

PROTECTION PRODUCTS
Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 8/20\mu s$)	P_{pk}	150	Watts
Maximum Peak Pulse Current ($t_p = 8/20\mu s$)	I_{pp}	6	Amps
ESD per IEC 61000-4-2 (Air) ¹ ESD per IEC 61000-4-2 (Contact) ¹	V_{ESD}	+/- 25 +/- 20	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}	Pin 5 to 2			5	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1mA$ Pin 5 to 2	6			V
Reverse Leakage Current	I_R	$V_{RWM} = 5V, T=25^\circ C$ Pin 5 to 2			3	μA
Clamping Voltage	V_C	$I_{pp} = 1A, t_p = 8/20\mu s$ Pin 1, 3, or 4 to Pin 2			15	V
Clamping Voltage	V_C	$I_{pp} = 6A, t_p = 8/20\mu s$ Pin 1, 3, or 4 to Pin 2			25	V
Junction Capacitance	C_j	$V_R = 0V, f = 1MHz$ Pin 1, 3, or 4 to Pin 2			3	pF
		$V_R = 0V, f = 1MHz$ Between any two I/O pins (1, 3, 4)			1.5	pF

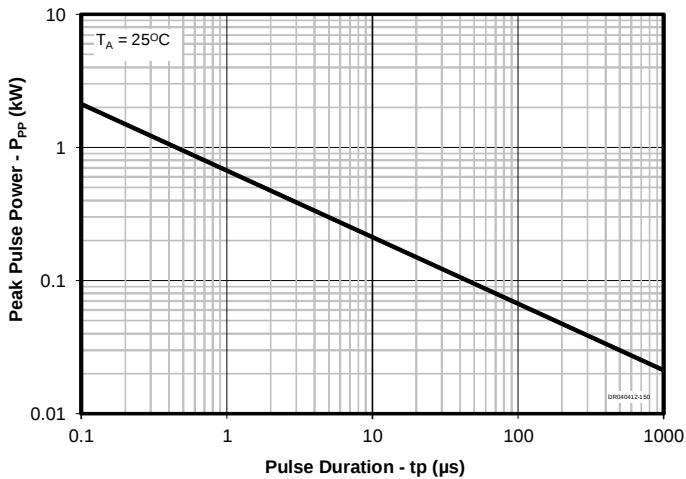
Notes

1)ESD gun return path connected to ESD ground reference plane.

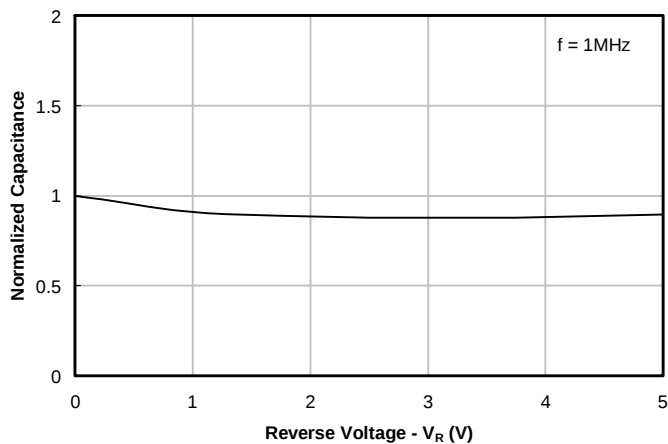
PROTECTION PRODUCTS

Typical Characteristics

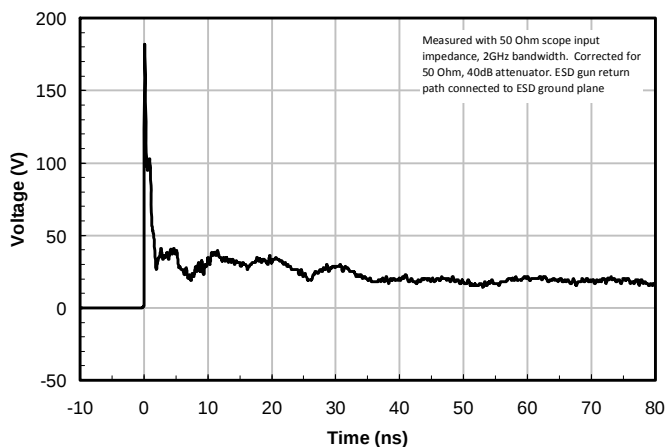
Non-Repetitive Peak Pulse Power vs. Pulse Time



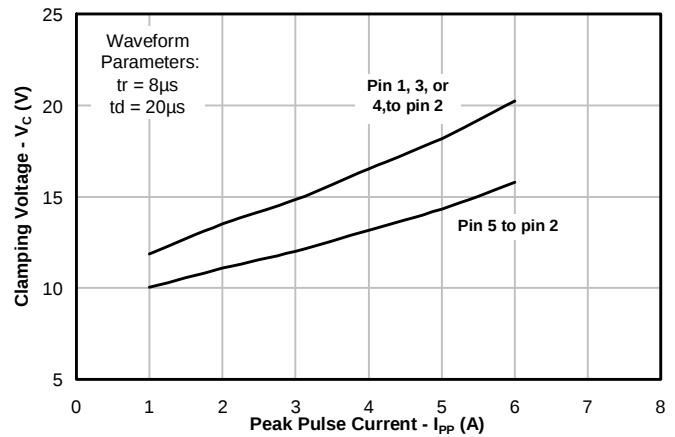
**Junction Capacitance vs. Reverse Voltage
(Pin 1, 3, or 4 to GND - Normalized to 0V)**



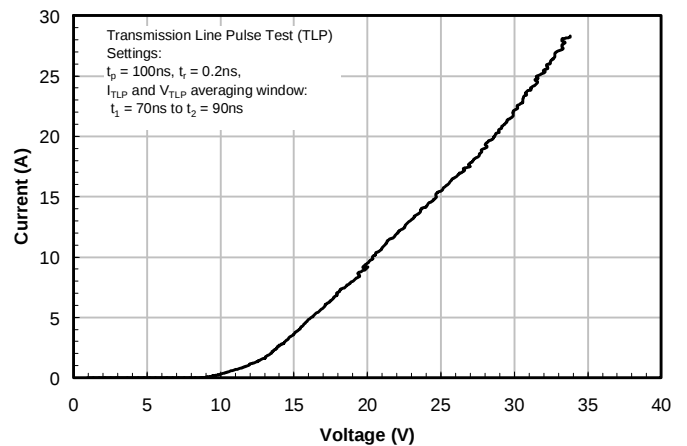
**ESD Clamping (+8kV Contact per IEC 61000-4-2)
(Pin 1, 3, or 4 to GND)**



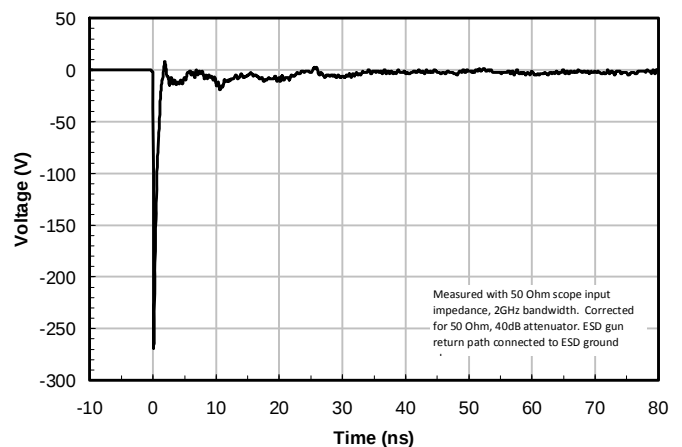
Clamping Voltage vs. Peak Pulse Current ($t_p=8/20\mu$ s)



**TLP Characteristic
(Pin 1, 3, or 4 to GND)**



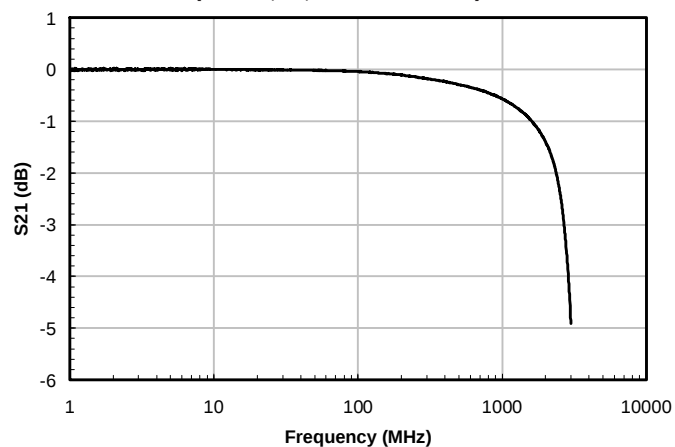
**ESD Clamping (-8kV Contact per IEC 61000-4-2)
(Pin 1, 3, or 4 to GND)**



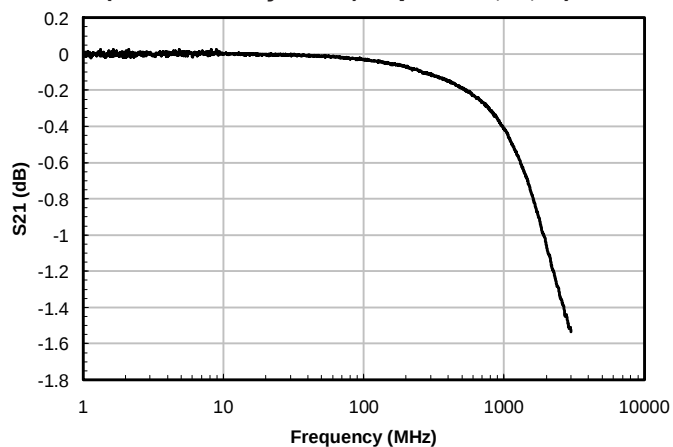
PROTECTION PRODUCTS

Typical Characteristics

**Insertion Loss S21
(Pin 1, 3, or 4 to GND)**



**Insertion Loss S21
(Between any two I/O pins - 1, 3, 4)**



PROTECTION PRODUCTS

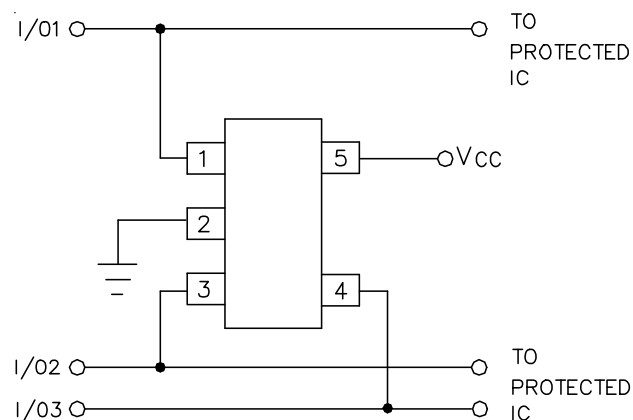
Applications Information

Device Connection Options for Protection of Three High-Speed Data Lines

This device is designed to protect three data lines from transient over-voltages by clamping them to a fixed reference. When the voltage on the protected line exceeds the reference voltage (plus diode V_F) the steering diodes are forward biased, conducting the transient current away from the sensitive circuitry. Data lines are connected at pins 1, 3, and 4. The negative reference is connected at pin 2. This pin should be connected directly to a ground plane on the board for best results. The path length is kept as short as possible to minimize parasitic inductance.

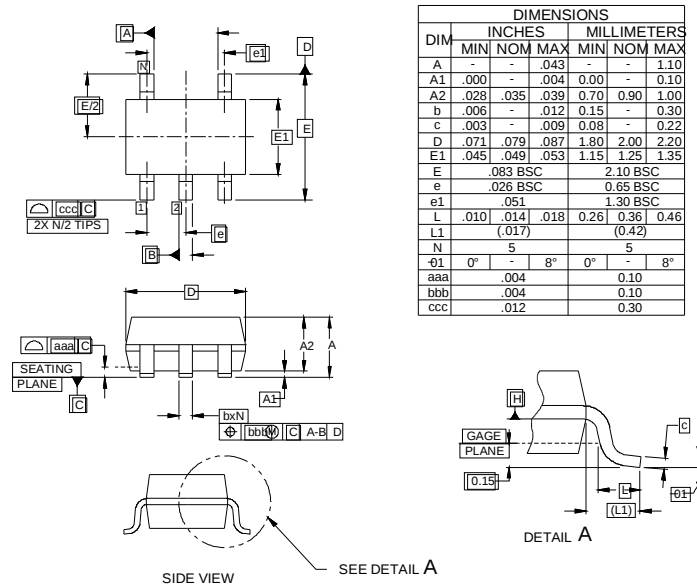
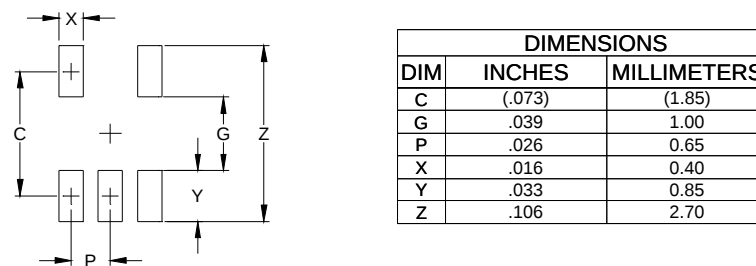
Connect pin 5 directly to the positive supply rail (V_{CC}). In this configuration the data lines are referenced to the supply voltage. The internal TVS diode prevents over-voltage on the supply rail.

Data Line and Power Supply Protection Using Vcc as reference



Matte Tin Lead Finish

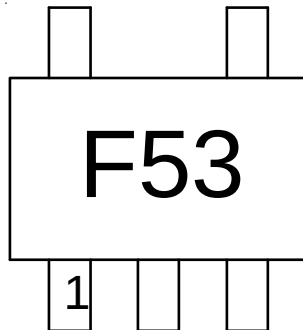
Matte tin has become the industry standard lead-free replacement for SnPb lead finishes. A matte tin finish is composed of 100% tin solder with large grains. Since the solder volume on the leads is small compared to the solder paste volume that is placed on the land pattern of the PCB, the reflow profile 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.

PROTECTION PRODUCTS
Outline Drawing - SC-70 5L

Land Pattern - SC-70 5L


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

PROTECTION PRODUCTS

Marking Code

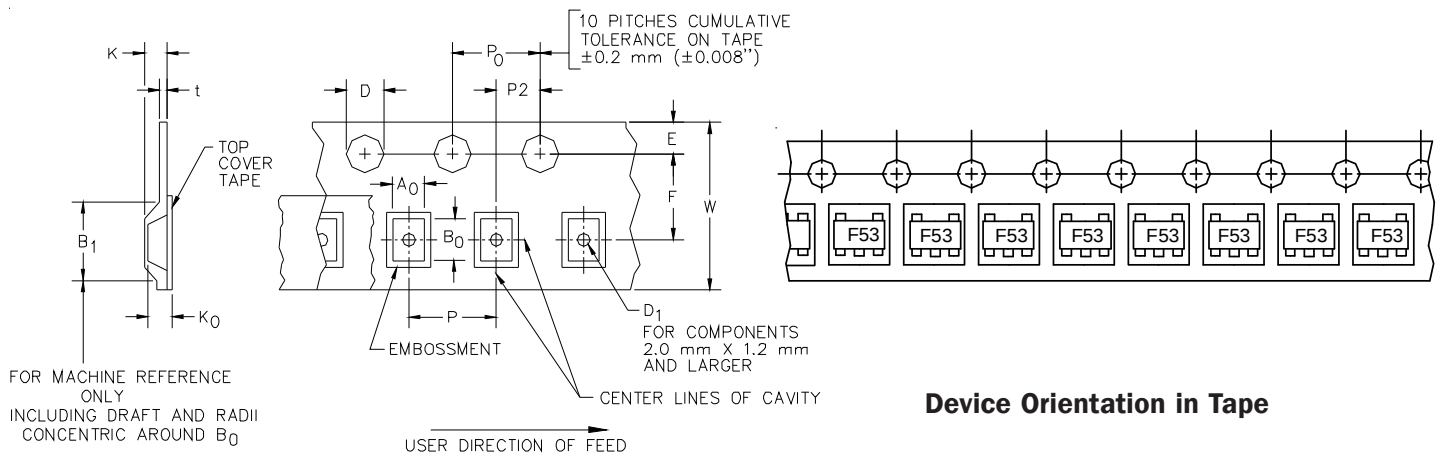


Ordering Information

Part Number	Lead Finish	Qty per Reel	Reel Size
RClamp0503F.TCT	Matte Tin	3,000	7 Inch

RailClamp and RClamp are trademarks of Semtech Corporation.

Carrier Tape Specification



Device Orientation in Tape

Tape Width	B, (Max)	D	D1 (MIN)	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)	1.0 mm (.039)	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±0.05mm (.079±.002)	0.4 mm (.016)	8.3 mm (.312±.012)

Contact Information

Semtech Corporation
Protection Products Division
200 Flynn Rd., Camarillo, CA 93012
Phone: (805)498-2111 FAX (805)498-3804