

PROTECTION PRODUCTS
Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 8/20\mu s$)	P_{pk}	100	Watts
Maximum Peak Pulse Current ($t_p = 8/20\mu s$)	I_{pp}	7	Amps
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{pp}	+/- 20 +/- 12	kV
Lead Soldering Temperature	T_L	260 (10 sec.)	°C
Operating Temperature	T_J	-55 to +125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

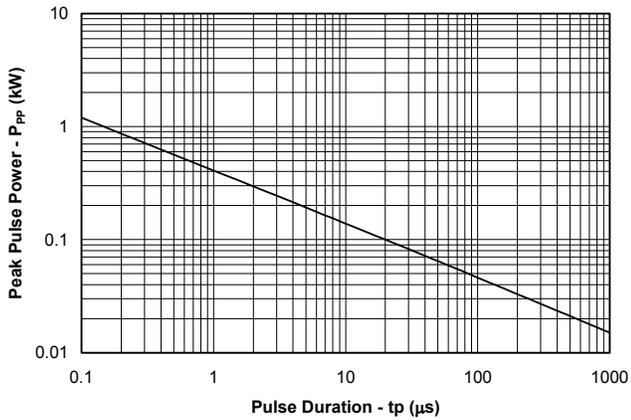
Electrical Characteristics (T=25°C)

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1mA$	6			V
Reverse Leakage Current	I_R	$V_{RWM} = 5V, T=25^\circ C$			1	μA
Reverse Leakage Current	I_R	$V_{RWM} = 3V, T=25^\circ C$			0.500	μA
Forward Voltage	V_F	$I_F = 10mA$		0.80		V
Clamping Voltage	V_C	$I_{pp} = 1A, t_p = 8/20\mu s$			10	V
Clamping Voltage	V_C	$I_{pp} = 7A, t_p = 8/20\mu s$			12	V
Junction Capacitance	C_j	Between I/O Pins and Gnd $V_R = 0V, f = 1MHz$		60	75	pF

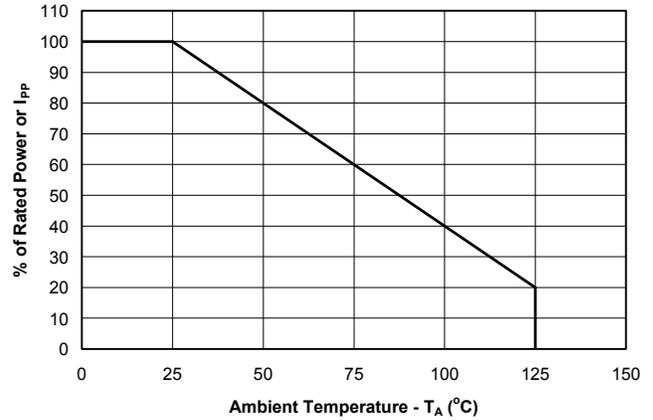
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Typical Characteristics

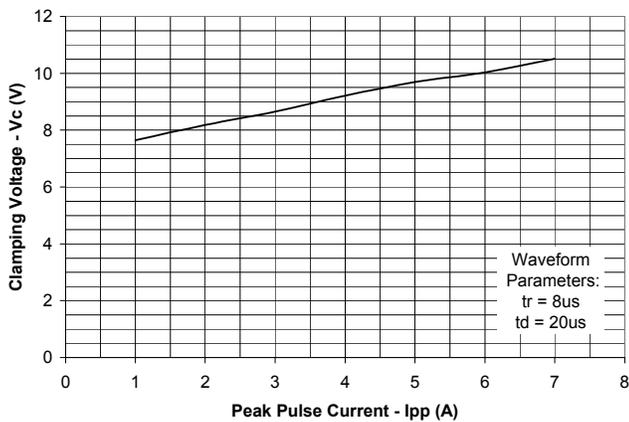
Non-Repetitive Peak Pulse Power vs. Pulse Time



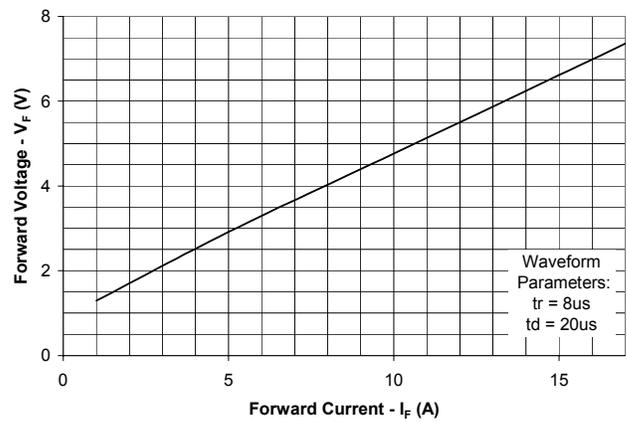
Power Derating Curve



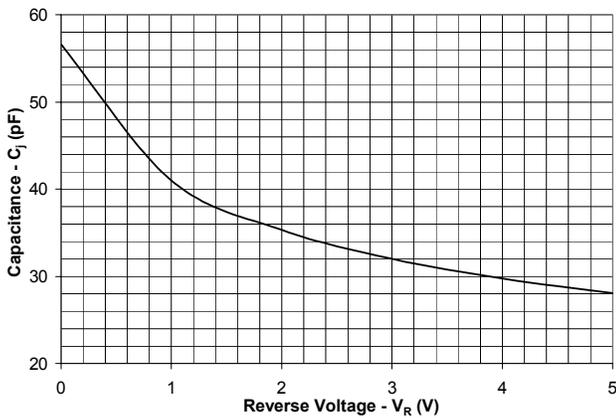
Clamping Voltage vs. Peak Pulse Current



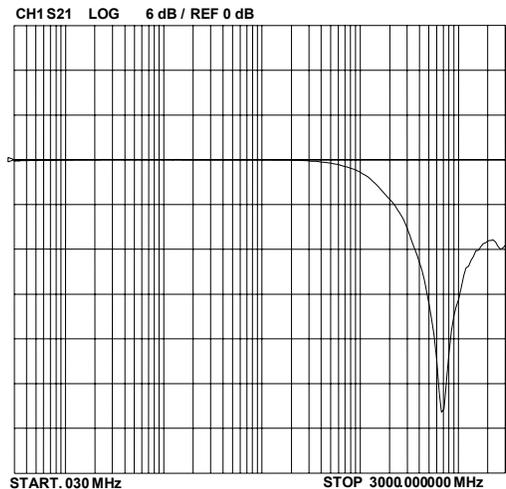
Forward Voltage vs. Forward Current



Junction Capacitance vs. Reverse Voltage



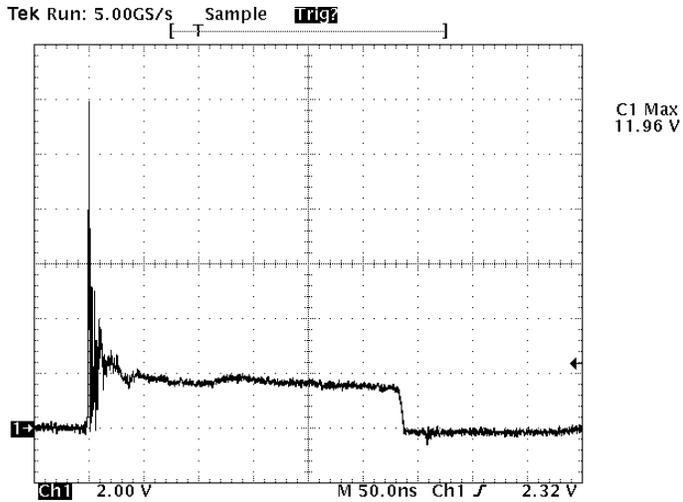
Insertion Loss S21



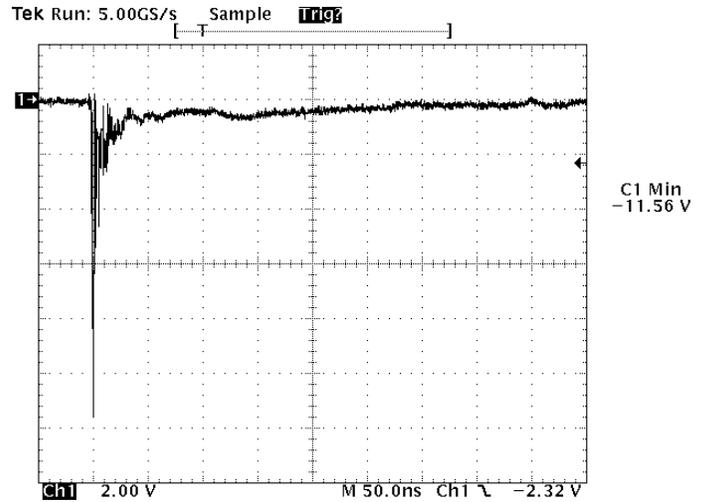
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Typical Characteristics (Con't.)

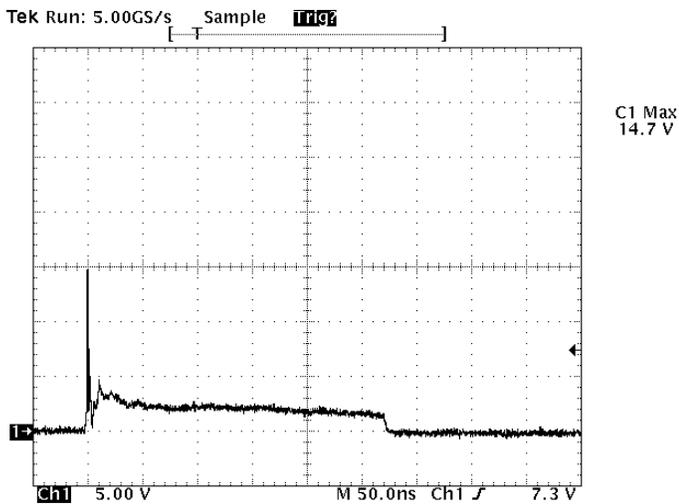
**ESD Clamping
(8kV Contact per IEC 61000-4-2)**



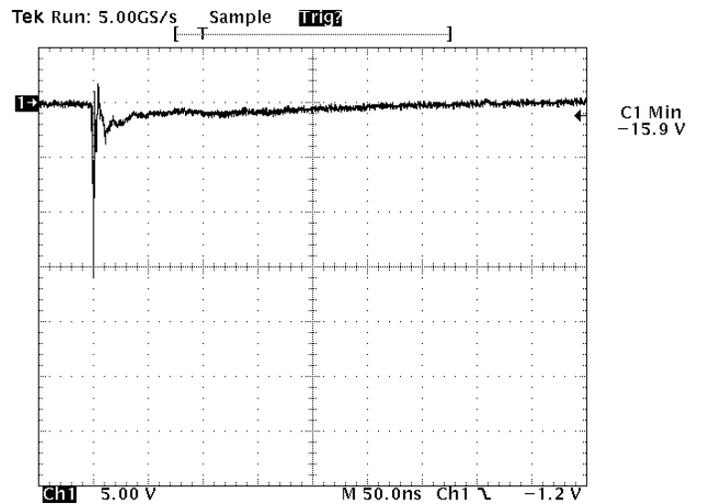
**ESD Clamping
(-8kV Contact per IEC 61000-4-2)**



**ESD Clamping
(15kV air per IEC 61000-4-2)**



**ESD Clamping
(-15kV air per IEC 61000-4-2)**



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Applications Information

Device Connection for Protection of Five Data Lines

These devices are designed to protect up to five unidirectional data lines. The device is connected as follows:

1. Unidirectional protection of five I/O lines is achieved by connecting pins 1, 3, 4, 5, and 6 to the data lines. Pin 2 is connected to ground. The ground connection should be made directly to the ground plane for best results. The path length is kept as short as possible to reduce the effects of parasitic inductance in the board traces.

Circuit Board Layout Recommendations for Suppression of ESD.

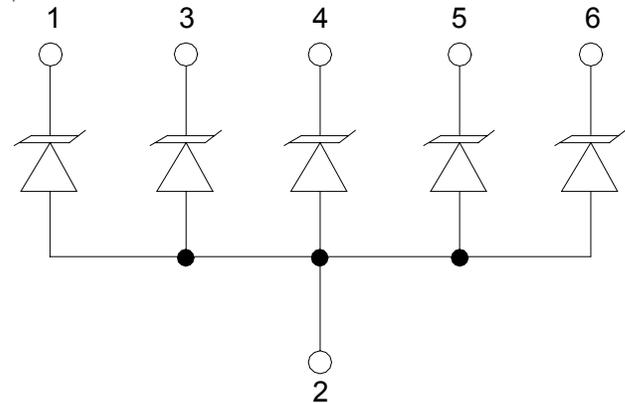
Good circuit board layout is critical for the suppression of ESD induced transients. The following guidelines are recommended:

- 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.

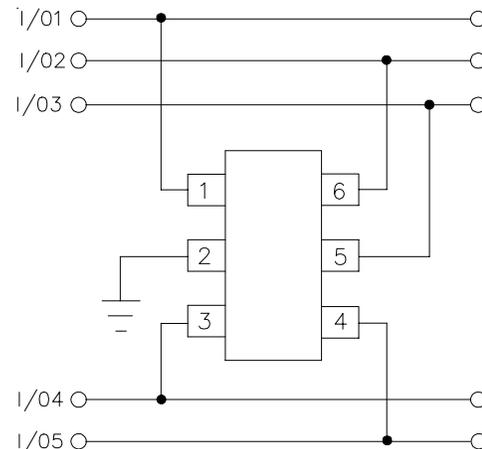
Matte Tin Lead Finish

Matte tin has become the industry standard lead-free replacement for SnPb lead finishes. A matte tin finish is composed of 100% tin solder with large grains. Since the solder volume on the leads is small compared to the solder paste volume that is placed on the land pattern of the PCB, the reflow profile will be determined by the requirements of the solder paste. Therefore, these devices are compatible with both lead-free and SnPb assembly techniques. In addition, unlike other lead-free compositions, matte tin does not have any added alloys that can cause degradation of the solder joint.

Circuit Diagram

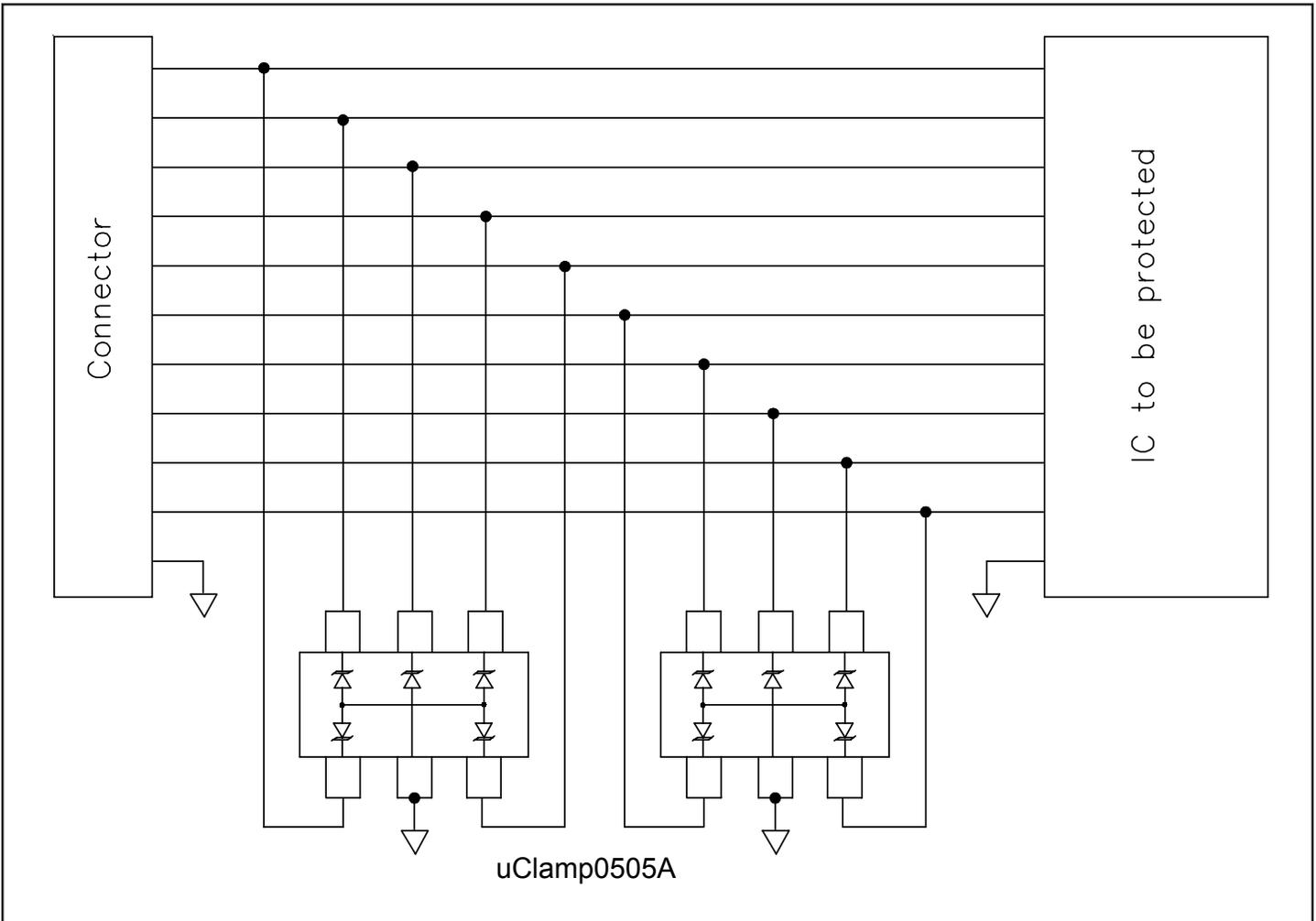


Protection of Five Unidirectional Lines



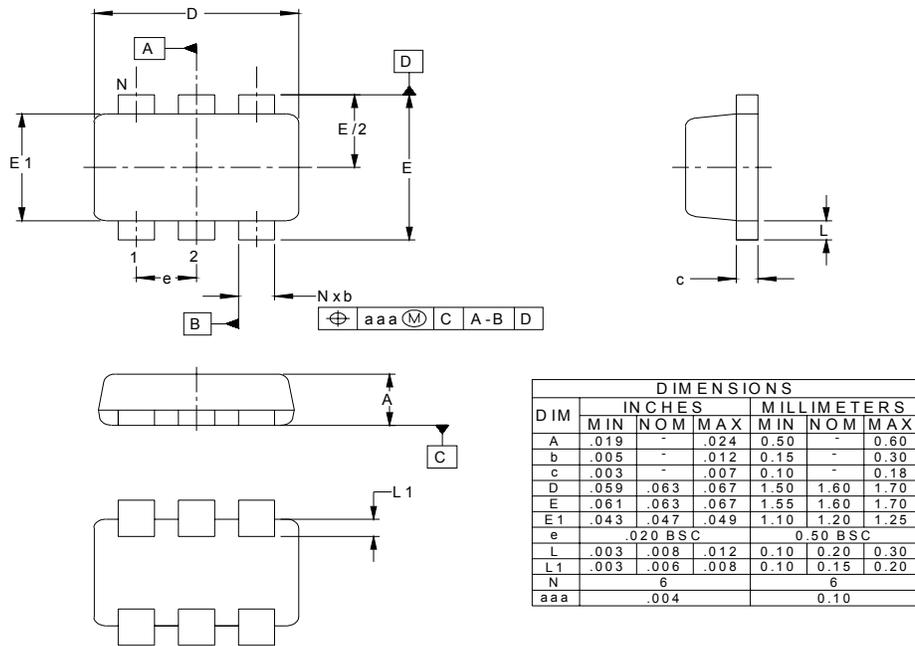
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Typical Applications



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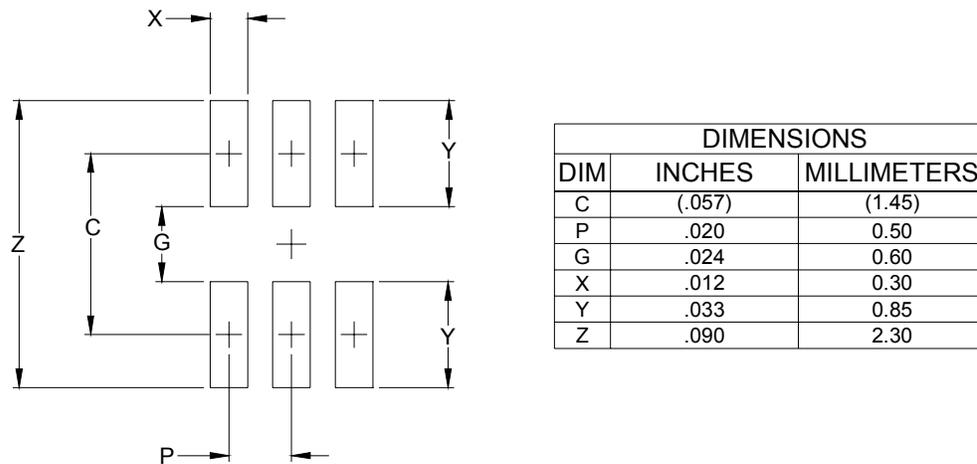
Outline Drawing - SC-89 (SOT-666)



NOTES:

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. DIMENSIONS "E1" AND "D" DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

Land Pattern - SC-89 (SOT-666)

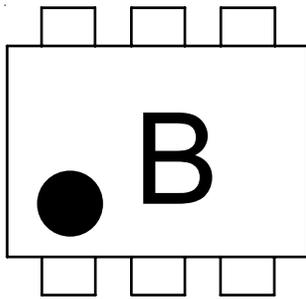


NOTES:

1. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.

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Marking Code



Ordering Information

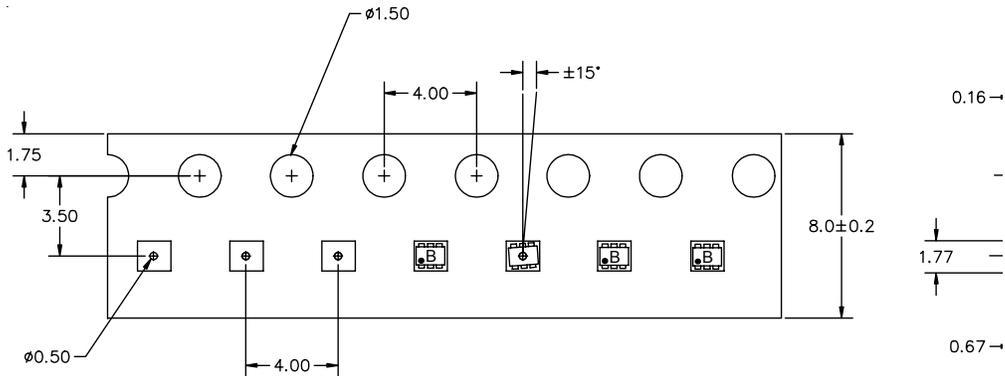
Part Number	Working Voltage	Device Marking	Qty per Reel	Reel Size
uClamp0505A.TCT	5V	B	3,000	7 Inch

MicroClamp, uClamp and μ Clamp are trademarks of Semtech Corporation

Note:

- (1) Pin 1 Identified with a dot
- (2) Lead finish is matte tin

Tape and Reel Specification



☐ DIMENSIONS ARE IN MILLIMETERS.

☐ SAME AS 3M US046041.

Tape Specification and Device Orientation

Contact Information

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