

ULTRA LOW CAPACITANCE TVS ARRAY



DESCRIPTION

The PLR05214LC is an ultra-low capacitance transient voltage suppressor array, designed to protect computing and networking applications from the damaging effects of Electrostatic Discharge and Electrical Fast Transients.

The PLR05214LC meets and exceeds IEC 61000-4-2 (ESD) and IEC 61000-4-4 (EFT) requirements and protects 4 data lines. This device provides an integrated solution at higher data transmission rates, with a minimum insertion loss while maintaining signal integrity.

This device offers a maximum power dissipation of 100W for an 8/20 μ s surge pulse as well as ultra-low maximum capacitance of 0.35pF and low leakage current in a miniature DFN-10 package, where the need for space on PCB area is a premium.

FEATURES

- Compatible with IEC 61000-4-2 (ESD): Contact ± 8 kV, Air ± 15 kV
- Compatible with IEC 61000-4-4 (EFT)
- Compatible with IEC 61000-4-5 (Surge)
- 100 Watts Peak Pulse Power per Line (tp = 8/20 μ s)
- ESD Protection
- Low Clamping Voltage
- Protects 4 Bidirectional Lines
- Ultra Low Capacitance: 0.35pF Max.
- RoHS Compliant
- REACH Compliant

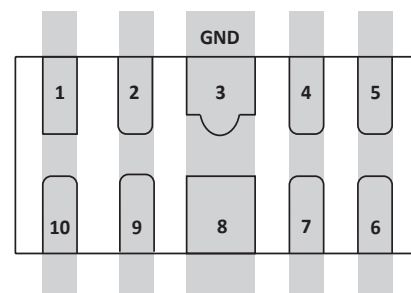
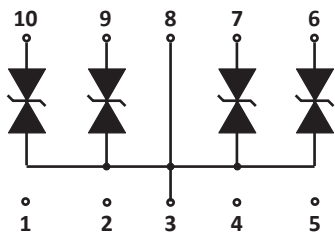
APPLICATIONS

- Gigabit Ethernet
- FireWire
- Wireless Communications
- USB 3.0
- HDMI 2.0 Interfaces
- Type-C Connector

MECHANICAL CHARACTERISTICS

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

PIN CONFIGURATION



Note: Pin pairs 1-10, 2-9, 3-8, 4-7 and 5-6 must be connected via their PCB lines for full function/operation, as shown.

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

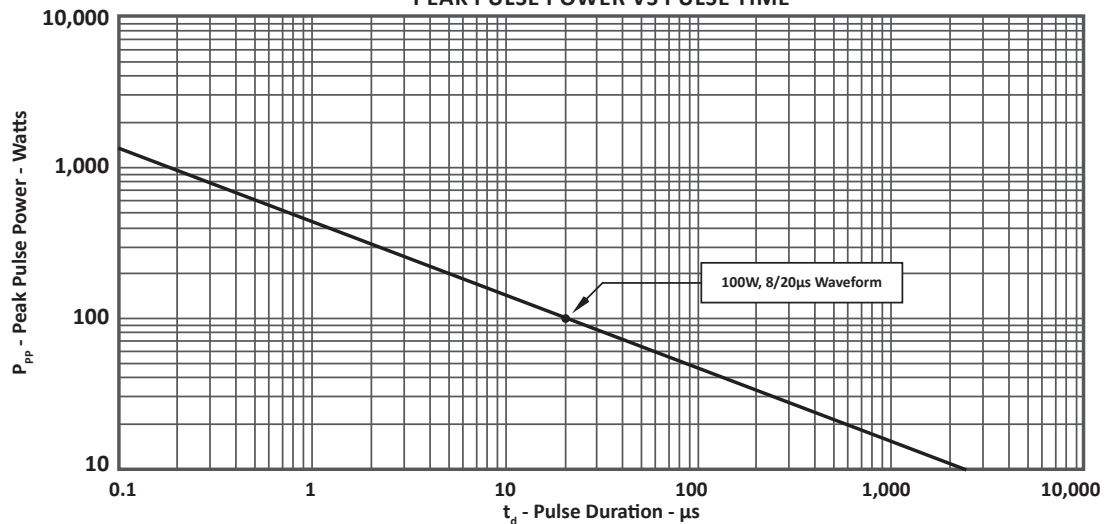
| PARAMETER | SYMBOL | VALUE | UNITS |
|---|----------|------------|-------|
| Operating Temperature | T_L | -55 to 150 | °C |
| Storage Temperature | T_L | -55 to 150 | °C |
| Peak Pulse Power ($t_p = 8/20\mu s$) - See Figure 1 | P_{PP} | 100 | W |

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

| PART NUMBER | DEVICE MARKING | RATED STAND-OFF VOLTAGE (Note 1) V_{WM} VOLTS | MINIMUM BREAKDOWN VOLTAGE (Note 1) @ 1mA $V_{(BR)}$ VOLTS | MAXIMUM CLAMPING VOLTAGE (Note 1) (Fig. 2) @ $I_p = 1A$ V_c VOLTS | MAXIMUM CLAMPING VOLTAGE (Note 1) (Fig. 2) @ $I_p = 5A$ V_c VOLTS | MAXIMUM LEAKAGE CURRENT (Note 1) @ V_{WM} I_D μA | MAXIMUM CAPACITANCE (Note 1) @ 0V, 1MHz C pF |
|-------------|----------------|---|--|--|--|--|---|
| PLR05214LC | 214C | 5.0 | 6.0 | 13.0 | 20.0 | 0.5 | 0.35 |

NOTES

1. I/O to ground.

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


TYPICAL DEVICE CHARACTERISTICS

FIGURE 2
PULSE WAVE FORM

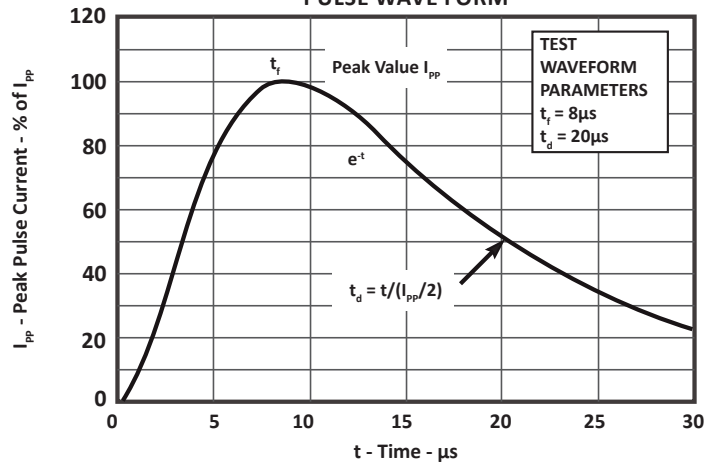
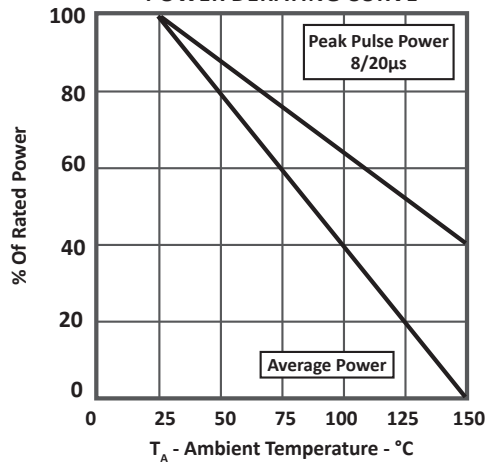


FIGURE 3
POWER DERATING CURVE



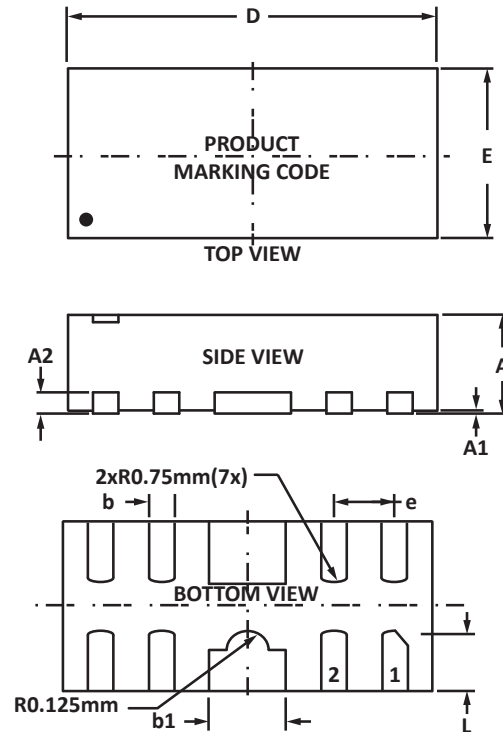
PACKAGE INFORMATION

OUTLINE DIMENSIONS

| DIM | MILLIMETERS | | INCHES | |
|-----|--------------|------|---------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.47 | 0.60 | 0.019 | 0.024 |
| A1 | 0.00 | 0.05 | 0.000 | 0.002 |
| A2 | 0.13 | 0.21 | 0.005 | 0.008 |
| b | 0.15 | 0.25 | 0.006 | 0.010 |
| b1 | 0.35 | 0.45 | 0.014 | 0.018 |
| D | 2.40 | 2.60 | 0.094 | 0.102 |
| E | 0.90 | 1.10 | 0.035 | 0.043 |
| e | 0.50 Nominal | | 0.020 Nominal | |
| L | 0.35 | 0.43 | 0.014 | 0.017 |

NOTES

- Controlling dimension: millimeters.

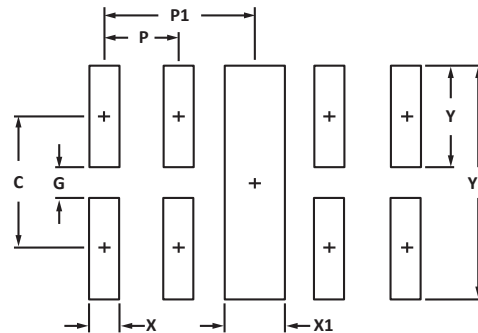


PAD LAYOUT

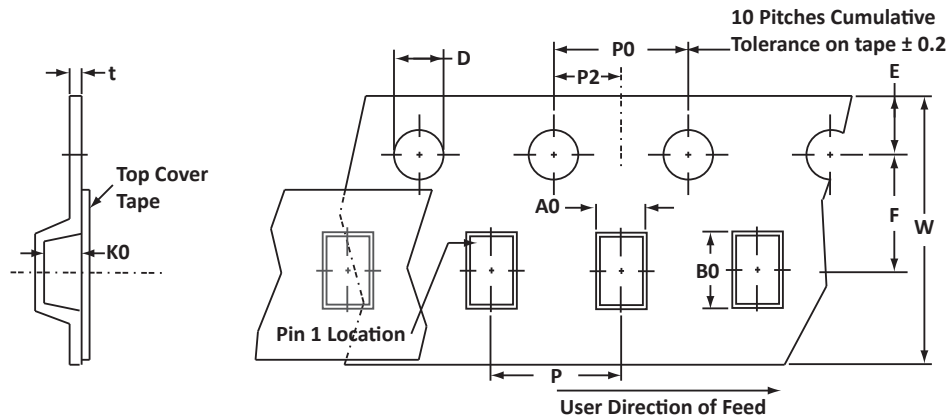
| DIM | MILLIMETERS | INCHES |
|-----|-------------|---------|
| | NOMINAL | NOMINAL |
| C | 0.875 | 0.34 |
| G | 0.20 | 0.008 |
| P | 0.50 | 0.020 |
| P1 | 1.00 | 0.039 |
| X | 0.25 | 0.010 |
| X1 | 0.46 | 0.018 |
| Y | 0.675 | 0.027 |
| Y1 | 1.55 | 0.061 |

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 | 1.20 ± 0.10 | 2.70 ± 0.10 | 0.75 ± 0.10 | 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 - T73 = 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 |
|------------------|-----------------|-------------|----------|-----------|----------|
| PLR05214LC | n/a | -T73 | 3,000 | 7" | n/a |

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

COMPANY INFORMATION

COMPANY PROFILE

In business more than 25 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. ProTek Devices is ISO 9001:2015 certified.

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