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RailClamp® TVS diodes are specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (cable discharge events), and EFT (electrical fast transients).

The RClamp2431TQ has a typical capacitance of only 0.35pF. This allows it to be used on Wi-Fi, RFID, and other circuits operating in excess of 3GHz without signal attenuation. It may be used to meet the ESD immunity requirements of IEC 61000-4-2.

The RClamp2431TQ is in a 2-pin SLP1006P2T package measuring 1.0 x 0.6 x 0.4mm. The leads are spaced at a pitch of 0.65mm and feature a lead-free finish. Each device will protect one high-speed line operating up to 24 volts. It gives the designer the flexibility to protect single lines in applications where arrays are not practical. The combination of small size, low capacitance, and high ESD surge capability makes it ideal for use in portable equipment such as cellular phones and netbooks.

The RClamp2431TQ is qualified to AEC-Q100 Grade1 for use in Automotive environments.

RClamp2431TQ Ultra-Low Capacitance 1-Line ESD protection

- ◆ Transient protection for data lines to
IEC 61000-4-2 (ESD)
IEC 61000-4-4 (EFT)
- ◆ Ultra-small package (1.0 x 0.6 x 0.4mm)
- ◆ Protects one data line or one I/O pair
- ◆ Low capacitance: 0.35pF (Typical)
- ◆ Low clamping voltage
- ◆ 24V operating voltage
- ◆ Solid-state silicon-avalanche technology
- ◆ Qualified to AEC-Q100 Grade1 for Automotive

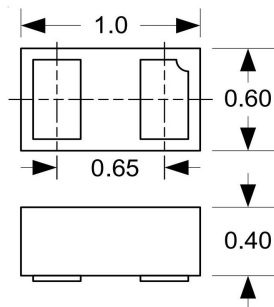
Mechanical Characteristics

- ◆ SLP1006P2T package
- ◆ Molding compound flammability rating: UL 94V-0
- ◆ Marking: Marking code
- ◆ Packaging : Tape and Reel
- ◆ Lead Finish: NiPdAu
- ◆ Pb-Free, Halogen Free, RoHS/WEEE Compliant

Applications

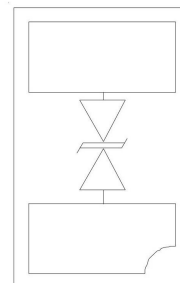
- ◆ Automobile Antenna
- ◆ CAN Bus Ports
- ◆ Cellular Handsets & Accessories
- ◆ Wi-Fi Interfaces
- ◆ FeliCa / RFID
- ◆ Firewire
- ◆ Serial ATA

Package Dimensions



Maximum Dimensions (mm)

Schematic & Pin Configuration



SLP1006P2T (Bottom View)

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Absolute Maximum Ratings

Rating	Symbol	Value	Units
Peak Pulse Power (tp = 8/20μs)	P _{pk}	100	Watts
Peak Pulse Current (tp = 8/20μs)	I _{pp}	2	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	+/- 13 +/- 8	kV
Operating Temperature	T _J	-40 to +125	°C
Storage Temperature	T _{STG}	-55 to +150	°C

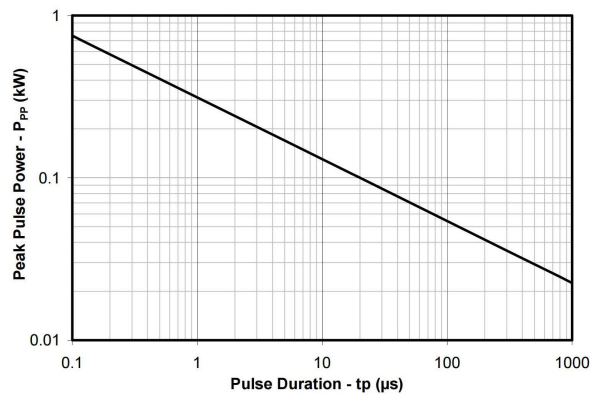
Electrical Characteristics (T=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V _{RWM}				24	V
Reverse Breakdown Voltage	V _{BR}	I _t = 1mA	26.7		36	V
Reverse Leakage Current	I _R	V _{RWM} = 24V	T=25°C	5	50	nA
			T=125°C		500	
Clamping Voltage	V _C	I _{pp} = 1A, tp = 8/20μs			45	V
Clamping Voltage	V _C	I _{pp} = 2A, tp = 8/20μs			50	V
Junction Capacitance	C _J	V _R = 0V, f = 1MHz	T=25°C	0.35	0.5	pF
			T=125°C		1.0	

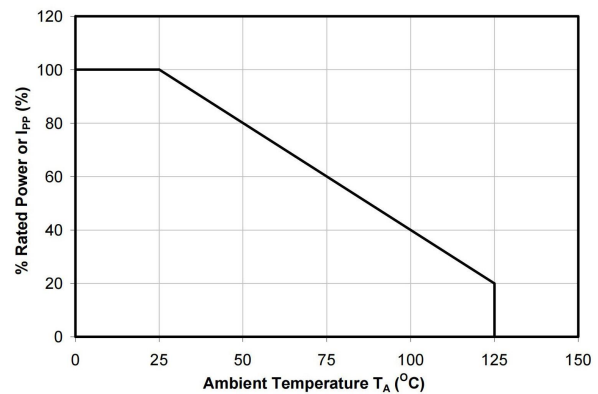
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Typical Characteristics

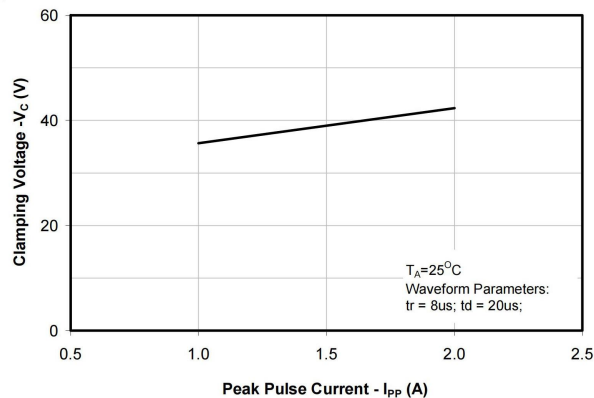
Non-Repetitive Peak Pulse Power vs. Pulse Time



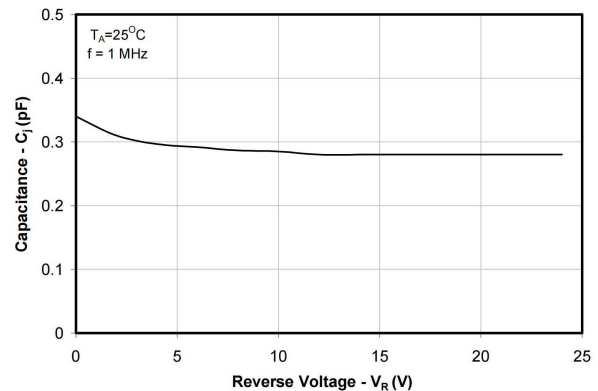
Power Derating Curve



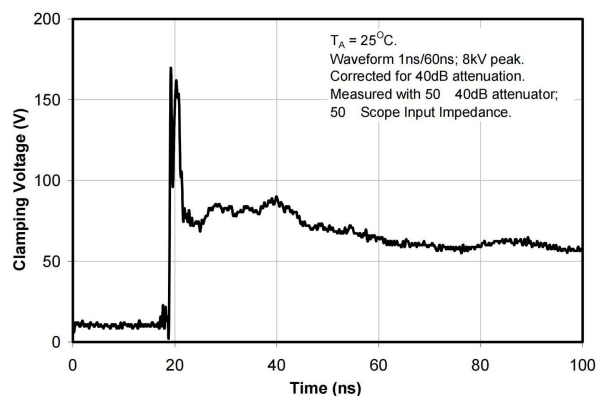
Typical Clamping Voltage vs. Peak Pulse Current



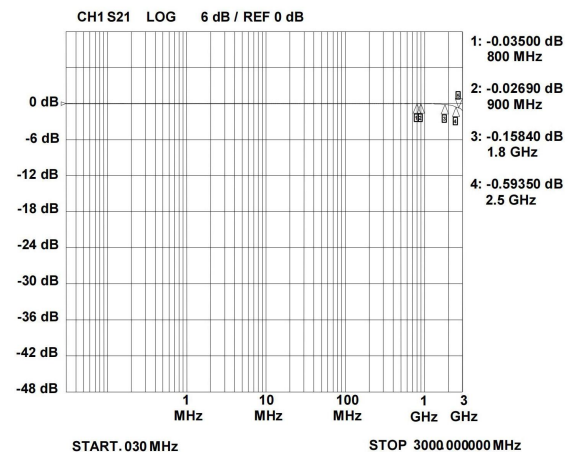
Typical Capacitance vs. Reverse Voltage



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

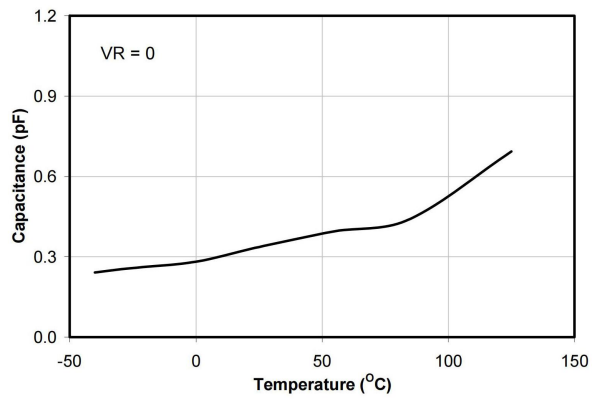


Insertion Loss S21

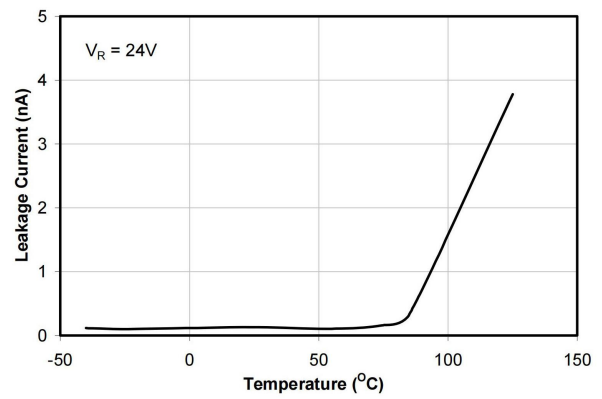


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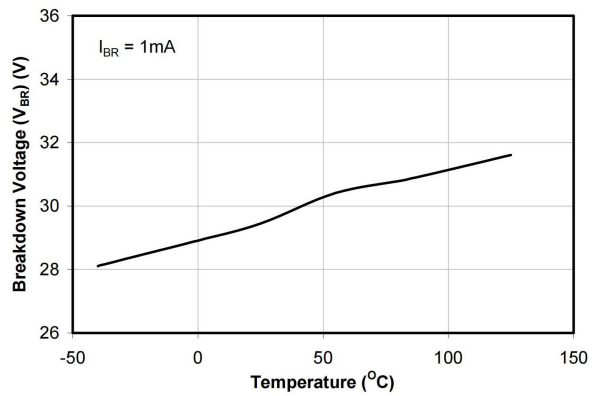
Typical Junction Capacitance v Temperature



Typical Reverse Leakage Current v Temperature



Typical Breakdown Voltage v Temperature

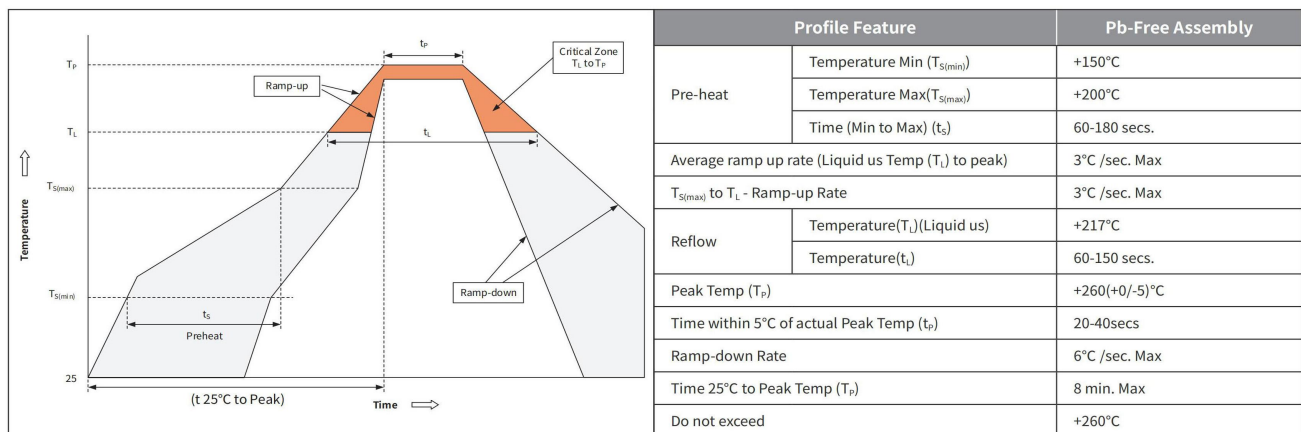


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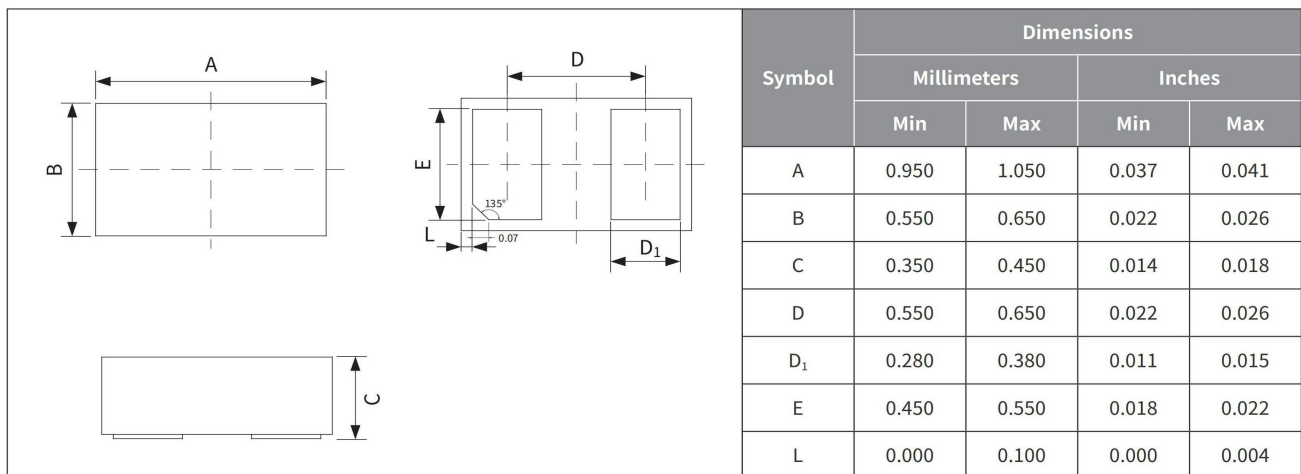
Ordering Information

PREFERRED P/N	PACKAGE	SIZE(mm)	DELIVERY MODE	MPQ(PCS)
	DFN1006-2L	1.00×0.60×0.37	7" REEL	10,000

Recommended Soldering Conditions



Package Outline Dimensions (DFN1006-2L)



Suggested Pad Layout

