PJSLC05 SERIES

ULTRA LOW CAPACITANCE SINGLE TVS FOR HIGH SPEED DATA LINES

This Transient Voltage Suppressor is intended to Protect Sensitive Equipment against Electrostatic Discharge and Transient Events as well to offer a Miminum insertion loss in high speed data communication transmission line ports used in Portable Consumer, Computing and Networking Applications.

SPECIFICATION FEATURES

- Working Peak Reverse Voltage Range - 5, 12, 15 and 24V
- Maximum Leakage Current of 5µA
- IEC61000-4-2 Compliance 15kV Air, 8kV Contact Discharge
- IEC61000-4-5 17 Amps peak, 8/20 µs Waveform
- 100% Tin Matte Finish (RoHS Compliant)

APPLICATIONS

- Mobile Phones and accessories
- Universal Serial Bus (USB1.1 and 2.0) Applications
- Portable Consumer Electronics
- Instrumentation Equipment
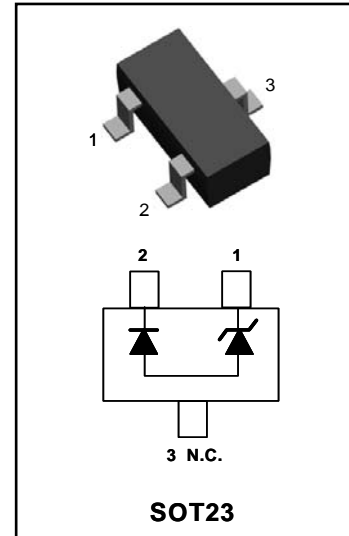- Ethernet 10, 100 and 1000 Base Port Protection

SOT23

Device	Marking Code
PJSLC05	S05
PJSLC12	S12
PJSLC15	S15
PJSLC24	S24

MAXIMUM RATINGS

Rating	Symbol	Value	Units
Peak Pulse Power 8/20µs Waveform	P_{pp}	400	W
Peak Pulse Current 8/20µs Waveform	I_{pp}	17	A
ESD Voltage (HBM)	V_{ESD}	>25	kV
Operating Temperature Range	T_J	-55 to +125	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C
Lead Soldering Temperature (max 10 secs)	T_L	260	°C

ELECTRICAL CHARACTERISTICS Tj = 25°C

PJSLC05

Parameter	Symbol	Conditions	Min	Typical	Max	Units
Reverse Stand-Off Voltage	V_{WRM}				5	V
Reverse Breakdown Voltage	V_{BR}	I_{BR} = 1mA	6			V
Reverse Leakage Current	I_R	V_R = 5V			5	µA
Clamping Voltage (8/20µs)	V_C	I_{pp} = 1 Amps			9.5	V
Clamping Voltage (8/20µs)	V_C	I_{pp} = 5 Amps			12	V
Maximum Peak Pulse Current	I_{pp}	8/20 µs Waveform			17	A
Off State Junction Capacitance	Cj	0 Vdc Bias f = 1MHz Between pins 1 and 2			1.2	pF

PJSLC05 SERIES

ELECTRICAL CHARACTERISTICS Tj = 25°C

PJSLC12

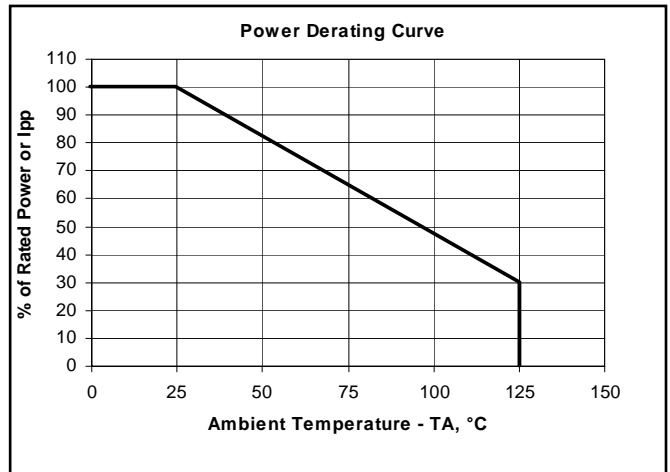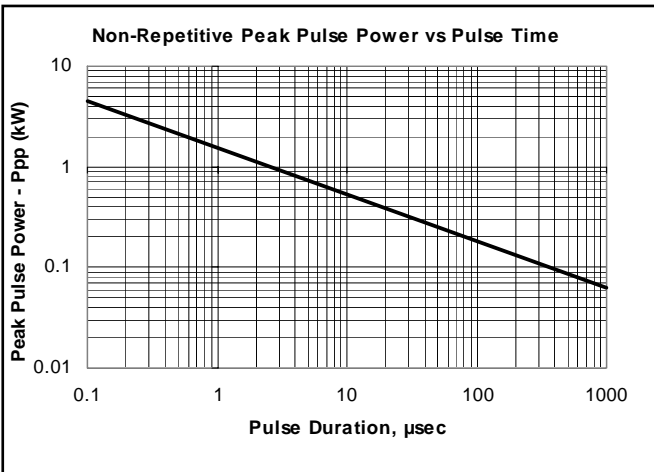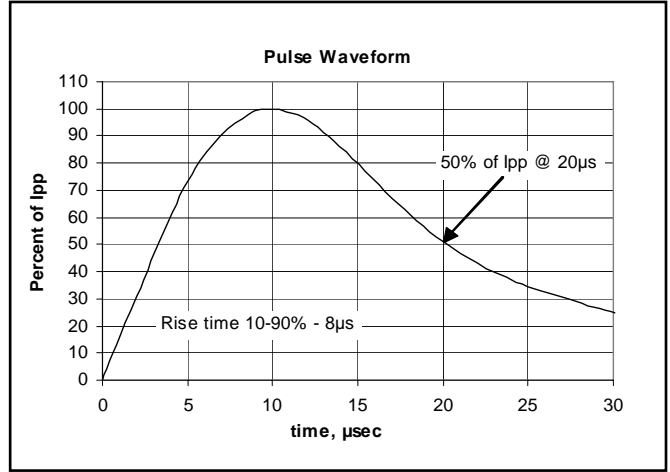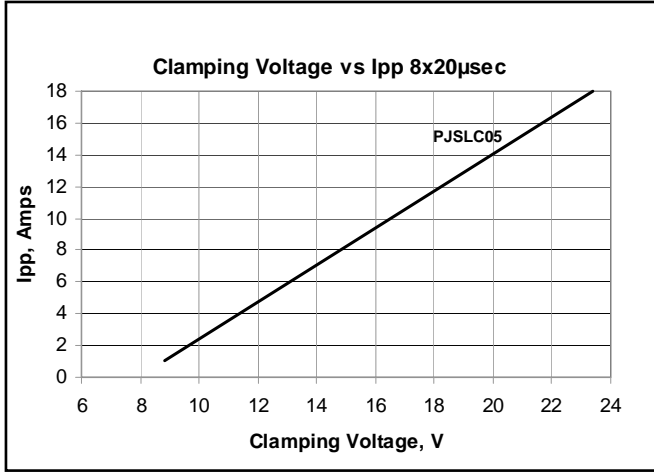| Parameter	Symbol	Conditions	Min	Typical	Max	Units
Reverse Stand-Off Voltage	V_{WRM}				12	V
Reverse Breakdown Voltage	V_{BR}	I_{BR} = 1 mA	13.3			V
Reverse Leakage Current	I_R	V_R = 12V			1	µA
Clamping Voltage (8/20µs)	V_C	I_{pp} = 1 Amps			19	V
Clamping Voltage (8/20µs)	V_C	I_{pp} = 5 Amps			24	V
Maximum Peak Pulse Current	I_{pp}	8/20 µs Waveform			12	A
Off State Junction Capacitance	Cj	0 Vdc Bias f = 1MHz Between pins 1 and 2			1.2	pF

PJSLC15

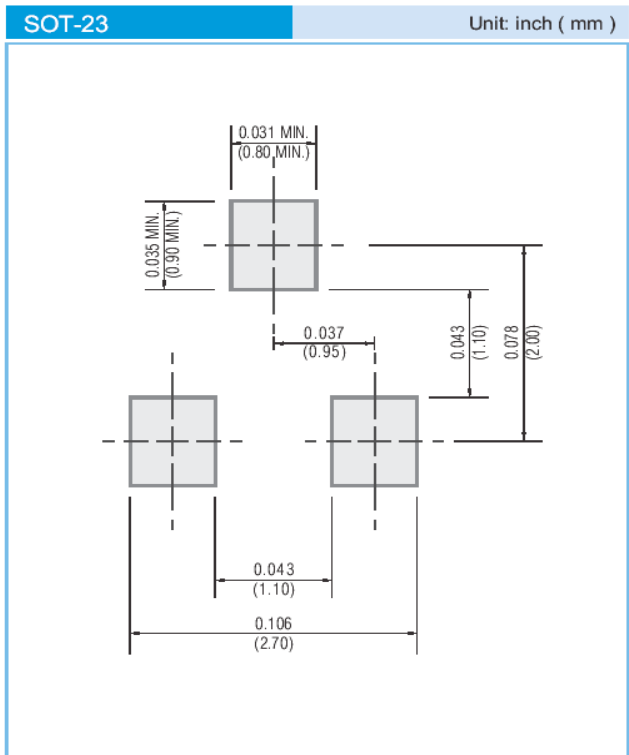| Parameter	Symbol	Conditions	Min	Typical	Max	Units
Reverse Stand-Off Voltage	V_{WRM}				15	V
Reverse Breakdown Voltage	V_{BR}	I_{BR} = 1 mA	16.7			V
Reverse Leakage Current	I_R	V_R = 15V			1	µA
Clamping Voltage (8/20µs)	V_C	I_{pp} = 1 Amps			24	V
Clamping Voltage (8/20µs)	V_C	I_{pp} = 5 Amps			30	V
Maximum Peak Pulse Current	I_{pp}	8/20 µs Waveform			10	A
Off State Junction Capacitance	Cj	0 Vdc Bias f = 1MHz Between pins 1 and 2			1.2	pF

PJSLC24

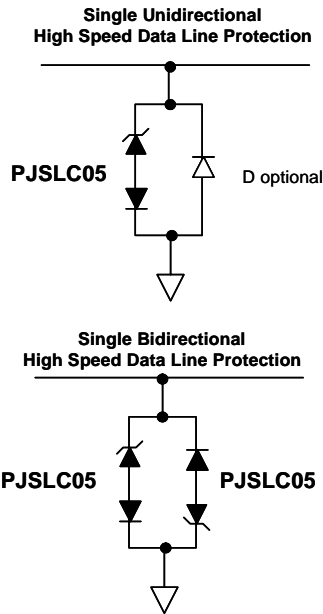| Parameter	Symbol	Conditions	Min	Typical	Max	Units
Reverse Stand-Off Voltage	V_{WRM}				24	V
Reverse Breakdown Voltage	V_{BR}	I_{BR} = 1 mA	26.7			V
Reverse Leakage Current	I_R	V_R = 24V			1	µA
Clamping Voltage (8/20µs)	V_C	I_{pp} = 1 Amps			43	V
Clamping Voltage (8/20µs)	V_C	I_{pp} = 5 Amps			55	V
Maximum Peak Pulse Current	I_{pp}	8/20 µs Waveform			5	A
Off State Junction Capacitance	Cj	0 Vdc Bias f = 1MHz Between pins 1 and 2			1.2	pF

TYPICAL CHARACTERISTIC CURVES

Clamping Voltage vs Ipp 8x20μsec

PJSLC05

Ipp, Amps vs *Clamping Voltage, V*

Pulse Waveform

Percent of Ipp vs *time, μsec*

50% of Ipp @ 20μs

Rise time 10-90% - 8μs

Non-Repetitive Peak Pulse Power vs Pulse Time

Peak Pulse Power - Ppp (kW) vs *Pulse Duration, μsec*

Power Derating Curve

% of Rated Power or Ipp vs *Ambient Temperature - TA, °C*

TYPICAL APPLICATION CONFIGURATIONS

Single Unidirectional
High Speed Data Line Protection

PJSLC05   D optional

Single Bidirectional
High Speed Data Line Protection

PJSLC05   PJSLC05

I/O Data
Lines

PJSLC05   PJSLC05

SOT-23   Unit: inch (mm)

.119(3.00)
.110(2.80)

.056(1.40)
.047(1.20)

.007(.20) MIN.

.103(2.60)
.086(2.20)

.083(2.10)
.066(1.70)

.006(.15)
.002(.05)

.006(.15) MAX.

.020(.50)
.014(.35)

.044(1.10)
.035(.90)

SOT-23   Unit: inch (mm)

0.031 MIN.
(0.80 MIN.)

0.035 MIN.
(0.90 MIN.)

0.037
(0.95)

0.043
(1.10)

0.078
(2.00)

0.043
(1.10)

0.106
(2.70)

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