

## 250 WATT TVS COMPONENT



### DESCRIPTION

The PAM21SC790501H is a transient voltage suppressor array designed to protect automotive applications. This device is available in a unidirectional configuration with a working voltage of 5.0V and a minimum breakdown voltage of 6.0V. The PAM21SC790501H is rated at 250W peak pulse power (8/20 $\mu$ s), which is sufficient protection for tertiary type lightning threats at key interface locations.

The PAM21SC790501H is ideally suited to protect data I/O ports against ESD and EFT. This device meets the requirements of IEC 61000-2 and IEC 61000-4-4. Packaged in a SC-79 configuration, this device can be substituted for similar 0803 outlines.

### FEATURES

- Compatible with IEC 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- Compatible with IEC 61000-4-4 (EFT): 40A, 5/50ns
- 250 Watts Peak Pulse Power per Line (tp = 8/20 $\mu$ s)
- Cable Discharge Event (CDE) Protection
- Replacement for MLV (0803)
- One Unidirectional Line of Protection
- Unidirectional Configuration
- RoHS Compliant
- REACH Compliant

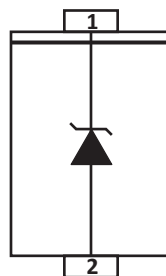
### APPLICATIONS

- Automotive Applications

### MECHANICAL CHARACTERISTICS

- Molded JEDEC SC-79 Package
- Approximate Weight: 2 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



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

| PARAMETER                                     | SYMBOL    | VALUE      | UNITS |
|---|-----------|------------|-------|
| Peak Pulse Power (tp = 8/20μs) - See Figure 1 | $P_{PP}$  | 250        | Watts |
| Peak Pulse Current (tp = 8/20μs)              | $I_{PP}$  | 16         | Amps  |
| Operating Temperature                         | $T_A$     | -55 to 150 | °C    |
| Storage Temperature                           | $T_{STG}$ | -55 to 150 | °C    |
| Soldering Temperature for 10 seconds          | $T_L$     | 265        | °C    |

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

| PART NUMBER    | DEVICE MARKING | RATED STAND-OFF VOLTAGE<br>$V_{WM}$<br>VOLTS | MINIMUM BREAKDOWN VOLTAGE<br>@ 1mA<br>$V_{(BR)}$<br>VOLTS | TYPICAL FORWARD VOLTAGE<br>@ 100mA<br>$V_F$<br>VOLTS | MAXIMUM CLAMPING VOLTAGE (Fig. 2)<br>@ $I_P = 5A$<br>$V_C$<br>VOLTS | MAXIMUM CLAMPING VOLTAGE (Fig. 2)<br>@ $I_P = 16A$<br>$V_C$<br>VOLTS | MAXIMUM LEAKAGE CURRENT<br>@ $V_{WM}$<br>$I_D$<br>μA | TYPICAL CAPACITANCE<br>@ 0V, 1MHz<br>C<br>pF |
|----------------|----------------|--|---|--|---|--|--|--|
| PAM21SC790501H | U5             | 5.0  | 6.0   | 0.8  | 9.8   | 12.5   | 5  | 120  |

## TYPICAL DEVICE CHARACTERISTICS

FIGURE 1  
PEAK PULSE POWER VS PULSE TIME

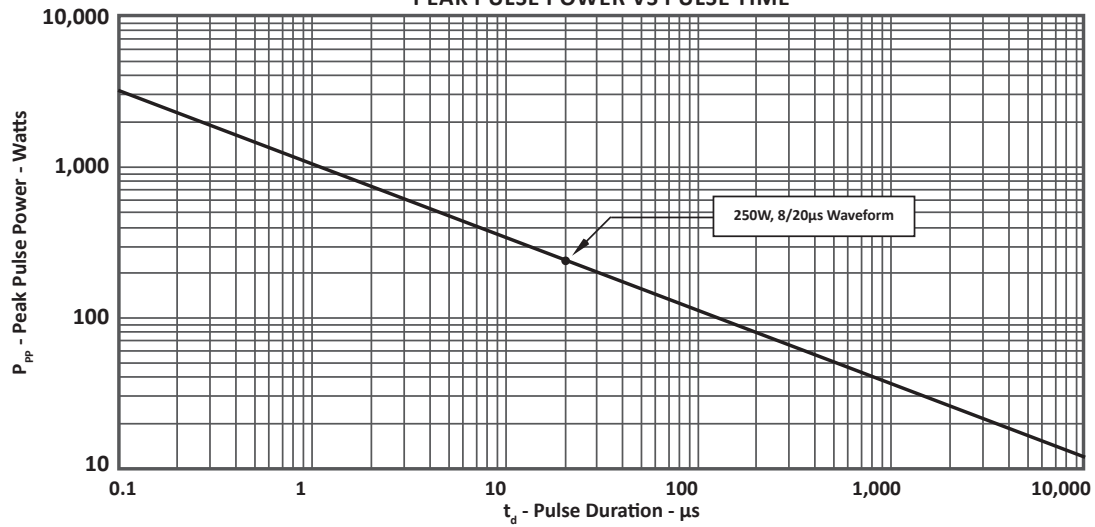
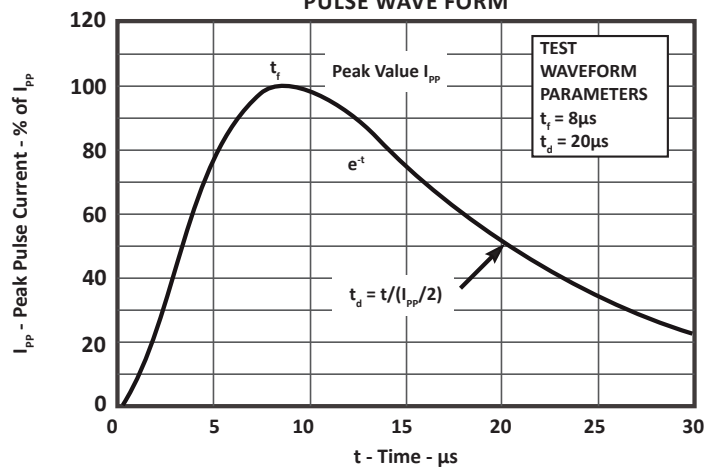


FIGURE 2  
PULSE WAVE FORM



## SC-79 PACKAGE INFORMATION

## OUTLINE DIMENSIONS

| DIM | MILLIMETERS |      | INCHES    |       |
|-----|-------------|------|-----------|-------|
|     | MIN         | MAX  | MIN       | MAX   |
| A   | 1.10        | 1.30 | 0.043     | 0.049 |
| B   | 0.70        | 0.90 | 0.028     | 0.035 |
| C   | 1.50        | 1.70 | 0.059     | 0.066 |
| D   | 0.50        | 0.70 | 0.020     | 0.028 |
| E   | 0.08        | 0.20 | 0.003     | 0.008 |
| F   | 0.30 BSE    |      | 0.012 BSE |       |

## NOTES

1. Dimensioning and tolerances per ANSI Y14.M, 1985.
2. Controlling dimension: millimeters.
3. Dimensions are exclusive of mold flash and metal burrs.

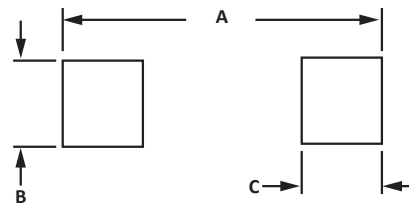


## PAD LAYOUT DIMENSIONS

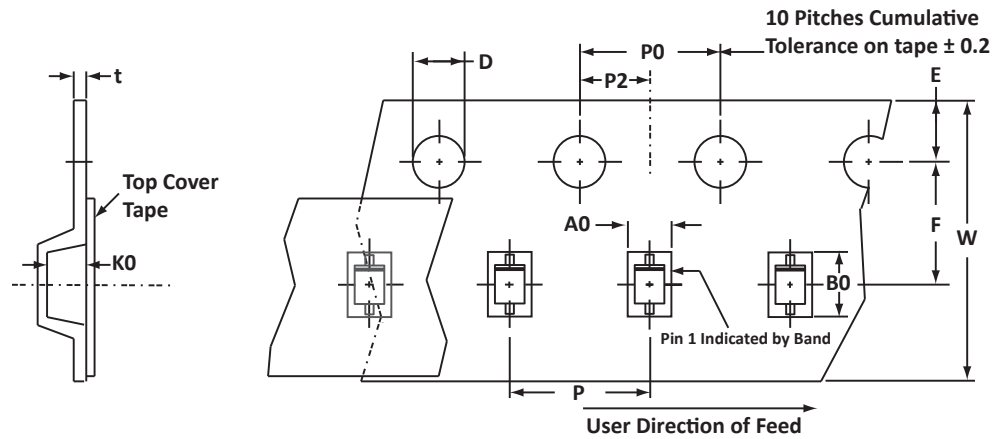
| DIM | MILLIMETERS |      | INCHES |       |
|-----|-------------|------|--------|-------|
|     | MIN         | MAX  | MIN    | MAX   |
| A   | 1.85        | 2.03 | 0.070  | 0.080 |
| B   | 0.38        | 0.64 | 0.015  | 0.025 |
| C   | 0.25        | 0.51 | 0.010  | 0.020 |

## NOTES

1. 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        | 1.00 ± 0.10 | 1.95 ± 0.05 | 0.075 ± 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

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Empty pocket between sprocket holes.
- Suffix - T73 = 7" Reel - 3,000 pieces per 8mm tape.
- Marking on Part - marking code (see page 2) and polarity band

Package outline, pad layout and tape specifications per document number 06037.R3 8/10.

## ORDERING INFORMATION

| BASE PART NUMBER | LEADFREE SUFFIX | TAPE SUFFIX | QTY/REEL | REEL SIZE | TUBE QTY |
|------------------|-----------------|-------------|----------|-----------|----------|
| PAM21SC790501H   | N/A             | -T73        | 3,000    | 7"        | n/a      |

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

## COMPANY INFORMATION

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### COMPANY PROFILE

ProTek Devices, based in Tempe, Arizona USA, is a manufacturer of Transient Voltage Suppression (TVS) products designed specifically for the protection of electronic systems from the effects of lightning, Electrostatic Discharge (ESD), Nuclear Electromagnetic Pulse (NEMP), inductive switching and EMI/RFI. With over 25 years of engineering and manufacturing experience, ProTek designs TVS devices that provide application specific protection solutions for all electronic equipment/systems.

ProTek Devices Analog Products Division, also manufactures analog interface, control, RF and power management products.

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