

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (tp = 8/20μs)	P _{PK}	125	W
Peak Pulse Current (tp = 8/20μs)	I _{PP}	5	A
ESD per IEC 61000-4-2 (Air) ⁽²⁾ ESD per IEC 61000-4-2 (Contact) ⁽²⁾	V _{ESD}	±30 ±30	kV
Operating Temperature	T _J	-55 to +125	°C
Storage Temperature	T _{STG}	-55 to +150	°C

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

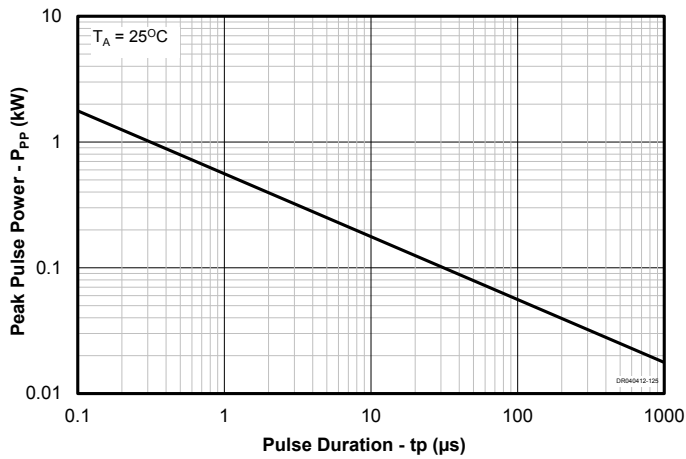
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-Off Voltage	V _{RWM}	Pin1 to 2 or 2 to 1			12	V
Reverse Breakdown Voltage	V _{BR}	I _t = 1mA, Pin 1 to 2 or 2 to 1	13.3	16	19	V
Reverse Leakage Current	I _R	V _{RWM} = 12V, Pin 1 to 2 or 2 to 1		<5	50	nA
Clamping Voltage	V _C	I _{pp} =1A, tp = 8/20μs, Pin1 to 2 or 2 to 1		20		V
Clamping Voltage	V _C	I _{pp} =5A, tp=8/20μs Pin1 to 2 or 2 to 1		25		V
ESD Clamping Voltage ²	V _C	t _p = 0.2/100ns	I _{pp} = 4A	17.2		V
			I _{pp} = 16A	21		
Dynamic Resistance ^{2,3}	R _{DYN}	t _p = 0.2/100ns		0.30		Ω
Junction Capacitance	C _J	V _R = 0V, f = 1MHz	T = 25°C	19	25	pF

Notes

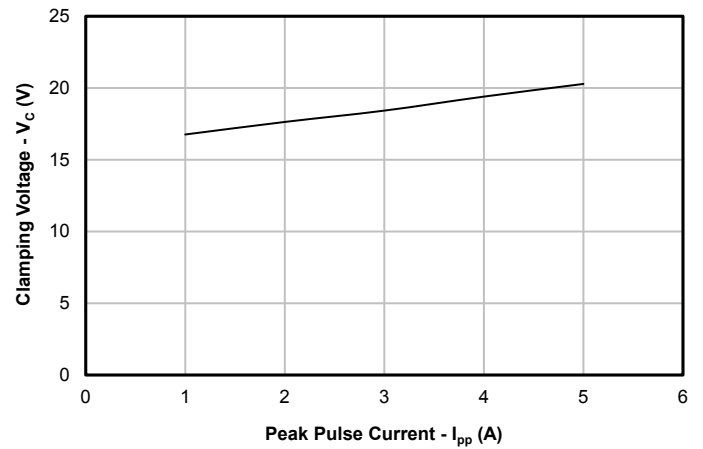
- 1) Measured with a 20dB attenuator, 50 Ohm scope input impedance, 2GHz bandwidth. ESD gun return path connected to ESD ground plane.
- 2) Transmission Line Pulse Test (TLP) Settings: tp = 100ns, tr = 0.2ns, I_{TLP} and V_{TLP} averaging window: t1 = 70ns to t2 = 90ns.
- 3) Dynamic resistance calculated from I_{TLP} = 4A to I_{TLP} = 16A

Typical Characteristics

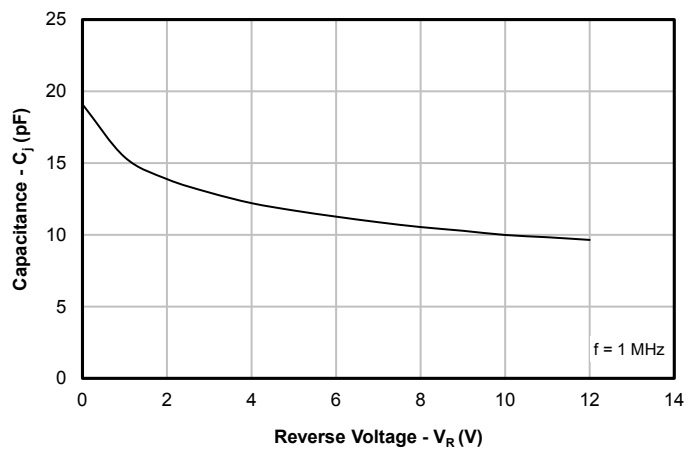
Non-Repetitive Peak Pulse Power vs. Pulse Time



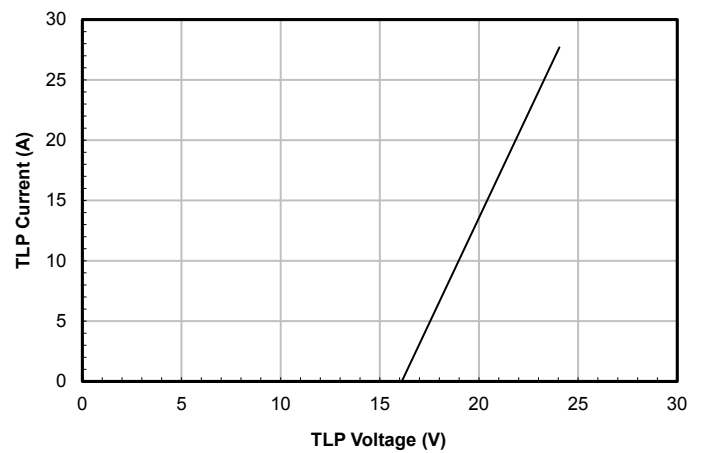
Clamping Voltage vs. Peak Pulse Current ($t_p=8/20 \mu$ s)



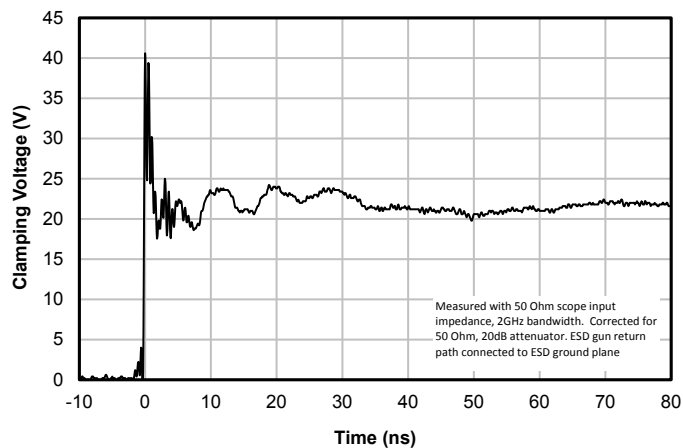
Capacitance vs. Reverse Voltage



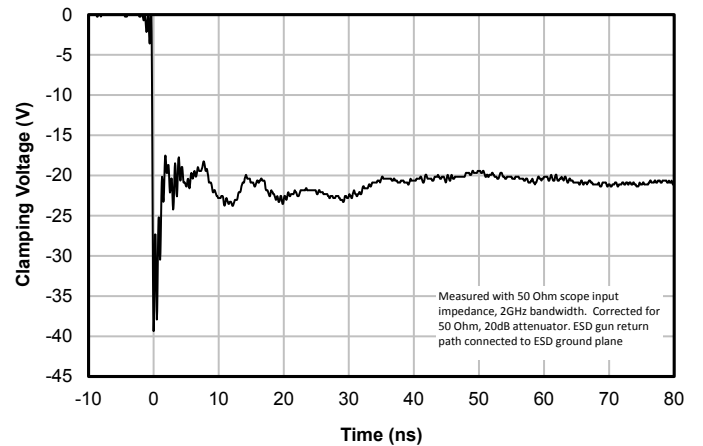
TLP Characteristic (Positive Pulse)



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



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



Application Information

Assembly Guidelines

The small size of this device means that some care must be taken during the mounting process to insure reliable-solder joints. The figure at the right details Semtech's recommended mounting pattern. Recommended assembly guidelines are shown in Table 1. 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. Exact manufacturing-parameters will require some experimentation to get the desired solder application. Semtech's recommended-mounting pattern is based on the following design guidelines:

Land Pattern

The recommended land pattern follows IPC standards and is designed for maximum solder coverage. Detailed dimensions are shown elsewhere in this document.

Solder Stencil

Stencil design is one of the key factors which will determine the volume of solder paste which is deposited onto the land pad. The area ratio of the stencil aperture will determine how well the stencil will print. The area ratio takes into account the aperture shape, aperture size, and stencil thickness. An area ratio of 0.70 – 0.75 is preferred for the subject package. The area ratio of a rectangular aperture is given as:

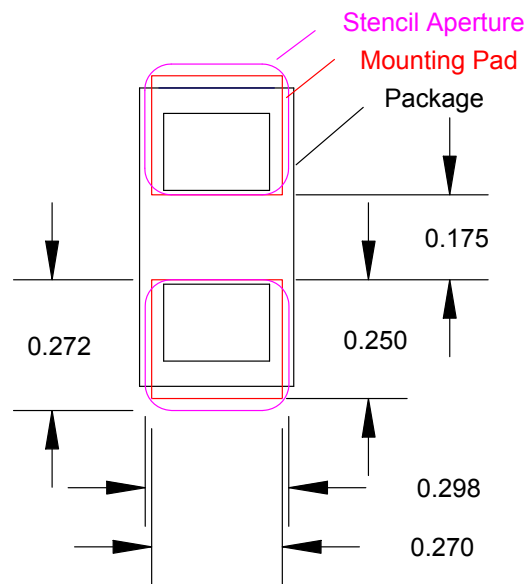
Area Ratio = (L * W) / (2 * (L + W) * T)

Where:

- L = Aperture Length
- W = Aperture Width
- T = Stencil Thickness

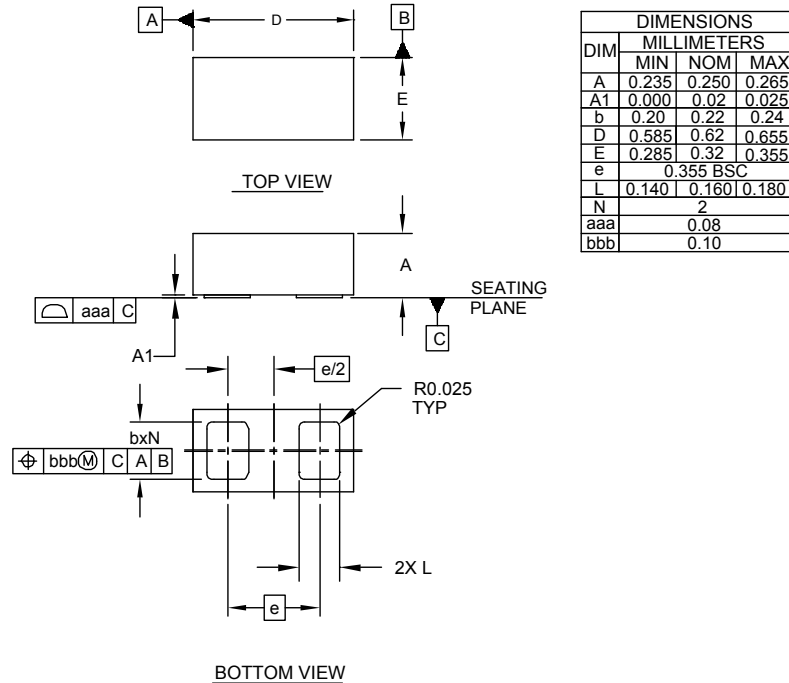
Semtech recommends a stencil thickness of 0.100mm for this device. The stencil should be laser cut with electropolishedfinish. The stencil should have a positive taper of approximately 5 degrees. Electro polishing and tapering the walls results in reduced surface friction and better paste release. For small pitch components, Semtech recommends a square aperture with rounded corners for consistent solder release. Due to the small aperture size, a solder paste with Type 4 or smaller particles are recommended.

Recommended Mounting Pattern



Assembly Parameter	Recommendation
Solder Stencil Design	Laser cut, Electro-polished
Aperture shape	Rectangular with rounded corners
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

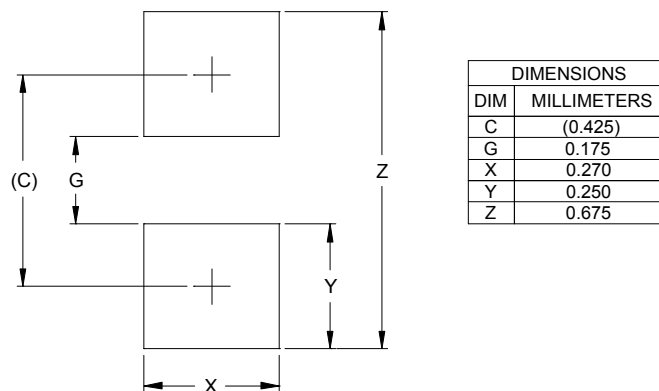
Outline Drawing - SLP0603P2X3



NOTES:

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

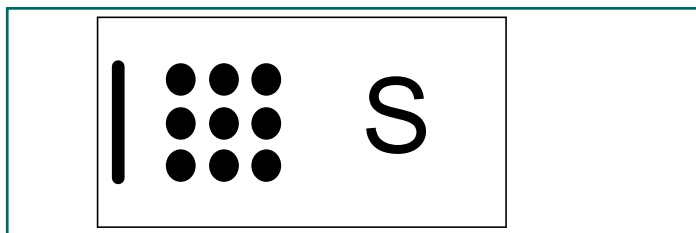
Land Pattern - SLP0603P2X3



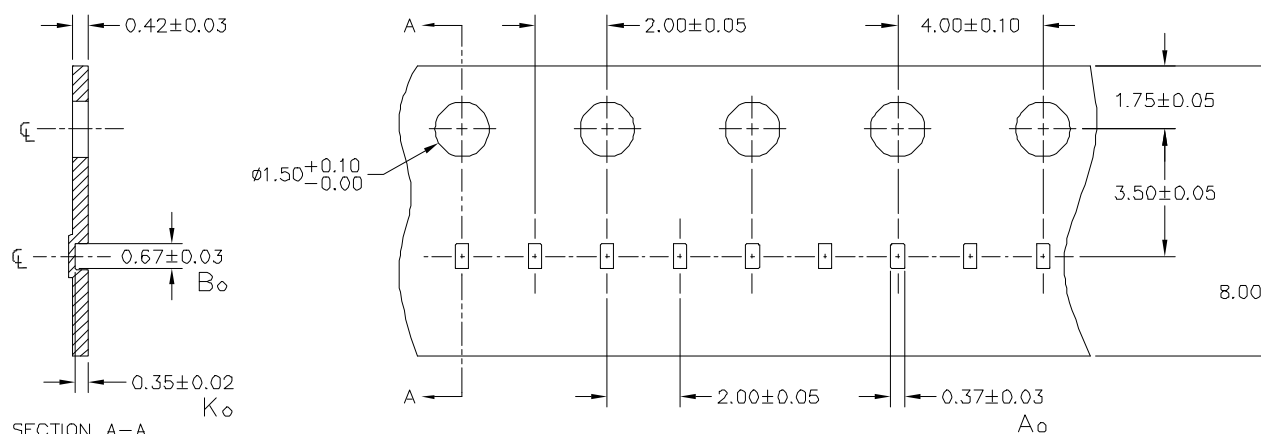
NOTES:

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.

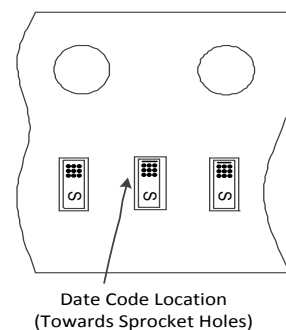
Marking Code



Tape and Reel Specification



NOTES: ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.



Ordering Information

Part Number	Qty per Reel	Reel Size
μClamp1211Z.TFT	15,000	7"



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Contact Information

Semtech Corporation
200 Flynn Road, Camarillo, CA 93012
Phone: (805) 498-2111, Fax: (805) 498-3804
www.semtech.com