

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 8/20\mu s$)	P_{PK}	60	W
Peak Pulse Current ($t_p = 8/20\mu s$)	I_{PP}	3	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	± 15 ± 12	kV
Operating Temperature	T_J	-55 to +125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

Electrical Characteristics ($T=25^\circ\text{C}$ unless otherwise specified)

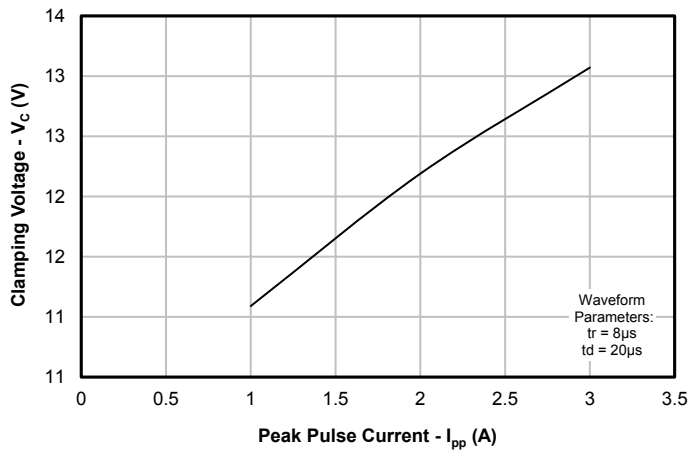
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-Off Voltage	V_{RWM}	Pin 1 to 2 or 2 to 1			5	V
Reverse Breakdown Voltage	V_{BR}	$I_{BR} = 1 \text{ mA}$, Pin 1 to 2 or 2 to 1	7	9	11	V
Reverse Leakage Current	I_R	$V_{RWM} = 5\text{V}$, Pin 1 to 2 or 2 to 1		5	20	nA
Clamping Voltage	V_C	$t_p = 8/20\mu s$	$I_{PP} = 1\text{A}$		15	V
			$I_{PP} = 3\text{A}$		20	
ESD Clamping Voltage ²	V_C	$t_p = 0.2/100\text{ns}$	$I_{PP} = 4\text{A}$	13		V
			$I_{PP} = 16\text{A}$	21		
Dynamic Resistance ^{2,3}	R_{DYN}	$t_p = 0.2/100\text{ns}$		0.67		Ω
Junction Capacitance	C_J	$V_R = 0\text{V to } 5\text{V}$, $f = 1\text{MHz}$		0.30	0.40	pF
Junction Capacitance ⁴	C_J	$V_R = 0\text{V to } 5\text{V}$, $f = 1\text{GHz}$			0.40	
Change in Capacitance Over V_R ⁴	ΔC_{JVR}	$V_R = 0\text{V to } 5\text{V}$, $f = 1\text{MHz}$			0.040	

Notes

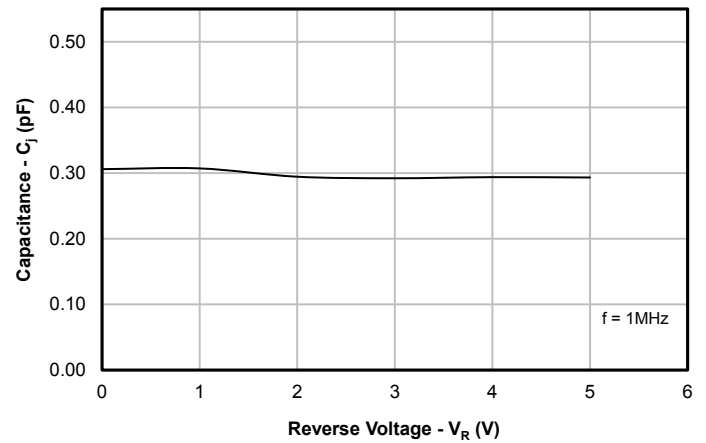
- 1) ESD gun return path connected to ESD ground plane.
- 2) Transmission Line Pulse Test (TLP) Settings: $t_p = 100\text{ns}$, $t_r = 0.2\text{ns}$, I_{TLP} and V_{TLP} averaging window: $t_1 = 70\text{ns}$ to $t_2 = 90\text{ns}$.
- 3) Dynamic resistance calculated from $I_{TLP} = 4\text{A}$ to $I_{TLP} = 16\text{A}$
- 4) Guaranteed by design. Not production tested.

Typical Characteristics

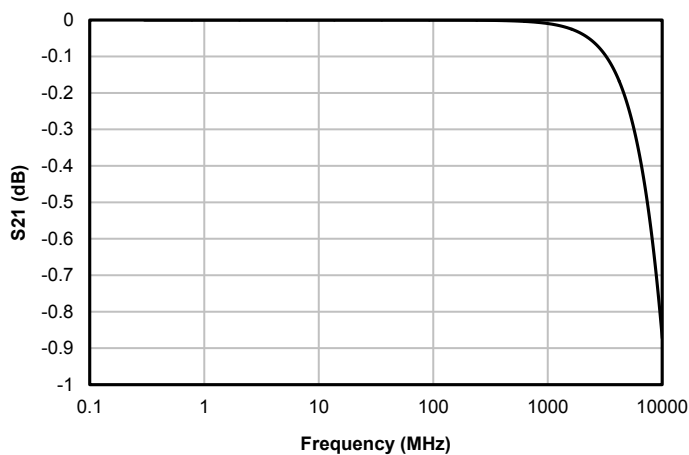
Clamping Voltage vs. Peak Pulse Current



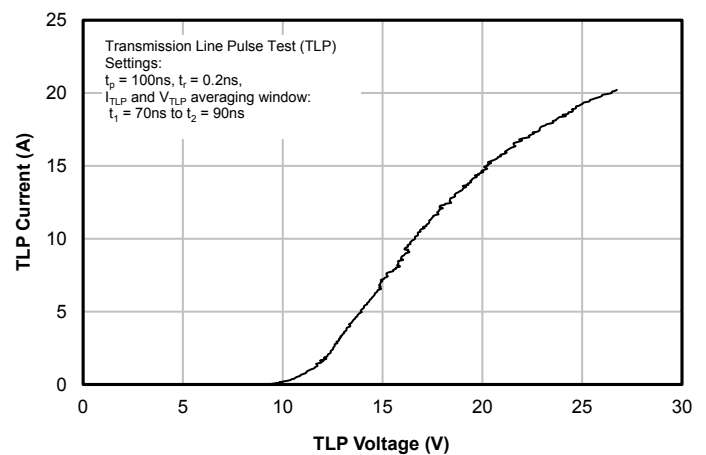
Junction Capacitance vs. Reverse Voltage



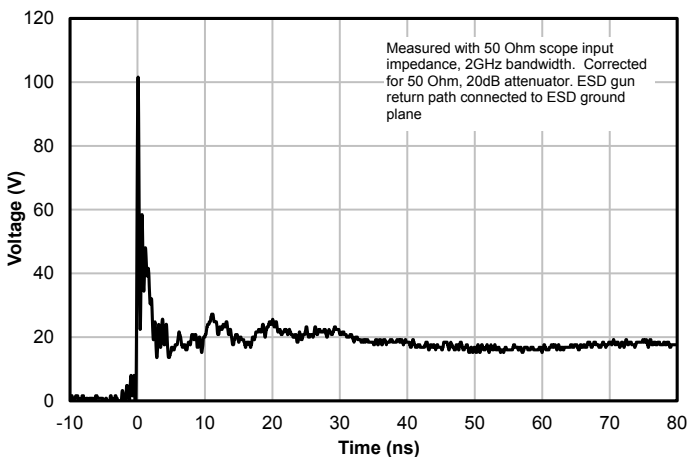
Typical Insertion Loss (S21)



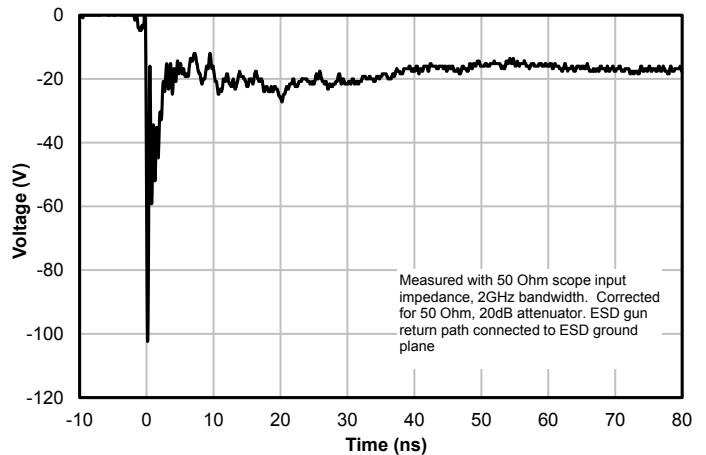
TLP Characteristic



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.

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. A minimum area ratio of 0.66 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 with square aperture and rounded corners for consistent solder release. The stencil should be laser cut with electropolished finish. A stencil thickness of 0.075mm (0.003") is recommended. A 0.100mm (0.004") stencil may be used, however the stencil opening may need to be increased slightly to achieve the desired area ratio to ensure proper solder coverage on the pad.

Recommended Mounting Pattern

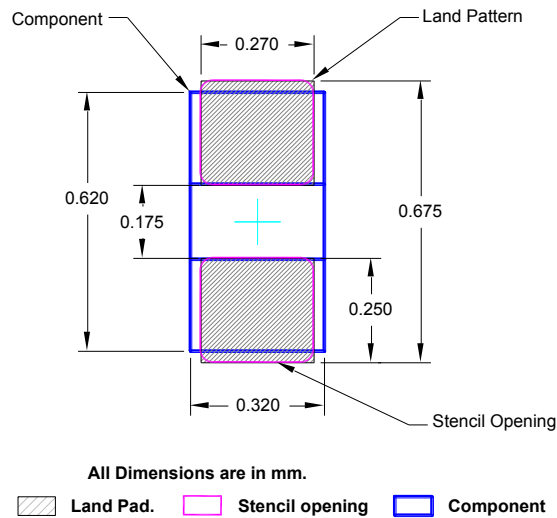
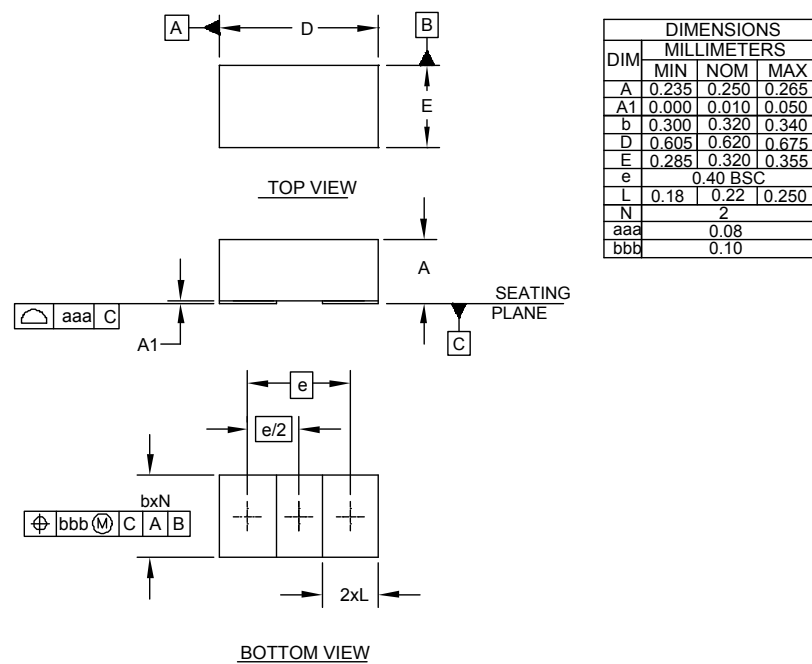


Table 1 - Assembly Guidelines

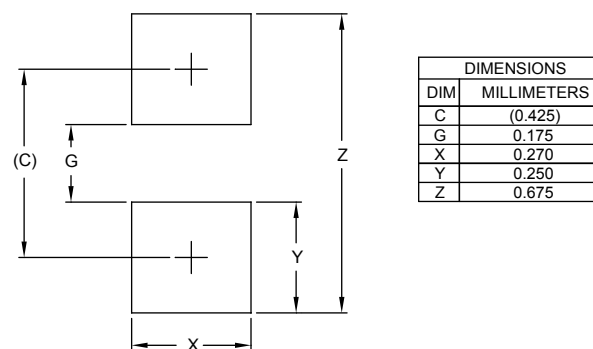
Assembly Parameter	Recommendation
Solder Stencil Design	Laser Cut, Electro-Polished
Aperture Shape	Rectangular with Rounded Corners
Solder Stencil Thickness	0.075mm (0.003") or 0.100mm (0.004")
Solder Paste Type	Type 4 Size Sphere or Smaller
Solder Reflow Profile	Per JEDEC J-STD-020
PCB Solder Pad Design	Solder Mask Defined
PCB Pad Finish	OSP or NiAu

Outline Drawing - SLP0603P2X3B



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

Land Pattern - SLP0603P2X3B



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.

The R logo, consisting of a white rectangle with a black border. Inside the rectangle, on the left, is a vertical line followed by a 3x3 grid of dots. To the right of the dots is a large capital letter 'R'.

1. Dots represent date code matrix and Pin 1 location.

Technical drawing of a mechanical part showing a top view and a cross-section A-A.

Top View Dimensions:

- Overall width: 8.00 ± 0.10
- Overall length: 4.00 ± 0.10
- Distance between sprocket hole centers: 2.00 ± 0.05
- Distance between pin hole centers: 2.00 ± 0.05
- Distance from sprocket hole center to pin hole center: 0.39 ± 0.03
- Sprocket hole diameter: $\phi 1.50^{+0.10}_{-0.00}$
- Pin hole width: 0.69 ± 0.03
- Pin hole height: 0.30 ± 0.02
- Distance from sprocket hole center to the top edge: 1.75 ± 0.05
- Distance from pin hole center to the bottom edge: 3.50 ± 0.05

Cross-section A-A:

- Plate thickness: 0.42 ± 0.03
- Distance from sprocket hole center to the top edge: 0.69 ± 0.03
- Distance from pin hole center to the bottom edge: 0.30 ± 0.02

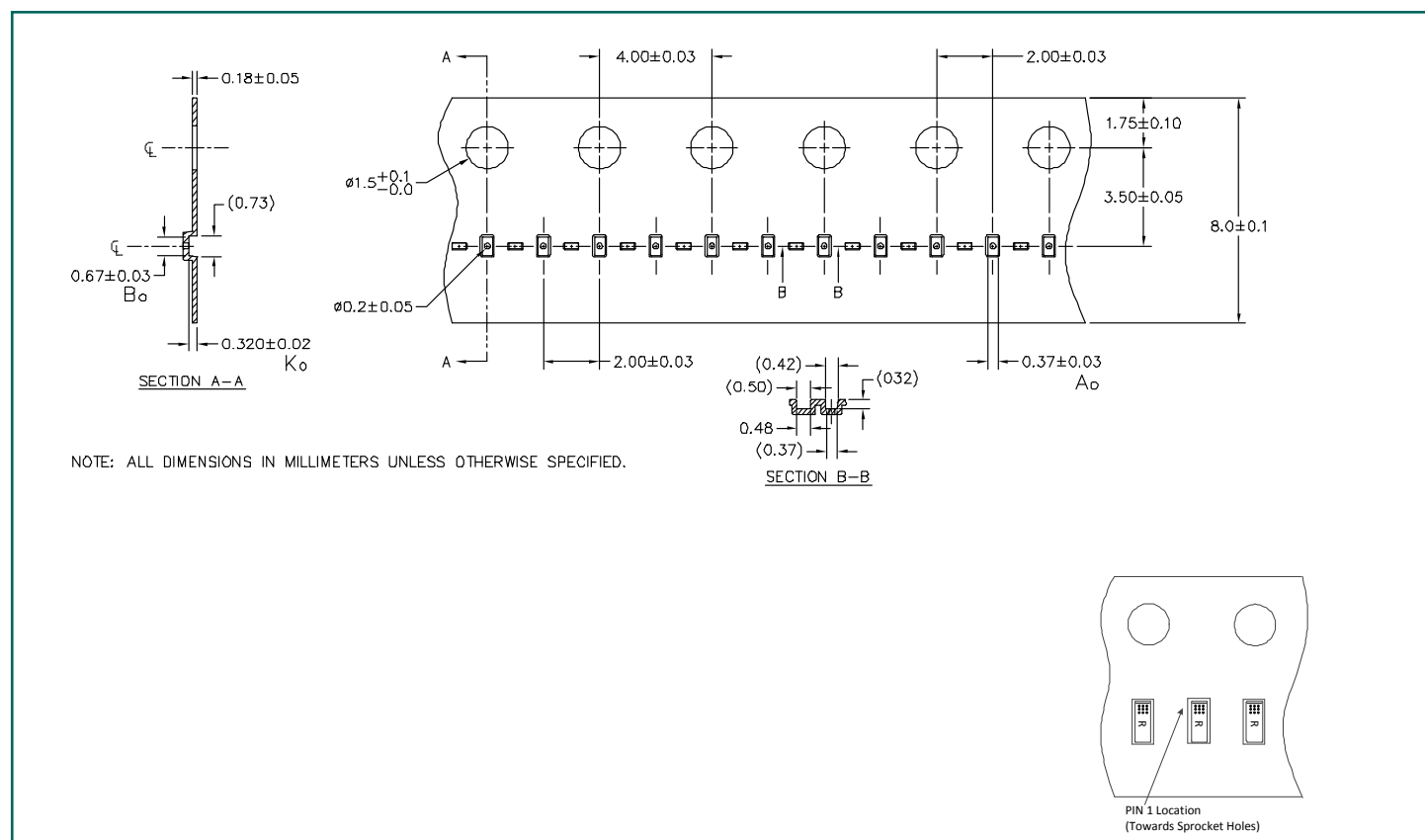
Notes:

- ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

Pin 1 Location:

The diagram shows the location of Pin 1 relative to the sprocket holes. The pin is located towards the sprocket holes.

Tape and Reel Specification- Plastic Tape



Ordering Information

Part Number	Qty per Reel	Carrier Tape	Reel Size	Comments
RClamp0531Z.TFT	15,000	Paper	7"	
RClamp0531Z.TNT	10,000	Plastic	7"	Not recommended for new designs



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