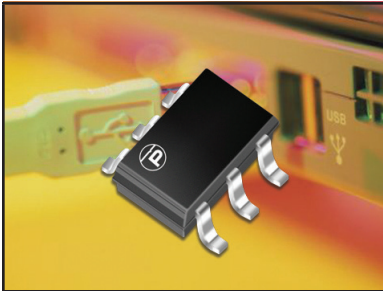


## ULTRA LOW CAPACITANCE STEERING DIODE/TVS ARRAY



**SOT-23-6 PACKAGE**

### DESCRIPTION

The PAZC099 is an ultra low capacitance device for dual USB port and power bus protection. The PAZC099 is rated for 5.0V applications, with 100 Watts peak pulse power per line (8/20 $\mu$ s) and an ultra low capacitance of 0.9pF (C<sub>J(SD)</sub>). The PAZC099 is ideally suited for surge suppression and ESD protection of high-speed data line applications such as video graphic cards, 3G cellular handsets, gigabit Ethernet and SIMM cards.

The PAZC099 combines eight ultra low capacitance steering diodes for up to four individual data or transmission lines and one TVS diode for the power bus. This device is offered in the space-saving SOT-23-6 package configuration. The small package size minimizes the lead inductance, preventing overshoot voltages during high ESD current events. ProTek recommends that the PAZC099 be mounted near the connector on the PCB. This device meets and exceeds the ESD requirements of IEC 61000-4-2 and the EFT requirements of IEC 61000-4-4.

### 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)
- 100 Watts Peak Pulse Power per Line(tp = 8/20 $\mu$ s)
- ESD Protection > 25 kilovolts
- Low Clamping Voltage
- Protection for 4 Lines
- Ultra Low Capacitance C<sub>J(SD)</sub>: 0.9pF Typical
- RoHS Compliant
- REACH Compliant

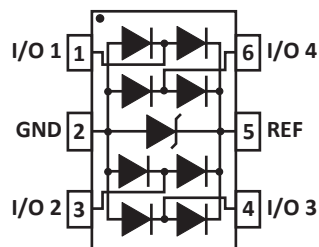
### APPLICATIONS

- Gigabit Ethernet
- SMART Phones
- Portable Electronics
- Video Card Interfaces
- USB 1.0, USB 2.0 & USB 3.0
- DVI Interfaces

### MECHANICAL CHARACTERISTICS

- Molded JEDEC SOT-23-6 Package
- Approximate Weight: 16 milligrams
- Lead-Free Nickel Paladium Gold Plating
- Solder Reflow Temperature:  
     Nickel-Paladium-Gold: Ni/Pd/Au, 96/3.5/0.5: 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 (Pin 5 to Pin 2)	P <sub>PP</sub>	100	Watts
Operating Temperature	T <sub>L</sub>	-55 to 150	°C
Storage Temperature	T <sub>STG</sub>	-55 to 150	°C
Forward Surge Rating (5ms @ 25°C, I <sub>F</sub> = 10mA)	V <sub>F</sub>	0.5 Min. - 1.2 Max.	Volts
I <sub>pp</sub> Max (tp = 8/20μs) - Pin 5 to Pin 2	I <sub>PP</sub>	7	Amps

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

PART NUMBER	DEVICE MARKING	RATED STAND-OFF VOLTAGE (Note 1)  V <sub>WM</sub> VOLTS	MINIMUM BREAKDOWN VOLTAGE (Note 1)  @ 1mA V <sub>(BR)</sub> VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2) (Note 1)  @ I <sub>p</sub> = 1A V <sub>c</sub> VOLTS	MAXIMUM LEAKAGE CURRENT (Note 1)  @V <sub>WM</sub> I <sub>D</sub> μA	TYPICAL CAPACITANCE I/O to I/O  @0V, 1MHz C <sub>J(SD)</sub> pF	MAXIMUM CAPACITANCE I/O to GND  @0V, 1MHz C <sub>J(SD)</sub> pF	MAXIMUM CAPACITANCE I/O to I/O  @0V, 1MHz C <sub>J(SD)</sub> pF
PAZC099	99	5.0	6.0	12.0	0.5	0.5	1.2	0.6

**NOTES**

1. Measured from I/O pin to ground.

## TYPICAL DEVICE CHARACTERISTICS

FIGURE 1  
PEAK PULSE POWER VS PULSE TIME

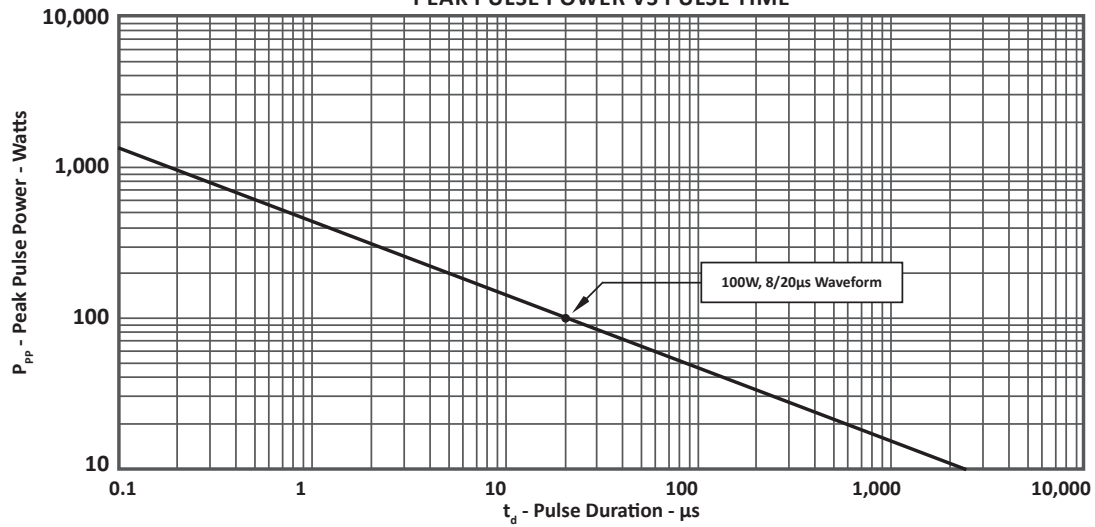
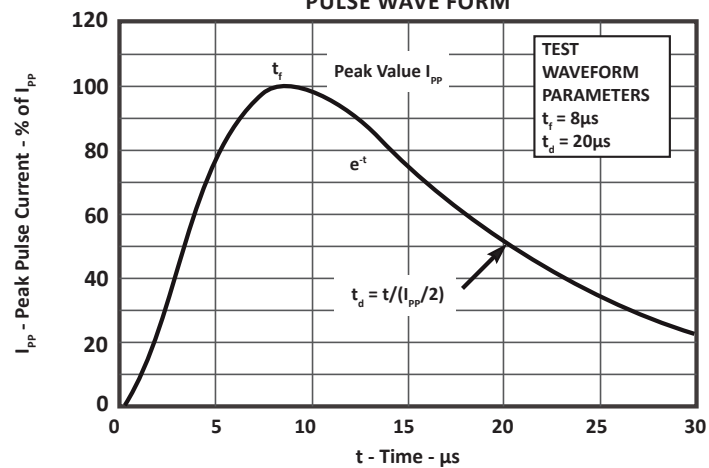
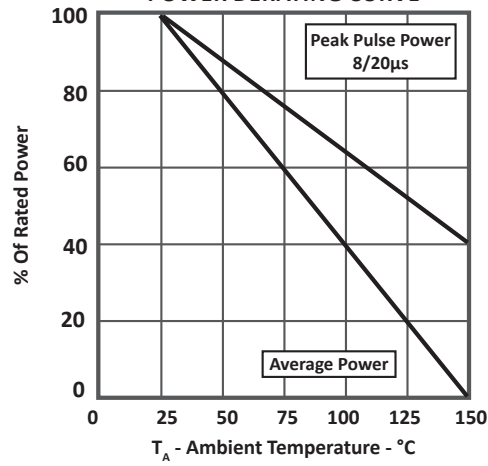


FIGURE 2  
PULSE WAVE FORM

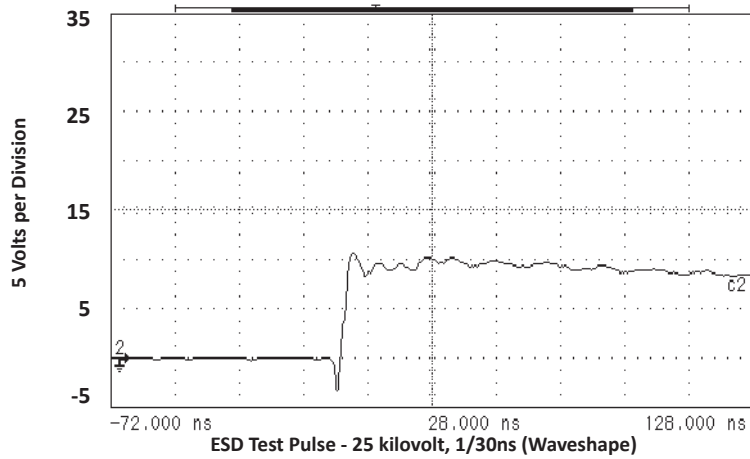


TYPICAL DEVICE CHARACTERISTICS

**FIGURE 3**  
**POWER DERATING CURVE**



**FIGURE 4**  
**OVERSHOOT & CLAMPING VOLTAGE**



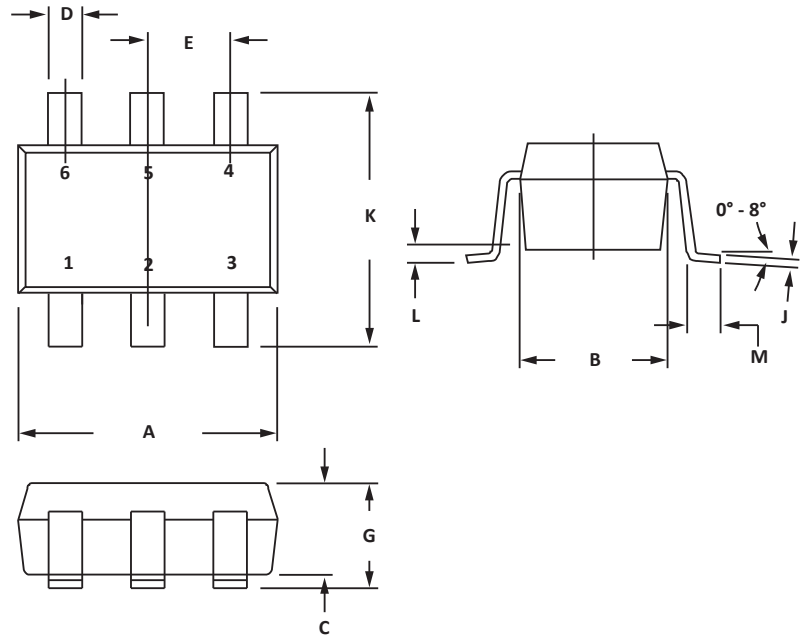
## SOT-23-6 PACKAGE INFORMATION

## OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.80	3.05	0.110	0.120
B	1.50	1.75	0.059	0.070
C	0.90	1.30	0.036	0.051
D	0.30	0.40	0.012	0.016
E	0.85	1.05	0.033	0.040
G	0.90	1.45	0.036	0.057
J	0.09	0.20	0.003	0.008
K	2.60	3.00	0.102	0.118
L	0.0	0.15	0.0	0.006
M	0.30	0.60	0.012	0.024

## NOTES

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

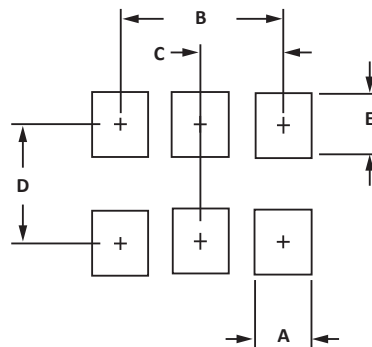


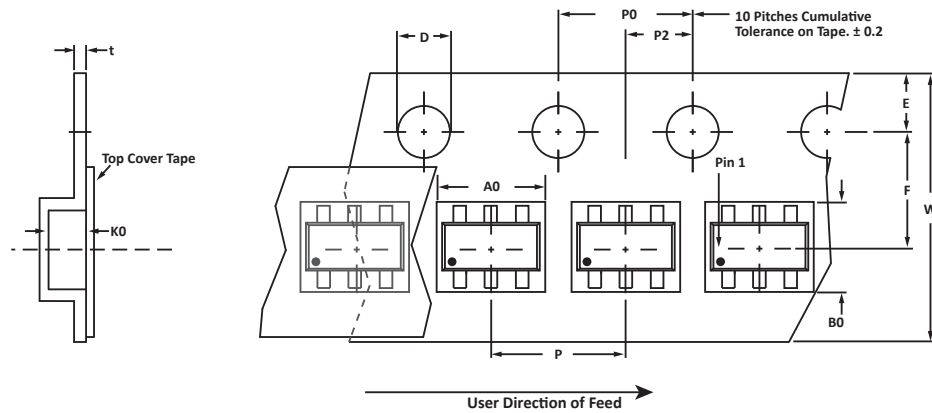
## PAD LAYOUT DIMENSIONS

DIM	MILLIMETERS	INCHES
	NOMINAL	NOMINAL
A	0.70	0.028
B	1.90	0.074
C	0.95	0.037
D	2.40	0.094
E	1.00	0.039

## 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	3.20 ± 0.10	3.20 ± 0.10	1.65 ± 0.10	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 - T7 = 7" Reel - 3,000 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
PAZC099	n/a	-T7	3,000	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 20 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 high performance interface and linear products. They include analog switches; multiplexers; LED drivers; LED wafer die for ESD protection; audio control ICs; RF and related high frequency products.

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