Absolute Maximum Rating

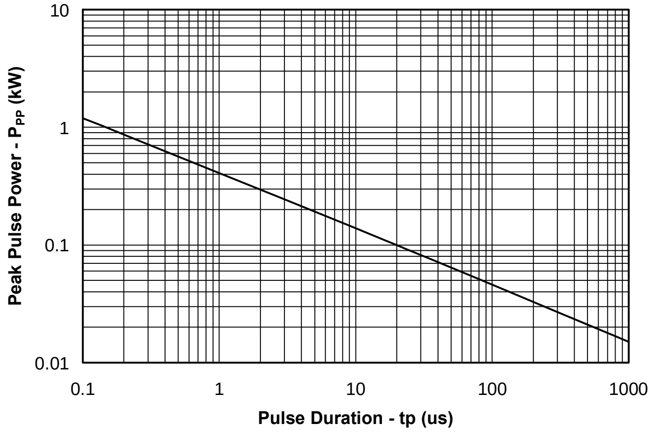
Rating	Symbol	Value	Units
Peak Pulse Power (tp = 8/20μs)	P_{pk}	100	Watts
Peak Pulse Current (tp = 8/20μs)	I_{PP}	4	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	+/- 25 +/- 15	kV
Operating Temperature	T_J	-55 to +125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

Electrical Characteristics ($T=25^oC$)

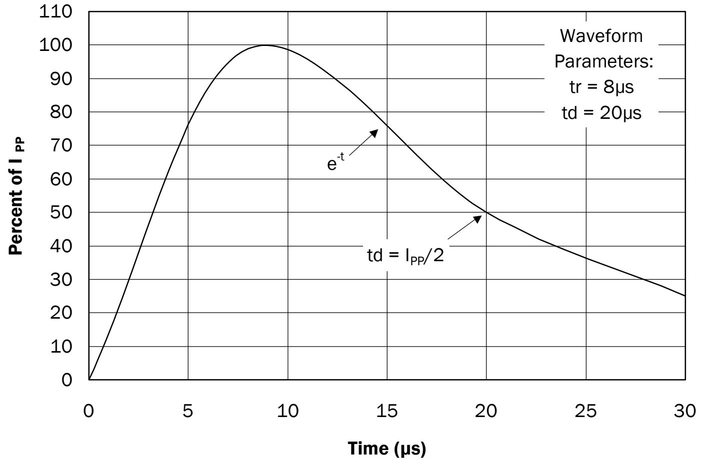
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}	Any I/O to GND			5	V
Reverse Breakdown Voltage	V_{BR}	I_t = 1mA, Any I/O to GND	6.5	9	11	V
Reverse Leakage Current	I_R	V_{RWM} = 5.0V, Any I/O to GND		0.005	0.100	μA
Clamping Voltage	V_C	I_{PP} = 1A, tp = 8/20μs Any I/O to GND			15	V
Clamping Voltage	V_C	I_{PP} = 4A, tp = 8/20μs Any I/O to GND			25	V
Junction Capacitance	C_j	V_R = 0V, f = 1MHz, Any I/O to GND		0.25	0.4	pF

Typical Characteristics

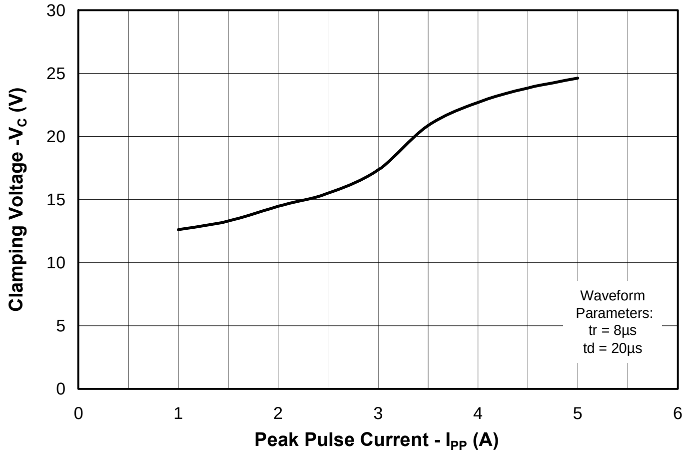
Non-Repetitive Peak Pulse Power vs. Pulse Time



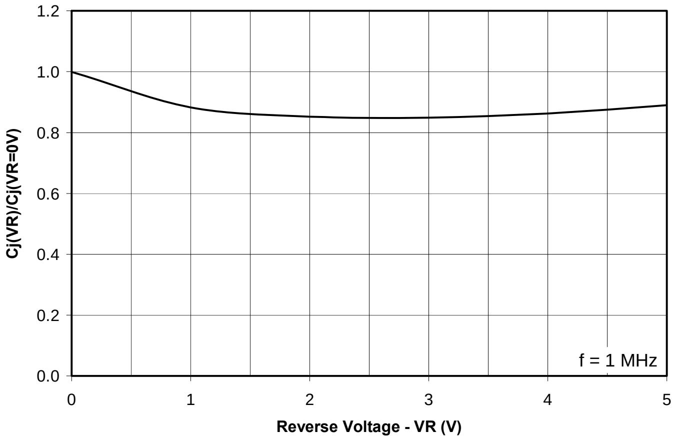
Pulse Waveform



Clamping Voltage vs. Peak Pulse Current (Between any I/O and Ground)

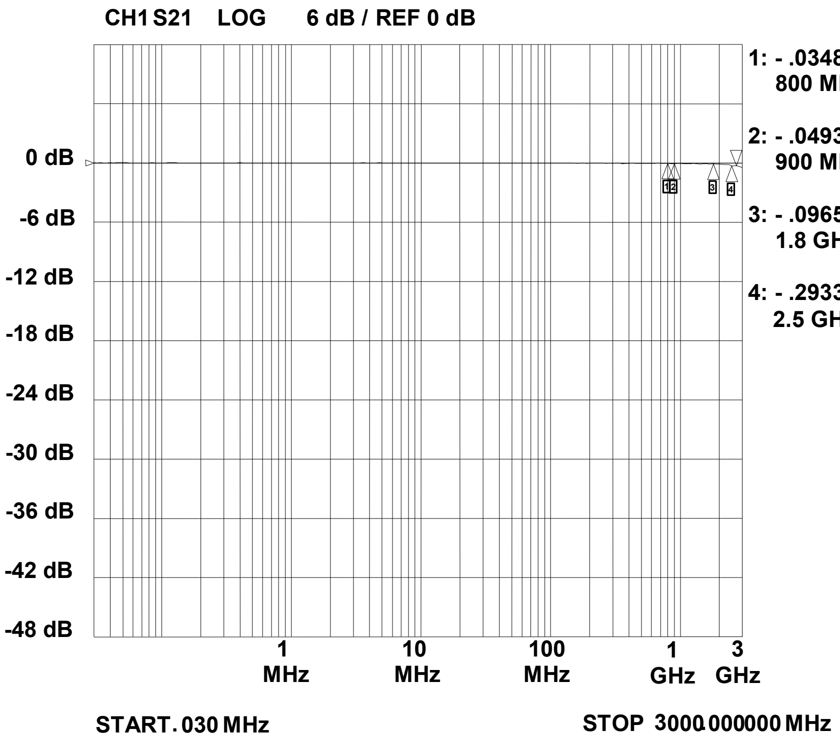


Normalized Capacitance vs. Reverse Voltage

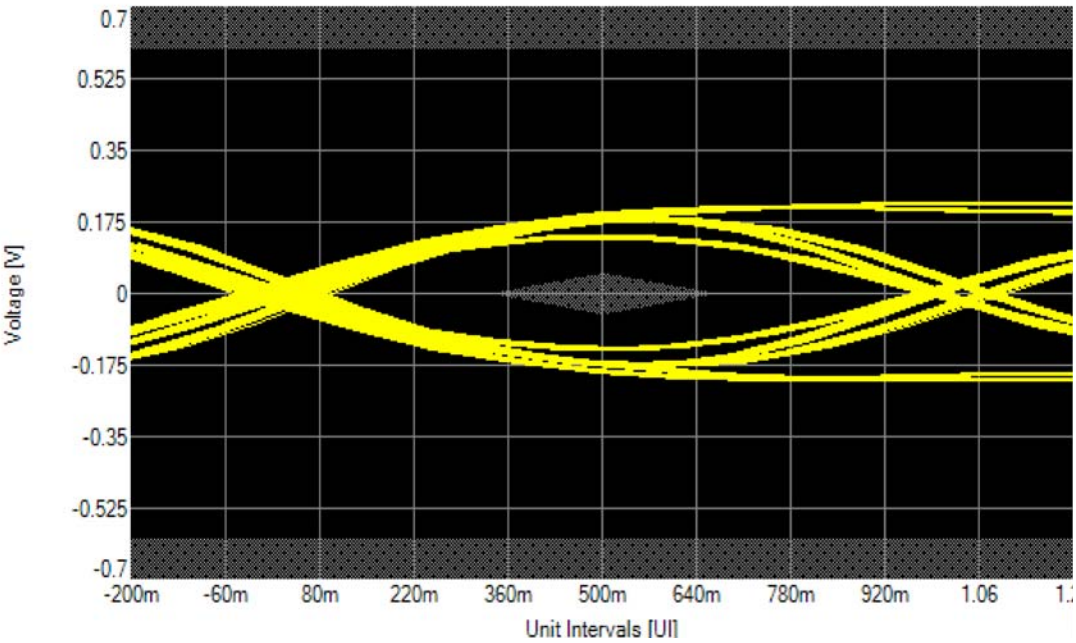


Typical Characteristics (Con't)

Insertion Loss S21 - I/O to GND

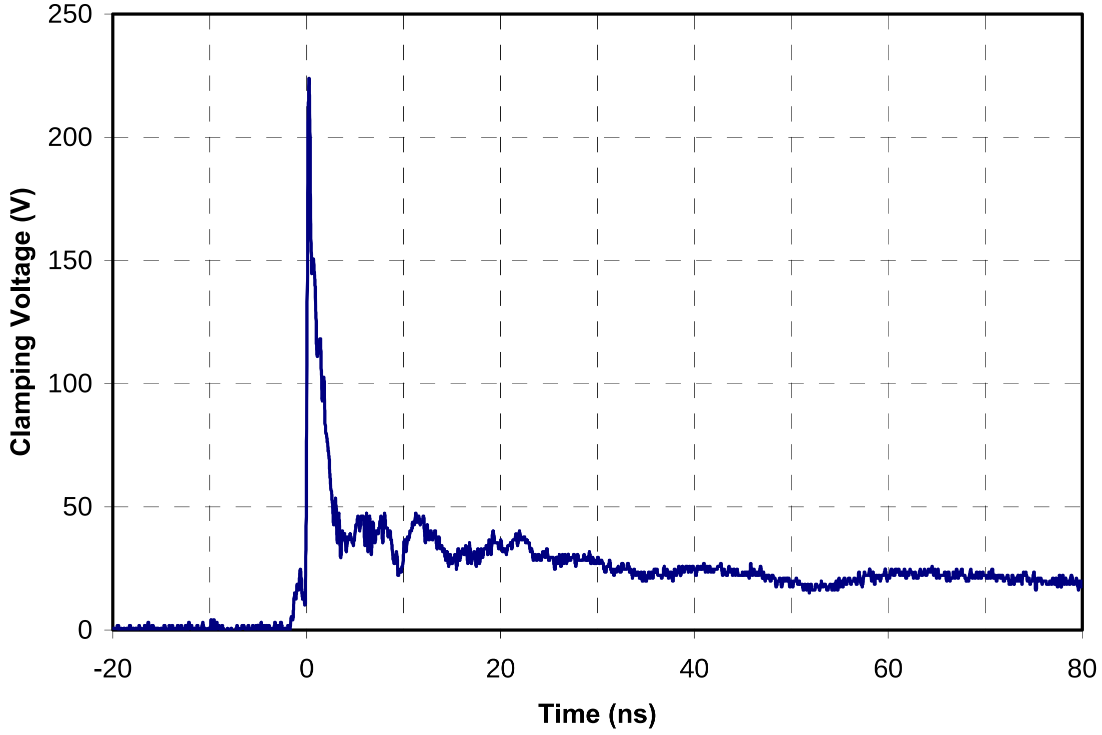


USB 3.0 Eye Pattern with RClamp7522T

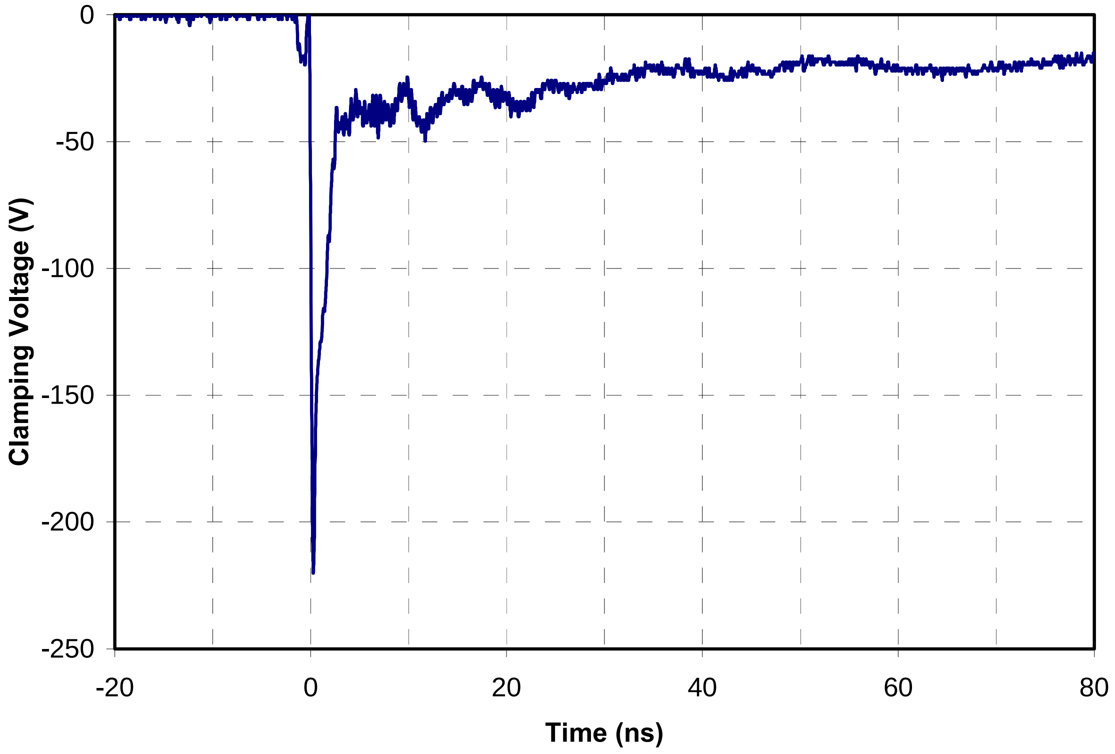


Typical Characteristics (Con't)

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

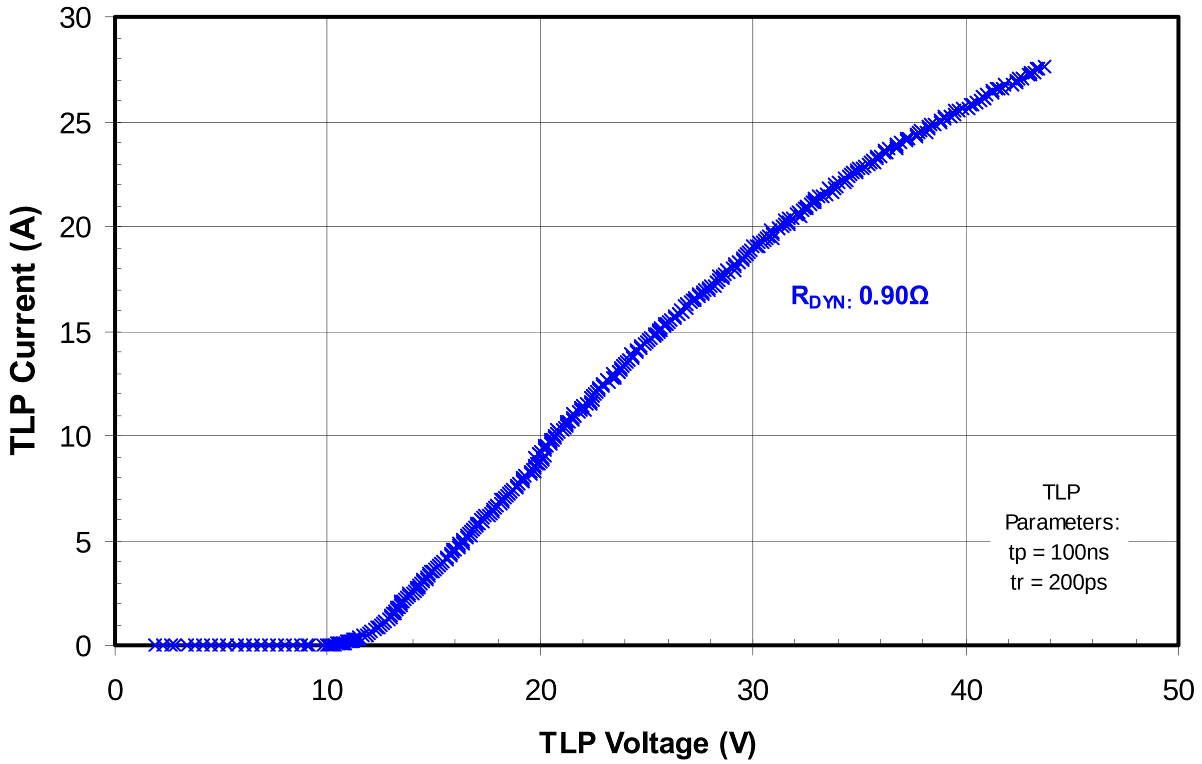


ESD Clamping (-8kV Contact per IEC 61000-4-2)



Typical Characteristics (Con't)

TLP Characteristic



Applications Information

Design Recommendations for USB Protection

The RClamp7522T is specifically designed for protection of high-speed interfaces. They present <0.40pF capacitance between any line and ground while being rated to handle >±15kV ESD contact discharges (>±25kV air discharge) as outlined in IEC 61000-4-2. Each device is in a leadless SLP package that occupies a nominal PCB area of 0.7mm^2. The pin configuration is designed such that the traces can be routed straight through the device. The narrow package and flow-through design reduces discontinuity and minimizes impact on signal integrity.

Design Recommendations for Camera Data Line Protection

Figure 2 shows the recommended pin configuration for protection of camera data lines in mobile phone applications. The camera data lines are connected at pins 3, 4, and 5. The ground connection is made at pin 1. The steering diodes at pin 1 serve to reduce the overall line capacitance.

Design Recommendations for USB Protection

Figure 3 shows the recommended pin configuration for protection of USB data lines. The voltage supply bus is connected at pin 1. The steering diode pair at pin 1 serve as backdrive protection for operation during power down. Data lines are connected at pins 3 and 4. Ground is connected at pin 5. The ground and data line pins are interchangeable since the ground connection contains a steering diode pair for reduced capacitance.

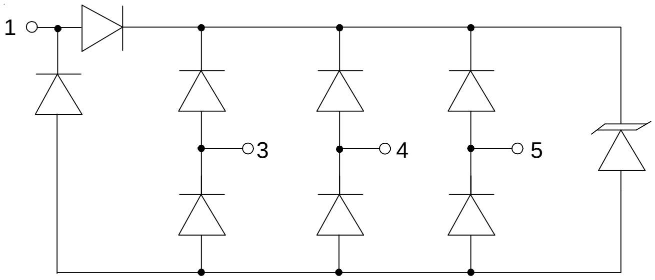


Figure 1 - Circuit Diagram

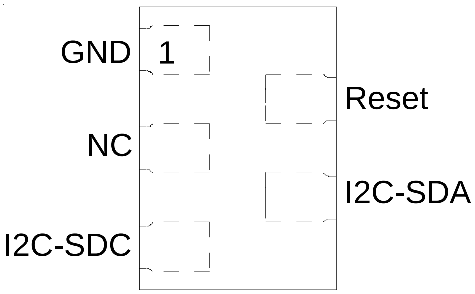


Figure 2 - Pin Configuration (Top View) for Camera Data Line Protection Applications

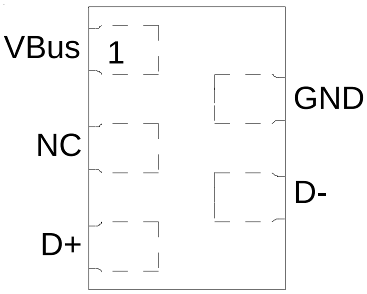


Figure 3 - Pin Configuration (Top View) for USB 2.0 Applications

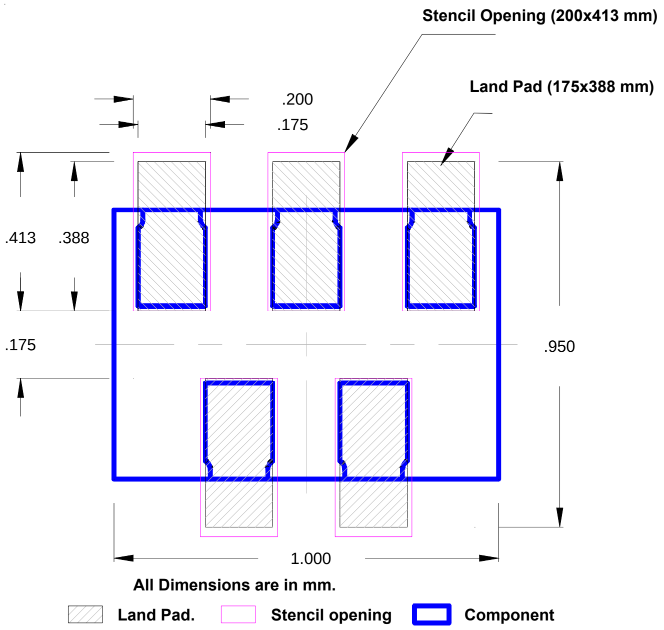
Applications Information

Assembly Guidelines

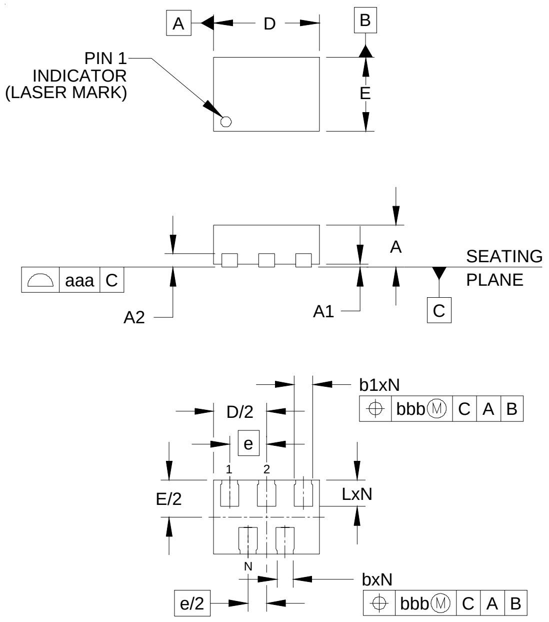
The small size of this device means that some care must be taken during the mounting process to insure reliable solder joint. The table below provides Semtech's recommended assembly guidelines for mounting this device. The figure at the right details Semtech's recommended aperture based on the below recommendations. Note that these are only recommendations and should serve only as a starting point for design since there are many factors that affect the assembly process. The exact manufacturing parameters will require some experimentation to get the desired solder application.

Assembly Parameter	Recommendation
Solder Stencil Design	Laser cut, Electro-polished
Aperture shape	Rectangular
Solder Stencil Thickness	0.100 mm (0.004")
Solder Paste Type	Type 4 size sphere or smaller
Solder Reflow Profile	Per JEDEC J-STD-020
PCB Solder Pad Design	Non-Solder mask defined
PCB Pad Finish	OSP OR NiAu

Recommended Mounting Pattern



Outline Drawing - SLP1007N5T

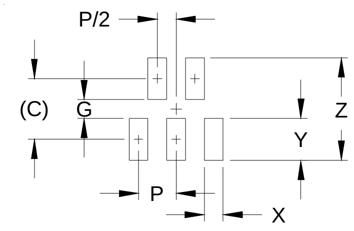


DIMENSIONS			
DIM	MILLIMETERS		
	MIN	NOM	MAX
A	0.37	0.40	0.43
A1	0.00	0.02	0.05
A2	(0.13)		
b	0.125	0.15	0.175
b1	0.15	0.175	0.20
D	0.90	1.00	1.10
E	0.60	0.70	0.80
e	0.35 BSC		
L	0.225	0.25	0.275
N	5		
aaa	0.08		
bbb	0.10		

NOTES:

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

Land Pattern - SLP1007N5T

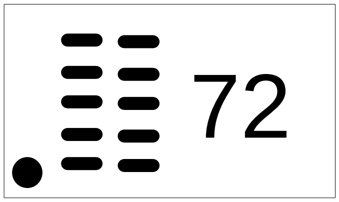


DIMENSIONS	
DIM	MILLIMETERS
C	(0.563)
G	0.175
P	0.35
X	0.175
Y	0.388
Z	0.95

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 Codes



Notes:
Marking will also include line matrix date code

Ordering Information

Part Number	Qty per Reel	Reel Size
RClamp7522T.TNT	10,000	7 Inch

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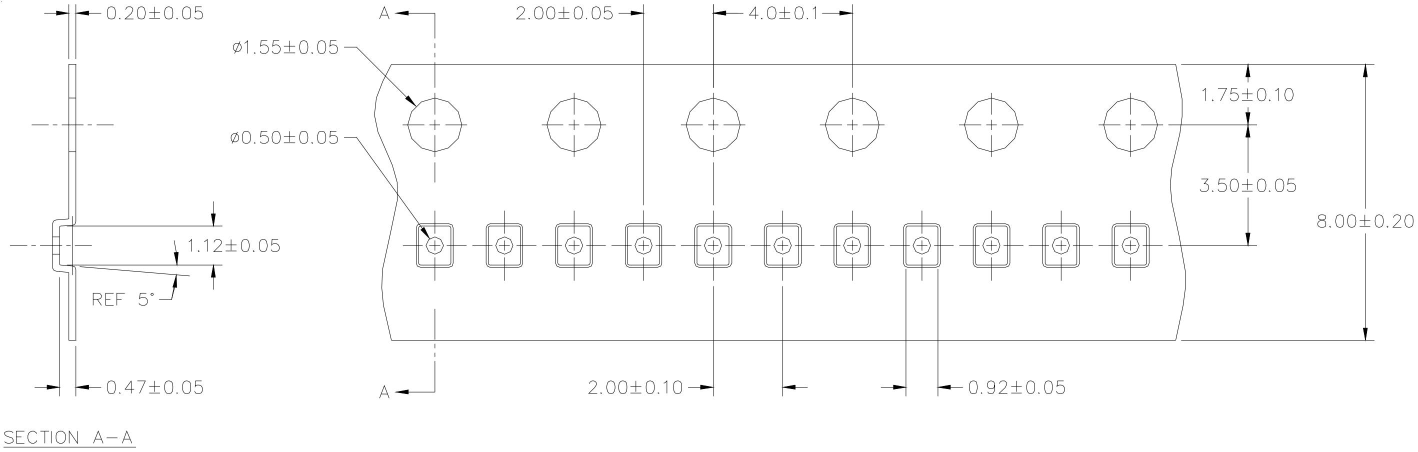
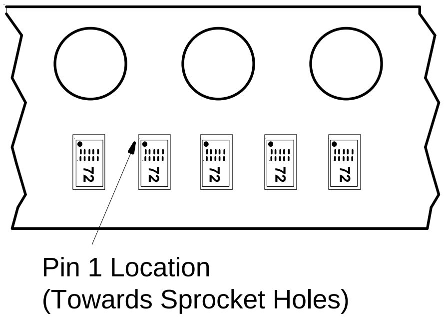
Carrier Tape Specification



Device Orientation in Tape



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		Semtech Germany GmbH	Tel: 49-(0)8161-140-123 Fax: 49-(0)8161-140-124

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