

## 350 WATT MULTI-LINE TVS ARRAY



### DESCRIPTION

The PSMDA05-6 is a monolithic transient voltage suppressor array that provides board level protection for standard TTL and MOS bus line applications against the damaging effects of ESD, tertiary lightning and switching transients.

The PSMDA05-6 has a peak pulse power rating of 350 Watts for an 8/20 $\mu$ s waveshape. This device meets the IEC 61000-4-2, IEC 61000-4-4 and IEC 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): 12A, 8/20 $\mu$ s - Level 1(Line-Gnd) & Level 2(Line-Line)
- 350 Watts Peak Pulse Power per Line ( $t_p = 8/20\mu$ s)
- Protects 6 Unidirectional Lines: Pins 1, 2, 3, 4, 5, 8 to Data Lines, Pins 6 & 7 to Ground
- Protects 5 Bidirectional Lines: Pins 1, 2, 3, 4, 5, 8 to Data Lines, Pins 5 or 8 to Ground, Pins 6 & 7 to Open
- Monolithic Design
- RoHS Compliant
- REACH Compliant

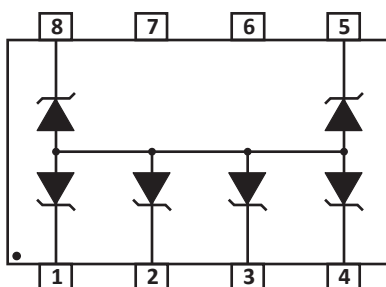
### APPLICATIONS

- RS-232, RS-422 & RS-423 Data Lines
- Microprocessor Based Equipment
- Control & Monitoring Systems
- Portable Electronics
- Sensor Electronics

### MECHANICAL CHARACTERISTICS

- Molded JEDEC SO-8 Package
- Approximate Weight: 70 milligrams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:  
Pure-Tin - Sn, 100: 260-270°C
- 12mm 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 |
|-------------------------------------------------------|-----------|------------|-------|
| Operating Temperature                                 | $T_L$     | -55 to 150 | °C    |
| Storage Temperature                                   | $T_{STG}$ | -55 to 150 | °C    |
| Peak Pulse Power ( $t_p = 8/20\mu s$ ) - See Figure 1 | $P_{PP}$  | 350        | Watts |

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

| PART NUMBER<br>(Note 1 - 2) | 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><br>@ $I_p = 1A$<br>$V_c$<br>VOLTS | MAXIMUM CLAMPING VOLTAGE (Fig. 2)<br><br>@ 8/20 $\mu s$<br>$V_c @ I_{PP}$ | MAXIMUM LEAKAGE CURRENT<br><br>@ $V_{WM}$<br>$I_D$<br>$\mu A$ | MAXIMUM CAPACITANCE<br><br>@0V, 1MHz<br>$C_j$<br>pF |
|-----------------------------|----------------|--------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------|
| PSMDA05-6                   | QEB            | 5.0                                              | 6.0                                                          | 9.8                                                                     | 18.0V @ 17.0A                                                             | 20                                                            | 120                                                 |

#### NOTES

1. Test from pins 1, 2, 3, 4, 5 and 8 to ground pins 6 and 7 (Unidirectional Only).
2. Pins 6 and 7 not connected for bidirectional lines.

## TYPICAL DEVICE CHARACTERISTICS

FIGURE 1  
PEAK PULSE POWER VS PULSE TIME

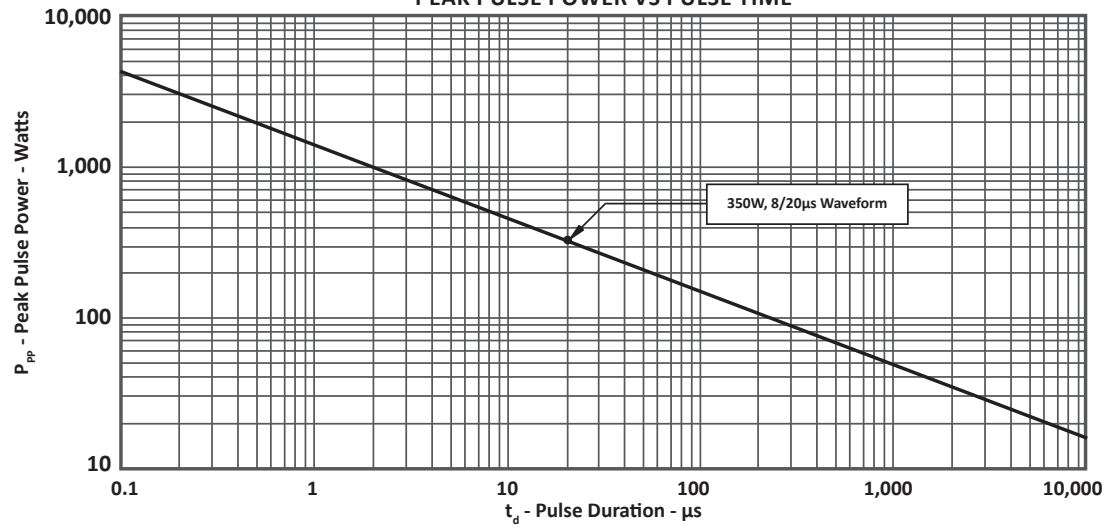


FIGURE 2  
PULSE WAVE FORM

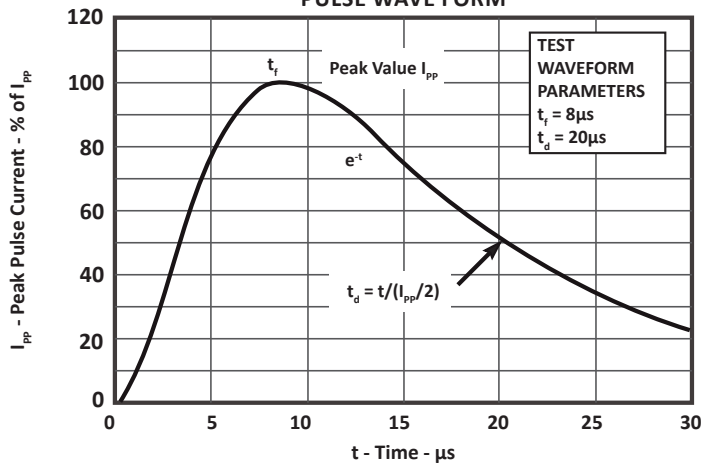
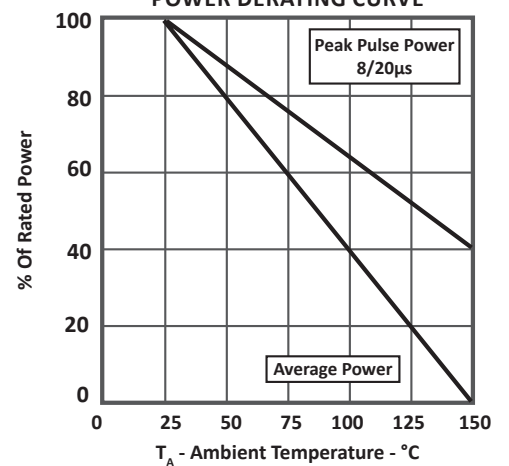


FIGURE 3  
POWER DERATING CURVE



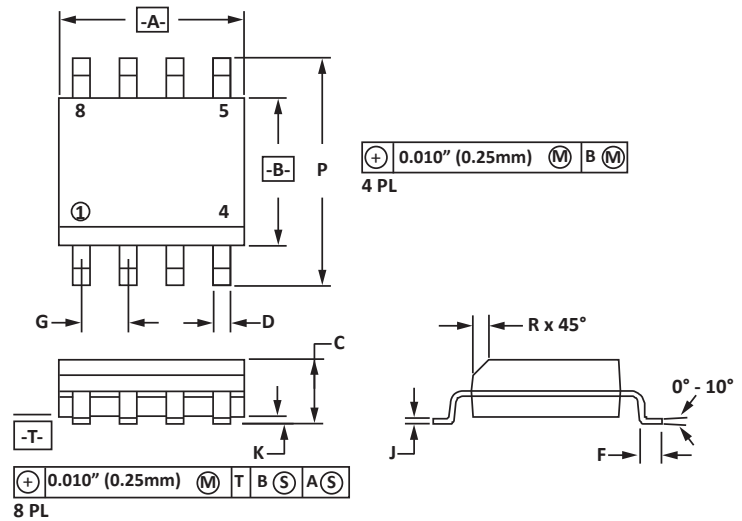
## SO-8 PACKAGE INFORMATION

## OUTLINE DIMENSIONS

| DIM | MILLIMETERS |      | INCHES   |       |
|-----|-------------|------|----------|-------|
|     | MIN         | MAX  | MIN      | MAX   |
| A   | 4.80        | 5.00 | 0.189    | 0.196 |
| B   | 3.80        | 4.00 | 0.150    | 0.157 |
| C   | 1.35        | 1.75 | 0.054    | 0.068 |
| D   | 0.35        | 0.49 | 0.014    | 0.019 |
| F   | 0.40        | 1.25 | 0.016    | 0.049 |
| G   | 1.27 BSC    |      | 0.05 BSC |       |
| J   | 0.18        | 0.25 | 0.007    | 0.009 |
| K   | 0.10        | 0.25 | 0.004    | 0.008 |
| P   | 5.80        | 6.20 | 0.229    | 0.244 |
| R   | 0.25        | 0.50 | 0.010    | 0.019 |

## NOTES

1. -T- = Seating plane and datum surface.
2. Dimensions "A" and "B" are datum.
3. Dimensions "A" and "B" do not include mold protrusion.
4. Maximum mold protrusion is 0.015" (0.380mm) per side.
5. Dimensioning and tolerances per ANSI Y14.5M, 1982.
6. Dimensions are exclusive of mold flash and metal burrs.

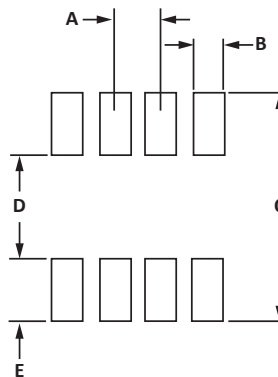


## PAD LAYOUT DIMENSIONS

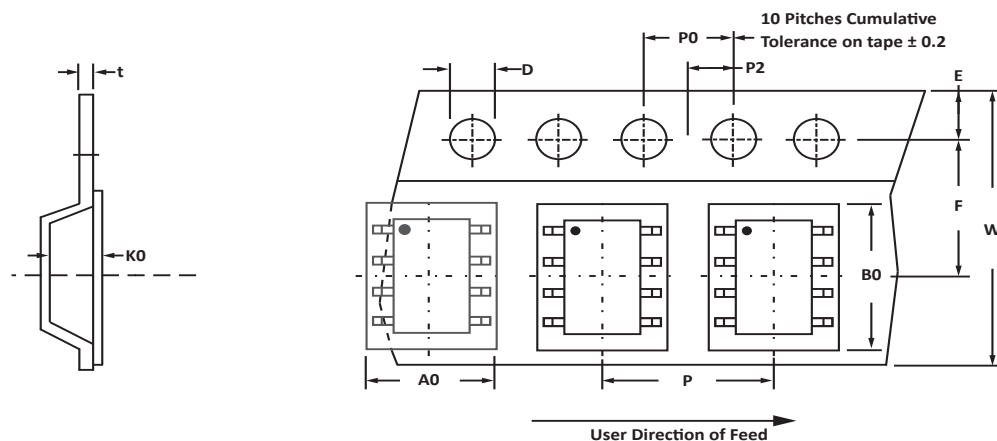
| DIM | MILLIMETERS |      | INCHES |       |
|-----|-------------|------|--------|-------|
|     | MIN         | MAX  | MIN    | MAX   |
| A   | 1.14        | 1.40 | 0.045  | 0.055 |
| B   | 0.64        | 0.89 | 0.025  | 0.035 |
| C   | 6.22        | -    | 0.245  | -     |
| D   | 3.94        | 4.17 | 0.155  | 0.165 |
| E   | 1.02        | 1.27 | 0.040  | 0.050 |

## NOTES

1. Controlling dimension: inches.



## TAPE AND REEL



## SPECIFICATIONS

| REEL DIA.  | TAPE WIDTH | A0          | B0          | K0          | D           | E           | F           | W            | P0          | P2          | P           | tmax |
|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|------|
| 178mm (7") | 12mm       | 6.50 ± 0.10 | 5.40 ± 0.10 | 2.00 ± 0.10 | 1.50 ± 0.10 | 1.75 ± 0.10 | 5.50 ± 0.05 | 12.00 ± 0.30 | 4.00 ± 0.12 | 2.00 ± 0.10 | 8.00 ± 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 - 1,000 pieces per 12mm tape.
4. Suffix - T13 = 13" Reel - 2,500 pieces per 12mm tape.
5. Bulk product shipped in tubes of 98 pieces per tube.
6. Marking on Part - marking code (see page 2), date code, logo and pin one defined by dot on top of package.

## ORDERING INFORMATION

| BASE PART NUMBER | LEADFREE SUFFIX | TAPE SUFFIX | QTY/REEL | REEL SIZE | TUBE QTY |
|------------------|-----------------|-------------|----------|-----------|----------|
| PSMDA05-6        | -LF             | -T7         | 1,000    | 7"        | 98       |
| PSMDA05-6        | -LF             | -T13        | 2,500    | 13"       | 98       |

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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