

OM SENI



The RailClamp family is a series of ultra low capacitance Transient Voltage Suppressors (TVS) designed to protect high speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by **ESD** (electrostatic discharge), **CDE** (Cable Discharge Events), and **EFT** (electrical fast transients).

The RClamp™1521P has a maximum capacitance of only 0.5pF. This allows it to be used on circuits operating in excess of 3GHz without signal attenuation. They may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 ($\pm 15\text{kV}$ air, $\pm 8\text{kV}$ contact discharge).

The RClamp1521P is in a 2-pin, RoHS/WEEE compliant, SLP1006P2 package measuring 1.0 x 0.6 x 0.5mm. 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 15 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 high-power USB.

RClamp1521P Ultra-Low Capacitance 1-Line ESD protection

- ◆ Transient protection for data lines to
IEC 61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact)
IEC 61000-4-4 (EFT) 40A (tp = 5/50ns)
Cable Discharge Event (CDE)
- ◆ Ultra-small package (1.0 x 0.6 x 0.5mm)
- ◆ Protects one data or I/O line
- ◆ Low capacitance: **0.3pF** typical
- ◆ Low clamping voltage
- ◆ Low operating voltage: 15V
- ◆ Solid-state silicon-avalanche technology

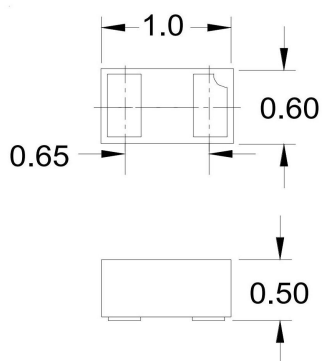
Mechanical Characteristics

- ◆ SLP1006P2 package
- ◆ Molding compound flammability rating: UL 94V-0
- ◆ Marking: Marking code
- ◆ Packaging : Tape and Reel
- ◆ Lead Finish: NiPdAu
- ◆ RoHS/WEEE Compliant

Applications

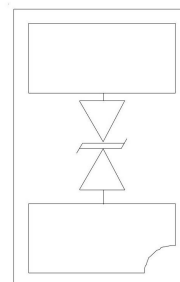
- ◆ Cellular Handsets & Accessories
- ◆ USB Ports
- ◆ PCI Express
- ◆ Serial ATA

Dimensions



Maximum Dimensions (mm)

Schematic & PIN Configuration



SLP1006P2 (Bottom View)

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Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (tp = 8/20μs)	P _{pk}	120	Watts
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}	+/- 15 +/- 8	kV
Operating Temperature	T _J	-55 to +125	°C
Storage Temperature	T _{STG}	-55 to +150	°C

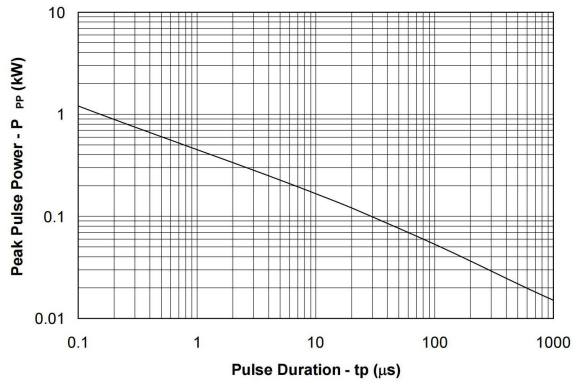
Electrical Characteristics (T=25°C)

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V _{RWM}				15	V
Reverse Breakdown Voltage	V _{BR}	I _t = 1mA	16.7			V
Reverse Leakage Current	I _R	V _{RWM} = 15V, T=25°C			1	μA
Clamping Voltage	V _C	I _{pp} = 1A, tp = 8/20μs			28	V
Clamping Voltage	V _C	I _{pp} = 4A, tp = 8/20μs			30	V
Junction Capacitance	C _j	V _R = 0V, f = 1MHz		0.30	0.50	pF

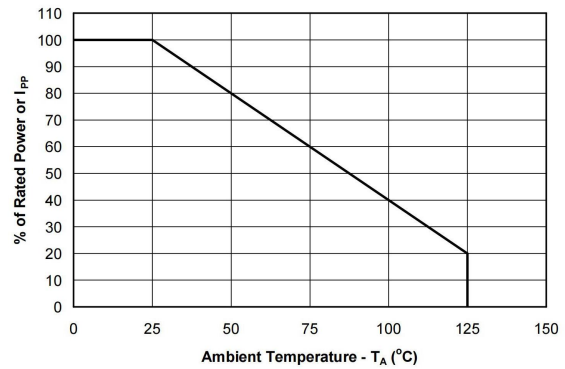
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Typical Characteristics

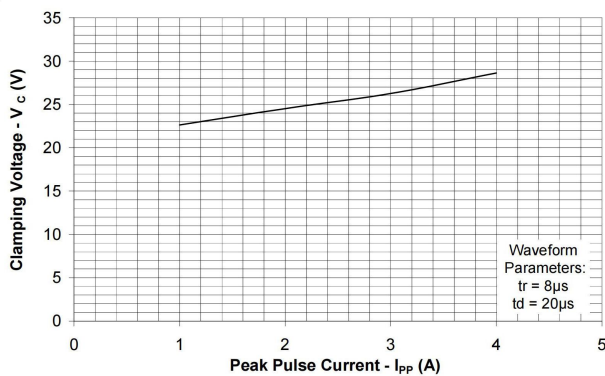
Non-Repetitive Peak Pulse Power vs. Pulse Time



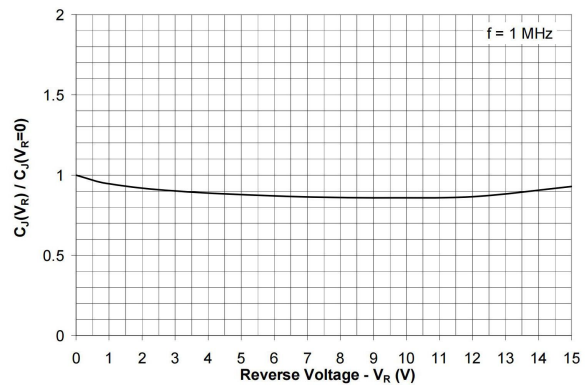
Power Derating Curve



Clamping Voltage vs. Peak Pulse Current

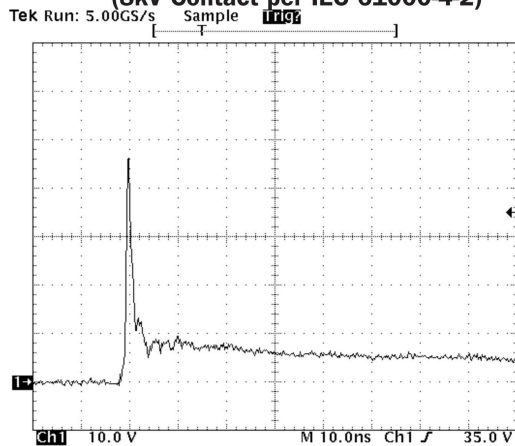


Normalized Capacitance vs. Reverse Voltage



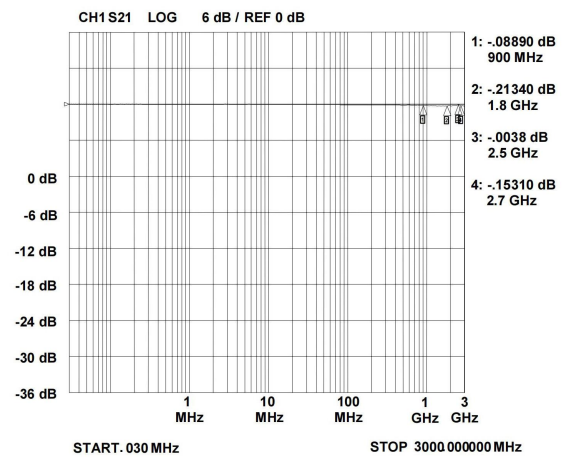
ESD Clamping

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



Note: Data is taken with a 10x attenuator

Insertion Loss S21



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Ordering Information

PREFERRED P/N	PACKAGE	SIZE(mm)	DELIVERY MODE	MPQ(PCS)
	DFN1006-2L	1.00×0.60×0.37	7" REEL	10,000

Recommended Soldering Conditions



Package Outline Dimensions (DFN1006-2L)

Symbol	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	0.950	1.050	0.037	0.041
B	0.550	0.650	0.022	0.026
C	0.350	0.450	0.014	0.018
D	0.550	0.650	0.022	0.026
D ₁	0.280	0.380	0.011	0.015
E	0.450	0.550	0.018	0.022
L	0.000	0.100	0.000	0.004

Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
J	0.50	0.60	0.020	0.024
K	0.25	0.35	0.010	0.014
M	0.55	0.65	0.022	0.026