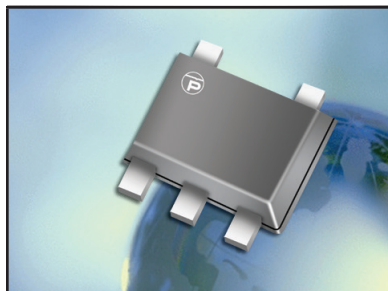


## MULTI-LINE LOW CAPACITANCE TVS ARRAY



**SOT-953 PACKAGE**

### DESCRIPTION

The VSMF05LC is a 5 Volt, low capacitance, multi-line TVS array. This device is designed to protect wireless tele-communications and portable electronic applications from the damaging effects of ESD and EFT. The VSMF05LC is available in a 4 line unidirectional configuration with a working voltage of 5 Volts and a minimum breakdown voltage of 6 Volts. This device is rated at 25 Watts peak pulse power, which is sufficient protection for tertiary type lightning threats at key interface locations.

Packaged in a miniature SOT-953, the VSMF05LC meets IEC 61000-4-2 (ESD) and 61000-4-4 (EFT) immunity requirements. Each device should be placed near a connector to provide the best protection against transients.

### FEATURES

- Compatible with IEC 61000-4-2 (ESD): Air 15kV, Contact 8kV
- Compatible with IEC 61000-4-4 (EFT): 40A, 5/50ns
- 25 Watts Peak Pulse Power per Line( $t_p = 8/20\mu s$ )
- Monolithic Design
- Available in 5 Volts
- Low Clamping Voltage
- ESD Protection > 25 kilovolts
- Low Leakage Current
- Low Capacitance: 9pF
- Protects 4 Unidirectional Lines
- RoHS Compliant
- REACH Compliant

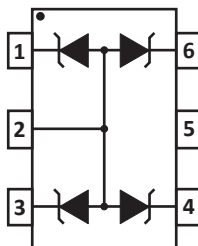
### APPLICATIONS

- Communication Systems
- SMART Phones
- Portable Electronics
- Video Interfaces

### MECHANICAL CHARACTERISTICS

- Molded JEDEC SOT-953 Package
- Approximate Weight: 3 milligrams
- 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 (tp = 8/20μs) - See Figure 1 | $P_{PP}$  | 25         | Watts |
| Operating Temperature                         | $T_L$     | -55 to 150 | °C    |
| Storage Temperature                           | $T_{STG}$ | -55 to 150 | °C    |
| Maximum Forward Voltage @ 10mA                | $V_F$     | 1.0        | V     |

**ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified**

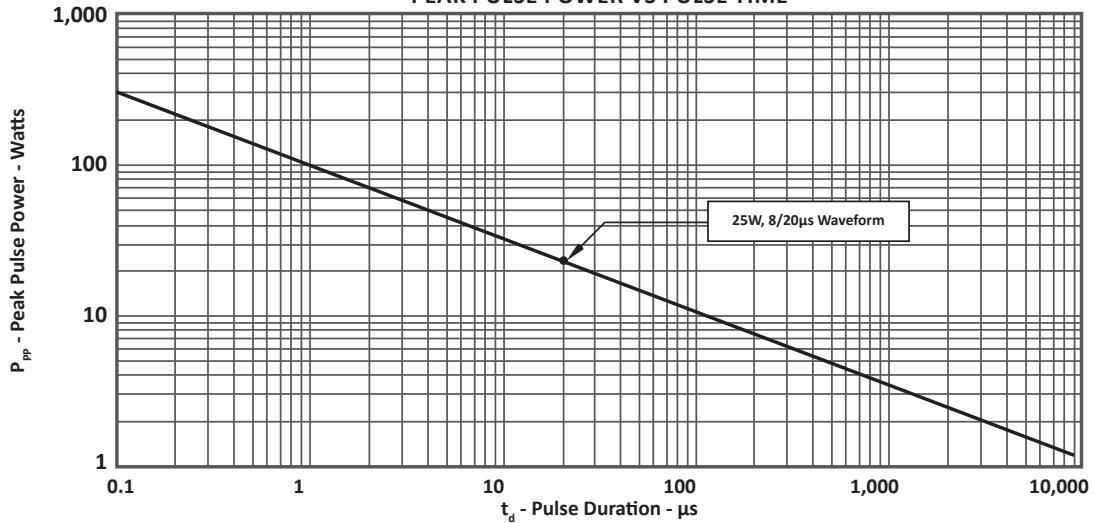
| PART NUMBER | DEVICE MARKING | RATED STAND-OFF VOLTAGE<br><br>$V_{WM}$<br>VOLTS | MINIMUM BREAKDOWN VOLTAGE<br><br>@ 1mA<br>$V_{(BR)}$<br>VOLTS | MAXIMUM CLAMPING VOLTAGE (Fig. 2)<br>@ $I_P = 2A$<br>$V_C$<br>VOLTS | MAXIMUM LEAKAGE CURRENT<br><br>@ $V_{WM}$<br>$I_D$<br>μA | TYPICAL CAPACITANCE (Note 1)<br><br>@0V, 1MHz<br>C<br>pF |
|-------------|----------------|--|---|---|--|--|
| VSMF05LC    | 5A             | 5.0  | 6.0   | 12.0  | 1  | 9  |

**NOTES**

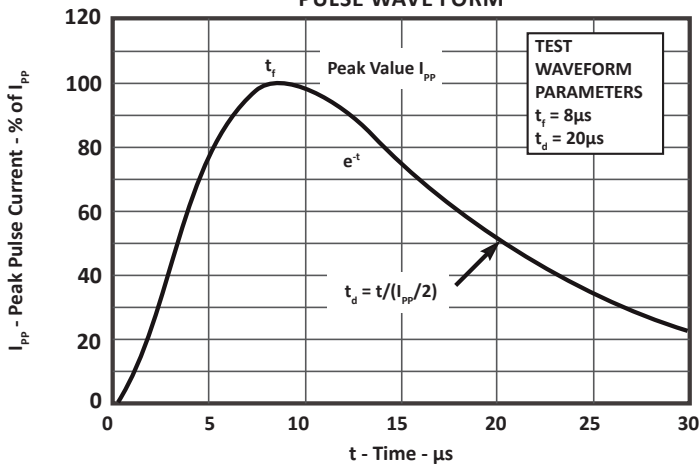
- Pins 1, 3, 4, 5 to pin 2.

TYPICAL DEVICE CHARACTERISTICS

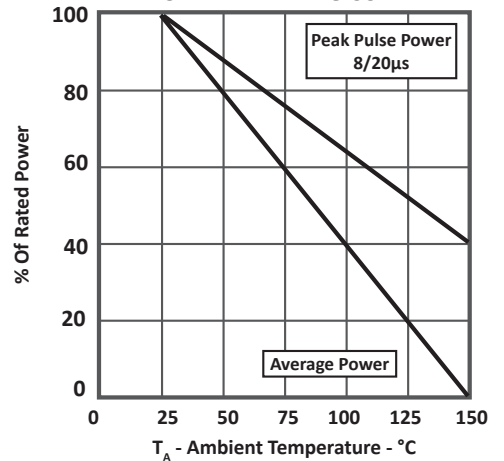
**FIGURE 1**  
PEAK PULSE POWER VS PULSE TIME



**FIGURE 2**  
PULSE WAVE FORM



**FIGURE 3**  
POWER DERATING CURVE



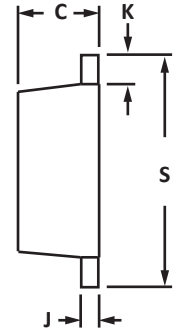
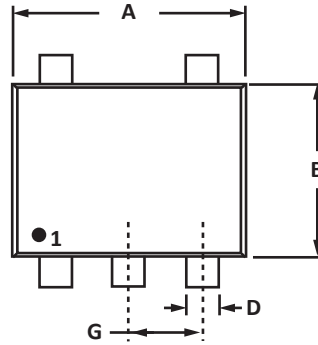
## SOT-953 PACKAGE INFORMATION

## OUTLINE DIMENSIONS

| DIM | MILLIMETERS |      | INCHES |       |
|-----|-------------|------|--------|-------|
|     | MIN         | MAX  | MIN    | MAX   |
| A   | 0.95        | 1.05 | 0.037  | 0.041 |
| B   | 0.75        | 0.85 | 0.029  | 0.034 |
| C   | 0.40        | 0.50 | 0.016  | 0.020 |
| D   | 0.10        | 0.20 | 0.004  | 0.008 |
| G   | 0.35        | 0.40 | 0.014  | 0.016 |
| J   | 0.05        | 0.15 | 0.002  | 0.006 |
| K   | 0.10        | 0.15 | 0.004  | 0.006 |
| S   | 0.95        | 1.05 | 0.037  | 0.041 |

## NOTES

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

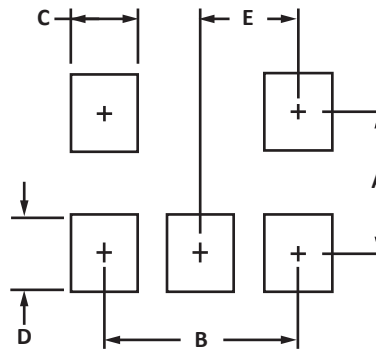


## PAD LAYOUT DIMENSIONS

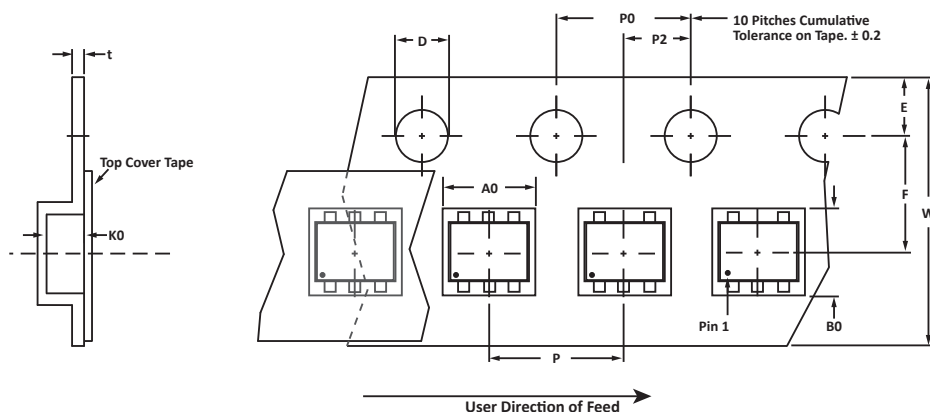
| DIM | MILLIMETERS | INCHES  |
|-----|-------------|---------|
|     | NOMINAL     | NOMINAL |
| A   | 0.90        | 0.035   |
| B   | 0.70        | 0.030   |
| C   | 0.20        | 0.008   |
| D   | 0.20        | 0.008   |
| E   | 0.37        | 0.015   |

## 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        | 1.17 ± 0.05 | 1.17 ± 0.05 | 0.66 ± 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 - T74 = 7" Reel - 4,000 pieces per 8mm tape.
4. Marking on Part - marking code (see page 2) and pin one defined by dot on package.

## ORDERING INFORMATION

| BASE PART NUMBER | LEADFREE SUFFIX | TAPE SUFFIX | QTY/REEL | REEL SIZE | TUBE QTY |
|------------------|-----------------|-------------|----------|-----------|----------|
| VSMF05LC         | -LF             | -T74        | 4,000    | 7"        | n/a      |

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

## COMPANY INFORMATION

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### 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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