

# MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

## RCLAMP0502N-MS

Product specification

## General description

The RCLAMP0502N-MS is an Bi-directional TVS diode,utilizing leading monolithic silicon technology to provide fast re- sponse time and low ESD clamping voltage, making this device an ideal solu- tion for protecting voltage sensitive high-speed dat a lines. The RCLAMP0502N-MS has an ultra-low capacitance with a typical value at 0.25pF, and co mplies with the IEC61000-4-2 (ESD) with  $\pm 15\text{kV}$  air and  $\pm 8\text{kV}$  contact discharge. The small size, ultra-low capacitance and high ESD surge protecti on make RCLAMP0502N an ideal choice to protec t cell phone, digital visual interfaces and other hig h speed ports.

## Mechanical Characteristics

- Package: SLP1210-6
- Case Material: "Green" Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below



## Features and benefits

- Ultra low capacitance: 0.25pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Low operating voltage: 5.5/6.5V
- Low clamping voltage
- 6-pin leadless package
- Protects two I/O lines and a power line
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 15\text{kV}$
    - Contact discharge:  $\pm 8\text{kV}$
  - IEC61000-4-5 (Lightning) 3A (8/20 $\mu\text{s}$ )
- RoHS Compliant

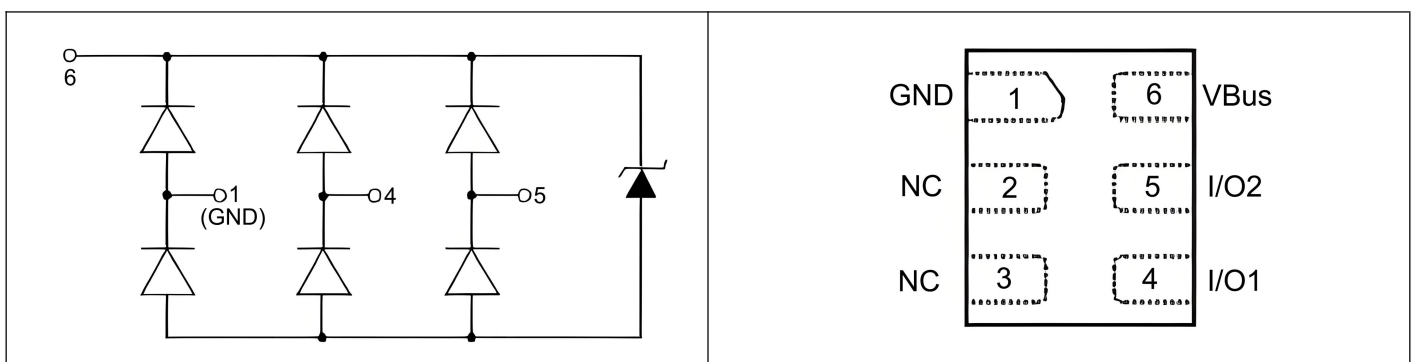
## Applications

- Cellular Handsets and Accessories
- USB Ports
- Digital Visual Interface
- MMC/SD Ports

## Reference News

SLP1210-6	Marking
	

## Circuit diagram



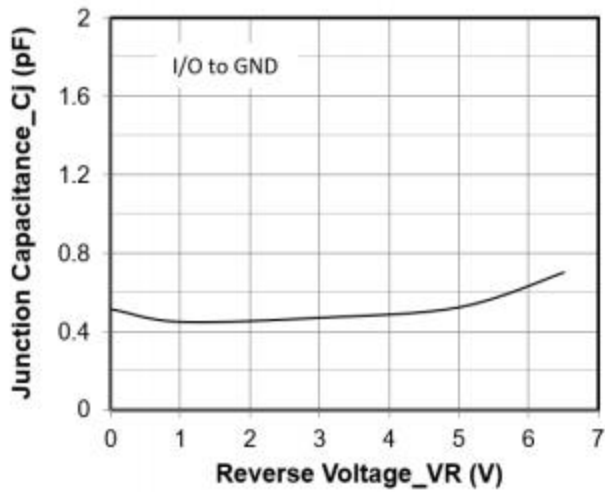
**Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	51	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	IPP	3	A
ESD per IEC 61000—4—2 (Air) ESD per IEC 61000—4—2 (Contact)	VESD	$\pm 30$ $\pm 30$	kV
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

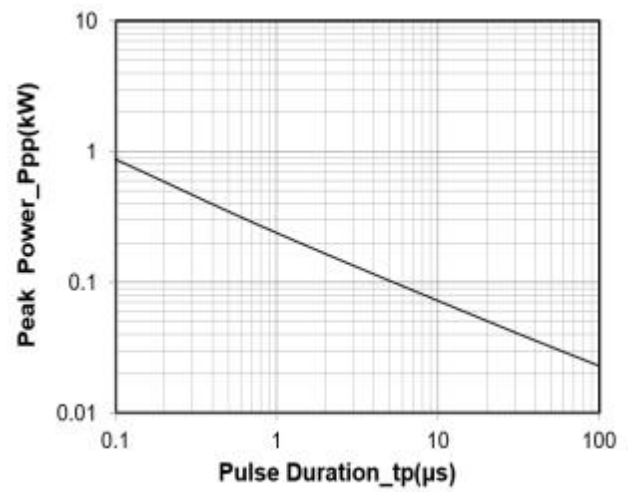
**Electrical Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			5.5	V	Pin 6 to GND
Breakdown Voltage	VBR	6			V	$I_T = 1\text{mA}$ , Pin 6 to GND
Reverse Leakage Current	IR			0.5	$\mu\text{A}$	VRWM = 5.5V, Pin 6 to GND
Clamping Voltage	VC			12	V	IPP = 1A (8 x 20 $\mu\text{s}$ pulse), any I/O pin to ground
Clamping Voltage	VC			17	V	IPP = 3A (8 x 20 $\mu\text{s}$ pulse), any I/O pin to ground
Junction Capacitance	CJ		0.5		pF	VR = 0V, f = 1MHz, any I/O pin to ground
Junction Capacitance	CJ		0.25	0.5	pF	VR = 0V, f = 1MHz, between I/O pins

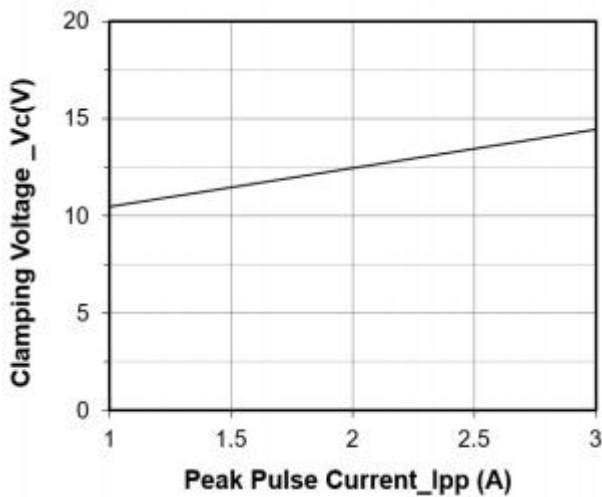
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



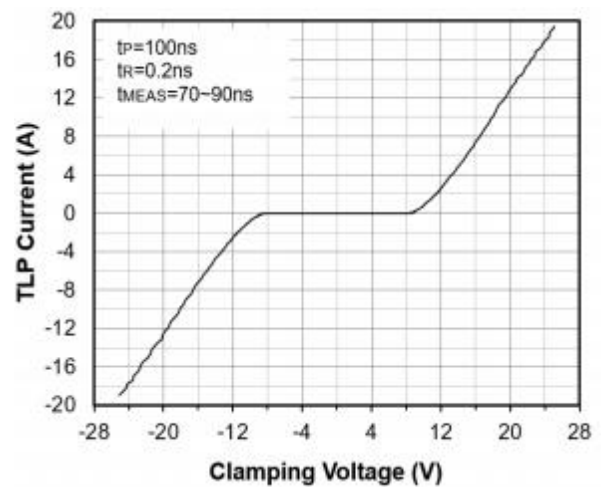
Junction Capacitance vs. Reverse Voltage



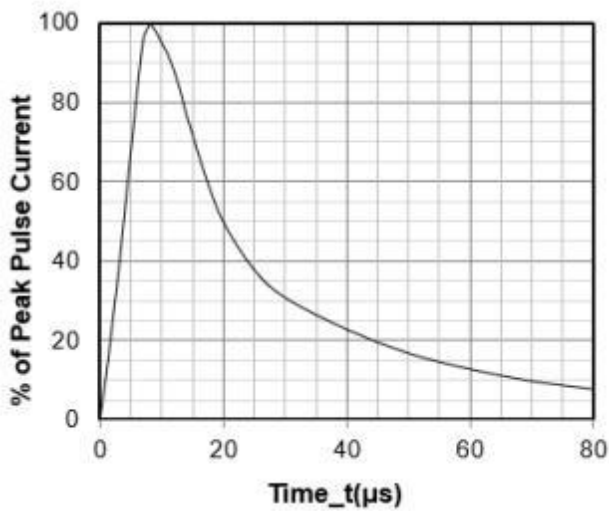
Peak Pulse Power vs. Pulse Time



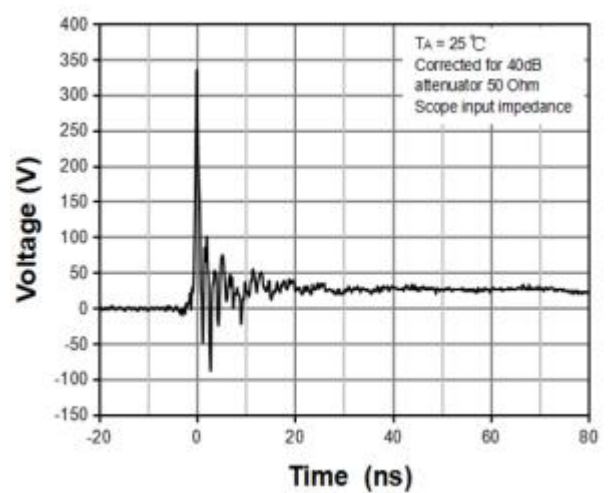
Clamping Voltage vs. Peak Pulse Current



TLP Measurement



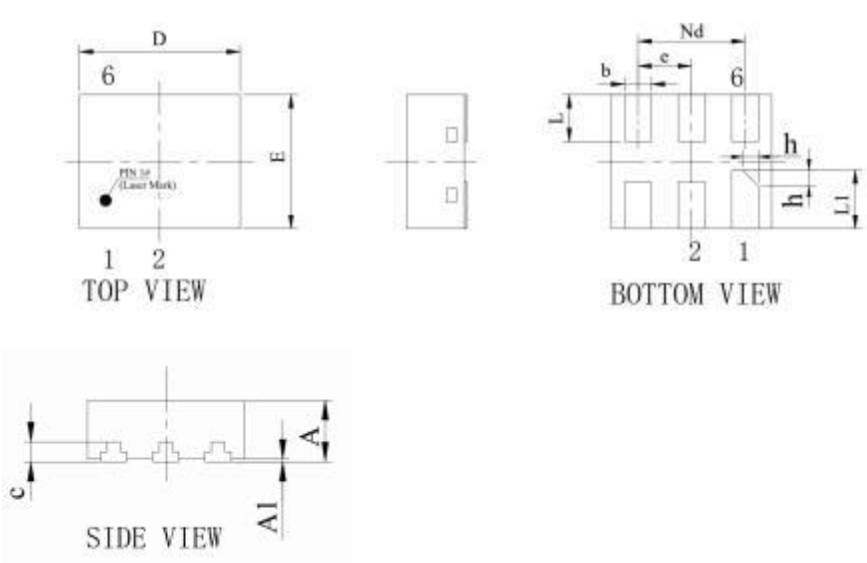
8 X 20μs Pulse Waveform



ESD Clamping Voltage

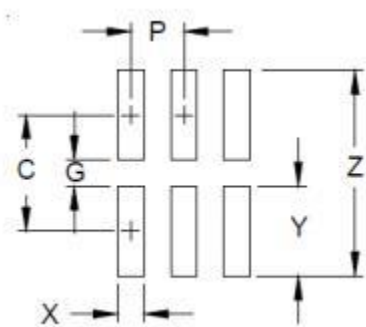
8 kV Contact per IEC61000-4-2

SLP1210-6 Package Outline Drawing



SYM	DIMENSIONS		
	MILLIMETERS		
	MIN	NOM	MAX
A	0.45	0.50	0.55
A1	0	0.02	0.05
b	0.15	0.20	0.25
c	0.152REF		
D	1.15	1.20	1.25
e	0.40BSC		
Nd	0.80BSC		
E	0.95	1.00	1.05
L	0.25	0.35	0.45
L1	0.338	0.438	0.538
h	0.07	0.12	0.17

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	0.875	0.034
G	0.20	0.008
P	0.40	0.016
X	0.20	0.008
Y	0.675	0.027
Z	1.55	0.061

REEL SPECIFICATION

P/N	PKG	QTY
RCLAMP0502N-MS	SLP1210-6	3000

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