

ULTRA LOW CAPACITANCE STEERING DIODE/TVS ARRAY



DFN-10 PACKAGE

DESCRIPTION

The SRV25-4LC is a dual USB port protection array that features ultra low capacitance. This device can be used in applications such as video cards, SMART phones, Gigabit Ethernet and other computer interfaces. Designed for ESD protection, the SRV25-4LC can clamp the effects of electrical fast transients on the power bus.

The SRV25-4 LC combines 8 low capacitance steering diodes for up to four individual data or transmission lines and one TVS diode for power bus protection. This device is available in the space-saving DFN-10 package configuration, which minimizes lead inductance to prevent overshoot voltages during high ESD current events. The SRV25-4LC meets the IEC 61000-4-2, 61000-4-2 and 61000-4-5 requirements.

FEATURES

- Compatible with IEC 61000-4-2 (ESD): Air 15kV, Contact 8kV
- Compatible with IEC 61000-4-4 (EFT): 40A, 5/50ns
- Compatible with IEC 61000-4-5 (Surge): 24A, 8/20 μ s - Level 2(Line-Gnd) & Level 3(Line-Line)
- 400 Watts Peak Pulse Power per Line(tp = 8/20 μ s)
- ESD Protection > 25 kilovolts
- Low Clamping Voltage
- Protection for 4 Lines
- Ultra Low Capacitance: 1.0pF Typical
- RoHS Compliant
- REACH Compliant

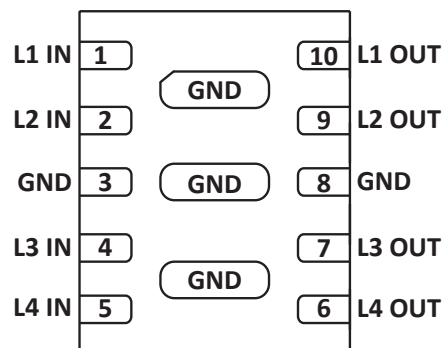
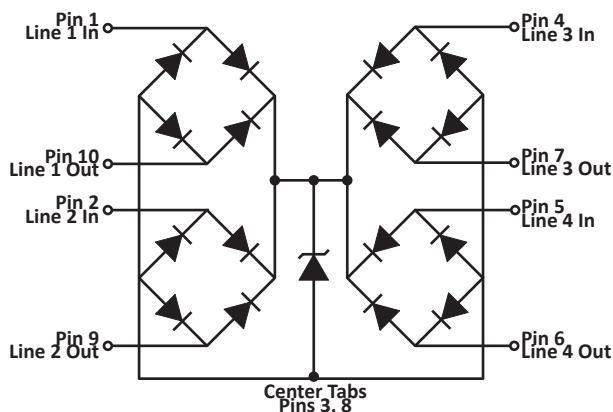
APPLICATIONS

- Gigabit Ethernet
- SMART Phones
- Portable Electronics
- Video Card Interfaces
- USB 2.0 Interfaces
- DVI Interfaces

MECHANICAL CHARACTERISTICS

- Molded JEDEC DFN-10 Package
- Approximate Weight: 7 milligrams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:
Pure-Tin - Sn, 100: 260-270°C
- Flammability Rating UL 94V-0
- 8mm Tape and Reel per EIA Standard 481

CIRCUIT DIAGRAM AND PIN CONFIGURATION



TYPICAL DEVICE CHARACTERISTICS
MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

| PARAMETER | SYMBOL | VALUE | UNITS |
|--|-----------|---------------------|-------|
| Peak Pulse Power (tp = 8/20μs) - See Figure 1 | P_{PP} | 400 | Watts |
| Operating Temperature | T_L | -55 to 150 | °C |
| Storage Temperature | T_{STG} | -55 to 150 | °C |
| Forward Surge Rating (5ms @ 25°C, $I_F = 10mA$) | V_F | 0.5 Min. - 1.2 Max. | Volts |
| Peak Pulse Current (tp = 8/20μs) - Note 1 | I_{PP} | 24 | Amps |

NOTES

1. Measured with I/O pins tied together.

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

| PART NUMBER | DEVICE MARKING | RATED STAND-OFF VOLTAGE (Note 1) | MINIMUM BREAKDOWN VOLTAGE (Note 1) | MAXIMUM CLAMPING VOLTAGE (Fig. 2) (Note 1) | MAXIMUM CLAMPING VOLTAGE (Fig. 2) (Note 1) | MAXIMUM LEAKAGE CURRENT (Note 1) | TYPICAL CAPACITANCE (Note 1) |
|-------------|----------------|----------------------------------|------------------------------------|--|--|----------------------------------|---------------------------------|
| | | V_{WM} VOLTS | @ 1mA $V_{(BR)}$ VOLTS | @ $I_p = 1A$ V_C VOLTS | @ $I_p = 10A$ V_C VOLTS | @ V_{WM} I_D μA | @ 0V, 1MHz $C_{J(SD)}$ pF |
| SRV25-4LC | S4LC | 2.5 | 3.0 | 4.5 | 7.4 | 0.1 | 1.0 |

NOTES

1. Measured from I/O pin to ground.

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

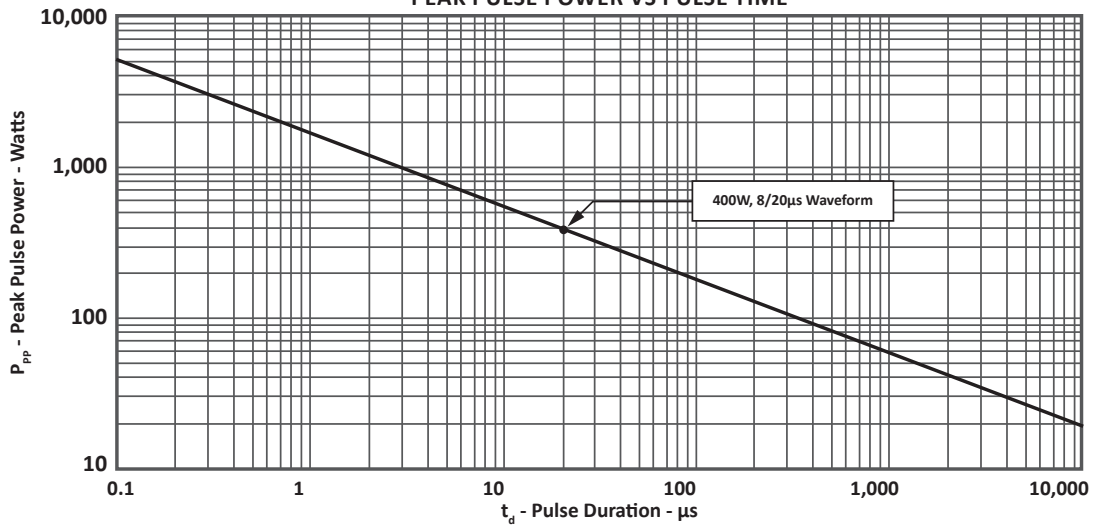
| MAXIMUM CLAMPING VOLTAGE (Fig. 2) (Note 1) | MAXIMUM CLAMPING VOLTAGE (Fig. 2) (Note 2) | MAXIMUM CAPACITANCE | TYPICAL CAPACITANCE I/O TO I/O |
|--|--|---------------------------------|---------------------------------|
| @ $I_p = 15A$ V_C VOLTS | @ $I_p = 24A$ V_C VOLTS | @ 0V, 1MHz $C_{J(SD)}$ pF | @ 0V, 1MHz $C_{J(SD)}$ pF |
| 10.0 | 20.0 | 2.0 | 0.5 |

NOTES

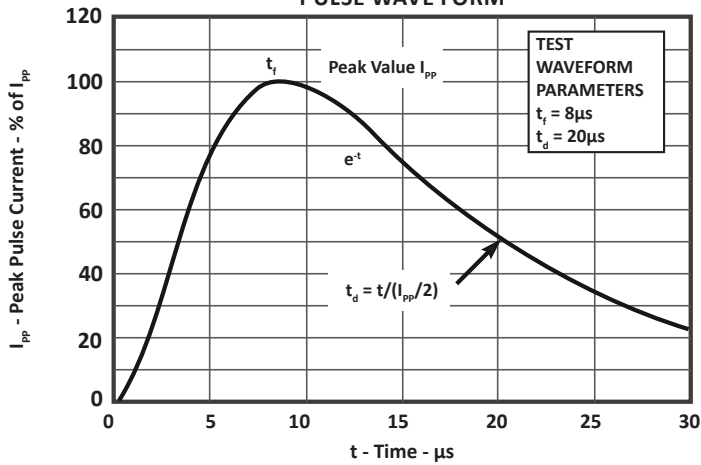
1. Measured from I/O pin to ground.
 2. Measured with I/O pins tied together.

TYPICAL DEVICE CHARACTERISTICS

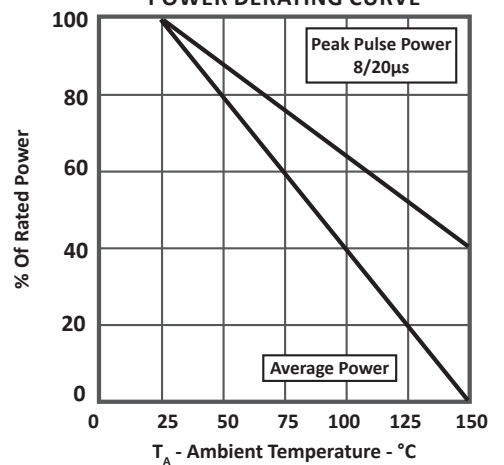
**FIGURE 1
PEAK PULSE POWER VS PULSE TIME**



**FIGURE 2
PULSE WAVE FORM**



**FIGURE 3
POWER DERATING CURVE**



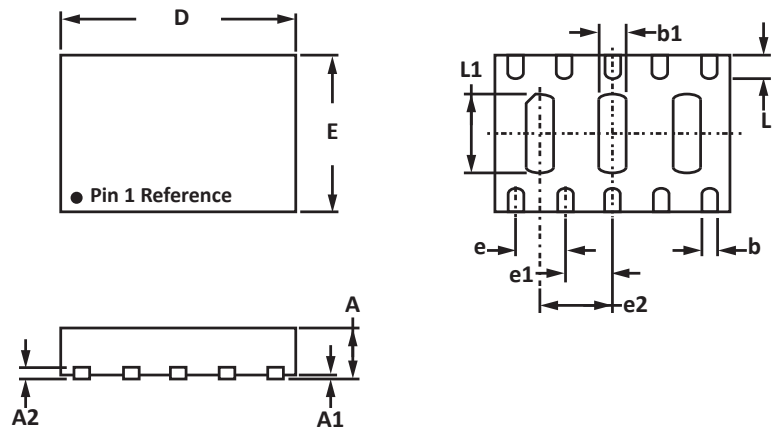
DFN-10 PACKAGE INFORMATION

OUTLINE DIMENSIONS

| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|------|-----------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.50 | 0.65 | 0.020 | 0.026 |
| A1 | 0.00 | 0.05 | 0.00 | 0.002 |
| A2 | 0.15 | | 0.006 | |
| b | 0.15 | 0.25 | 0.006 | 0.010 |
| b1 | 0.25 | 0.45 | 0.010 | 0.018 |
| D | 2.90 | 3.10 | 0.114 | 0.122 |
| E | 1.90 | 2.10 | 0.075 | 0.083 |
| e | 0.60 BSC | | 0.024 BSC | |
| e1 | 0.65 BSC | | 0.026 BSC | |
| e2 | 0.95 BSC | | 0.037 BSC | |
| L | 0.25 | 0.35 | 0.010 | 0.014 |
| L1 | 0.95 | 1.05 | 0.037 | 0.041 |

NOTES

- Controlling dimension: millimeters.
- Dimensioning and tolerances per ANSI Y14.M, 1985.

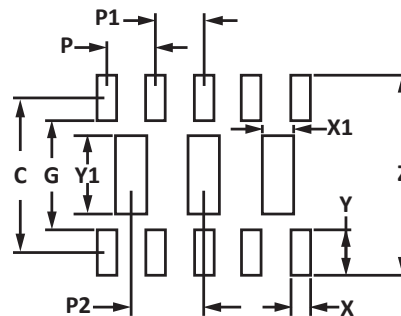


PAD LAYOUT DIMENSIONS

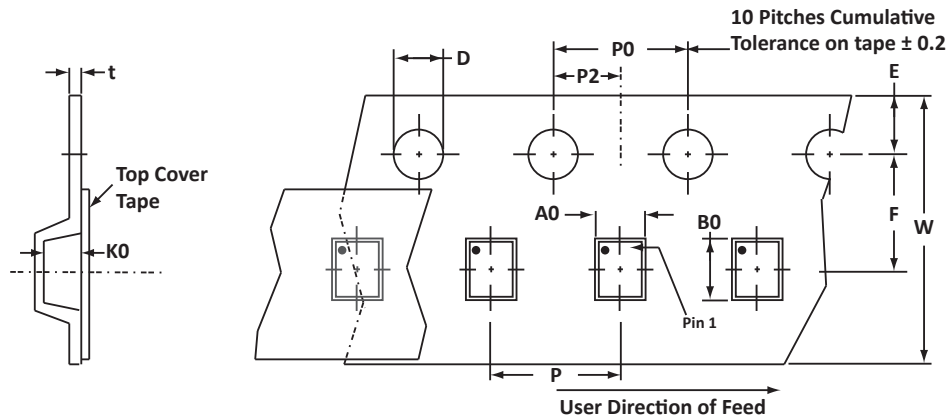
| DIM | MILLIMETERS | INCHES |
|-----|-------------|---------|
| | NOMINAL | NOMINAL |
| C | 1.98 | 0.078 |
| G | 1.40 | 0.056 |
| P | 0.60 | 0.024 |
| P1 | 0.65 | 0.026 |
| P2 | 0.95 | 0.037 |
| X | 0.25 | 0.010 |
| X1 | 0.40 | 0.016 |
| Y | 0.58 | 0.023 |
| Y1 | 1.00 | 0.039 |
| Z | 2.56 | 0.101 |

NOTES

- Controlling dimension: millimeters.



TAPE AND REEL



SPECIFICATIONS

| REEL DIA. | TAPE WIDTH | A0 | B0 | K0 | D | E | F | W | P0 | P2 | P | tmax |
|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|
| 178mm (7") | 8mm | 2.24 ± 0.05 | 3.23 ± 0.05 | 0.93 ± 0.05 | 1.50 ± 0.10 | 1.75 ± 0.10 | 3.50 ± 0.05 | 8.00 ± 0.30 | 4.00 ± 0.10 | 2.00 ± 0.05 | 4.00 ± 0.10 | 0.25 |

NOTES

1. Dimensions are in millimeters.
2. Surface mount product is taped and reeled in accordance with EIA-481.
3. Suffix - T7 = 7" Reel - 3,000 pieces per 8mm tape.
4. Marking on Part - marking code (see page 2).

ORDERING INFORMATION

| BASE PART NUMBER | LEADFREE SUFFIX | TAPE SUFFIX | QTY/REEL | REEL SIZE | TUBE QTY |
|------------------|-----------------|-------------|----------|-----------|----------|
| SRV25-4LC | N/A | -T7 | 3,000 | 7" | n/a |

This device is only available in a Lead-Free configuration.

COMPANY INFORMATION

COMPANY PROFILE

In business more than 20 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection and overcurrent protection components. These include transient voltage suppressor array (TVS arrays) avalanche breakdown diode, steering diode TVS array and electronics SMD chip fuses. These components deliver circuit protection in electronic systems from numerous overvoltage and overcurrent events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices also offers LED wafer die for ESD protection and related high frequency products.

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