

PROTECTION PRODUCTS

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (tp = 8/20μs)	P _{pk}	500	Watts
Peak Pulse Current (tp = 8/20μs)	I _{pp}	25	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	VESD	+/- 30 +/- 30	kV
Operating Temperature	T _J	-55 to +125	°C
Storage Temperature	T _{STG}	-55 to +150	°C

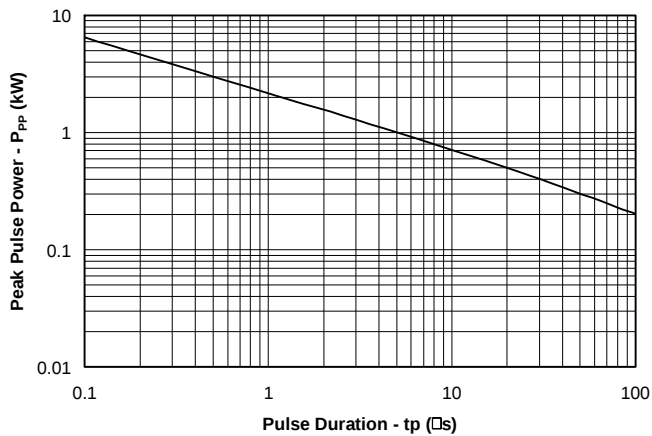
Electrical Characteristics (T=25°C)

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V _{RWM}				5	V
Reverse Breakdown Voltage	V _{BR}	I _t = 1mA	6			V
Reverse Leakage Current	I _R	V _{RWM} = 5V, T=25°C			0.5	μA
Clamping Voltage	V _C	I _{pp} = 1A, tp = 8/20μs Any I/O to GND			10	V
Clamping Voltage	V _C	I _{pp} = 10A, tp = 8/20μs Any I/O to GND			12	V
Clamping Voltage	V _C	I _{pp} = 25A, tp = 8/20μs Any I/O to GND			15	V
Junction Capacitance	C _J	Any I/O to GND V _R = 0V, f = 1MHz		3.5	5	pF
		I/O to I/O V _R = 0V, f = 1MHz		1.5	3	pF

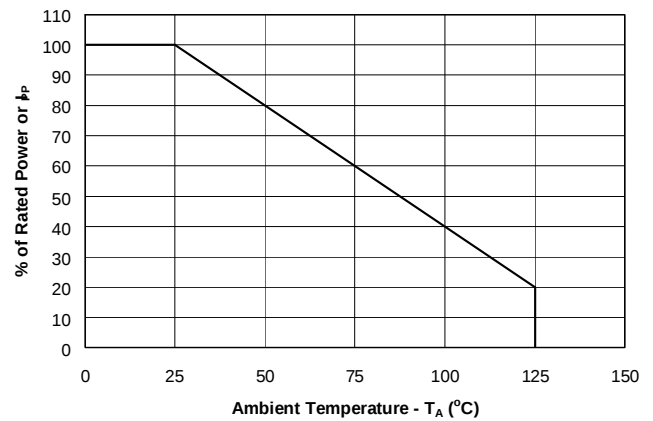
PROTECTION PRODUCTS

Typical Characteristics

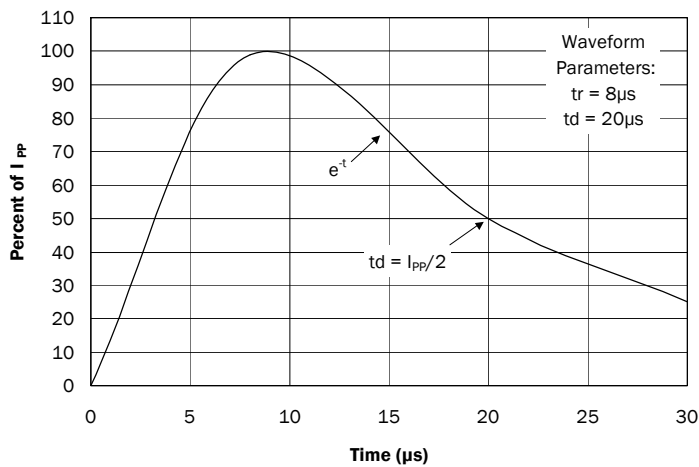
Non-Repetitive Peak Pulse Power vs. Pulse Time



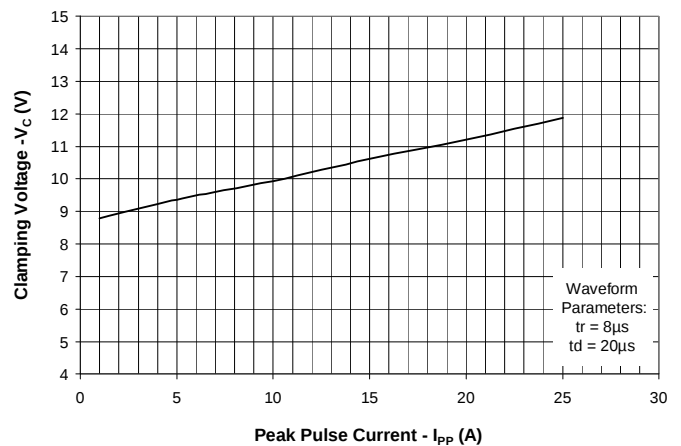
Power Derating Curve



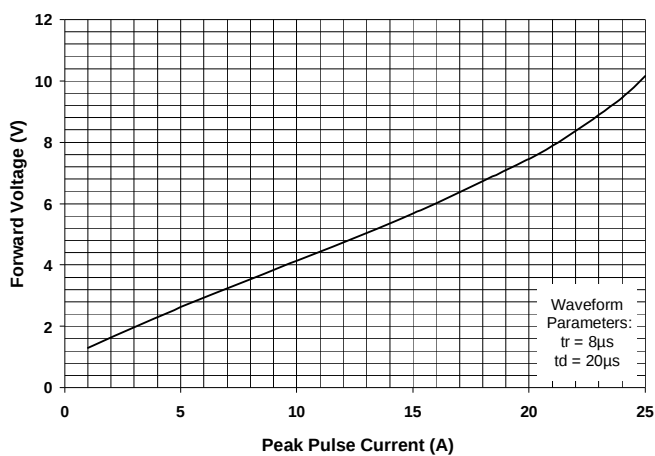
Surge Current Output Waveform ($t_p = 8/20\mu s$)



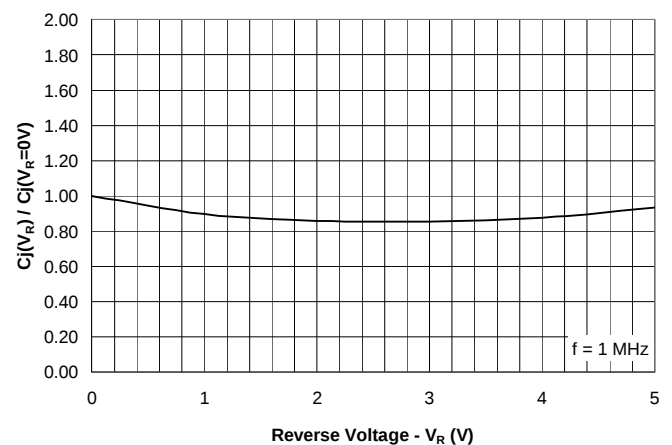
Clamping Voltage vs. Peak Pulse Current Any I/O to GND ($t_p = 8/20\mu s$)



Forward Voltage vs. Forward Current



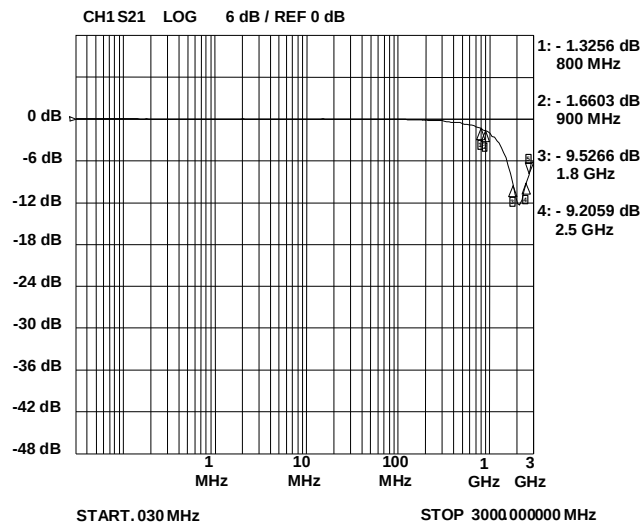
Normalized Capacitance vs. Reverse Voltage



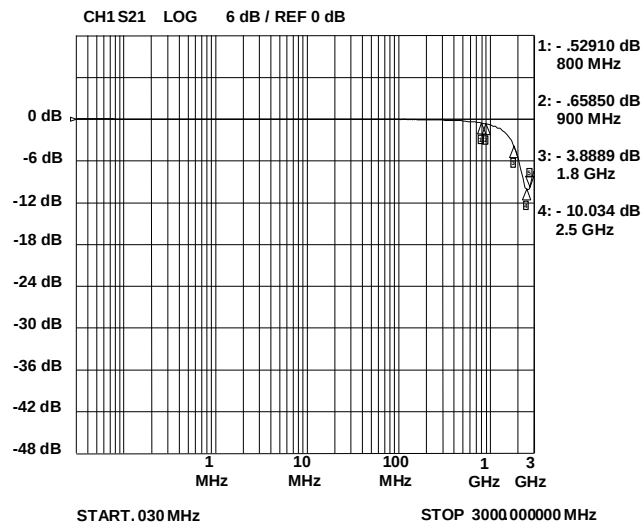
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Typical Characteristics

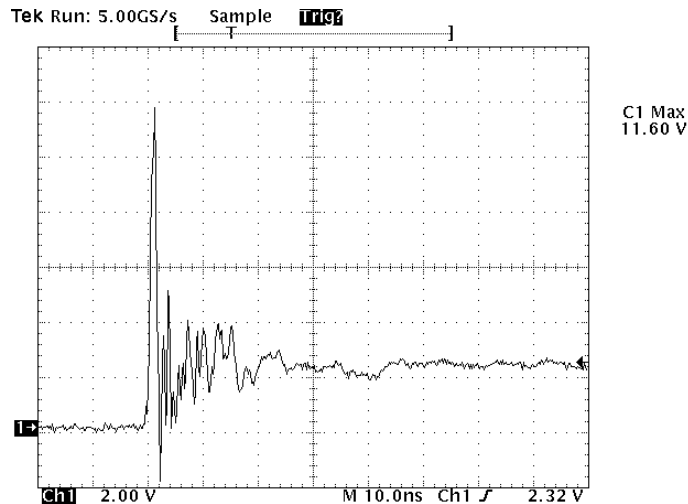
Insertion Loss S21 - Any I/O to GND



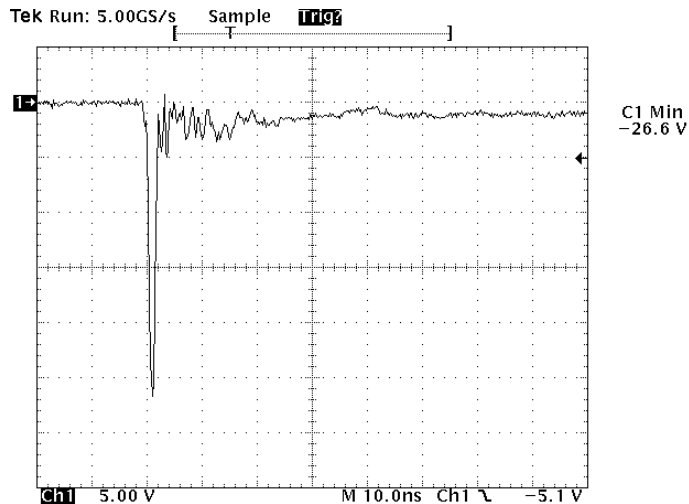
Insertion Loss S21 - I/O to I/O



ESD Clamping - Between any I/O and GND
 (+8kV Contact per IEC 61000-4-2)



ESD Clamping - Between any I/O and GND
 (-8kV Contact per IEC 61000-4-2)



Note: Data is taken with a 10x attenuator

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Applications Information

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

The RClamp0534N is designed to protect four 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, 2, 4 and 5. The package is designed for easy trace routing. Pins 3 and 8 are internally connected to the center tabs and 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. The positive reference (REF2) is connected at pin 9. The options for connecting the positive reference are as follows:

1. To protect data lines and the power line, connect pin 10 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.
2. The RClamp0534N can be isolated from the power supply by adding a series resistor between pin 10 and V_{CC} . A value of $100k\Omega$ is recommended. The internal TVS and steering diodes remain biased, providing the advantage of lower capacitance.
3. In applications where no positive supply reference is available, or complete supply isolation is desired, the internal TVS may be used as the reference. In this case, pin 10 is not connected. The steering diodes will begin to conduct when the voltage on the protected line exceeds the working voltage of the TVS (plus one diode drop).

Figure 1- Pin Configuration (Top View)

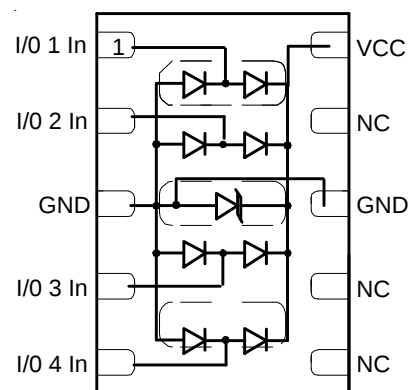
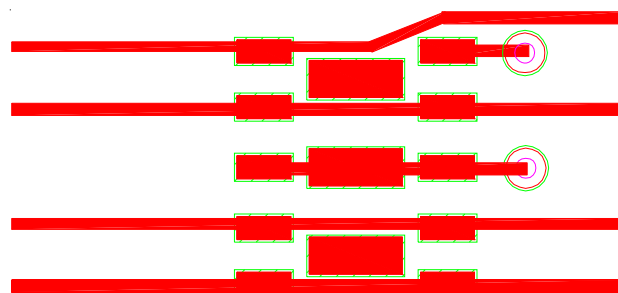


Figure 2 - Layout Example

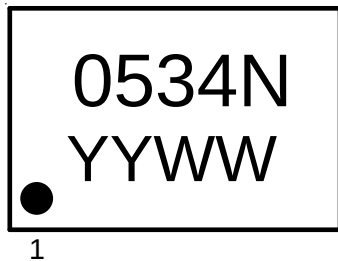


Outline Drawing - SLP3020N10



NOTES:

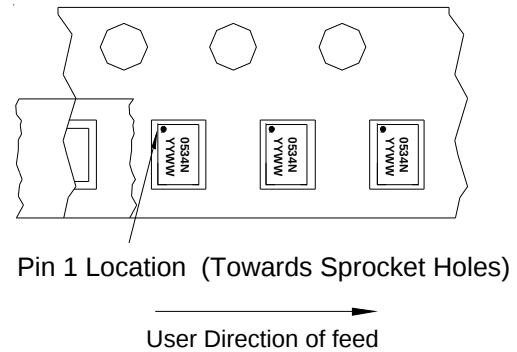
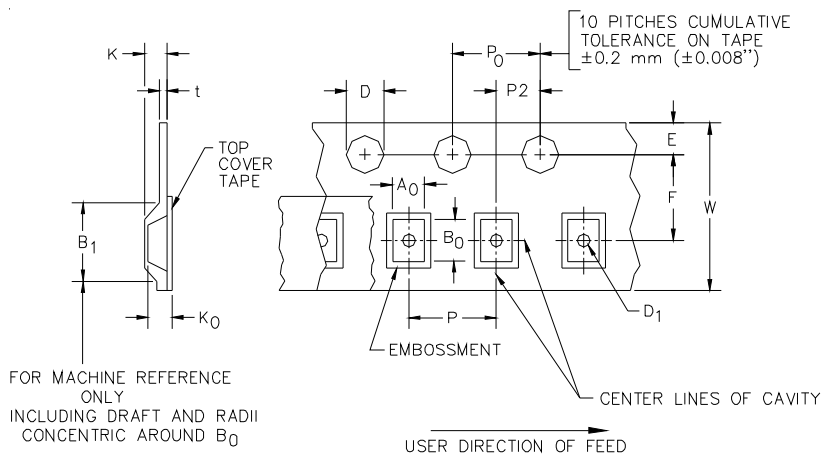
1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY. CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.

PROTECTION PRODUCTS
Marking

Ordering Information

Part Number	Working Voltage	Qty per Reel	Reel Size
RClamp0534N.TCT	5 Volts	3,000	7 Inch

RailClamp and RClamp are trademarks of Semtech Corporation

YYWW = Date Code

Tape and Reel Specification

Device Orientation in Tape

A0	B0	K0
2.24 $\pm 0.05 \text{ mm}$	3.23 $\pm 0.05 \text{ mm}$	0.93 $\pm 0.05 \text{ mm}$

Tape Width	B, (Max)	D	D1	E	F	K (MAX)	P	P0	P2	T(MAX)	W
8 mm	4.2 mm	1.5 + 0.1 mm - 0.0 mm)	0.5 mm ± 0.05	1.750 ± 0.10 mm	3.5 ± 0.05 mm	2.4 mm	4.0 ± 0.1 mm	4.0 ± 0.1 mm	2.0 ± 0.05 mm	0.4 mm	8.0 mm + 0.3 mm - 0.1 mm

Contact Information

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