

PROTECTION PRODUCTS
Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 8/20\mu s$)	P_{pk}	75	Watts
Peak Pulse Current ($t_p = 8/20\mu s$)	I_{pp}	5	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	+/- 18 +/- 12	kV
Operating Temperature	T_j	-55 to +125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

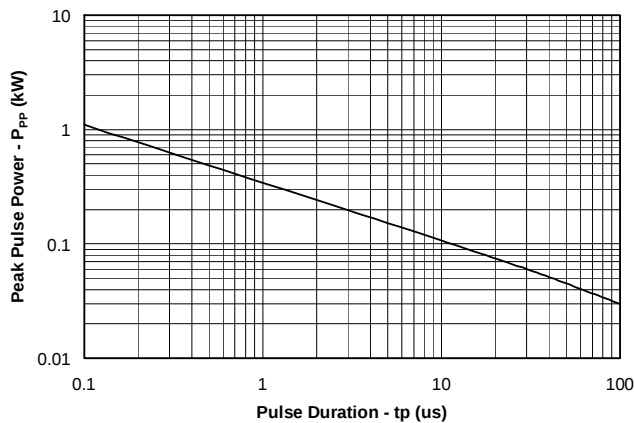
Electrical Characteristics (T = 25°C)

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}	Any I/O to GND			5	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1mA$, Any I/O to GND	6.5	8	11	V
Reverse Leakage Current	I_R	$V_{RWM} = 5.0V$, Any I/O to GND		0.005	0.100	μA
Forward Voltage	V_F	$I_f = 15mA$ Any I/O to GND	0.6		1.2	V
Clamping Voltage	V_C	$I_{pp} = 1A$, $t_p = 8/20\mu s$ Any I/O to GND			12	V
Clamping Voltage	V_C	$I_{pp} = 5A$, $t_p = 8/20\mu s$ Any I/O to GND			15	V
Junction Capacitance	C_j	$V_R = 0V$, $f = 1MHz$, Any I/O to GND		0.7	0.80	pF
		$V_R = 0V$, $f = 1MHz$, Between I/O pins			0.4	pF

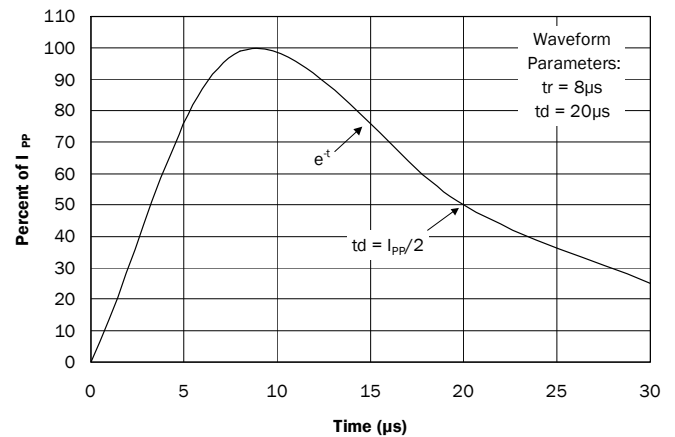
PROTECTION PRODUCTS

Typical Characteristics

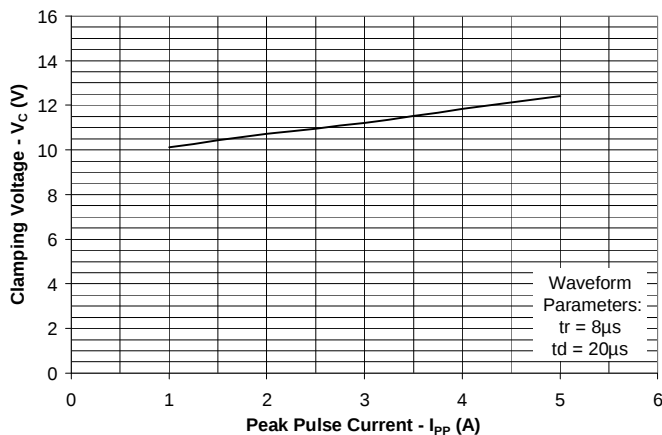
Non-Repetitive Peak Pulse Power vs. Pulse Time



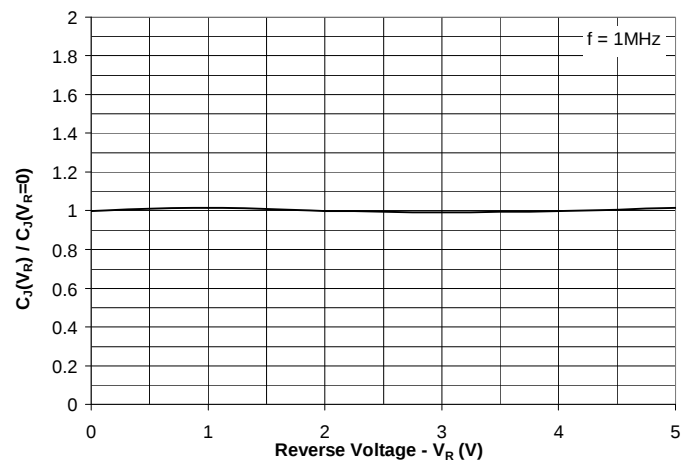
Pulse Waveform



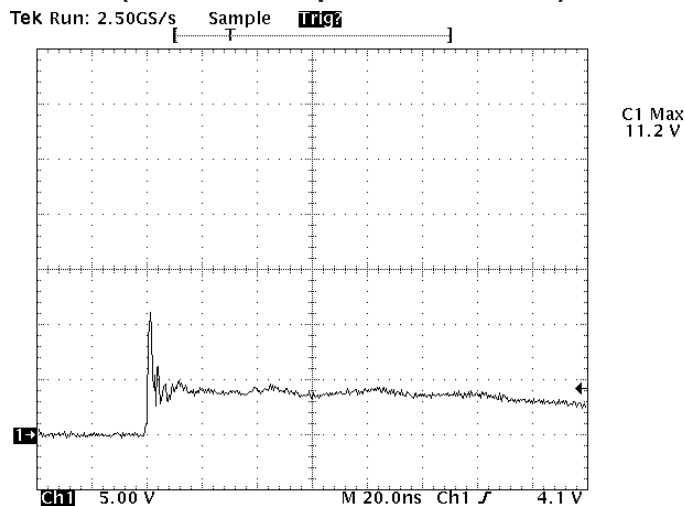
Clamping Voltage vs. Peak Pulse Current



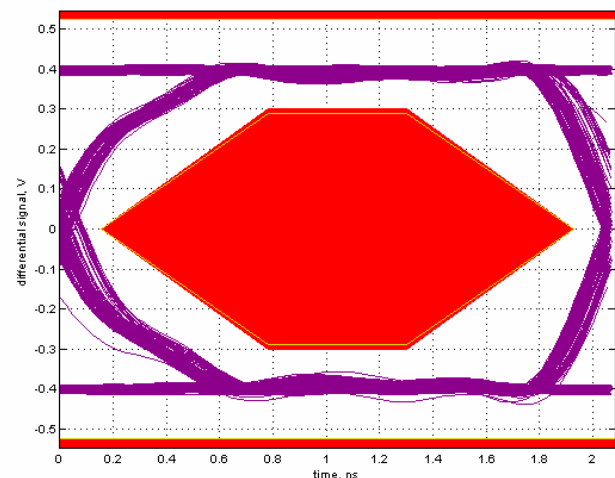
Normalized Capacitance vs. Reverse Voltage



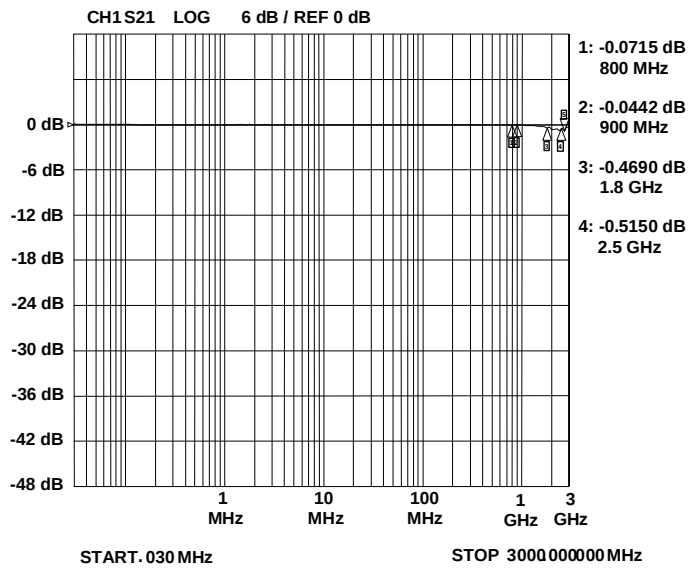
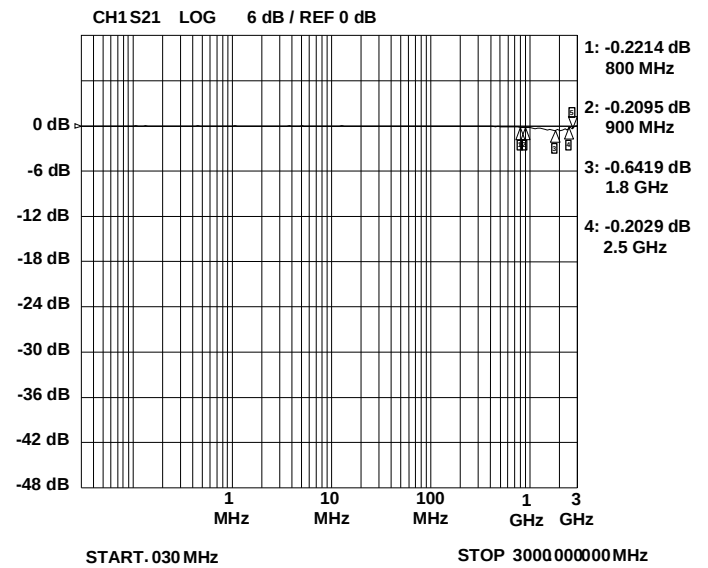
ESD Clamping (Any I/O to GND) (+8kV Contact per IEC 61000-4-2)



USB 2.0 Eye Pattern with RClamp0506T



Note: Data is taken with a 10x attenuator

PROTECTION PRODUCTS
Typical Characteristics
Insertion Loss S21 - I/O to I/O

Insertion Loss S21 - I/O to GND


PROTECTION PRODUCTS

Applications Information

Device Connection and Layout Options for Protecting 6 High-Speed Lines

The RClamp0506T is optimized for use on high-speed lines. Data lines are connected at pins 1, 2, 3, 4, 5, and 6. These inputs are referenced to an internal 5 volt TVS protection device. When the voltage on these lines exceed 5 volts, the TVS will conduct. Ground connection is made at either pin 7 or pin 8. It is not necessary to connect both ground pins of the device as they are connected internally. Multiple micro vias connected to ground are recommended for best ESD performance. This will reduce parasitic inductance in the ground path and minimize the clamping voltage seen by the protected device. The package is designed for easy trace routing as shown in Figure 2.

Figure 1- Pin Configuration

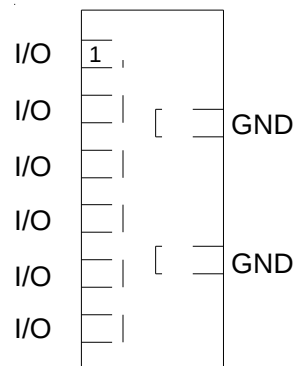
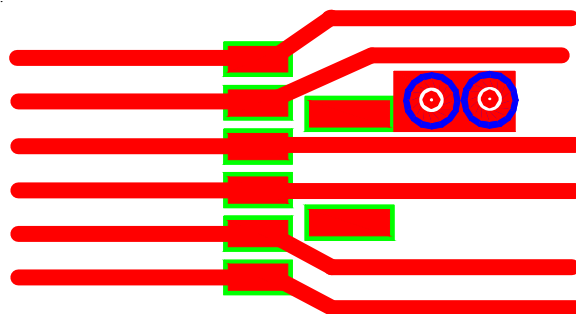
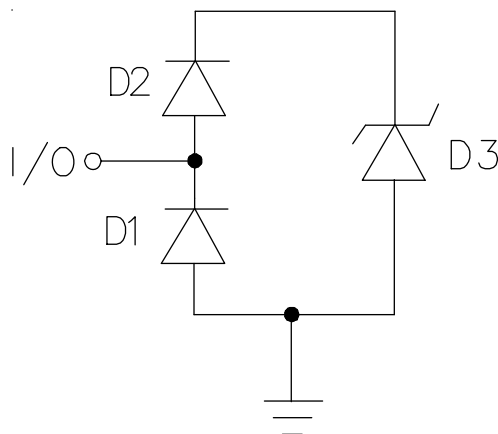


Figure 2 - Layout Example

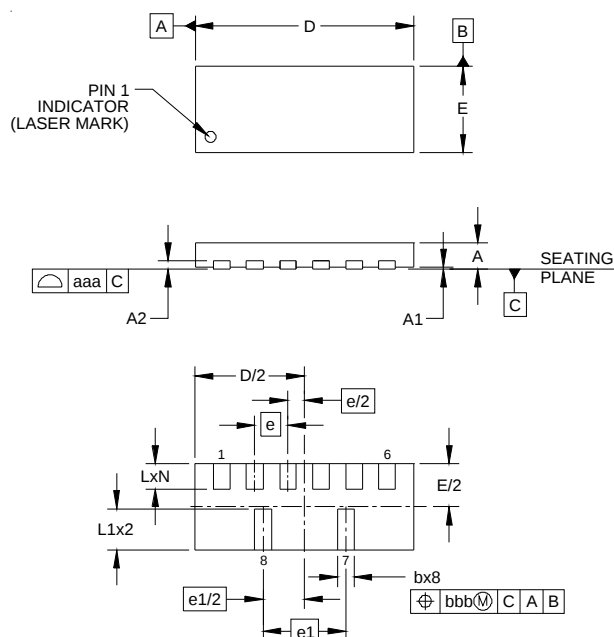


PROTECTION PRODUCTS
Applications Information - Spice Model

Spice Model

RClamp0506T Spice Parameters				
Parameter	Unit	D1	D2	D3
IS	Amp	1E-20	1E-20	2E-12
BV	Volt	100	100	8.2
VJ	Volt	0.83	0.83	0.6
RS	Ohm	1.5	0.6	0.2
IBV	Amp	1E-3	1E-3	1E-3
CJO	Farad	0.25E-12	0.25E-12	56E-12
TT	sec	2.541E-9	2.541E-9	2.541E-9
M	–	0.01	0.01	0.23
N	–	1.1	1.1	1.1
EG	eV	1.11	1.11	1.11

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Outline Drawing - SLP3313P6T

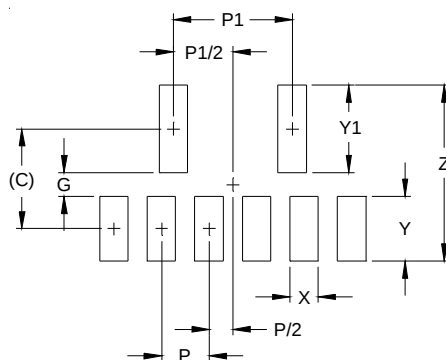


DIM	DIMENSIONS		
	MILLIMETERS		
	MIN	NOM	MAX
A	0.37	0.40	0.43
A1	0.00	0.02	0.05
A2		(0.13)	
b	0.20	0.25	0.30
D	3.25	3.30	3.38
E	1.25	1.30	1.38
e		0.50 BSC	
e1		1.25 BSC	
L	0.30	0.38	0.43
L1	0.54	0.62	0.67
N		6	
aaa		0.08	
bbb		0.10	

NOTES:

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

Land Pattern - SLP3313P6T



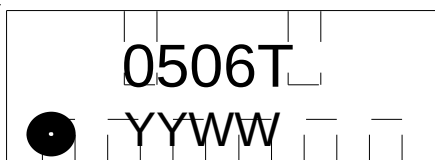
DIM	DIMENSIONS	
	MILLIMETERS	
C	(1.05)	
G	0.25	
P	0.50	
P1	1.25	
X	0.30	
Y	0.68	
Y1	0.92	
Z	1.85	

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



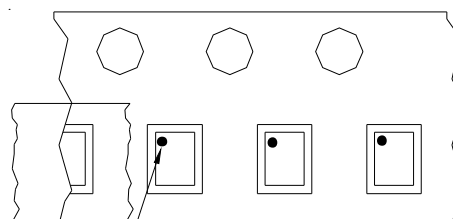
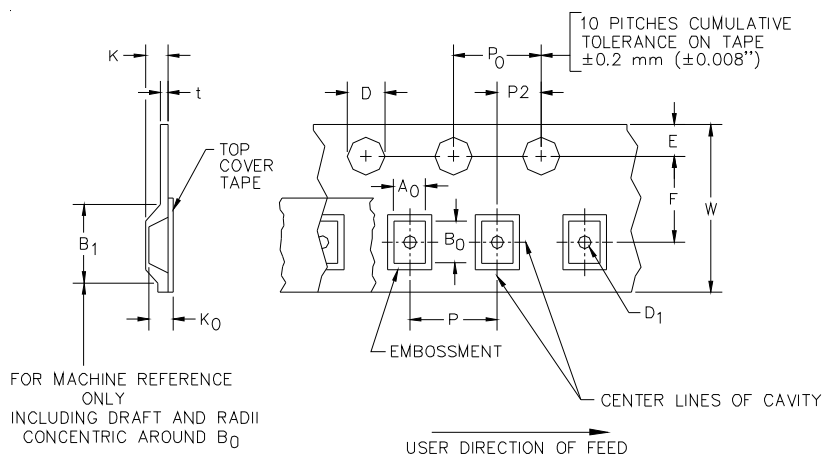
Ordering Information

Part Number	Lead Finish	Qty per Reel	Reel Size
RClamp0506T.TCT	Pb Free	3,000	7 Inch

RailClamp and RClamp are marks of Semtech Corporation

YYWW = Date Code

Tape and Reel Specification



Pin 1 Location

User Direction of feed

Device Orientation in Tape
Pin 1 in upper left towards sprocket holes

A0	B0	K0
1.51 +/-0.10 mm	3.51 +/-0.10 mm	0.66 +/-0.10 mm

Tape Width	B, (Max)	D	D1	E	F	K (MAX)	P	P0	P2	T(MAX)	W
8 mm	4.2 mm	1.5 + 0.1 mm - 0.0 mm)	0.5 mm ±0.05	1.750±.10 mm	3.5±0.05 mm	2.4 mm	4.0±0.1 mm	4.0±0.1 mm	2.0±0.05 mm	0.4 mm	8.0 mm + 0.3 mm - 0.1 mm

Contact Information

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