

### 1. 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 highspeed data and transmission lines from over-voltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).

### 2. Applications

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

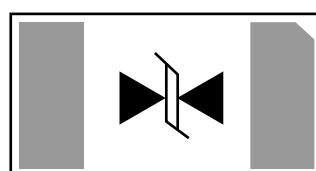
### 3. Features

- Transient protection for data lines to
- IEC 61000-4-2 (ESD)  $\pm 20\text{kV}$  (air),  $\pm 12\text{kV}$  (contact)
- IEC 61000-4-4 (EFT) 40A ( $t_p = 5/50\text{ns}$ )
- 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

### 4. 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

### 5. Pinning information



**SLP1006P2**



## 6. Absolute Maximum Rating

Parameter	Symbol	Value	Units
Peak Pulse Power ( $t_p=8/20\mu s$ )	$P_{PK}$	80	W
Peak Pulse Current ( $t_p=8/20\mu s$ )	$I_{PP}$	4	A
ESD per IEC 61000-4-2(Air)	$V_{ESD}$	$\pm 20$	kV
ESD per IEC 61000-4-2(Contact)		$\pm 12$	kV
Junction Temperature Range	$T_J$	-55 to 125	°C
Storage Temperature Range	$T_{STG}$	-55 to 150	°C

## 7. Electrical Characteristics ( $T_A=25^\circ C$ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	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	$I_R$	$V_{RWM}=5V, T=25^\circ C$		0.01	0.1	µA
Clamping Voltage	$V_C$	$I_{PP}=1A (t_p=8/20\mu s)$			12	V
		$I_{PP}=4A (t_p=8/20\mu s)$			20	V
Junction Capacitance	$C_J$	$V_R=0V, f=1MHz$		0.5	0.8	pF



## 8.1 Typical characteristic

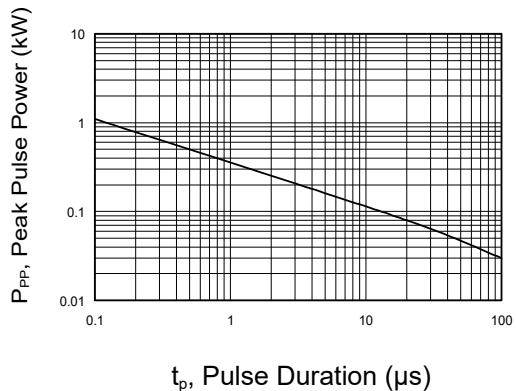


Figure 1: Non-Repetitive Peak Pulse Power vs. Pulse Time

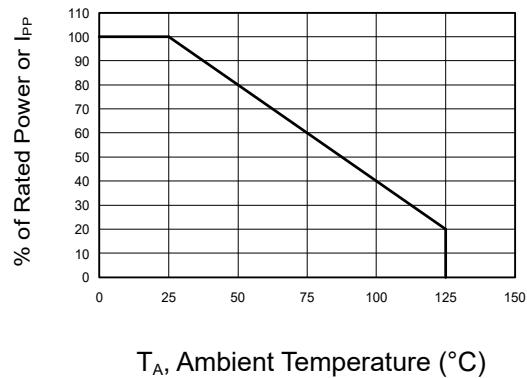


Figure 2: Power Derating Curve

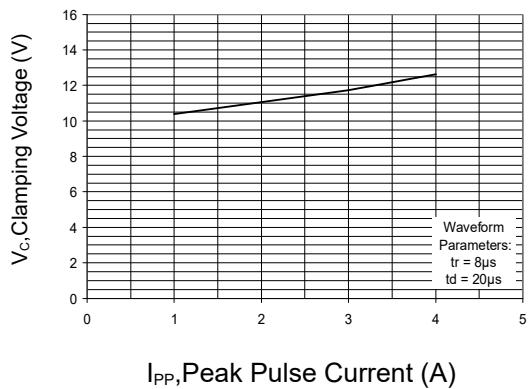


Figure 3: Clamping Voltage vs. Peak Pulse Current

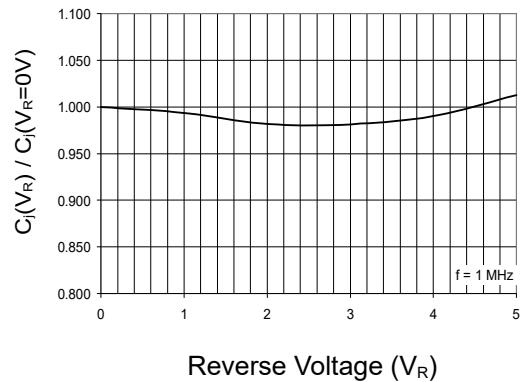
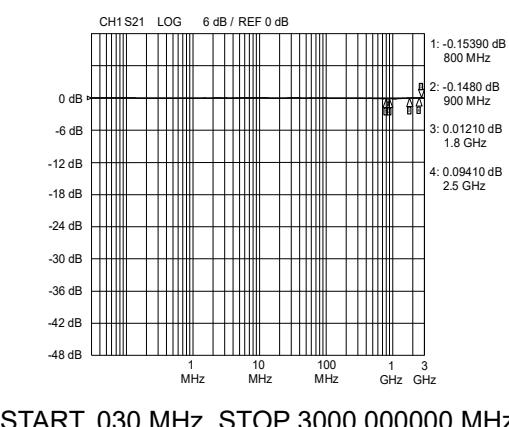


Figure 4: Normalized Capacitance vs. Reverse Voltage

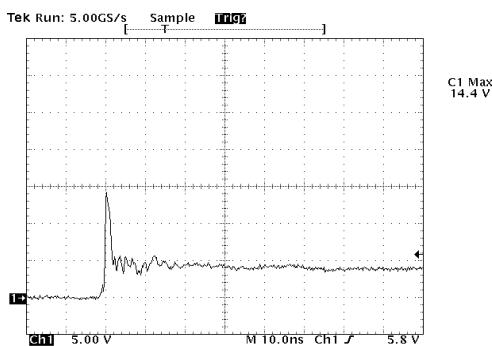


START. 030 MHz, STOP 3000.000000 MHz

Figure 5: Insertion Loss S21

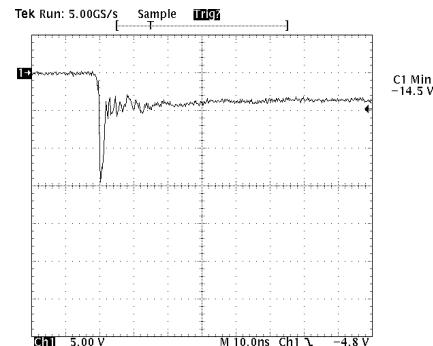


## 8.2 Typical characteristic



Note: Data is taken with a 10x attenuator

Figure 6: ESD Clamping  
(+8kV Contact per IEC 61000-4-2)

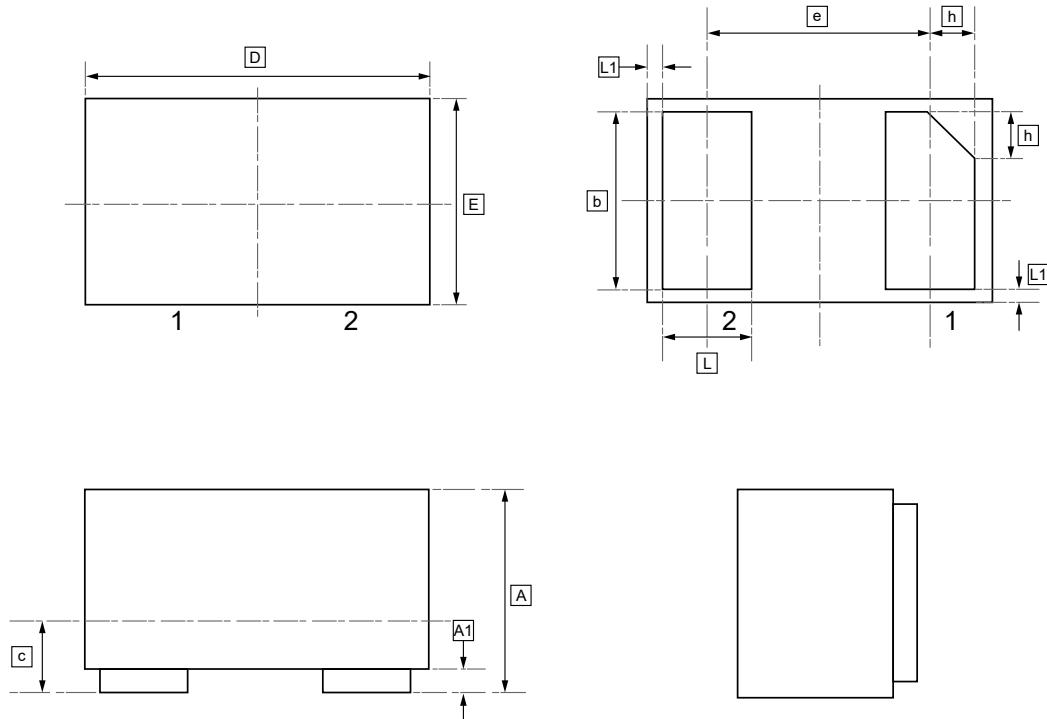


Note: Data is taken with a 10x attenuator

Figure 7: ESD Clamping  
(-8kV Contact per IEC 61000-4-2)



## 9.SLP1006P2 Package Outline Dimensions

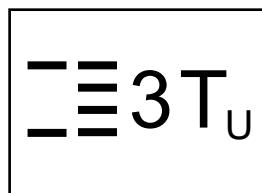


### DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	b	c	D	e	E	L	L1	h
<b>Min</b>	0.45	0.00	0.45	0.12	0.95	0.65	0.55	0.20	0.05	0.07
<b>Max</b>	0.55	0.05	0.55	0.18	1.05	BSC	0.65	0.30	REF	0.17



## 10.Ordering information



Order Code	Package	Base QTY	Delivery Mode
UMW RCLAMP0531T.TCT	SLP1006P2	3000	Tape and reel



## 11.Disclaimer

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