

**ESD PROTECTION TVS ARRAY****DESCRIPTION**

The PESD05B is a TVS array that is designed to protect components from damage or upset due to electrostatic discharge (ESD). The device is offered in a bidirectional configuration and is available in two lead DFN-0603 package. The PESD05B features a large cross sectional area junction for conducting high transient currents, fast response time and low operating voltage. This device meets the IEC 61000-4-2 and IEC 61000-4 requirements.

**FEATURES**

- Compatible with IEC 61000-4-2 (ESD): Air  $\pm 30\text{kV}$ , Contact  $\pm 30\text{kV}$
- Compatible with IEC 61000-4-4 (EFT): 40A, 5/50ns
- 40 Watts Peak Pulse Power per Line ( $t_p = 8/20\mu\text{s}$ )
- Bidirectional Configuration
- Protects 1 Data Line
- Low Clamping Voltage
- Easy Placement for Manufacturing
- Replacement for MLV (0402)
- Fast Response Time:  $< 1\text{ns}$
- RoHS Compliant
- REACH Compliant

**APPLICATIONS**

- Cellular Phones
- Portable Devices
- Digital Cameras
- Power Supplies

**MECHANICAL CHARACTERISTICS**

- Molded DFN-0603-2L Package
- Approximate Weight: 0.8 milligrams
- Lead-Free Plating: 100% Matte Sn(Tin)
- Solder Reflow Temperature -  $260-270^\circ\text{C}$
- 8mm Tape and Reel Per EIA Standard 481
- Meets MSL 1 Requirements
- Flammability Rating UL 94V-0

**PIN CONFIGURATION**

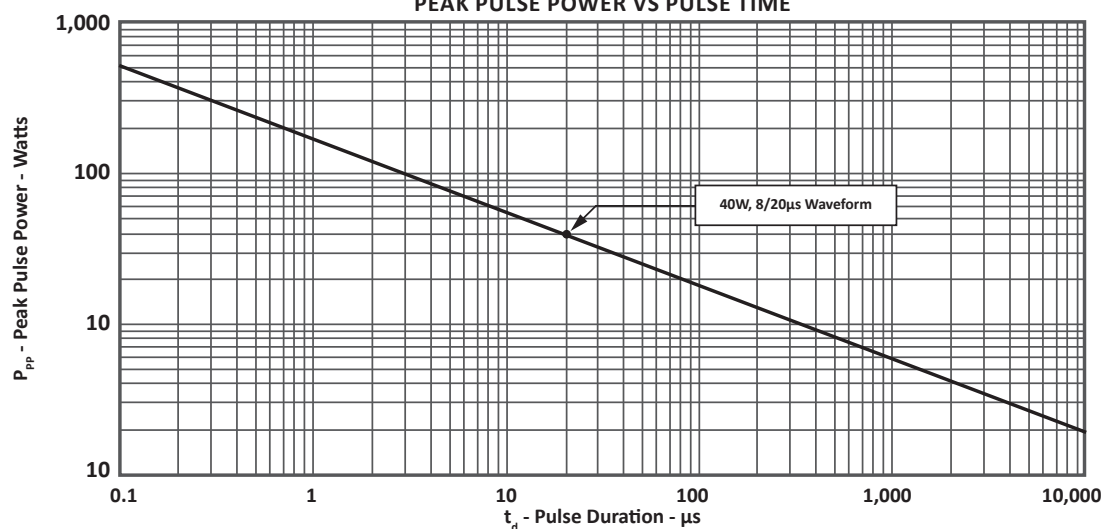
**TYPICAL DEVICE CHARACTERISTICS**
**MAXIMUM RATINGS @ 25°C Unless Otherwise Specified**

PARAMETER	SYMBOL	VALUE	UNITS
Storage Temperature	$T_{STG}$	-55 to 150	°C
Junction Temperature	$T_J$	-55 to 150	°C
Peak Pulse Power ( $t_p = 8/20\mu s$ ) - See Figure 1	$P_{PP}$	40	Watts
Peak Pulse Current	$I_{PP}$	4	Amps

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

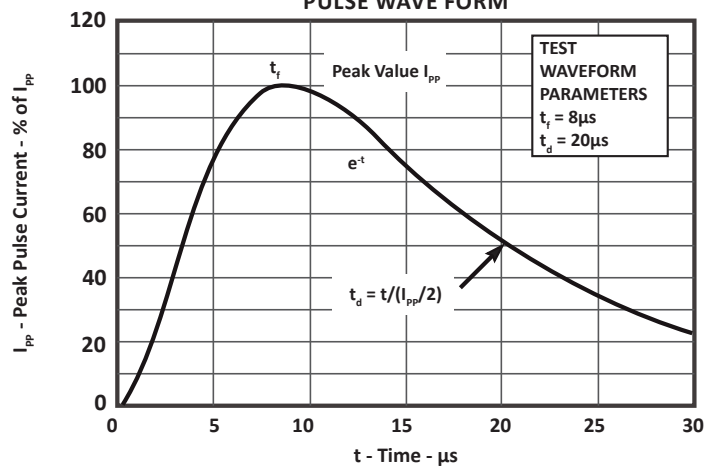
PART NUMBER	DEVICE MARKING	RATED STAND-OFF VOLTAGE	MINIMUM BREAKDOWN VOLTAGE	MAXIMUM CLAMPING VOLTAGE (Fig. 2)	MAXIMUM CLAMPING VOLTAGE (Fig. 2)	MAXIMUM LEAKAGE CURRENT	TYPICAL CAPACITANCE
		$V_{WM}$ VOLTS	@ 1mA $V_{(BR)}$ VOLTS	@ $I_P = 1A$ $V_C$ VOLTS	@ $I_P = 4A$ $V_C$ VOLTS	@ 5V $I_D$ $\mu A$	@ 0V, 1MHz C pF
PESD05B	F	5.0	5.6	7.5	9.5	1.0	10

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

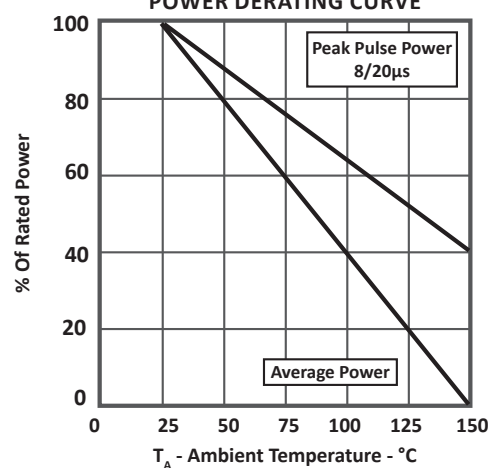


## TYPICAL DEVICE CHARACTERISTICS

**FIGURE 2**  
PULSE WAVE FORM



**FIGURE 3**  
POWER DERATING CURVE



**FIGURE 4**  
TYPICAL LEAKAGE CURRENT VS TEMPERATURE

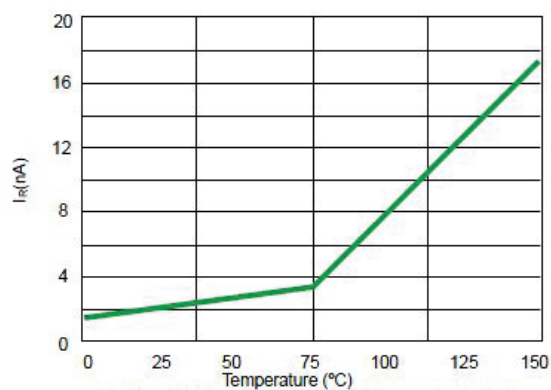


Fig 4. Typical Leakage Current vs. Temperature

**FIGURE 5**  
TLP MEASUREMENT

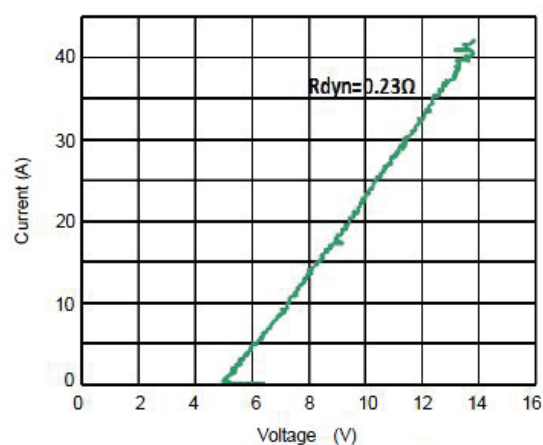
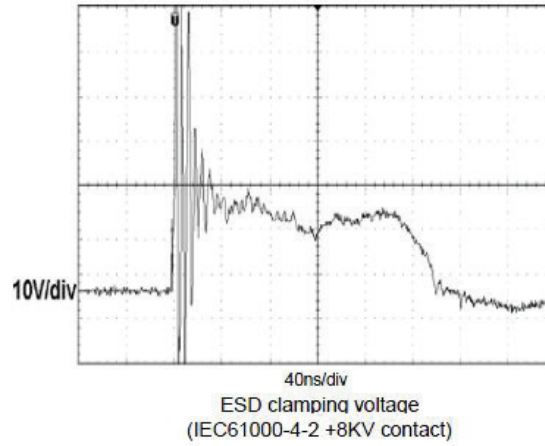


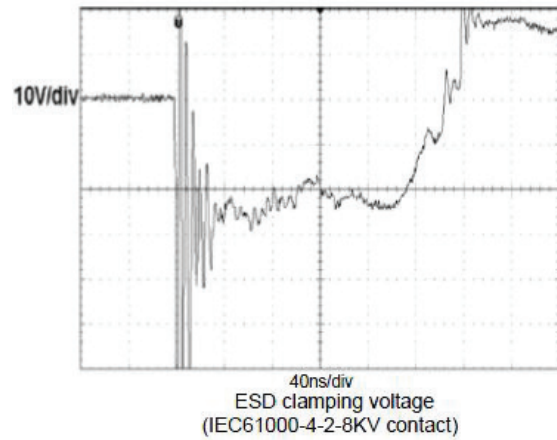
Fig 6. TLP Measurement

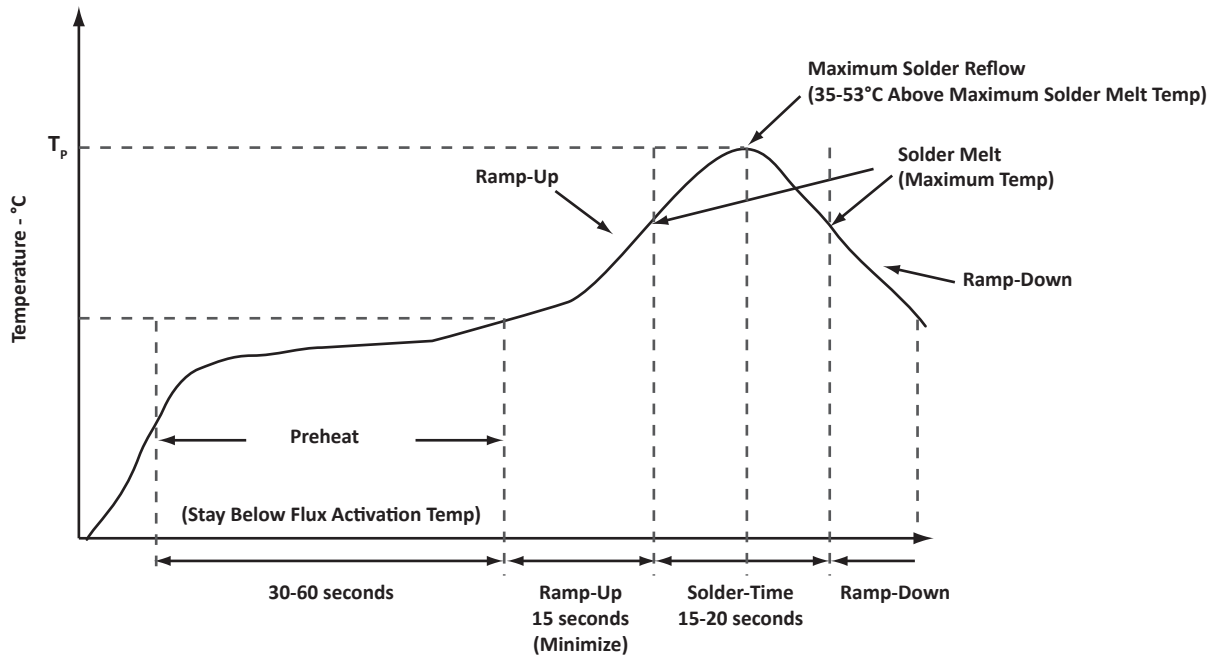
**TYPICAL DEVICE CHARACTERISTICS**

**FIGURE 6**  
**ESD CLAMPING VOLTAGE**



**FIGURE 7**  
**ESD CLAMPING VOLTAGE**



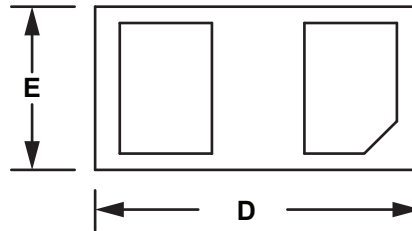
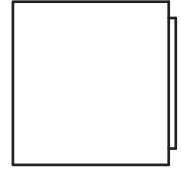
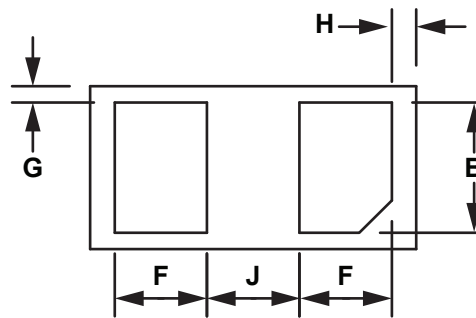
**PACKAGE INFORMATION**

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**OUTLINE DIMENSIONS**

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.290	0.325	0.011	0.013
B	0.210	0.270	0.007	0.011
D	0.570	0.630	0.022	0.025
E	0.270	0.330	0.011	0.014
F	0.140	0.200	0.006	0.008
G	0.015	0.045	0.0005	0.002
H	0.030	0.060	0.001	0.003
J	0.140	0.200	0.006	0.008

**NOTES**

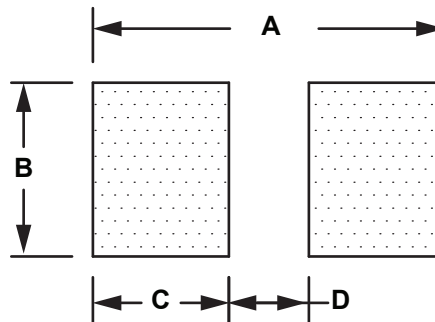
1. Dimensioning and tolerances per ANSI Y14.M, 1985.
2. Controlling dimension: inches.

**TOP VIEW**

**SIDE VIEW**

**BOTTOM VIEW**

**PAD LAYOUT DIMENSIONS**

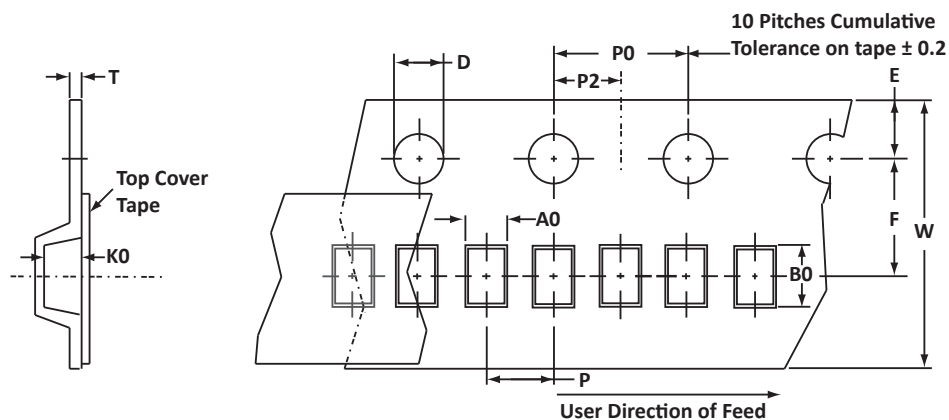
DIM	MILLIMETERS	INCHES
	NOM	NOM
A	0.650	0.025
B	0.320	0.013
C	0.250	0.010
D	0.150	0.006

**NOTES**

1. Decimal tolerances for mounting pad:  $\pm 0.003''$  ( $\pm 0.08$  mm).



## TAPE AND REEL



## SPECIFICATIONS

REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
178mm (7")	8mm	TBD	TBD	TBD	$1.55 \pm 0.10$	$1.75 \pm 0.10$	$3.50 \pm 0.05$	$8.00 \pm 0.30$	$4.00 \pm 0.10$	$2.00 \pm 0.05$	$2.00 \pm 0.05$	0.25

## NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Suffix - T710 = 7" Reel - 10,000 pieces per 8mm tape.
- Marking on Part - marking code (see page 2).

## ORDERING INFORMATION

BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PESD05B	N/A	-T710	10,000	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 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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