

Description

The RCLAMP0521P is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The RCLAMP0521P has an ultra-low capacitance with a typical value at 0.3pF, and complies with the IEC 61000-4-2 (ESD) with $\pm 25\text{kV}$ air and $\pm 22\text{kV}$ contact discharge. It is assembled into an ultra-small 1.0x0.6x0.5mm lead-free DFN package. The small size, ultra-low capacitance and high ESD surge protection make RCLAMP0521P an ideal choice to protect cell phone, digital video interfaces and other high speed ports.

Features

- Ultra small package: 1.0x0.6x0.5mm
- Ultra low capacitance: 0.3pF typical
- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- 2-pin leadless package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: $\pm 25\text{kV}$
Contact discharge: $\pm 22\text{kV}$
 - IEC61000-4-5 (Lightning) 4A (8/20 μs)
- RoHS Compliant

Mechanical Characteristics

- Package: DFN1006-2 (1.0x0.6x0.5mm)
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

- Cellular Handsets and Accessories
- Display Ports
- MDDI Ports
- USB Ports
- Digital Video Interface (DVI)
- PCI Express and Serial SATA Ports

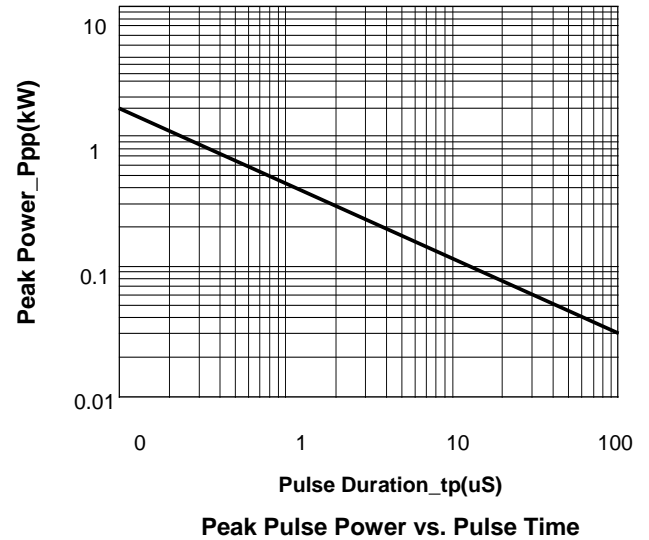
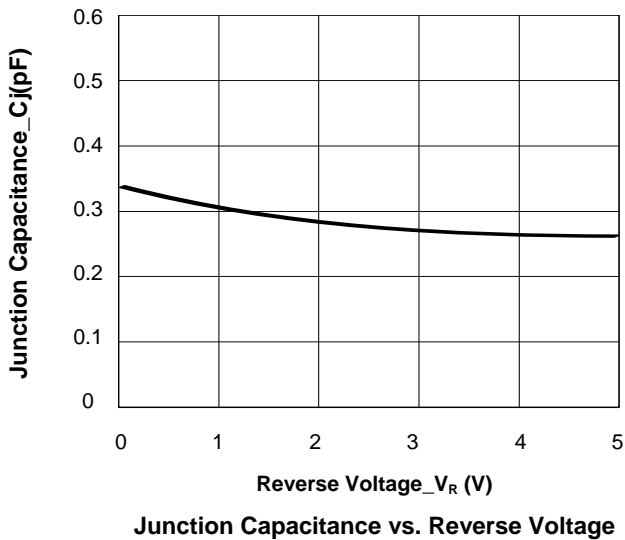
Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise specified)

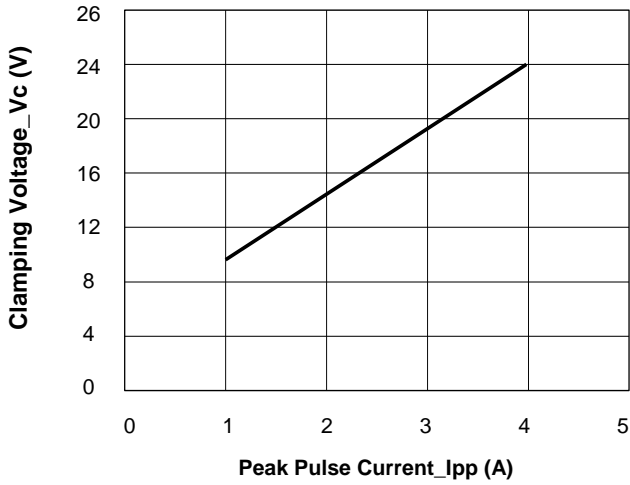
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PK}	100	W
Peak Pulse Current (8/20 μs)	I_{PP}	4	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 25	kV
ESD per IEC 61000-4-2 (Contact)		± 22	
Operating Temperature Range	T_J	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics (T_A=25° C unless otherwise specified)

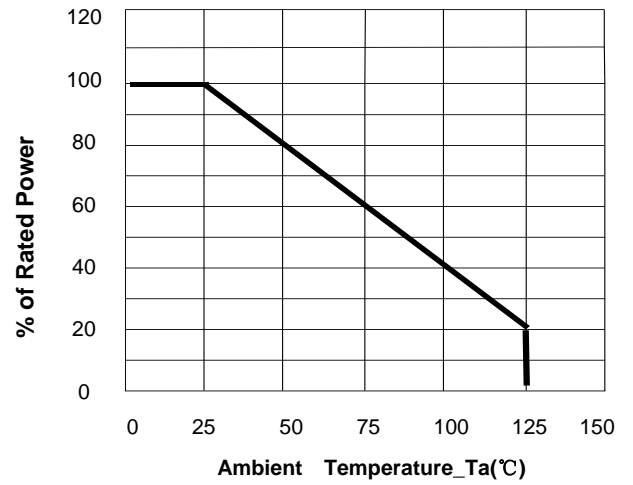
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			5	V	
Breakdown Voltage	V _{BR}	6.5		9.5	V	I _T = 1mA
Reverse Leakage Current	I _R			0.2	μA	V _{RWM} = 5V
Clamping Voltage	V _C			12	V	I _{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V _C			25	V	I _{PP} = 4A (8 x 20μs pulse)
Junction Capacitance	C _J		0.3	0.5	pF	V _R = 0V, f = 1MHz

Typical Performance Characteristics (T_A=25° C unless otherwise Specified)

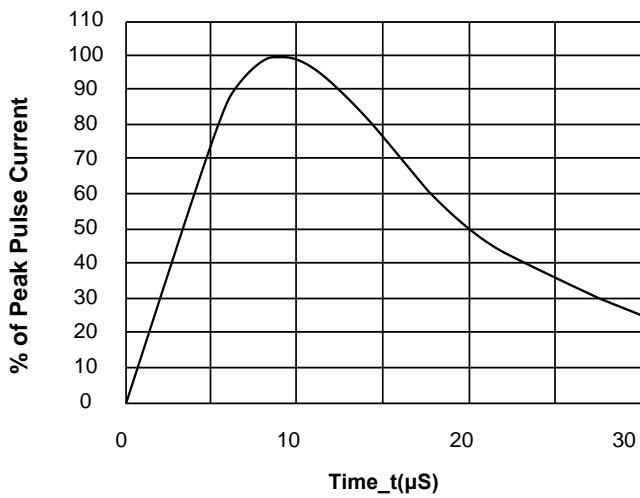




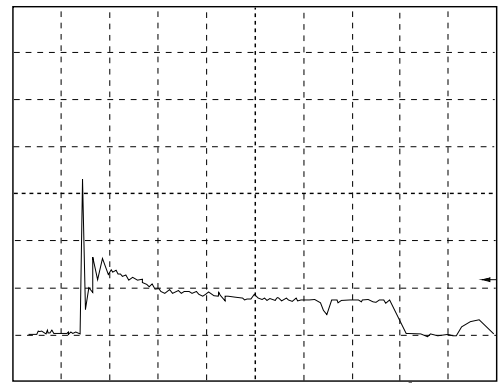
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve

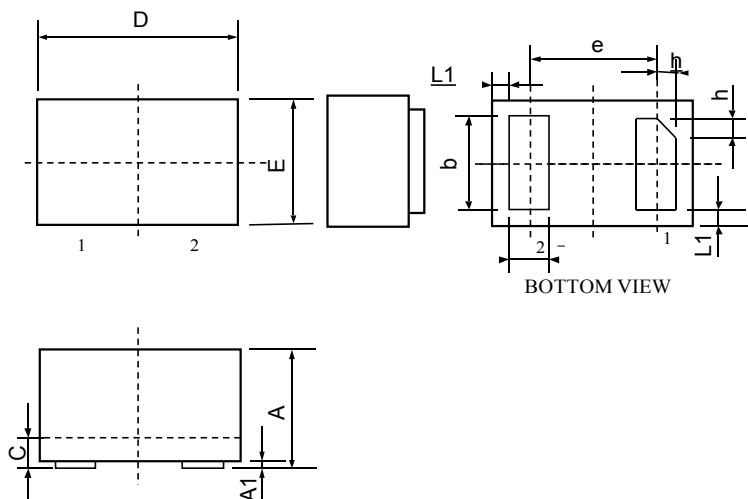


8 X 20uS Pulse Waveform



ESD Clamping Voltage
8 kV Contact per IEC61000-4-2

DFN1006-2 Package Outline Drawing



SYMB	MILIMETER		
	MIN	NOM	MAX
OL			
A	0.45	0.50	0.55
A1	0	0.02	0.05
b	0.45	0.50	0.55
C	0.12	0.15	0.18
D	0.95	1.00	1.05
e	0.65BSC		
E	0.55	0.60	0.65
L	0.20	0.25	0.30
L1	0.05REF		
h	0.07	0.12	0.17

Marking



Ordering information

Order code	Package	Baseq	Deliverymode
UMW RCLAMP0521P	DFN1006-2	10000	Tape and reel

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