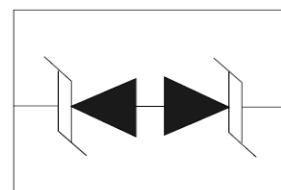


Description

RailClamp is an ultra low capacitance Transient Voltage Suppressor (TVS) designed to protect high speed data interfaces. This device has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from over-voltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).

The RClampTM0531T has a maximum capacitance of only 0.80pF. This allows it to be used on circuits operating in excess of 2.5GHz without signal attenuation. They may be used to meet the ESD immunity requirements of IEC 61000-4-2.

The RClamp0531T is in a 2-pin SLP1006P2T package measuring 1.0 x 0.6 x 0.4mm. The leads are spaced at a pitch of 0.65mm and feature a lead-free finish. Each device will protect one high-speed line operating at 5 volts. It gives the designer the flexibility to protect single lines in applications where arrays are not practical. The combination of small size, low capacitance, and high ESD surge capability makes them ideal for use in applications such as cellular phones and digital video interfaces.



Applications

- Cellular Handsets & Accessories
- Digital Visual Interface (DVI)
- FM Antenna
- MDDI Ports
- USB Ports
- PCI Express
- Serial ATA

Features

- Transient protection for data lines to IEC 61000-4-2 (ESD) ±20kV (air), ±12kV (contact) IEC 61000-4-4 (EFT) 40A (tp = 5/50ns)
- Cable Discharge Event (CDE)
- Ultra-small package (1.0 x 0.6 x 0.4mm)
- Protects one I/O line
- Low capacitance: 0.8pF
- Low clamping voltage
- Low operating voltage: 5.0V
- Solid-state silicon-avalanche technology

Mechanical Characteristics

- SLP1006P2T package
- Molding compound flammability rating: UL 94V-0
- Marking: Marking code + date code
- Packaging : Tape and Reel
- Lead Finish: NiPdAu
- Pb-Free, Halogen Free, RoHS/WEEE Compliant

Absolute Maximum Rating

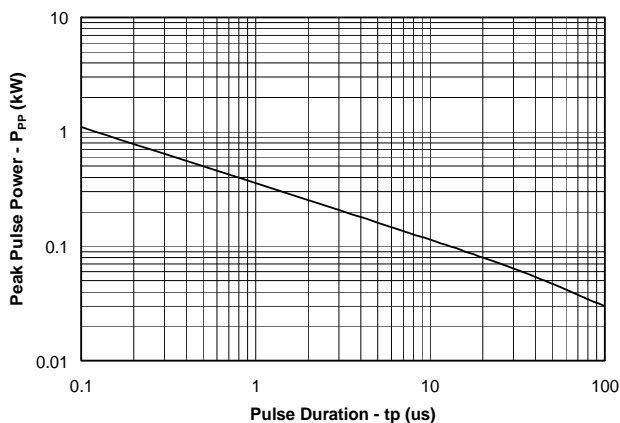
Rating	Symbol	Value	Units
Peak Pulse Power (tp = 8/20µs)	P _{pk}	80	W
Peak Pulse Current (tp = 8/20µs)	I _{pp}	4	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	+/- 20 +/- 12	kV
Operating Temperature	T _J	-55 to +125	°C
Storage Temperature	T _{STG}	-55 to +150	°C

Electrical Characteristics (T=25°C)

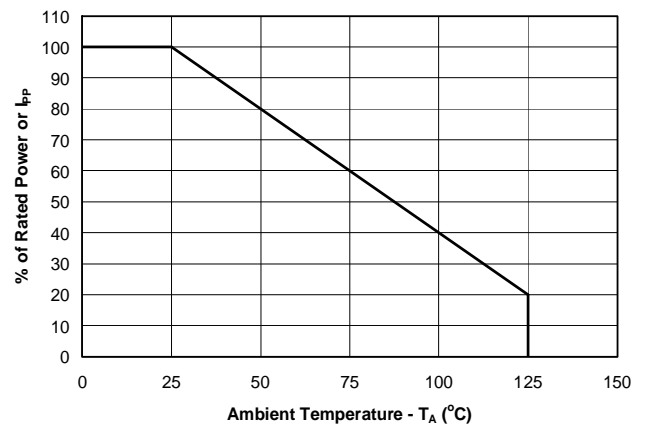
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1\text{mA}$	6	9.3	11	V
Reverse Leakage Current	I_R	$V_{RWM} = 5\text{V}, T=25^\circ\text{C}$		0.010	0.100	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$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

Typical Characteristics

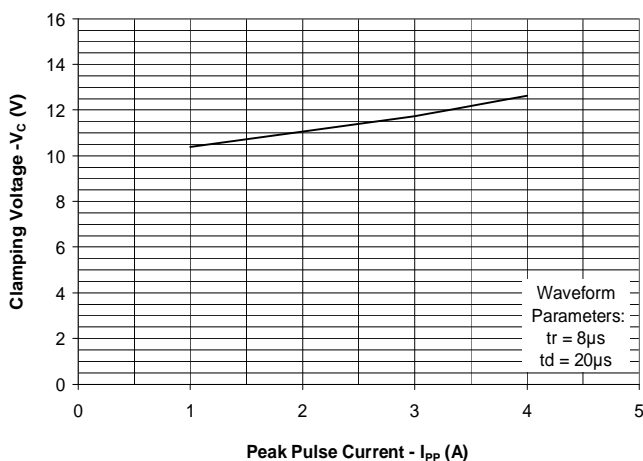
Non-Repetitive Peak Pulse Power vs. Pulse Time



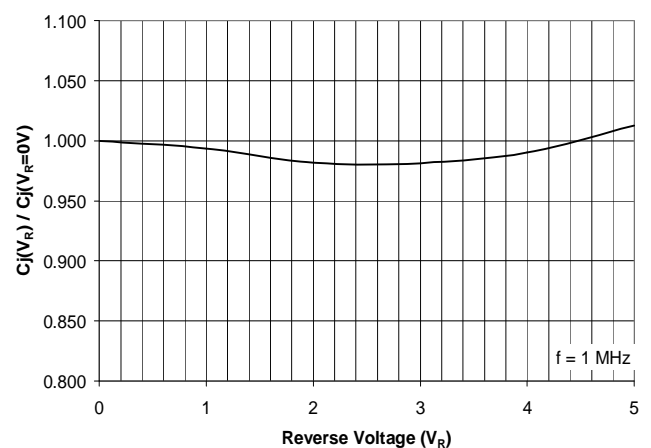
Power Derating Curve



Clamping Voltage vs. Peak Pulse Current

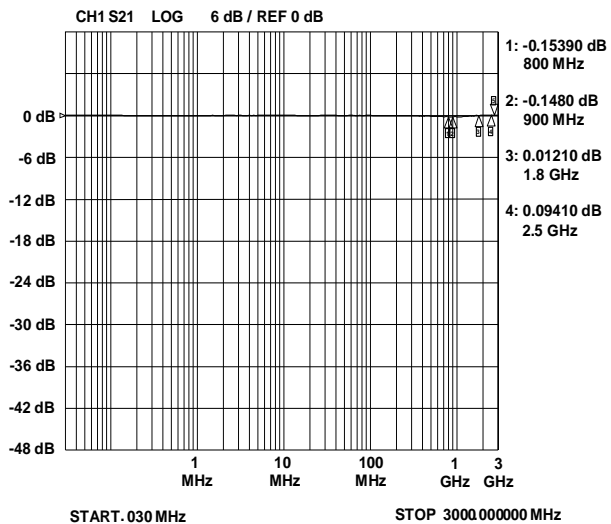


Normalized Capacitance vs. Reverse Voltage

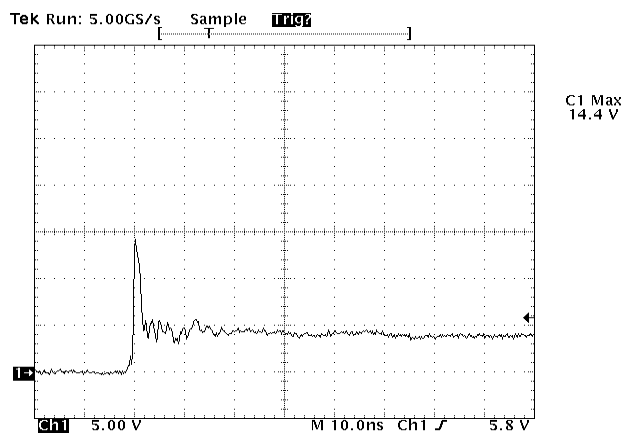


Typical Characteristics

Insertion Loss S21

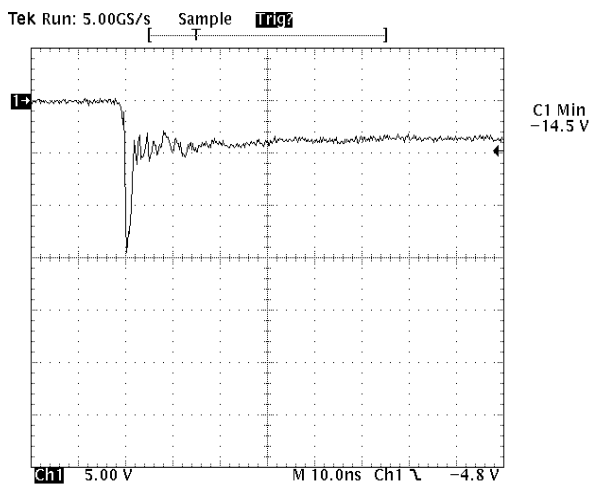


ESD Clamping
(+8kV Contact per IEC 61000-4-2)



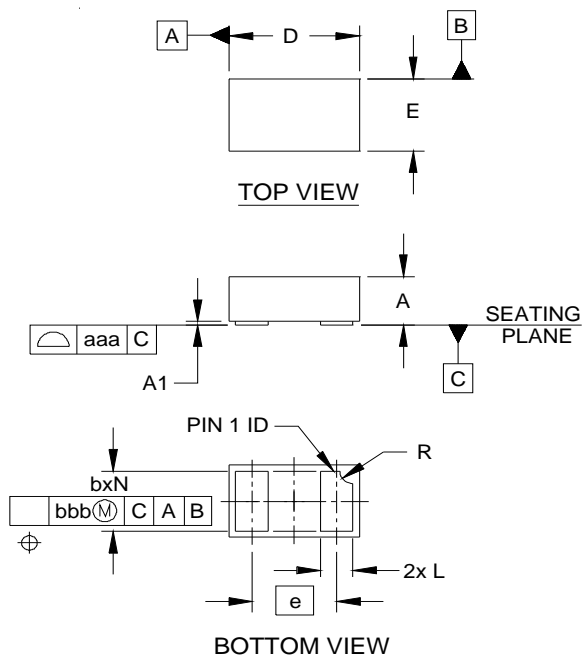
Note: Data is taken with a 10x attenuator

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



Note: Data is taken with a 10x attenuator

SLP1006P2T PACKAGE OUTLINE DIMENSIONS

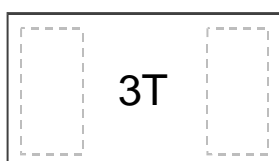


DIM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.015	.016	.017	0.37	0.40	0.43
A1	.000	.001	.002	0.00	0.03	0.05
b	.018	.020	.022	0.45	0.50	0.55
D	.035	.039	.043	0.90	1.00	1.10
E	.020	.024	.028	0.50	0.60	0.70
e	.026 BSC			0.65 BSC		
L	.008	.010	.012	0.20	0.25	0.30
R	.002	.004	.006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

Marking



Ordering information

Order code	Package	Baseqty	Deliverymode
UMW RCLAMP0531T.TCT	SLP1006P2T	3000	Tape and reel