

ULTRA LOW CAPACITANCE STEERING DIODE/TVS ARRAY



DESCRIPTION

The PLR0504F is subminiature, ultra low capacitance steering diode/TVS suppressor array designed for the protection of sensitive IC components from the damaging effects of Electrostatic Discharge (ESD) and Electrical Fast Transients (EFT). This device is ideally suited for use in portable electronics such as SMART phones, laptops, and other wireless devices as well as gigabit Ethernet applications.

The PLR0504F provides protection in accordance with IEC 61000-4-2 and IEC 61000-4-4 requirements. This device is available in a SC70-6L package configuration and is rated at 200 Watts peak pulse power (8/20 μ s) per line.

FEATURES

- Compatible with IEC 61000-4-2 (ESD): Air 15kV, Contact 8kV
- Compatible with IEC 61000-4-4 (EFT): 40A, 5/50ns
- 200 Watts Peak Pulse Power per Line(tp = 8/20 μ s)
- ESD Protection > 25 kilovolts
- Protects 4 Data Lines
- Low Clamping Voltage
- Ultra Low Capacitance: 1.9pF Typical
- RoHS Compliant
- REACH Compliant

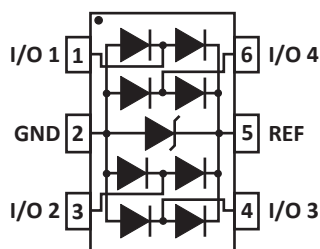
APPLICATIONS

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

MECHANICAL CHARACTERISTICS

- Molded JEDEC SC70-6L Package
- Approximate Weight: 7milligrams
- Lead-Free Nickel Paladium Gold Plating
- Solder Reflow Temperature: 260-270°C
- Flammability Rating UL 94V-0
- 8mm Tape and Reel per EIA Standard 481

PIN CONFIGURATION



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

| PARAMETER | SYMBOL | VALUE | UNITS |
|--|-----------|------------|-------|
| Peak Pulse Power ($t_p = 8/20\mu s$) - See Figure 1 | P_{PP} | 200 | Watts |
| Operating Temperature | T_L | -55 to 150 | °C |
| Storage Temperature | T_{STG} | -55 to 150 | °C |
| Forward Surge Rating (1/120 seconds @ 25°C, $I_F = 10mA$) | V_F | 1.5 | Volts |

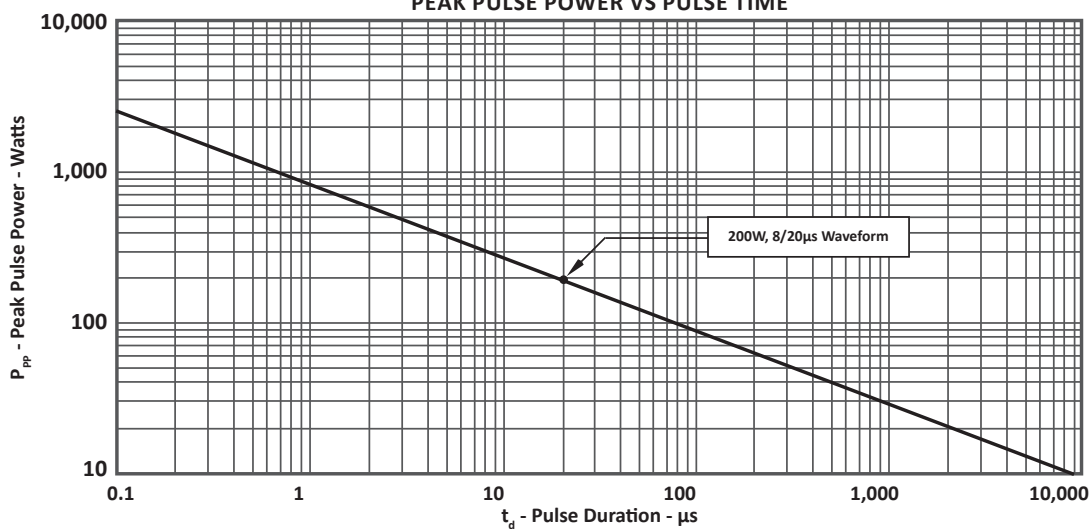
ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

| 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 (Fig. 2) (Note 1) @ $I_p = 1A$ V_C VOLTS | MAXIMUM CLAMPING VOLTAGE (Fig. 2) (Note 1) @ $I_p = 5A$ V_C VOLTS | MAXIMUM LEAKAGE CURRENT (Note 1) @ V_{WM} I_D μA | MAXIMUM CAPACITANCE (Note 1) @ 0V, 1MHz $C_{j(SD)}$ pF |
|-------------|----------------|---|--|--|--|--|---|
| PLR0504F | A5 | 5.0 | 6.0 | 15.0 | 25.0 | 3 | 1.9 |

NOTES

- From I/O pin to ground.

FIGURE 1
PEAK PULSE POWER VS PULSE TIME



TYPICAL DEVICE CHARACTERISTICS

FIGURE 2
PULSE WAVE FORM

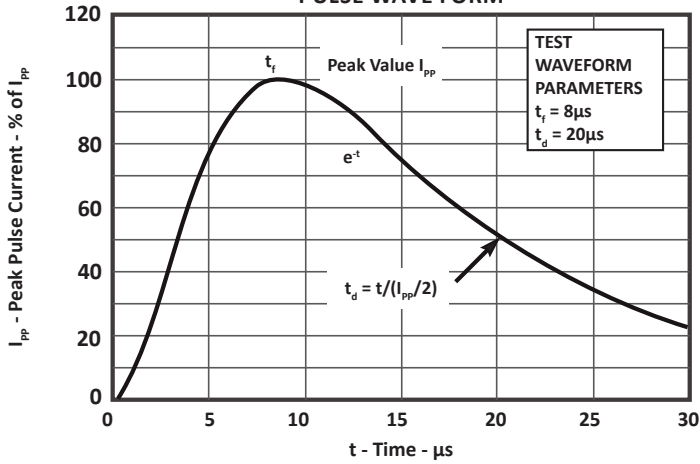


FIGURE 3
POWER DERATING CURVE

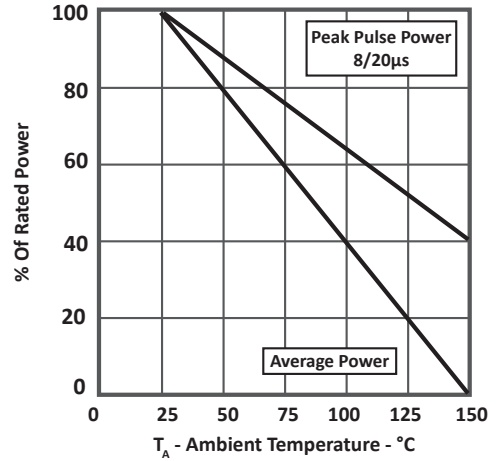
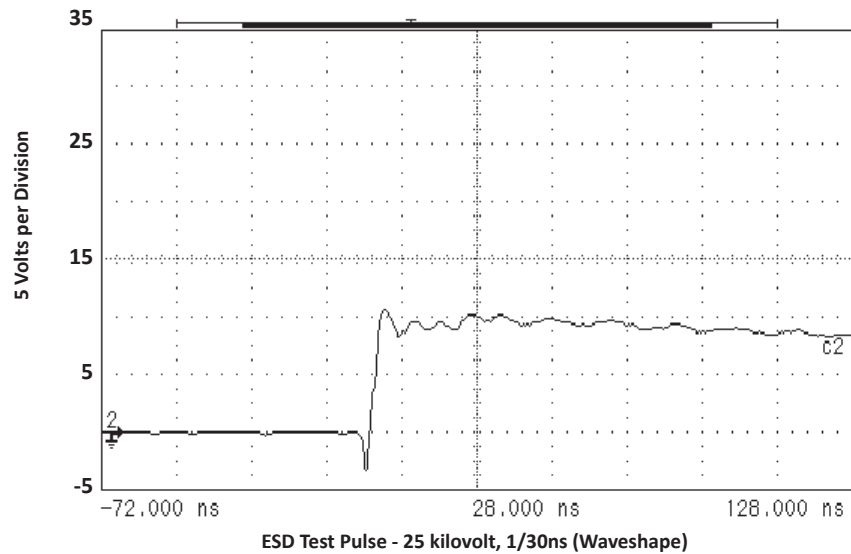


FIGURE 4
OVERSHOOT & CLAMPING VOLTAGE



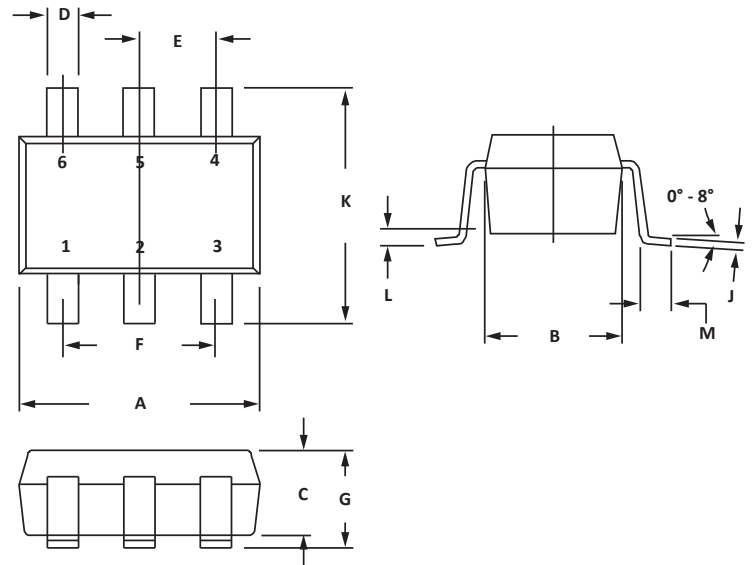
SC70-6L PACKAGE INFORMATION

OUTLINE DIMENSIONS

| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|------|-----------|-------|
| | MIN | MAX | MIN | MAX |
| A | 1.90 | 2.15 | 0.074 | 0.084 |
| B | 1.15 | 1.35 | 0.045 | 0.055 |
| C | 0.80 | 1.00 | 0.031 | 0.040 |
| D | 0.15 | 0.30 | 0.005 | 0.012 |
| E | 0.65 BSC | | 0.026 BSC | |
| F | 1.30 BSC | | 0.051 BSC | |
| G | 0.80 | 1.10 | 0.031 | 0.043 |
| J | 0.08 | 0.25 | 0.003 | 0.010 |
| K | 2.00 | 2.40 | 0.078 | 0.095 |
| L | - | 0.10 | - | 0.004 |
| M | 0.26 | 0.46 | 0.010 | 0.018 |

NOTES

- Controlling dimension: inches.
- Dimensioning and tolerances per ANSI Y14.5M, 1985.
- Dimensions are exclusive of mold flash and metal burrs.

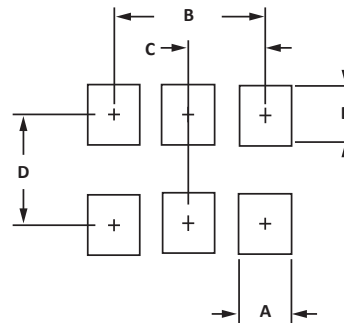


PAD LAYOUT DIMENSIONS

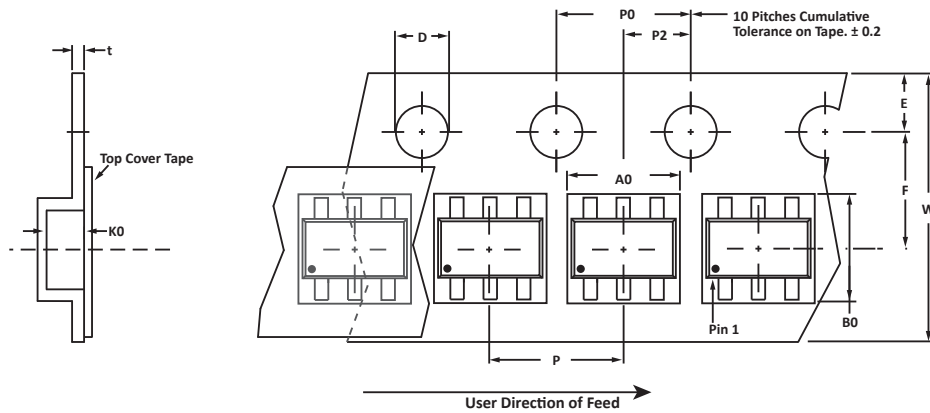
| DIM | MILLIMETERS | INCHES |
|-----|-------------|---------|
| | NOMINAL | NOMINAL |
| A | 0.50 | 0.020 |
| B | 1.30 | 0.051 |
| C | 0.65 | 0.026 |
| D | 1.72 | 0.068 |
| E | 0.60 | 0.024 |

NOTES

- Controlling dimension: inches.



TAPE AND REEL



SPECIFICATIONS

| REEL DIA. | TAPE WIDTH | A0 | B0 | K0 | D | E | F | W | P0 | P2 | P | tmax |
|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|
| 178mm (7") | 8mm | 2.25 ± 0.10 | 2.34 ± 0.10 | 1.22 ± 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) and pin one defined by dot on package.

Package outline, pad layout and tape specifications per document number 06019.R5 3/11.

ORDERING INFORMATION

| BASE PART NUMBER | LEADFREE SUFFIX | TAPE SUFFIX | QTY/REEL | REEL SIZE | TUBE QTY |
|------------------|-----------------|-------------|----------|-----------|----------|
| PLR0504F | -P | -T73 | 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 company located in Tempe, Arizona, that offers a product line of transient voltage suppressors (TVS); avalanche breakdown diodes; steering diode TVS arrays and other surge suppressor component products. These TVS devices protect electronic systems from the effects of lightning, electrostatic discharge (ESD), nuclear electromagnetic pulses (NEMP), inductive switching and EMI / RFI. ProTek Devices also offers high performance interface and linear products that include analog switches; multiplexers; LED drivers; audio control ICs; RF and related high frequency products. The analog devices work in a host of consumer; industrial; automotive and other applications.

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