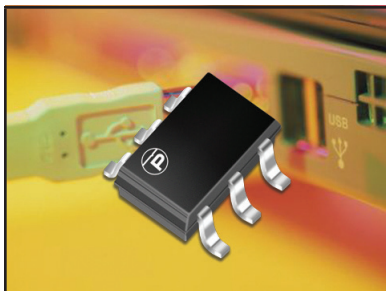


ULTRA LOW CAPACITANCE STEERING DIODE/TVS ARRAY



SOT-23-6 PACKAGE

DESCRIPTION

The PUSB05UBK is a high-powered, ultra low capacitance device for dual USB port and power bus protection. The PUSB05UBK is rated for 5.0V applications, with 500 Watts peak pulse power per line (8/20 μ s) and an ultra low capacitance of 2.5pF (CJ(SD)). The PUSB05UBK 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 PUSB05UBK 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 PUSB05UBK 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 ± 15 kV, Contact ± 8 kV
- Compatible with IEC 61000-4-4 (EFT): 40A, 5/50ns
- Compatible with IEC 61000-4-5 (Surge): 24A, 8/20 μ s - Level 2(Line-Gnd) & Level 3(Line-Line)
- 500 Watts Peak Pulse Power per Line(tp = 8/20 μ s)
- ESD Protection > 25 kilovolts
- Low Clamping Voltage
- Protection for 4 Lines
- Ultra Low Capacitance C_{J(SD)}: 2.5pF Typical
- RoHS Compliant
- REACH Compliant

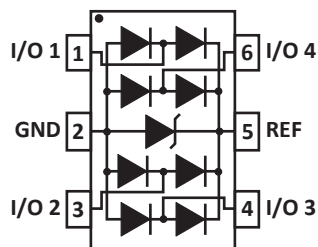
APPLICATIONS

- 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	P _{PP}	500	Watts
Operating Temperature	T _L	-55 to 150	°C
Storage Temperature	T _{STG}	-55 to 150	°C
Forward Surge Rating (5ms @ 25°C, I _F = 50mA)	V _F	0.5 Min. - 1.2 Max.	Volts

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER	DEVICE MARKING	RATED STAND-OFF VOLTAGE (Note 1) V _{WM} VOLTS	MINIMUM BREAKDOWN VOLTAGE (Note 1) @ 1mA V _(BR) VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2) (Note 1) @ I _P = 1A V _C VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2) (Note 1) @ I _P = 5A V _C VOLTS	MAXIMUM LEAKAGE CURRENT (Note 1) @ V _{WM} I _D μA
PUSB05UBK	W5	5.0	6.0	12.0	15.0	5

NOTES

1. Measured from I/O pin to ground.

TYPICAL CAPACITANCE I/O to GND	TYPICAL CAPACITANCE I/O to I/O	MAXIMUM CAPACITANCE I/O to GND	MAXIMUM CAPACITANCE I/O to I/O
@0V, 1MHz C _{J(SD)} pF	@0V, 1MHz C _{J(SD)} pF	@0V, 1MHz C _{J(SD)} pF	@0V, 1MHz C _{J(SD)} pF
3.5	2.5	5.0	4.0

TYPICAL DEVICE CHARACTERISTICS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

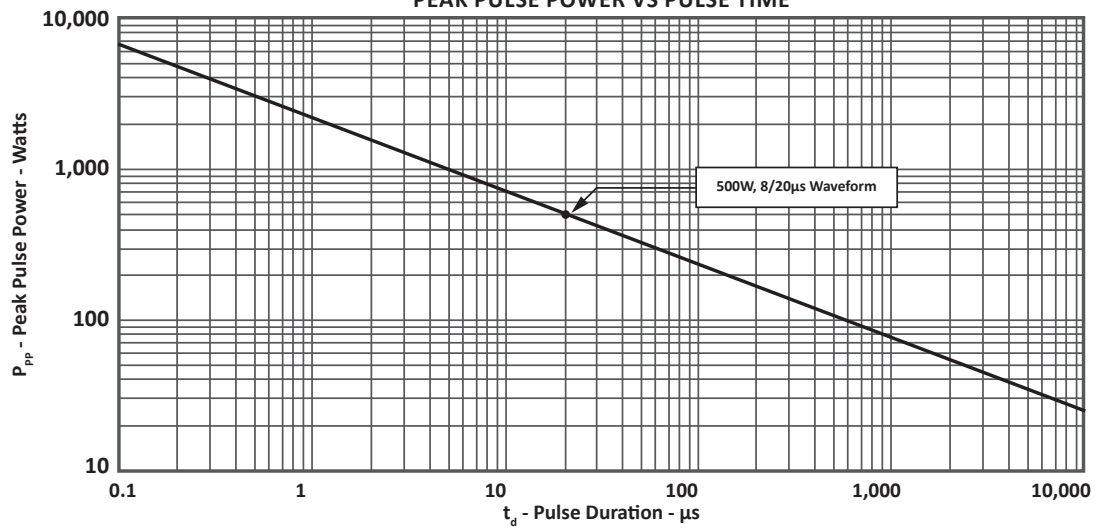
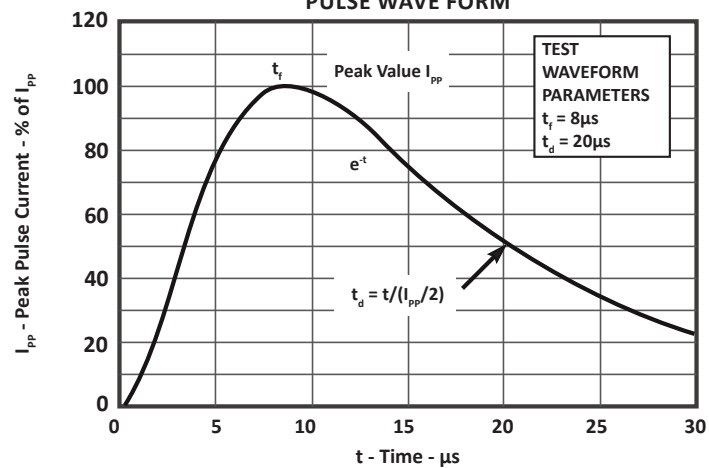
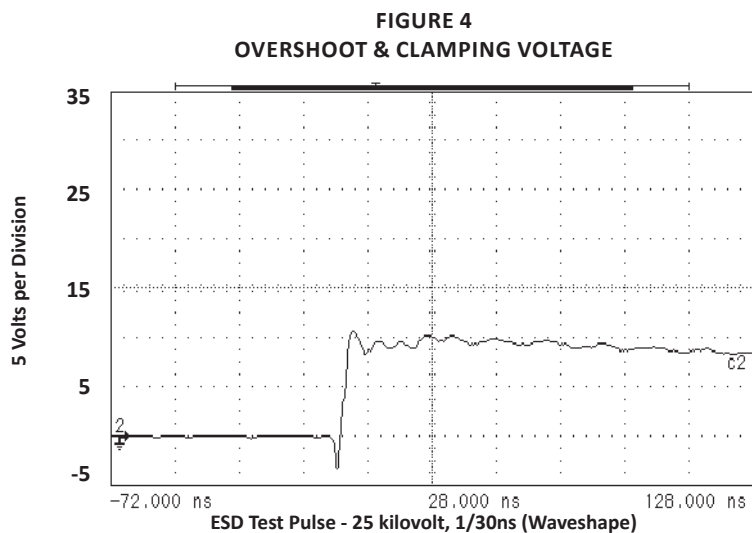
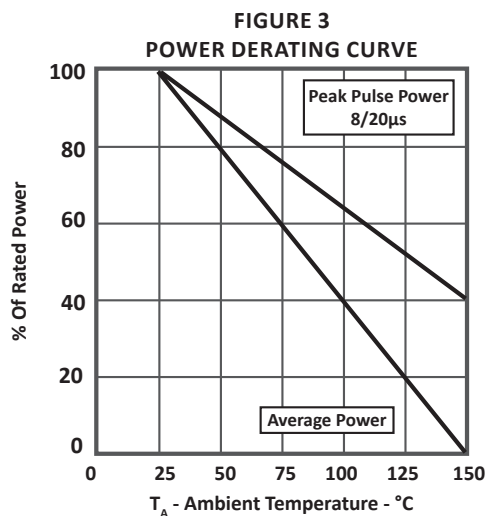


FIGURE 2
PULSE WAVE FORM



TYPICAL DEVICE CHARACTERISTICS

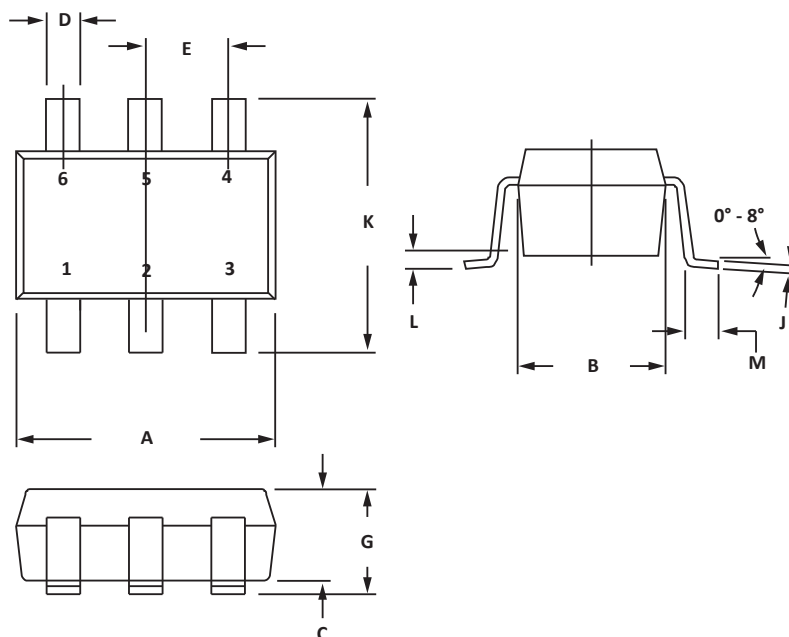


SOT-23-6 PACKAGE INFORMATION
OUTLINE DIMENSIONS

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

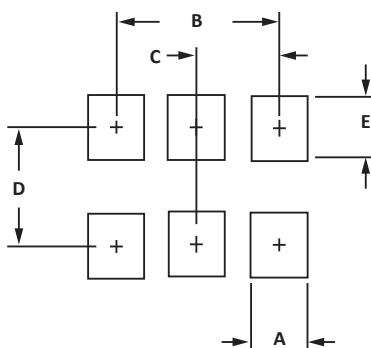
1. Controlling dimension: inches.
2. Dimensioning and tolerances per ANSI Y14.5M, 1985.
3. Dimensions are exclusive of mold flash and metal burrs.


PAD LAYOUT DIMENSIONS

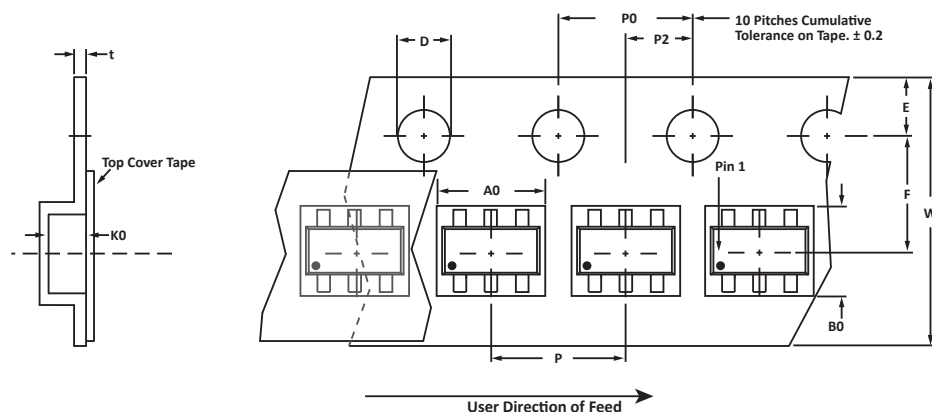
DIM	MILLIMETERS	INCHES
	NOMINAL	NOMINAL
A	0.70	0.028
B	1.90	0.074
C	0.95	0.037
D	2.40	0.094
E	1.00	0.039

NOTES

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")	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
PUSB05UBK	n/a	-T7	3,000	7"	n/a

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

COMPANY INFORMATION

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 LED wafer die for ESD protection and related high frequency products.

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