

500 WATT MULTI-LINE TVS ARRAY



DESCRIPTION

The SMDAxx and SMDAxxC Series are multi-line transient voltage suppressor arrays 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 SMDA Series has a peak pulse power rating of 500 Watts for an 8/20 μ s waveshape. This device series 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 μ s - Level 1(Line-Gnd) & Level 2(Line-Line)
- 500 Watts Peak Pulse Power per Line (tp = 8/20 μ s)
- Unidirectional and Bidirectional Configurations
- Available in Multiple Voltages Ranging from 3V to 36V
- Protects up to Four Lines
- RoHS Compliant
- REACH Compliant

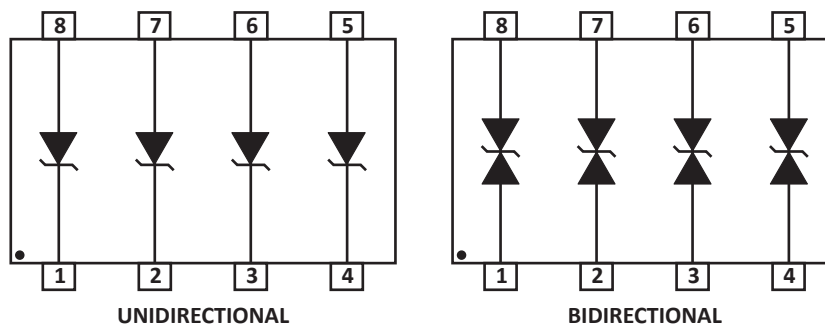
APPLICATIONS

- RS-232, RS-422 & RS-423 Data Lines
- SMART Phones
- Audio/Video Inputs
- Portable Electronics
- Wireless Network Systems
- Medical 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 CONFIGURATIONS



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 (tp = 8/20µs) - See Figure 1 | P_{PP} | 500 | Watts |
| Forward Voltage @ 100mA, 300µs - Square Wave (See Note 1) | V_F | 1.5 | Volts |

NOTE

1. Only applies to unidirectional devices.

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

| PART NUMBER (Note 1) | DEVICE MARKING | RATED STAND-OFF VOLTAGE | MINIMUM BREAKDOWN VOLTAGE | MAXIMUM CLAMPING VOLTAGE (Fig. 2) | MAXIMUM CLAMPING VOLTAGE (Fig. 2) | MAXIMUM CURRENT | MAXIMUM LEAKAGE CURRENT | MAXIMUM CAPACITANCE |
|-------------------------|----------------|-------------------------|-----------------------------|-----------------------------------|-----------------------------------|------------------------------|---------------------------|----------------------|
| | | V_{WM} VOLTS | @1mA $V_{(BR)}$ VOLTS | @ $I_p = 1A$ V_C VOLTS | @ $I_p = 5A$ V_C VOLTS | I_{PP} @ 8/20µs AMPS | @ V_{WM} I_D µA | @0V, 1MHz C pF |
| SMDA03 | SDL | 3.3 | 4.0 | 6.5 | 7.0 | 43.0 | 125 | 800 |
| SMDA03C | SDM | 3.3 | 4.5 | 7.0 | 9.0 | 43.0 | 125 | 450 |
| SMDA05 | SDA | 5.0 | 6.0 | 9.8 | 10.0 | 40.0 | 20 | 550 |
| SMDA05C | SDB | 5.0 | 6.0 | 9.8 | 10.0 | 40.0 | 20 | 308 |
| SMDA08 | SDJ | 8.0 | 8.5 | 13.4 | 14.0 | 27.0 | 10 | 500 |
| SMDA08C | SDK | 8.0 | 8.5 | 13.4 | 14.0 | 27.0 | 10 | 300 |
| SMDA12 | SDC | 12.0 | 13.3 | 19.0 | 22.0 | 20.0 | 1 | 185 |
| SMDA12C | SDD | 12.0 | 13.3 | 19.0 | 22.0 | 20.0 | 1 | 105 |
| SMDA15 | SDE | 15.0 | 16.7 | 24.0 | 27.0 | 15.0 | 1 | 140 |
| SMDA15C | SDF | 15.0 | 16.7 | 24.0 | 27.0 | 15.0 | 1 | 80 |
| SMDA24 | SDG | 24.0 | 26.7 | 43.0 | 45.0 | 12.0 | 1 | 88 |
| SMDA24C | SDH | 24.0 | 26.7 | 43.0 | 45.0 | 12.0 | 1 | 50 |
| SMDA36 | SDN | 36.0 | 40.0 | 51.0 | 65.0 | 8.0 | 1 | 80 |
| SMDA36C | SDP | 36.0 | 40.0 | 51.0 | 65.0 | 8.0 | 1 | 45 |

NOTES

1. Part numbers with a "C" suffix are bidirectional devices, i.e., SMDA03C.

TYPICAL DEVICE CHARACTERISTICS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

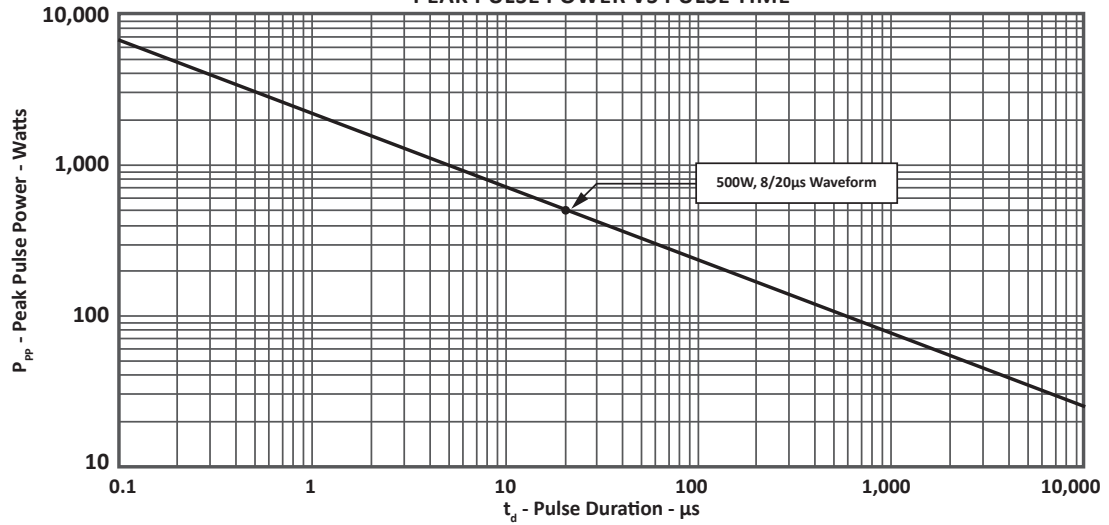


FIGURE 2
PULSE WAVE FORM

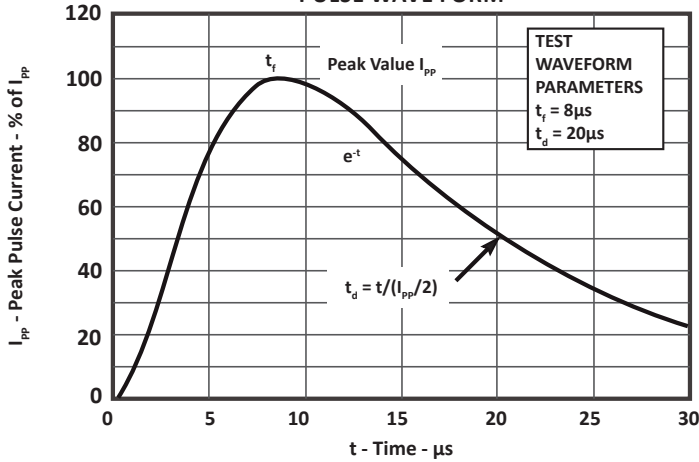


FIGURE 3
POWER DERATING CURVE



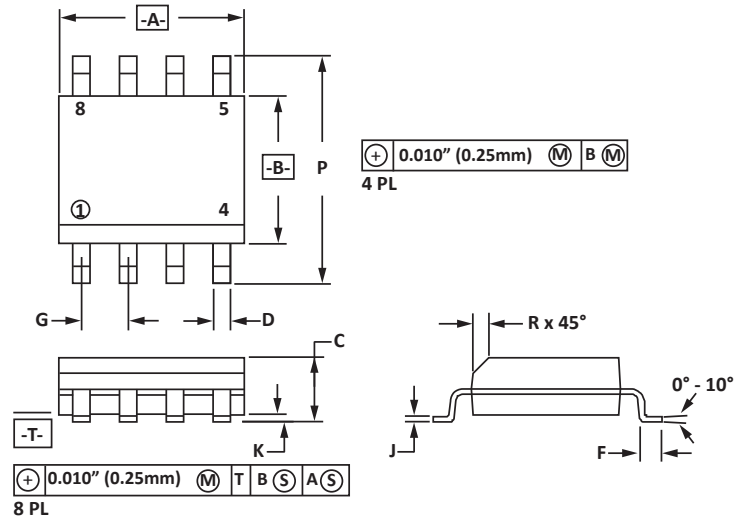
SO-8 PACKAGE INFORMATION

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

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



PAD LAYOUT DIMENSIONS

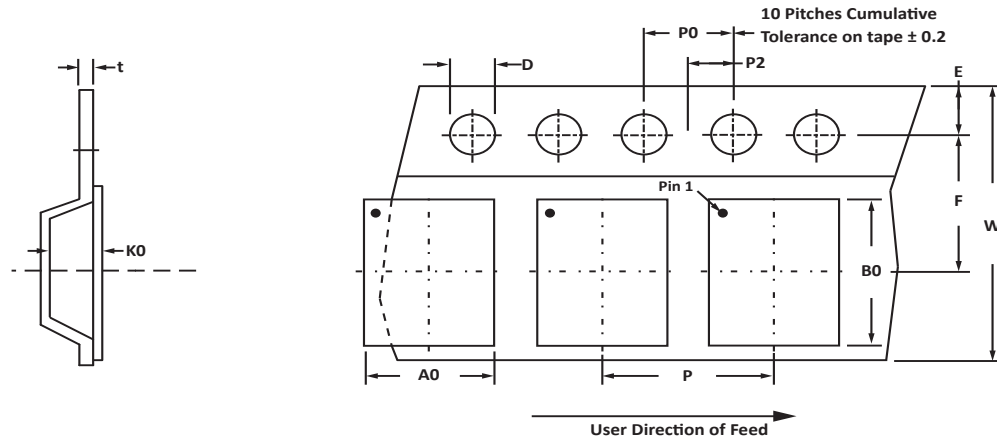
| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|------|--------|-------|
| | MIN | MAX | MIN | MAX |
| A | 1.14 | 1.40 | 0.045 | 0.055 |
| B | 0.64 | 0.89 | 0.025 | 0.035 |
| C | 6.22 | - | 0.245 | - |
| D | 3.94 | 4.17 | 0.155 | 0.165 |
| E | 1.02 | 1.27 | 0.040 | 0.050 |

NOTES

- 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 | 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 - 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.

Package outline, pad layout and tape specifications per document number 06011.R4 8/10.

ORDERING INFORMATION

| BASE PART NUMBER (xx = Voltage) | LEADFREE SUFFIX | TAPE SUFFIX | QTY/REEL | REEL SIZE | TUBE QTY |
|------------------------------------|-----------------|-------------|----------|-----------|----------|
| SMDAxx/SMDAxxC | -LF | -T7 | 1,000 | 7" | 98 |
| SMDAxx/SMDAxxC | -LF | -T13 | 2,500 | 13" | 98 |

COMPANY INFORMATION

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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