

## 300 WATT TVS ARRAY



### DESCRIPTION

The PSOTxxKCA series are a common cathode dual line transient voltage protector. This series is suitable for applications such as RS-232, RS-422 and RS-423 data lines, sensor I/O ports, industrial control and monitoring systems.

The PSOTxxKCA series can be utilized as a two line unidirectional common-mode or a single bidirectional differential-mode protector. This series meets the IEC Compatibility requirements. Packaged in a SOT-23 configuration, the PSOTxxKCA series is available in 15 Volts or 36 Volts, with a peak pulse power rating of 300 Watts for an 8/20 $\mu$ s waveform.

### FEATURES

- Compatible with IEC 61000-4-2 (ESD): Air 15kV, Contact 8kV
- Compatible with IEC 1000-4-4 (EFT): 40A, 5/50ns
- 300 Watts Peak Pulse Power per Line(tp = 8/20 $\mu$ s)
- 200 Watts Peak Pulse Power per Line(tp = 1.2/50 $\mu$ s)
- 40 Watts Peak Pulse Power per Line(tp = 10/1000 $\mu$ s)
- Low Clamping Voltage
- Common Cathode Configuration
- Available in 15V and 36V
- Provides 2 Lines of Unidirectional Protection
- RoHS Compliant
- REACH Compliant

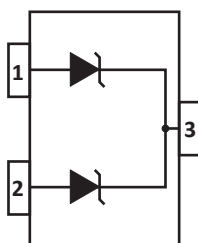
### APPLICATIONS

- RS-232, RS-422 & RS-423
- Digital Sensor I/O Ports
- Control & Monitoring Systems
- Portable Electronics
- Industrial Automation Sensor Protection

### MECHANICAL CHARACTERISTICS

- Molded JEDEC SOT-23 Package
- Approximate Weight: 8 milligrams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:  
Pure-Tin - Sn, 100: 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 <sub>PP</sub>	300	Watts
Peak Pulse Power (tp = 1.2/50μs)	P <sub>PP</sub>	200	Watts
Peak Pulse Power (tp = 10/1000μs)	P <sub>PP</sub>	40	Watts
Operating Temperature	T <sub>L</sub>	-55 to 150	°C
Storage Temperature	T <sub>STG</sub>	-55 to 150	°C

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

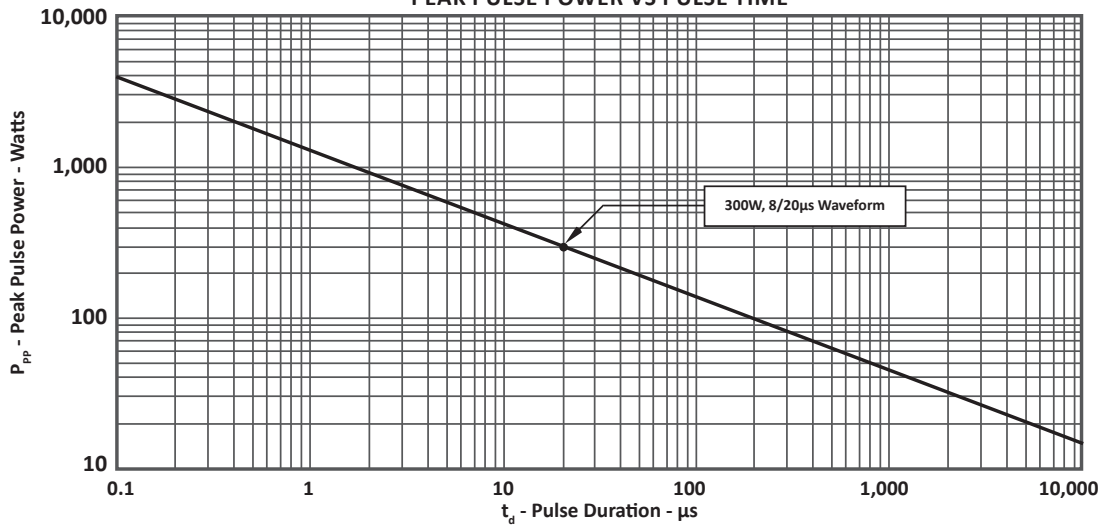
PART NUMBER (Note 1)	DEVICE MARKING	RATED STAND-OFF VOLTAGE  V <sub>WM</sub> VOLTS	MINIMUM BREAKDOWN VOLTAGE  @ 1mA V <sub>(BR)</sub> VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2)  @ I <sub>p</sub> = 1.9A V <sub>c</sub> VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2)  @ 8/20μs V <sub>c</sub> @ I <sub>PP</sub>	MAXIMUM LEAKAGE CURRENT  @ V <sub>WM</sub> I <sub>D</sub> μA	TYPICAL CAPACITANCE  @ 0V, 1MHz C <sub>J</sub> pF
PSOT15KCA	PKA	12.8	14.3	21.2	33.0V @ 9.0A	0.1	120
PSOT36KCA	PKB	33.0	36.0	45.0	66.0V @ 6.0A	0.1	45

**NOTES**

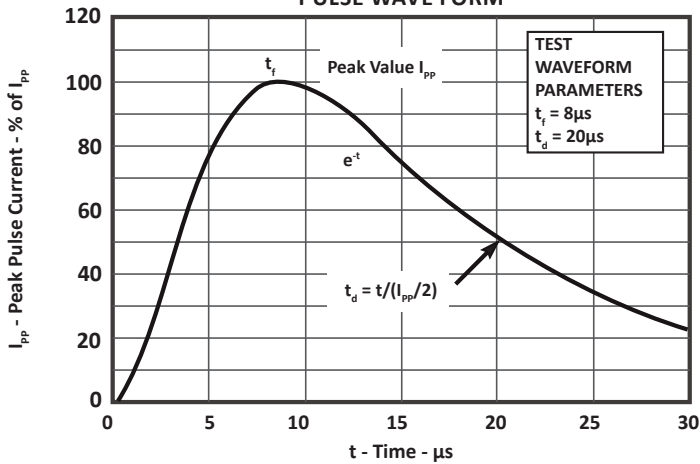
- For unidirectional, test only pins 1-3 and 2-3.

**TYPICAL DEVICE CHARACTERISTICS**

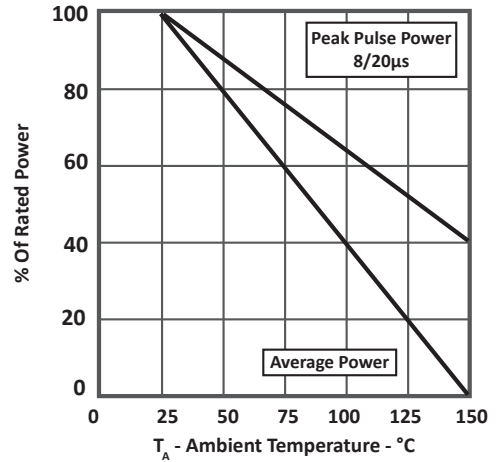
**FIGURE 1  
PEAK PULSE POWER VS PULSE TIME**



**FIGURE 2  
PULSE WAVE FORM**



**FIGURE 3  
POWER DERATING CURVE**



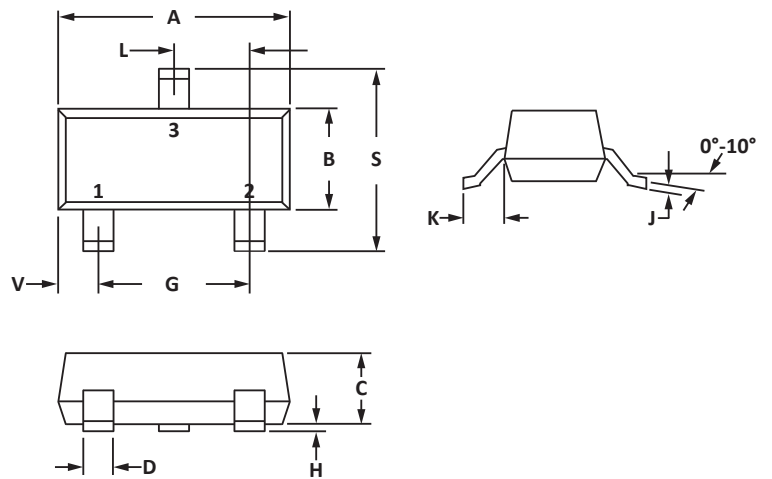
## SOT-23 PACKAGE INFORMATION

## OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.80	3.04	0.110	0.120
B	1.20	1.40	0.047	0.055
C	0.89	1.11	0.035	0.044
D	0.37	0.50	0.015	0.020
G	1.78	2.04	0.070	0.081
H	0.013	0.100	0.001	0.004
J	0.085	0.177	0.003	0.007
K	0.45	0.60	0.018	0.024
L	0.89	1.02	0.035	0.040
S	2.10	2.50	0.083	0.098
V	0.45	0.60	0.018	0.024

## NOTES

- Controlling dimension: inches.
- Dimensioning and tolerances per ANSI Y14.5M, 1985.
- Pin 3 is the cathode (Unidirectional Only)
- Dimensions are exclusive of mold flash and metal burrs.

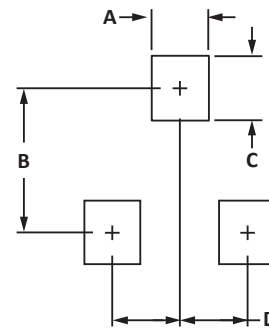


## PAD LAYOUT DIMENSIONS

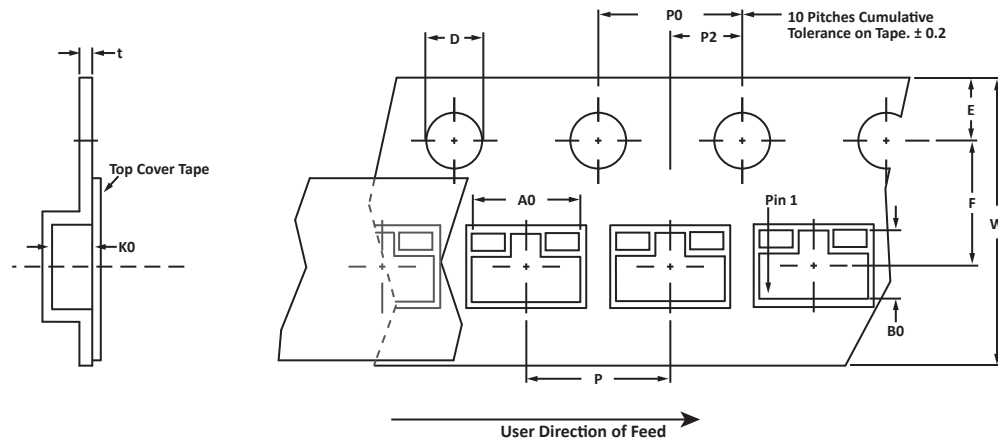
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.71	0.97	0.028	0.038
B	1.88	2.13	0.074	0.084
C	0.71	0.97	0.028	0.038
D	0.81	1.07	0.032	0.042

## 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	3.15 ± 0.10	2.77 ± 0.10	1.30 ± 0.10	1.55 ± 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	0.228

## NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Suffix - T7 = 7" Reel - 3,000 pieces per 8mm tape.
- Suffix - T13 = 13" Reel - 10,000 pieces per 8mm tape.
- Marking on Part - marking code (see page 2) and date code.

Package outline, pad layout and tape specifications per document number 06012.R2 8/10.

## ORDERING INFORMATION

BASE PART NUMBER (xx = Voltage)	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PSOTxxKCA	-LF	-T7	3,000	7"	n/a
PSOTxxKCA	-LF	-T13	10,000	13"	n/a

## 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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