Absolute Maximum Rating

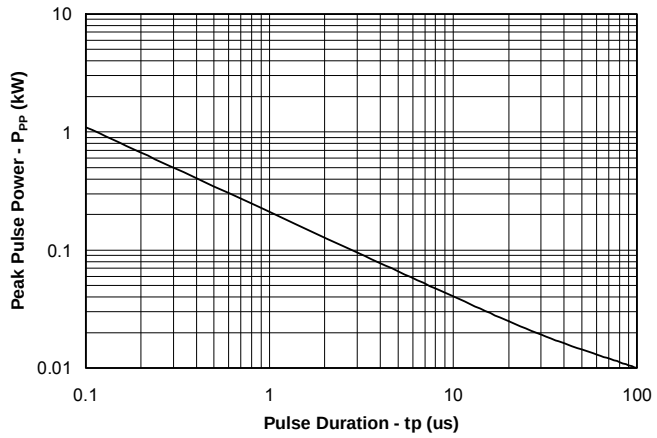
Rating	Symbol	Value	Units
Peak Pulse Power (tp = 8/20µs)	P_{pk}	25	Watts
Maximum Peak Pulse Current (tp = 8/20µs)	I_{pp}	2	Amps
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	+/- 20 +/- 15	kV
Operating Temperature	T_J	-55 to +125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

Electrical Characteristics (T=25°C)

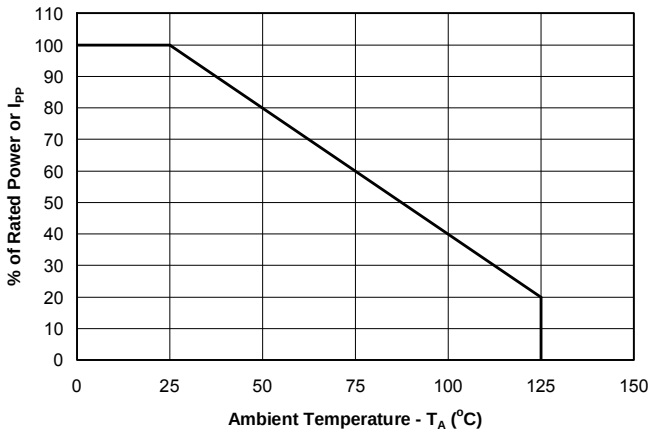
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	I_t = 1mA	6	7.1	8.5	V
Reverse Leakage Current	I_R	V_{RWM} = 5V, T=25°C		0.010	0.10	µA
Forward Voltage	V_F	I_F = 10mA		1	1.2	V
Clamping Voltage	V_C	I_{PP} = 2A, t_p = 8/20µs			12.5	V
Junction Capacitance	C_j	V_R = 0V, f = 1MHz			10	pF
Junction Capacitance	C_j	V_R = 3.3V, f = 1MHz		4.5		pF

Typical Characteristics

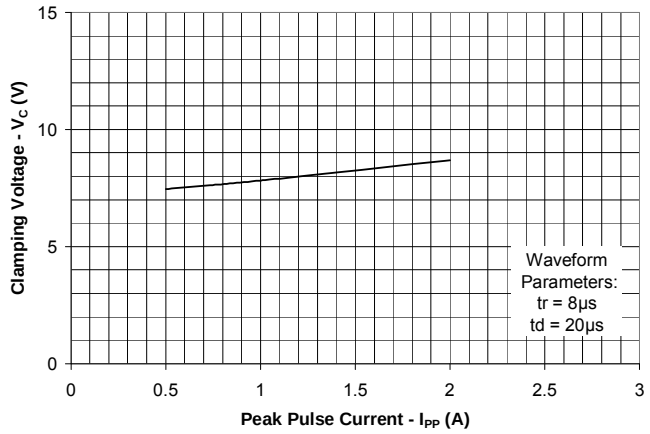
Non-Repetitive Peak Pulse Power vs. Pulse Time



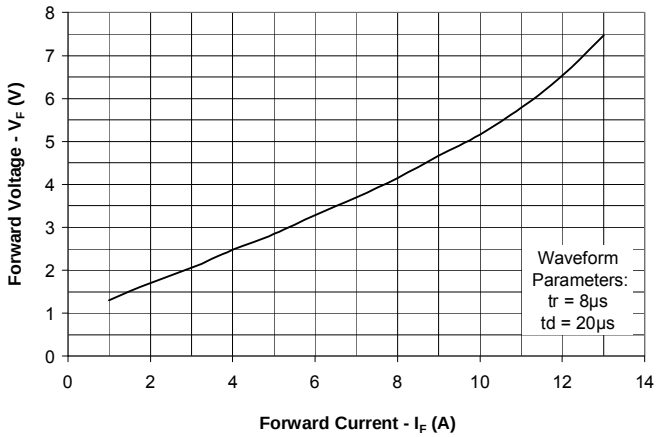
Power Derating Curve



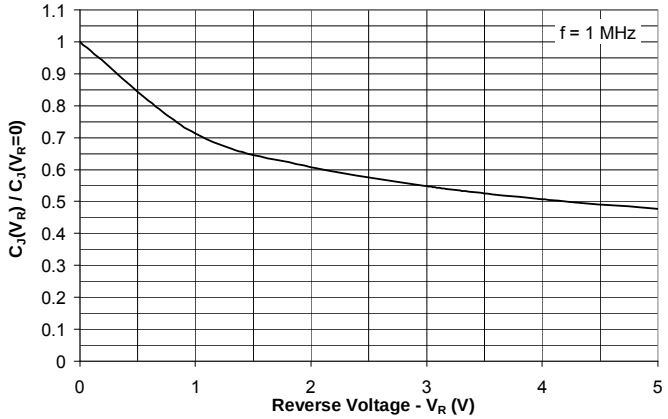
Clamping Voltage vs. Peak Pulse Current



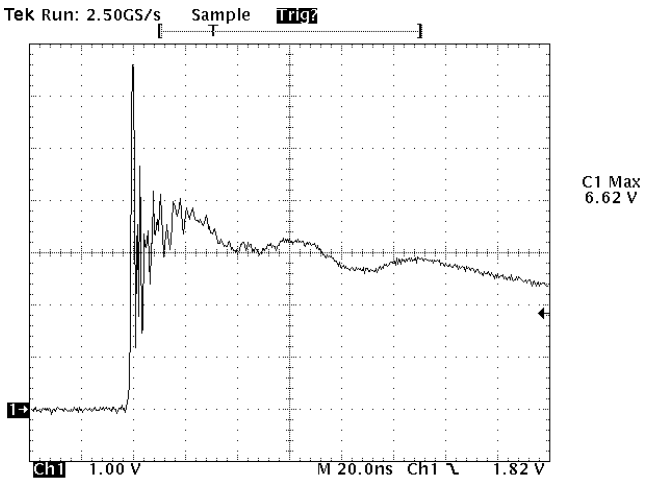
Forward Voltage vs. Forward Current



Normalized Junction Capacitance vs. Reverse Voltage



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



Note: Data is taken with a 10x attenuator

Applications Information

Device Connection

This device is designed to protect four data lines. The device is unidirectional and may be used on lines where the signal polarity is above ground.

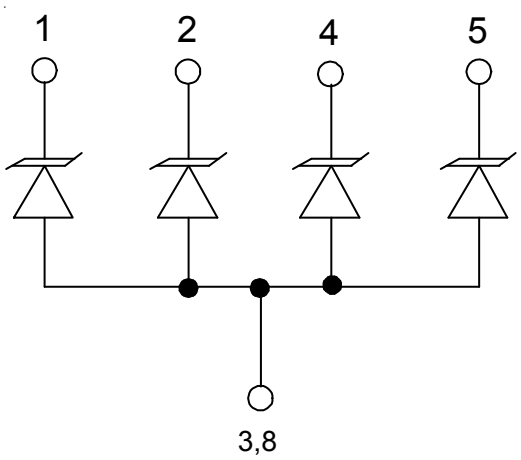
The uClamp0544P is designed such that the traces flow straight through the device. This is accomplished by using PCB traces to connect the pin pairs for each line (pin 1 to pin 10, pin 2 to pin 9, pin 4 to pin 7, pin 5 to pin 6). For example, line 1 enters at pin 1 and exits at Pin 10 and the PCB trace connects pin 1 and 10 together. This is true for lines connected at pins 2, 4, and 5 also. Ground is connected at pins 3 and 8. One large ground pad should be used in lieu of two separate pads. Multiple ground vias are recommended in order to reduce inductance in the ground path. This will maximize the device's effectiveness during an ESD event.

Circuit Board Layout Recommendations for Suppression of ESD.

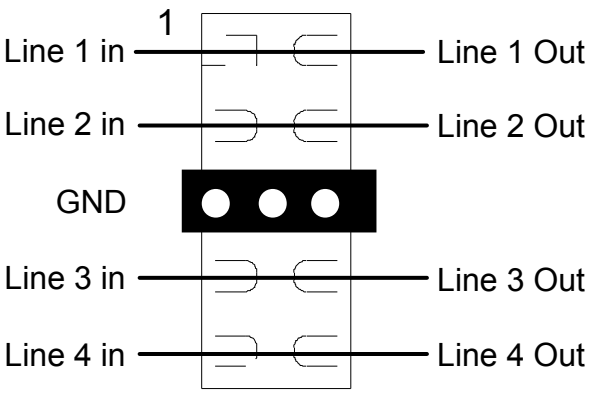
Good circuit board layout is critical for the suppression of ESD induced transients. The following guidelines are recommended:

- Place the TVS near the input terminals or connectors to restrict transient coupling.
- Minimize the path length between the TVS and the protected line.
- Minimize all conductive loops including power and ground loops.
- The ESD transient return path to ground should be kept as short as possible.
- Never run critical signals near board edges.
- Use ground planes whenever possible.

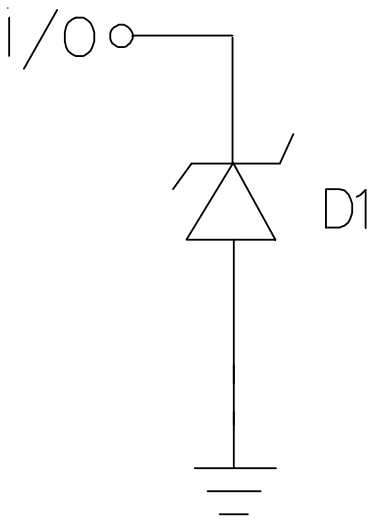
Circuit Diagram



Layout Example



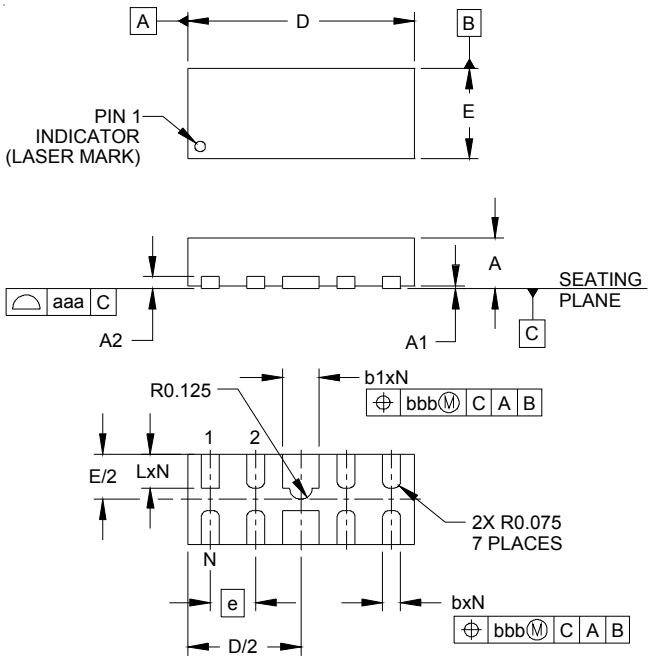
Applications Information - Spice Model



Spice Model

uClamp0544P Spice Parameters		
Parameter	**Unit**	**D1 (TVS)**
IS	Amp	2.05e-15
BV	Volt	7.2
VJ	Volt	0.79
RS	Ohm	0.908
IBV	Amp	1.0E-3
CJO	Farad	9.7e-12
TT	sec	2.541E-9
M	--	0.25
N	--	1.1
EG	eV	1.11

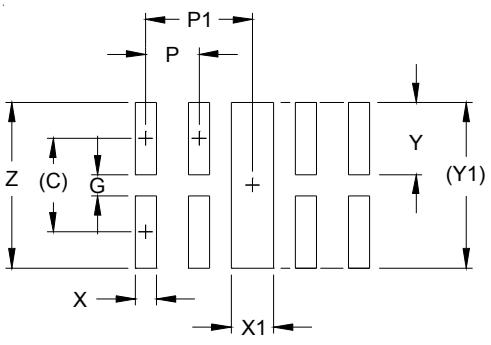
Outline Drawing - SLP2510P8



DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.020	.023	.026	0.50	0.58	0.65
A1	0.00	.001	.002	0.00	0.03	0.05
A2		(.005)			(0.13)	
b	.006	.008	.010	0.15	0.20	0.25
b1	.014	.016	.018	0.35	0.40	0.45
D	.094	.098	.102	2.40	2.50	2.60
E	.035	.039	.043	0.90	1.00	1.10
e		.020 BSC			0.50 BSC	
L	.012	.015	.017	0.30	0.38	0.425
N		8			8	
aaa		.003			0.08	
bbb		.004			0.10	

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

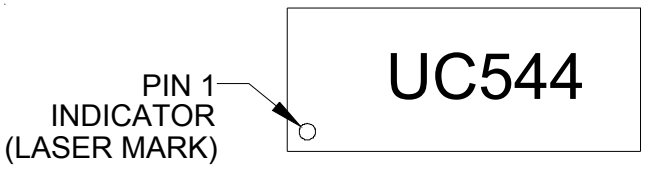
Land Pattern - SLP2510P8



DIM	INCHES	MILLIMETERS
C	(.034)	(0.875)
G	.008	0.20
P	.020	0.50
P1	.039	1.00
X	.008	0.20
X1	.016	0.40
Y	.027	0.675
Y1	(.061)	(1.55)
Z	.061	1.55

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

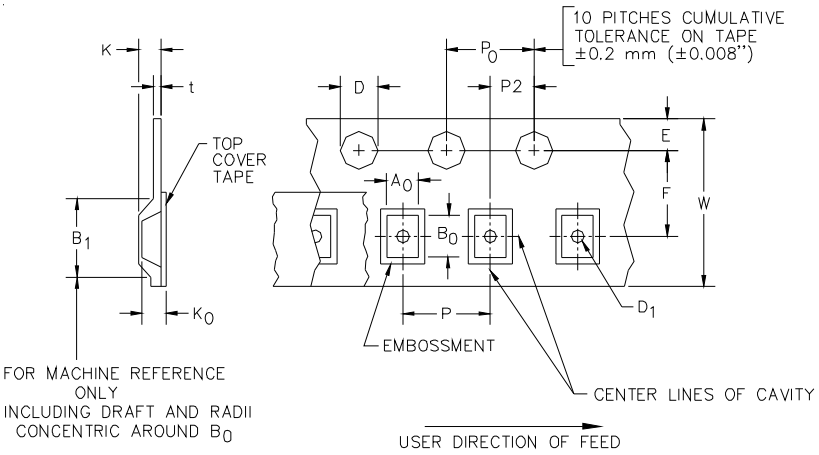


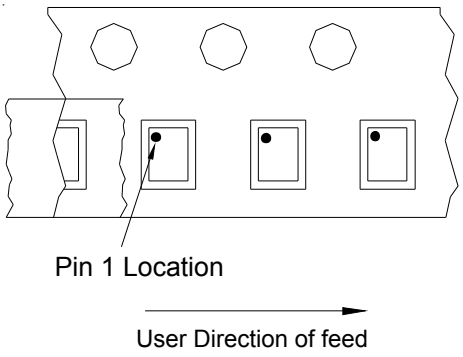
Ordering Information

Part Number	Working Voltage	Qty per Reel	Reel Size
uClamp0544P.TCT	5V	3,000	7 Inch

Notes:
1) This is a lead-free, RoHS/WEEE compliant product
MicroClamp, uClamp and µClamp are marks of Semtech Corporation

Tape and Reel Specification





Device Orientation in Tape

A0	B0	K0
1.23 +/-0.10 mm	2.70 +/-0.10 mm	0.70 +/-0.10 mm

Tape Width	B, (Max)	D	D1	E	F	K (MAX)	P	P0	P2	T(MAX)	W
8 mm	4.2 mm (.165)	1.5 + 0.1 mm - 0.0 mm (0.59 +.005 - .000)	0.8 mm ±0.05 (.031)	1.750±.10 mm (.069±.004)	3.5±0.05 mm (.138±.002)	2.4 mm (.094)	4.0±0.1 mm (.157±.00-4)	4.0±0.1 mm (.157±.00-4)	2.0±0.05m-m (.079±.002)	0.4 mm (.016)	8.0 mm + 0.3 mm - 0.1 mm (.312±.012)

Contact Information

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