

## Description

The UClamp series of TVS arrays are designed to protect sensitive electronics from damage or latch-up due to ESD. It is designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, note-book computers, and PDAs. It features large cross-sectional area junctions for conducting high transient currents. It offers superior electrical characteristics such as lower clamping voltage and no device degradation when compared to MLVs. They offer desirable characteristics for board level protection including fast response time, low operating and clamping voltage, and no device degradation.

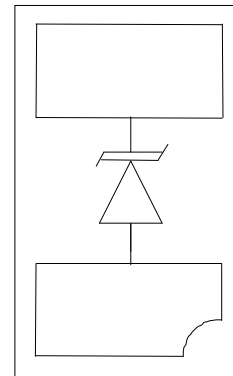
The UCLAMP1201P is in a 2-pin, RoHS/WEEE compliant, SLP1006P2 package. It measures 1.0 x 0.6 x 0.50mm. The leads are spaced at a pitch of 0.65mm and are finished with lead-free NiPdAu. Each device will protect one line operating at 12 volts. It gives the designer the flexibility to protect single lines in applications where arrays are not practical. 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 combination of small size and high ESD surge capability makes them ideal for use in portable applications such as cellular phones, digital cameras, and MP3 players.

## Features

- 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 I/O or power line
- Low clamping voltage
- Working voltage: 12V
- Low leakage current
- Solid-state silicon-avalanche technology

## Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (tp = 8/20 $\mu$ s)	$P_{pk}$	200	W
Maximum Peak Pulse Current (tp = 8/20 $\mu$ s)	$I_{pp}$	8	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	$V_{pp}$	+/- 20 +/- 15	kV
Operating Temperature	$T_J$	-55 to +125	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 to +150	$^{\circ}\text{C}$



SLP1006P2 (Bottom View)

## Applications

- Cellular Handsets & Accessories
- Personal Digital Assistants (PDAs)
- Notebooks & Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- MP3 Players

## Mechanical Characteristics

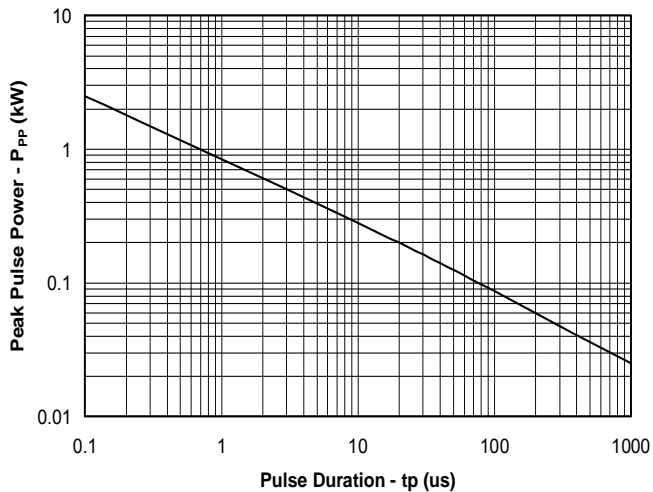
- SLP1006P2 package
- RoHS/WEEE Compliant
- Nominal Dimensions: 1.0 x 0.6 x 0.50 mm
- Lead Finish: NiPdAu
- Molding compound flammability rating: UL 94V-0
- Marking: Marking code, cathode band
- Packaging: Tape and Reel

**Electrical Characteristics (T=25°C)**

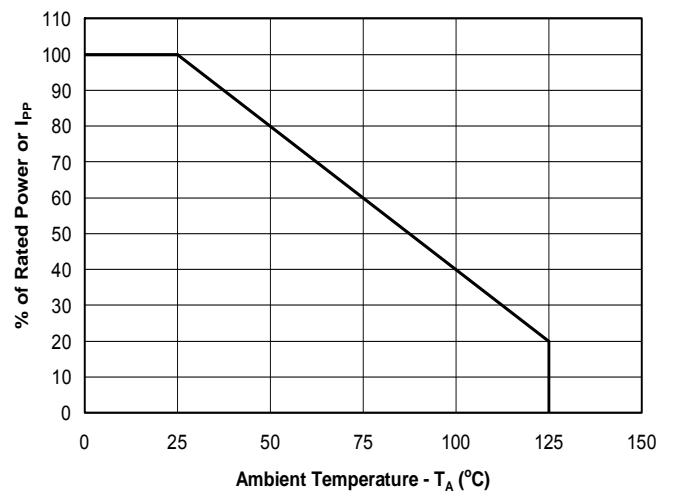
Parameter	Symbol	Conditions	Min	Typical	Max	Units
Reverse Stand-Off Voltage	$V_{RWM}$				12	V
Reverse Breakdown Voltage	$V_{BR}$	$I_t = 1mA$	13.3	15.5	17.5	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 12V, T=25^\circ C$		0.100	1	$\mu A$
Forward Voltage	$V_F$	$I_F = 10mA$		0.8		V
Clamping Voltage	$V_C$	$I_{PP} = 1A, t_p = 8/20\mu s$			19	V
Clamping Voltage	$V_C$	$I_{PP} = 8A, t_p = 8/20\mu s$			25	V
Junction Capacitance	$C_j$	$V_R = 0V, f = 1MHz$			60	pF

**Typical Characteristics**

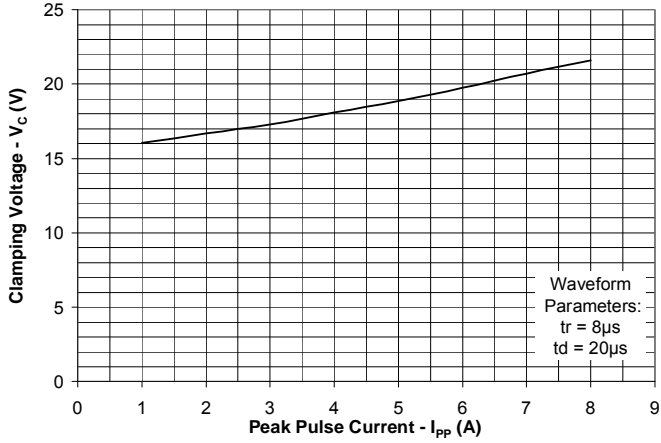
**Non-Repetitive Peak Pulse Power vs. Pulse Time**



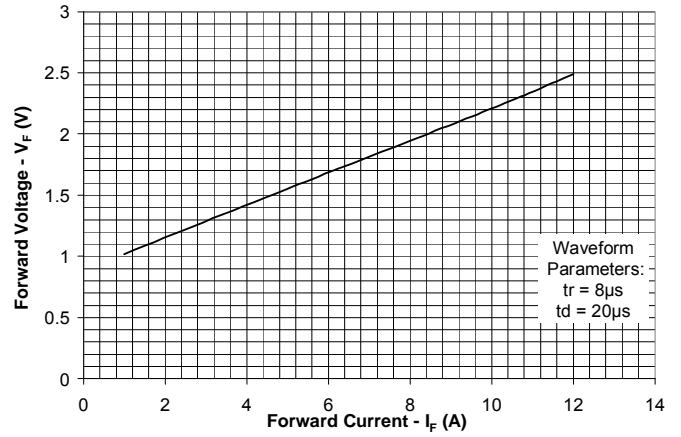
**Power Derating Curve**



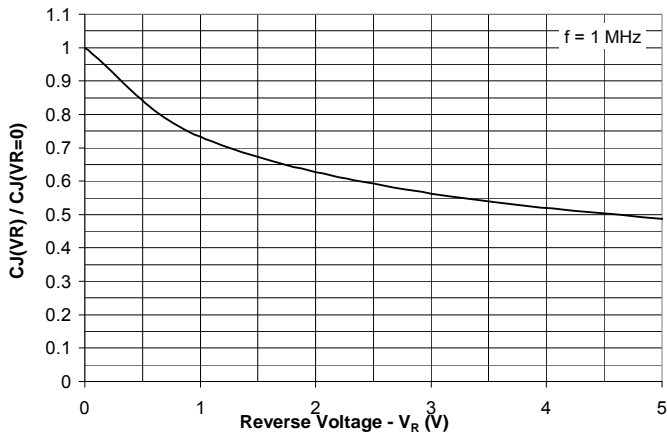
**Clamping Voltage vs. Peak Pulse Current**



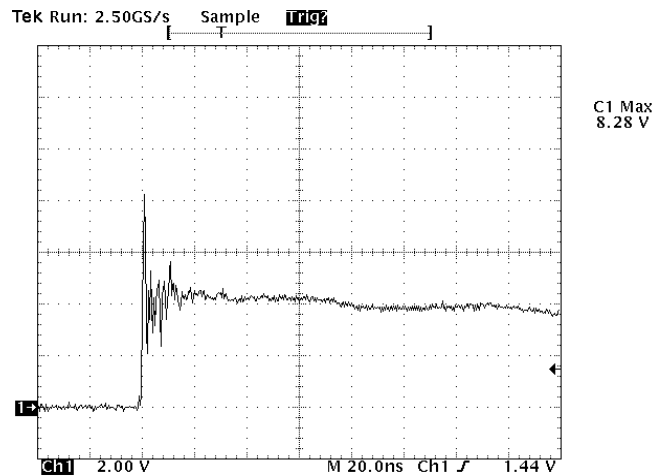
**Forward Voltage vs. Forward Current**



**Normalized Junction Capacitance vs. Reverse Voltage**

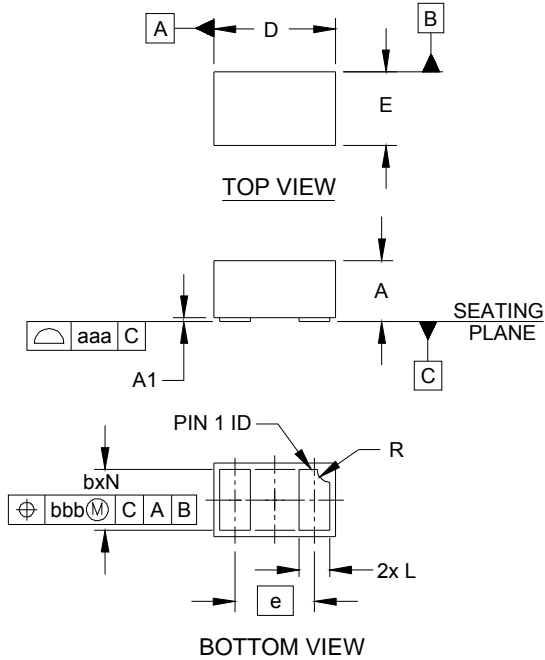


**ESD Clamping  
(8kV Contact per IEC 61000-4-2)**



Note: Data is taken with a 10x attenuator

**Outline Drawing - SLP1006P2**

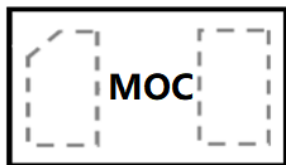


DIM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.016	.020	.022	0.40	0.50	0.55
A1	.000	.001	.002	0.00	0.03	0.05
b	.018	.020	.022	0.45	0.50	0.55
D	.035	.039	.043	0.90	1.00	1.10
E	.020	.024	.028	0.50	0.60	0.70
e	.026 BSC			0.65 BSC		
L	.008	.010	.012	0.20	0.25	0.30
R	.002	.004	.006	0.05	0.10	0.15
N	2			2		
aaa	.003			0.08		
bbb	.004			0.10		

**NOTES:**

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).

**Marking**



**Ordering information**

Order code	Package	Baseqty	Delivery mode
UCLAMP1201P	SLP1006P2	10000	Tape and reel