µClamp0501P
µClamp®
1-Line ESD Protection

PROTECTION PRODUCTS

Description

µClamp® series of TVS arrays are designed to protect sensitive electronics from damage or latch-up due to ESD and surge. They feature large cross-sectional area junctions for conducting high transient currents. They offer desirable characteristics for board level protection including fast response time, low operating and clamping voltage, and no device degradation.

µClamp0501P is in a 2-pin SLP1006P2 package, measuring1.0 x 0.6 x 0.5mm. Leads are spaced at a pitch of 0.65mm and are finished with lead-free NiPdAu. Each device will protect one uni-directional line operating at 5 volts. They may be used to meet the ESD immunity requirements of IEC 61000-4-2 (±15kV contact & ±20 air discharge). The combination of small size and high ESD surge capability makes them ideal for use in applications such as cellular phones, industrial equipment, and portable instrumentation.

Features

- High ESD withstand Voltage: +/-15kV (Contact) and +/-20kV (Air) per IEC 61000-4-2
- Ultra-small package(1.0 x 0.6 x 0.5mm)
- Protects one I/O or power line
- Low ESD clamping voltage
- Working voltage: +5V
- Low leakage current
- Solid-state silicon-avalanche technology

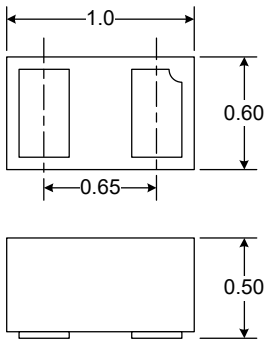
Mechanical Characteristics

- SLP1006P2 package
- Pb-Free, Halogen Free, RoHS/WEEE Compliant
- Lead Finish: NiPdAu
- Marking: Marking code
- Packaging: Tape and Reel

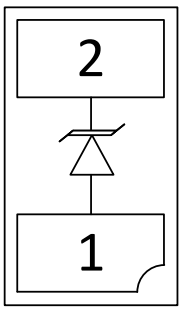
Applications

- Cellular Handsets & Accessories
- OLED Displays
- VBUS
- Notebooks & Handhelds
- Portable Instrumentation

Package Dimension



Schematic & Pin Configuration



SLP1006P2 (Bottom View)

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (t_p = 8/20µs)	P_{PK}	200	W
Peak Pulse Current (t_p = 8/20µs)	I_{PP}	16	A
ESD per IEC 61000-4-2 (Air)(1) ESD per IEC 61000-4-2 (Contact)(1)	V_{ESD}	±20 ±15	kV
Operating Temperature	T_{OP}	-55 to +125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

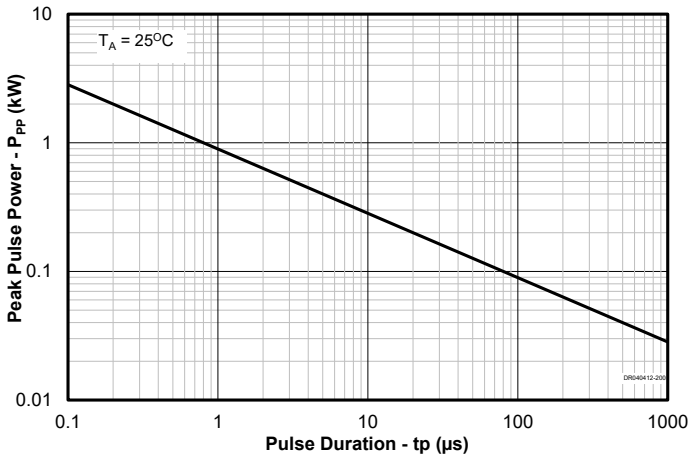
Electrical Characteristics (T=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-Off Voltage	V_{RWM}	Pin 2 to 1			5	V
Reverse Breakdown Voltage	V_{BR}	I_t = 1mA, Pin 2 to 1	6			V
Reverse Leakage Current	I_R	V_{RWM} = 5V, Pin 2 to 1			5	µA
Forward Voltage	V_F	I_F = 10mA, Pin 1 to 2		0.8		V
Clamping Voltage	V_C	I_{PP}=5A, t_p = 8/20µs, Pin 2 to 1			9.8	V
		I_{PP}=16A, t_p = 8/20µs, Pin 2 to 1			12.5	
Junction Capacitance	C_J	V_R = 0V, f = 1MHz			160	pF

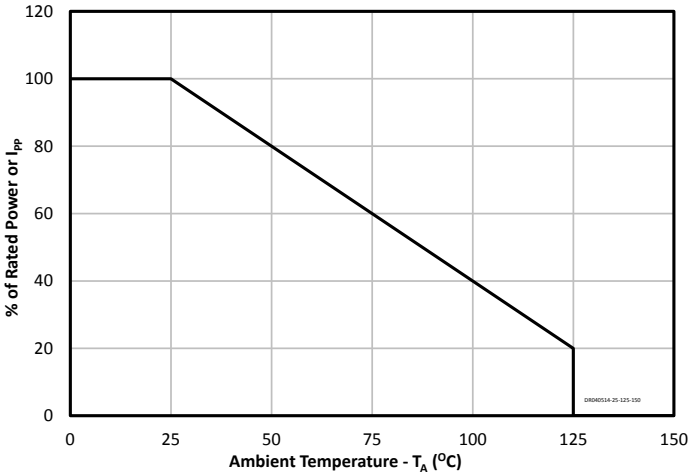
Notes: 1) ESD gun return path connected to ESD ground plane

Typical Characteristics

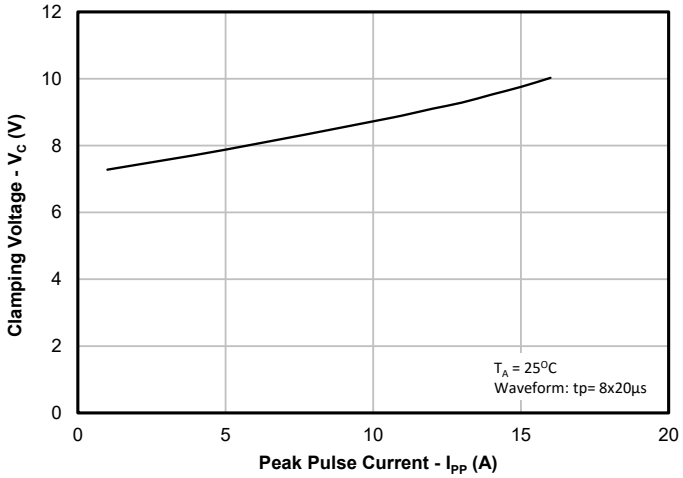
Non-Repetitive Peak Pulse Power vs. Pulse Time



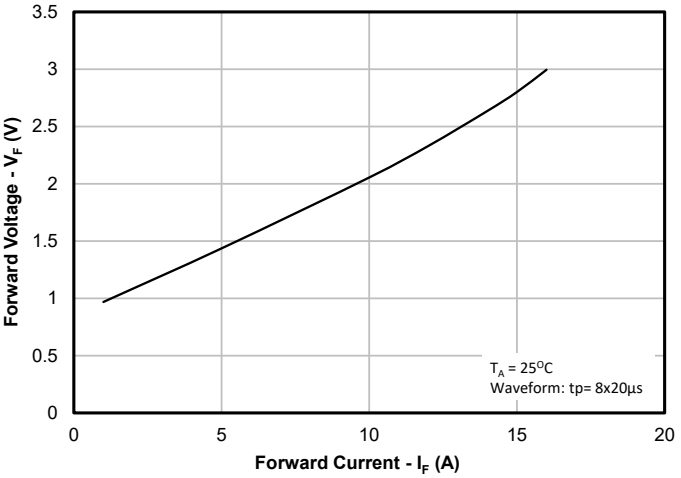
Power Derating Curve



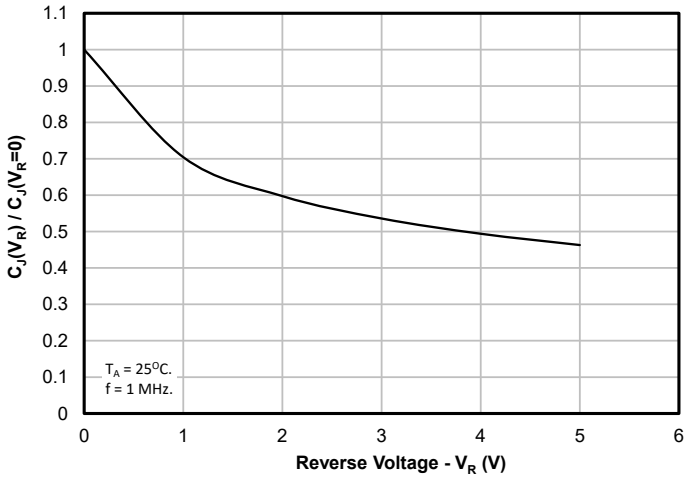
Clamping Voltage vs. Peak Pulse Current



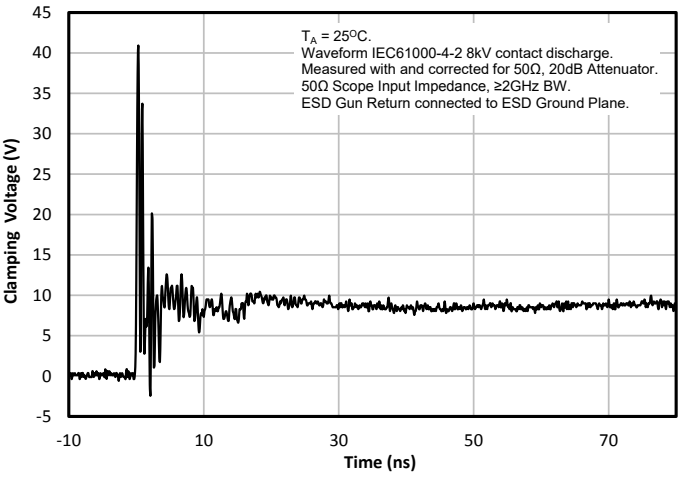
Forward Voltage vs. Forward Current



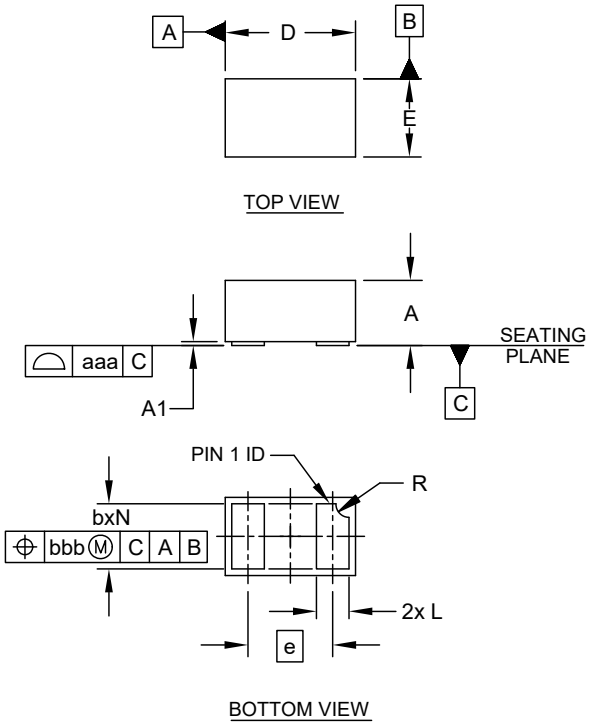
Normalized Junction Capacitance vs. Reverse Voltage



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



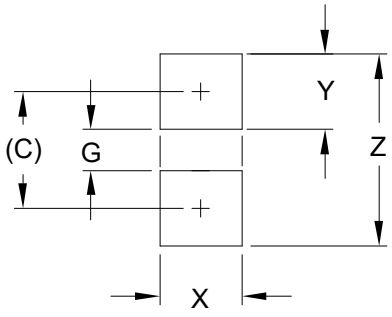
Outline Drawing - SLP1006P2



DIMENSIONS			
DIM	MILLIMETERS		
	MIN	NOM	MAX
A	0.47	0.50	0.53
A1	0.00	0.03	0.05
b	0.45	0.50	0.55
D	0.95	1.00	1.05
E	0.55	0.60	0.65
e	0.65 BSC		
L	0.20	0.25	0.30
R	0.05	0.10	0.15
N	2		
aaa	0.08		
bbb	0.10		

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

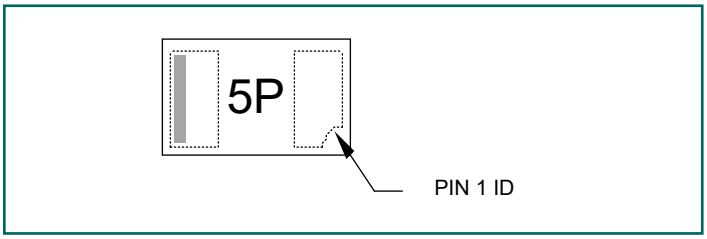
Land Pattern - SLP1006P2



DIMENSIONS	
DIM	MILLIMETERS
C	(0.85)
G	0.30
X	0.60
Y	0.55
Z	1.40

NOTES:
1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY. CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.

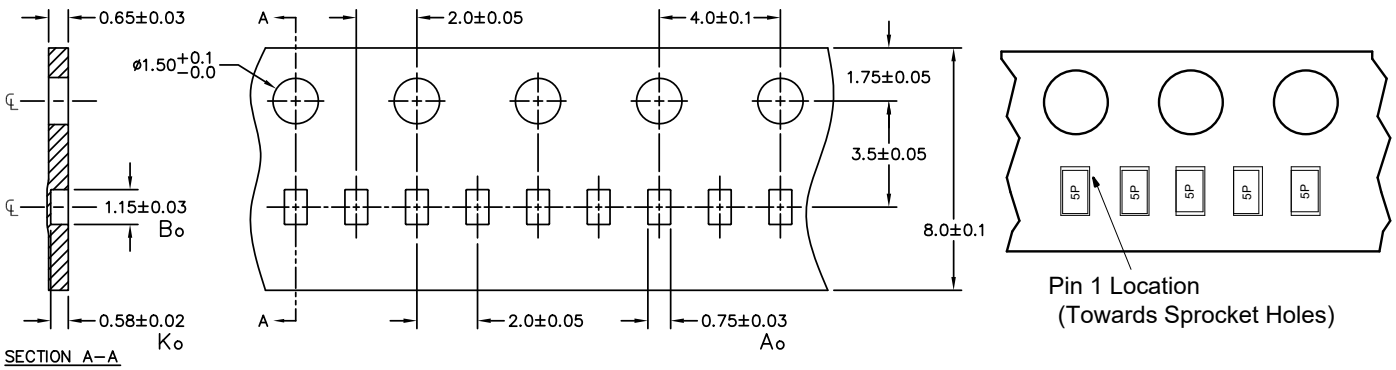
Marking Code



Note: Cathode bar at Pin 2

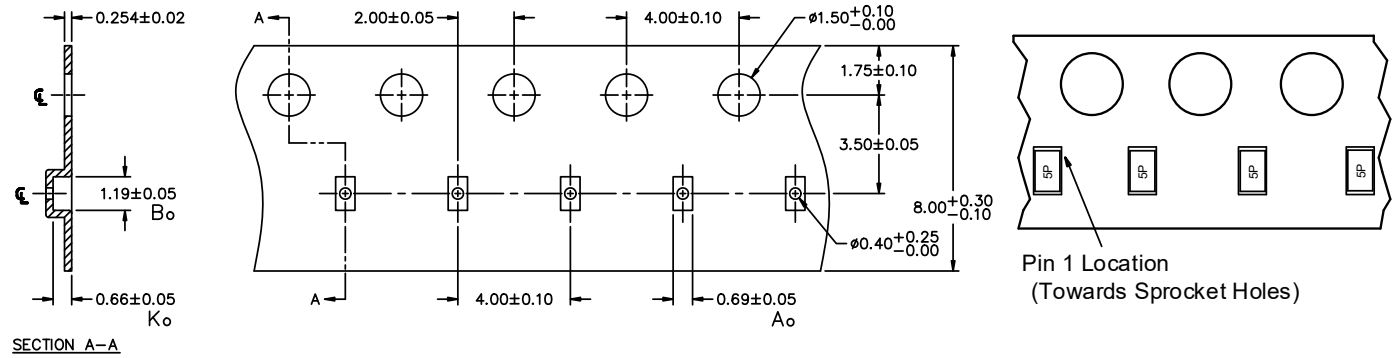
Tape and Reel Specification

Paper Carrier Tape



NOTES: ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

Plastic Carrier Tape



NOTES: 1.) ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

Ordering Information

Part Number	Qty per Reel	Tape Material	Reel Size
µClamp0501P.TFT	15000	Paper	7 Inch
µClamp0501P.TCT	3000	Plastic	7 Inch

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