



RCLAMP0502B ESD Protection Diode

Feature

- Uni-directional ESD protection of two lines
- 70Watts peak pulse power ($t_p = 8/20\mu s$)
- Working voltage: 5V
- Junction Capacitance: 0.3pF typical (I/O to I/O)
- Low leakage current
- Low clamping voltage
- IEC 61000-4-2 $\pm 15kV$ contact $\pm 20kV$ air
- IEC 61000-4-5 (Lightning) 4A (8/20 μs)
- IEC 61000-4-4 (EFT) 40A (5/50ns)

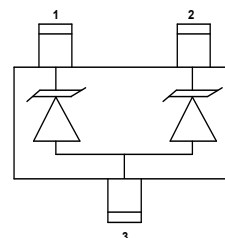
Application

- Smart phones
- Display Ports
- MDDI Ports
- USB Ports
- Digital Video Interface (DVI)
- PCI Express and Serial SATA Ports

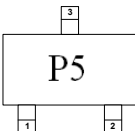
Mechanical Data

- Package: SOT-523
- Molding compound flammability rating: UL 94V-0
- RoHS/WEEE compliant

Schematic & PIN Configuration



Ordering Information

Part Number	Package	Marking	QTY per Reel	Reel Size
RCLAMP0502B	SOT-523	 P5	3000 pcs	7 inches



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

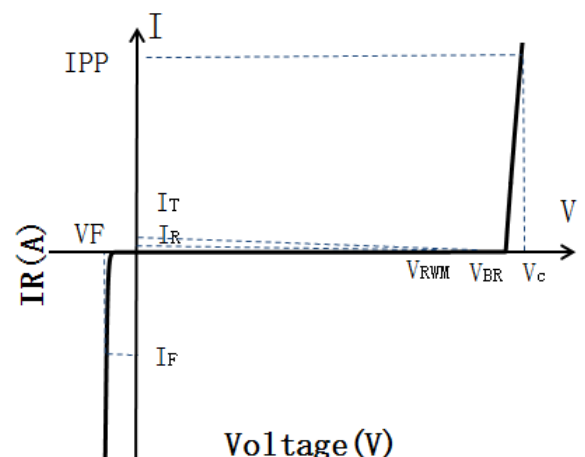
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PK}	70	W
Peak Pulse Current (8/20 μs)	I_{PP}	4	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	± 20 ± 15	kV
Operating Temperature Range	T_J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^{\circ}\text{C}$

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				5.0	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	6.0	7.5	8.5	V
Reverse Leakage Current	I_R	$V_{RWM} = 5.0\text{V}$			0.5	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)		9	11	V
Clamping Voltage	V_C	$I_{PP} = 4.0\text{A}$ (8 x 20 μs pulse)		13	15	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$, pin 1 or pin 2 to pin 3		0.6	1.0	pF
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$, between pin 1 and pin 2		0.3	0.5	pF

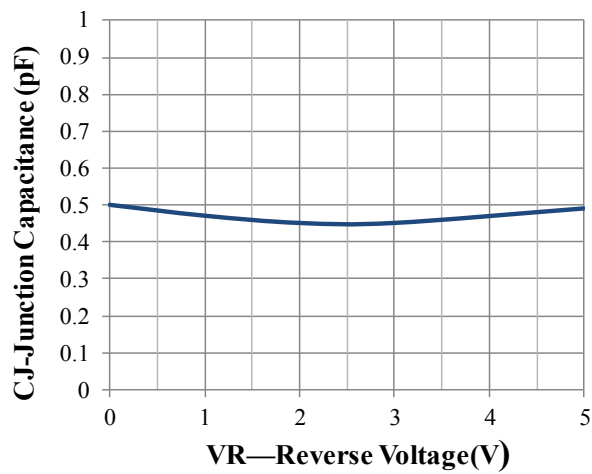
Electrical Parameters

Symbol	Parameter
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_C

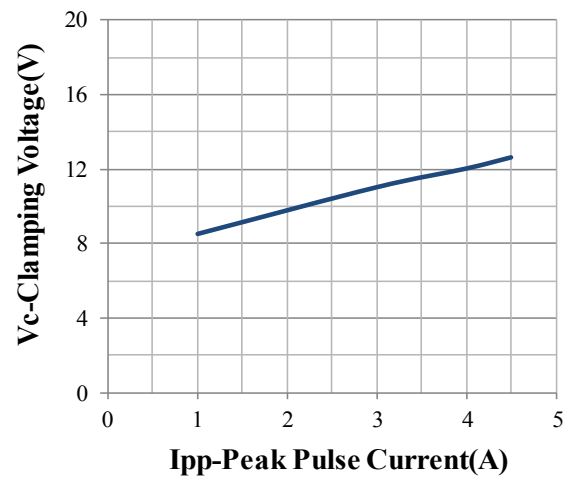




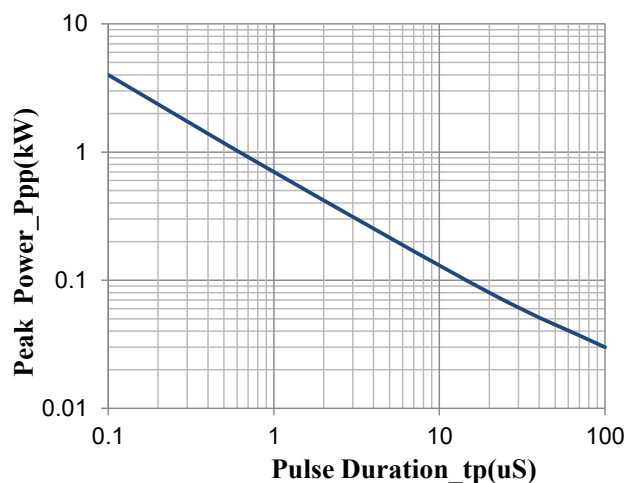
Typical Characteristics



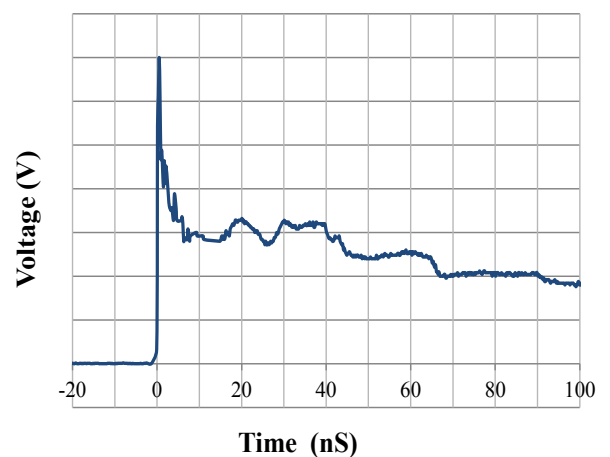
Junction Capacitance vs. Reverse Voltage



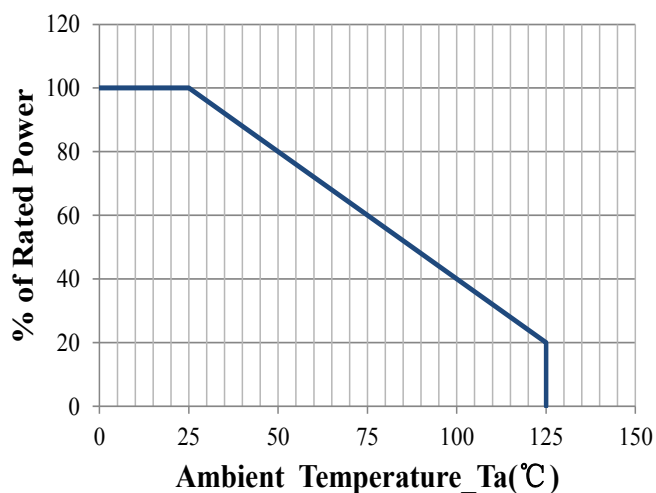
Clamping Voltage vs. Peak Pulse Current



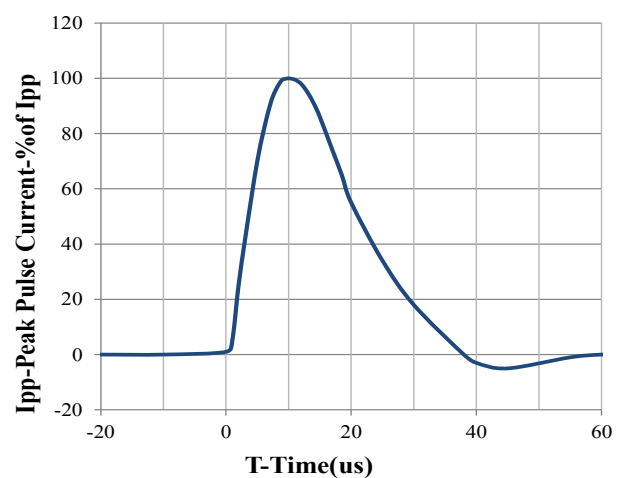
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



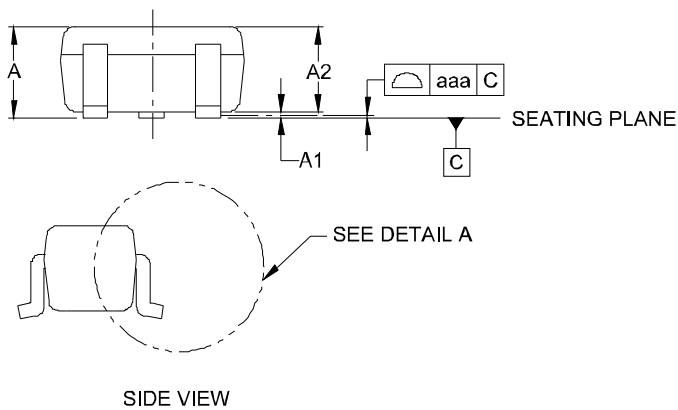
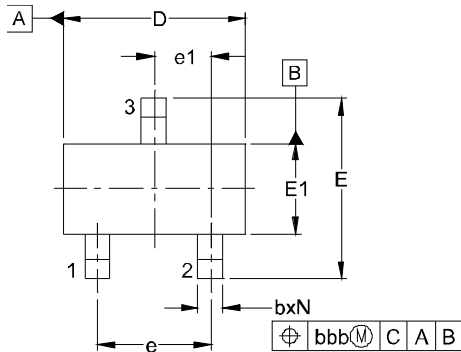
Power Derating Curve



8 X 20us Pulse Waveform



SOT-523 Outline Drawing



DIM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.023	-	.035	0.60	-	0.90
A1	.000	-	.004	0.00	-	0.10
A2	.023	.030	.031	0.60	0.75	0.80
b	.005	-	.012	0.15	-	0.30
c	.003	-	.008	0.10	-	0.20
D	.059	.063	.067	1.50	1.60	1.70
E	.057	.063	.069	1.45	1.60	1.75
E1	.029	.031	.033	0.75	0.80	0.85
e	.039 BSC			1.00 BSC		
e1	.020 BSC			0.50 BSC		
L	(.009)			(0.22)		
N	3			3		
θ	0°	-	8°	0°	-	8°
aaa	.004			0.10		
bbb	.008			0.20		

