	$V_{RWM} = 5V, T=25^\circ C$		0.010	0.100	μA
Clamping Voltage	V_C	$I_{pp} = 1A, t_p = 8/20\mu s$			12	V
Clamping Voltage	V_C	$I_{pp} = 4A, t_p = 8/20\mu s$			20	V
Junction Capacitance	C_j	$V_R = 0V, f = 1MHz$		0.50	0.80	pF

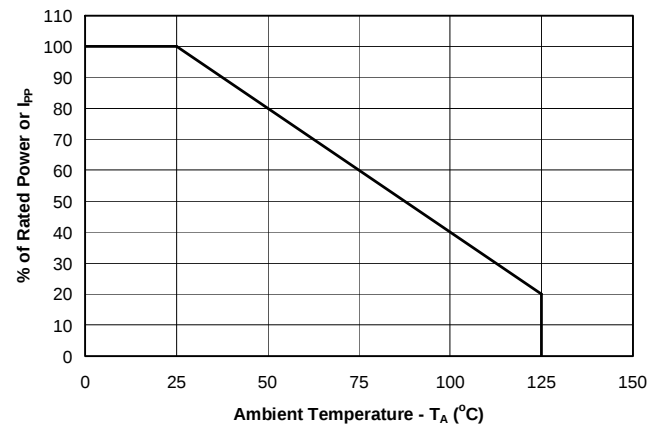
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Typical Characteristics

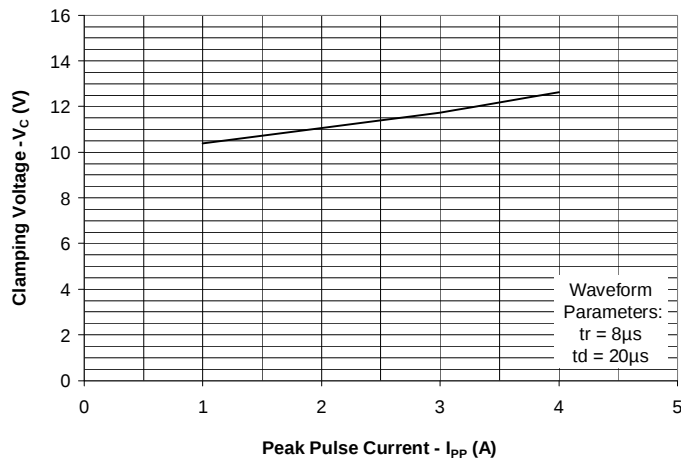
Non-Repetitive Peak Pulse Power vs. Pulse Time



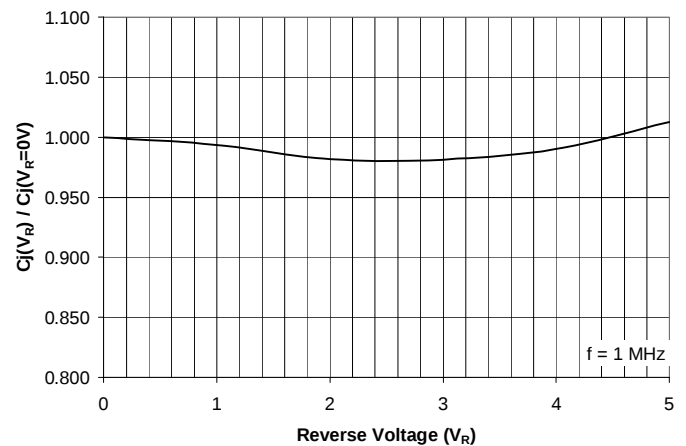
Power Derating Curve



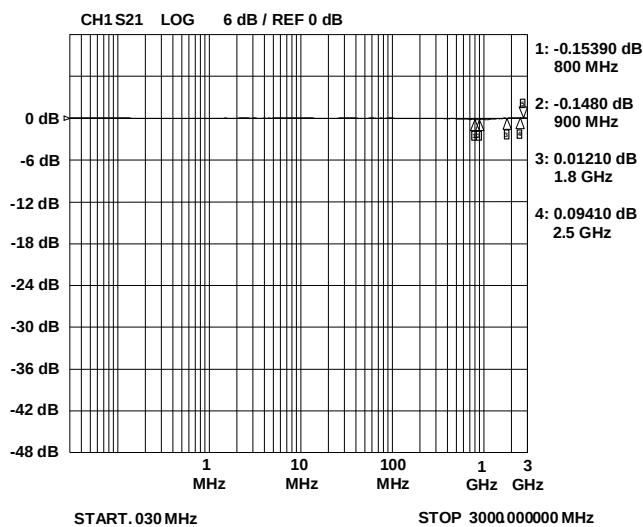
Clamping Voltage vs. Peak Pulse Current



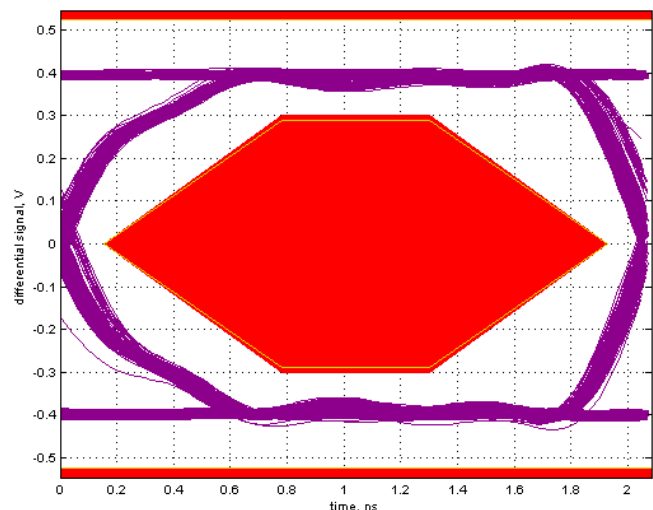
Normalized Capacitance vs. Reverse Voltage



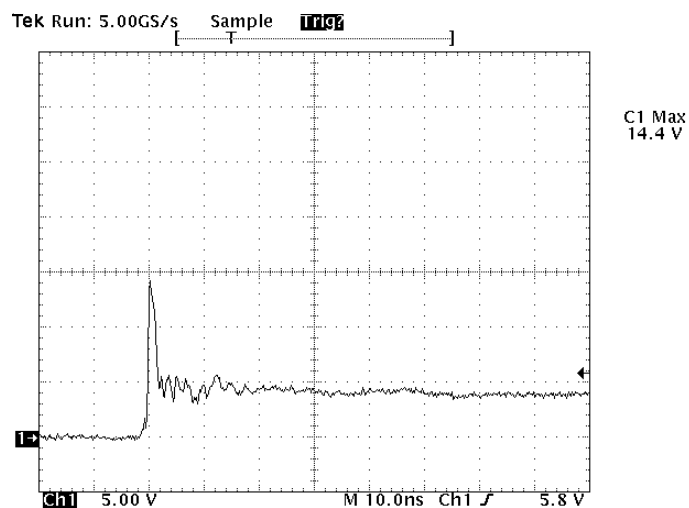
Insertion Loss S21



USB 2.0 Eye Pattern with RClamp0531T

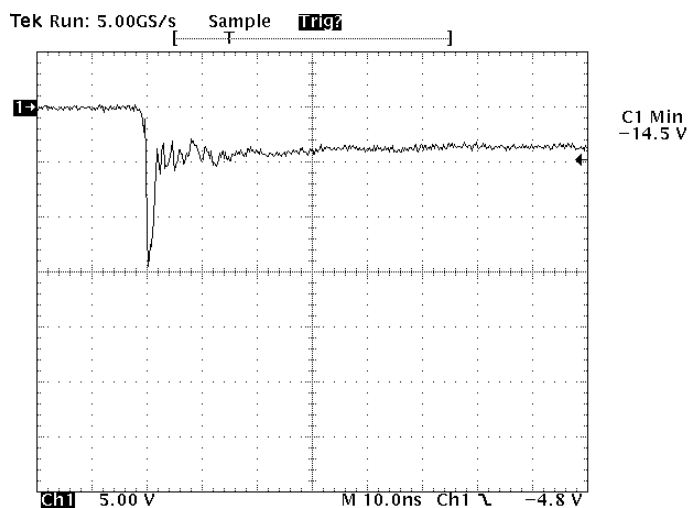


**ESD Clamping
(+8kV Contact per IEC 61000-4-2)**



Note: Data is taken with a 10x attenuator

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



Note: Data is taken with a 10x attenuator

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

These low capacitance TVS diodes are designed to provide common mode protection for one high-speed line or differential protection for one line pair. The device is bidirectional and may be used on lines where the signal polarity is positive and negative.

Circuit Board Layout Recommendations for Suppression of ESD.

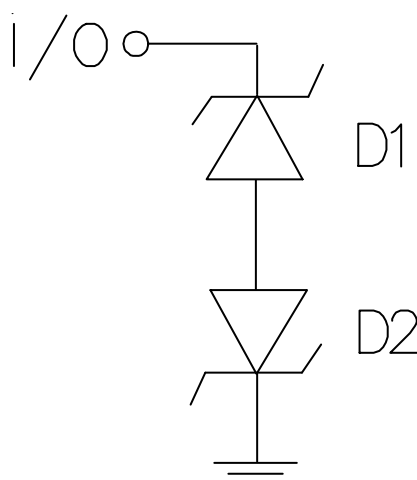
Good circuit board layout is critical for the suppression of ESD induced transients. The following guidelines are recommended:

- 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.

Equivalent Circuit Diagram

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Applications Information - Spice Model



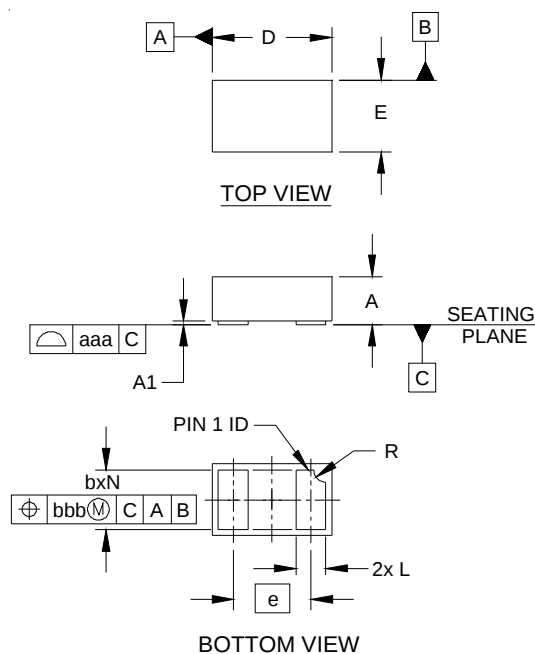
RClamp0531T Spice Model

RClamp0531T Spice Parameters			
Parameter	Unit	D1 (TVS)	D2 (TVS)
IS	Amp	2.11E-14	2.11E-14
BV	Volt	8.6	8.6
VJ	Volt	0.7	0.7
RS	Ohm	0.4	0.4
IBV	Amp	1E-3	1E-3
CJO	Farad	0.8E-12	0.8E-12
TT	sec	2.541E-9	2.541E-9
M	–	0.02	0.02
N	–	1.1	1.1
EG	eV	1.11	1.11

Note: Spice model is for simulating transient response only.

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Outline Drawing - SLP1006P2T

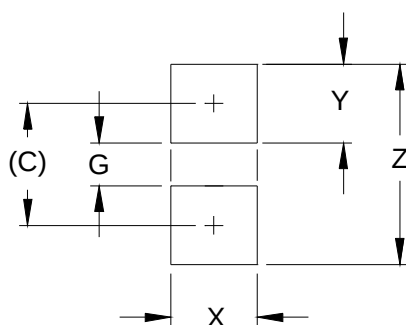


DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.015	.016	.017	0.37	0.40	0.43
A1	.000	.001	.002	0.00	0.03	0.05
b	.018	.020	.022	0.45	0.50	0.55
D	.035	.039	.043	0.90	1.00	1.10
E	.020	.024	.028	0.50	0.60	0.70
e	.026 BSC			0.65 BSC		
L	.008	.010	.012	0.20	0.25	0.30
R	.002	.004	.006	0.05	0.10	0.15
N	2			2		
aaa	.003			0.08		
bbb	.004			0.10		

NOTES:

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

Land Pattern - SLP1006P2T



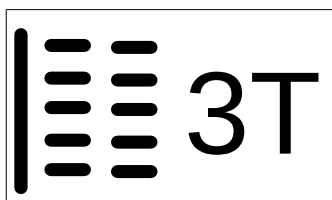
DIM	INCHES		MILLIMETERS	
C	(.033)		(0.85)	
G	.012		0.30	
X	.024		0.60	
Y	.022		0.55	
Z	.055		1.40	

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.

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Marking Code



Ordering Information

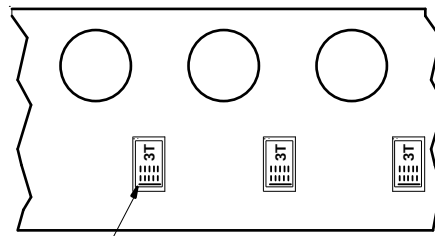
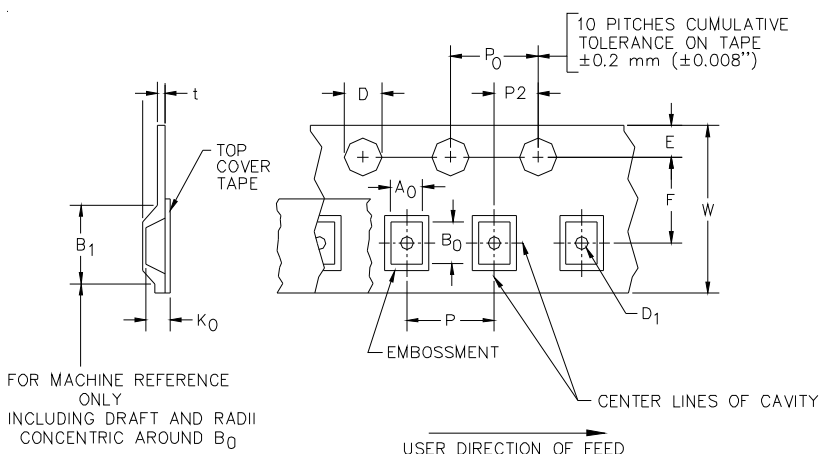
Part Number	Working Voltage	Qty per Reel	Reel Size
RClamp0531T.TCT	5V	3,000	7 Inch

RailClamp and RClamp are trademarks of Semtech Corporation.

Notes:

- 1) Marking will also include line matrix date code
- 2) Device is electrically symmetrical

Tape and Reel Specification



Band Location
(Opposite Sprocket Holes)

A0	B0	K0
0.69 +/-0.10 mm	1.19 +/-0.10 mm	0.66 +/-0.10 mm

Tape Width	B, (Max)	D	D1	E	F	P	P0	P2	T	W
8 mm	4.2 mm (.165)	1.5 + 0.1 mm - 0.0 mm (0.59 +.005 - .000)	0.4 mm ±0.25 (.031)	1.750±.10 mm (.069±.004)	3.5±0.05 mm (.138±.002)	4.0±0.10 mm (.157±.00-4)	4.0±0.1 mm (.157±.00-4)	2.0±0.05 mm (.079±.002)	0.254±0.02 mm (.016)	8.0 mm + 0.3 mm - 0.1 mm (.312±.012)

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