

## LOW CAPACITANCE MINIATURE TVS ARRAY



### DESCRIPTION

The PRSB6.8C is a transient voltage suppressor array (TVS) designed to protect applications such as wireless telecommunication devices, SMART phones and portable electronics. The PRSB6.8C is available in a bidirectional configuration with a working voltage of 4.7V and a minimum breakdown voltage of 5.7V. This device is rated for 10 Watt peak pulse power using the 10/1000 $\mu$ s waveform and 50 Watts at 8/20 $\mu$ s, which is sufficient protection for tertiary type lightning threats at key interface locations.

The PRSB6.8C is also suited to protect data lines against ESD and EFT. This device meets the IEC 61000-4-2 and IEC 61000-4 requirements. At higher operating frequencies or faster edge rates, insertion loss and signal integrity are a major concern. This device in conjunction with passive components integrated into a TVS/filter network can be used for EMI/RFI protection.

### FEATURES

- Compatible with IEC 61000-4-2 (ESD): Air  $\pm$ 15kV, Contact  $\pm$ 8kV
- Compatible with IEC 61000-4-4 (EFT)
- 10 Watts Peak Pulse Power per Line ( $t_p = 10/1000\mu s$ )
- 50 Watts Peak Pulse Power per Line ( $t_p = 8/20\mu s$ )
- Bidirectional Configuration
- Protects 1 Data Line
- Low Clamping Voltage
- Easy Placement for Manufacturing
- Low Capacitance
- RoHS Compliant
- REACH Compliant

### APPLICATIONS

- Noise Suppression for Data Lines
- SMART Phones
- Portable Electronics

### MECHANICAL CHARACTERISTICS

- Molded JEDEC DFN-2-0402 Package
- Approximate Weight: 0.8 milligrams
- Lead-Free Nickel Paladium Gold Plating
- Solder Reflow Temperature - 260-270°C
- 8mm Tape and Reel Per EIA Standard 481
- Flammability Rating UL 94V-0

### PIN CONFIGURATION



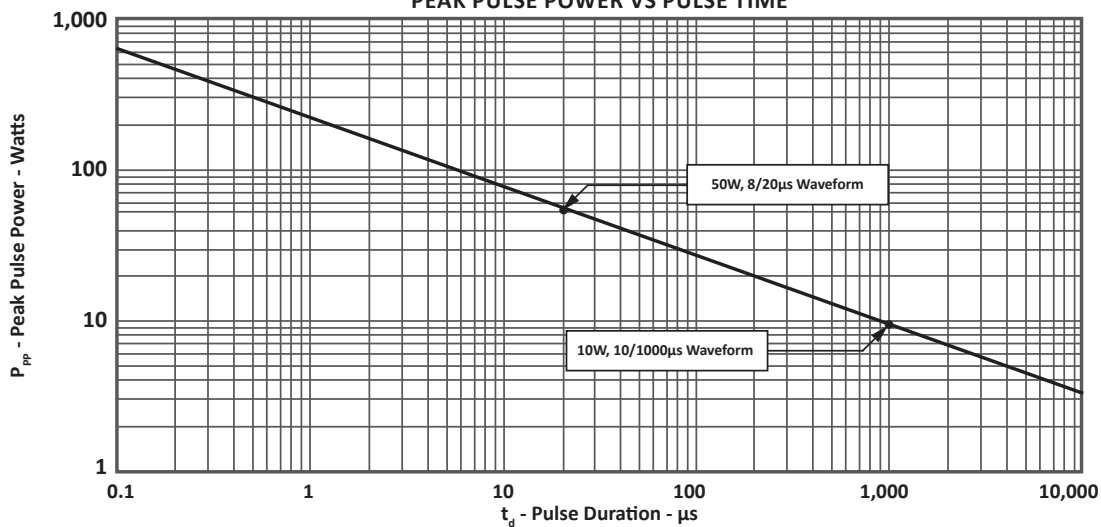
**TYPICAL DEVICE CHARACTERISTICS**
**MAXIMUM RATINGS @ 25°C Unless Otherwise Specified**

PARAMETER	SYMBOL	VALUE	UNITS
Operating Temperature	$T_{OPR}$	-55 to 150	°C
Storage Temperature	$T_{STG}$	-55 to 150	°C
Junction Temperature	$T_A$	150	°C
Peak Pulse Power ( $t_p = 10/1000\mu s$ ) - See Figure 1	$P_{PP}$	10	Watts
Peak Pulse Power ( $t_p = 8/20\mu s$ ) - See Figure 1	$P_{PP}$	50	Watts
Power Dissipation	$P$	150	mW

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

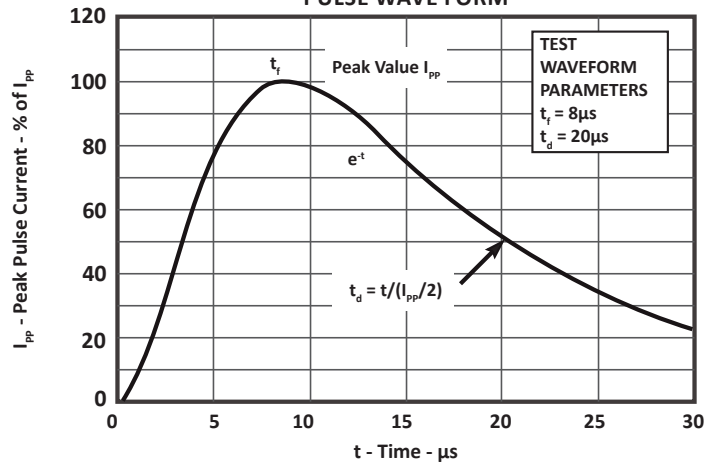
PART NUMBER	DEVICE MARKING	RATED STAND-OFF VOLTAGE	MINIMUM BREAKDOWN VOLTAGE	MAXIMUM CLAMPING VOLTAGE (Fig. 2)	MAXIMUM CLAMPING VOLTAGE (Fig. 2)	MAXIMUM LEAKAGE CURRENT	TYPICAL CAPACITANCE
		$V_{WM}$ VOLTS	@ 1mA $V_{(BR)}$ VOLTS	@ $I_P = 1A$ $V_C$ VOLTS	@ 8/20 $\mu s$ $V_C @ I_{PP}$	@ 3.5V $I_D$ $\mu A$	@ 0V, 1MHz $C$ pF
PRSB6.8C	A	4.7	5.7	13.0	17.5V @ 3.0A	0.5	15

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

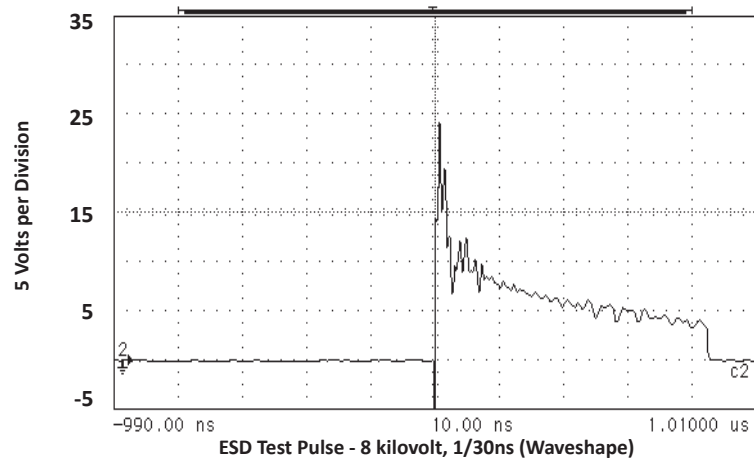


TYPICAL DEVICE CHARACTERISTICS

**FIGURE 2**  
**PULSE WAVE FORM**

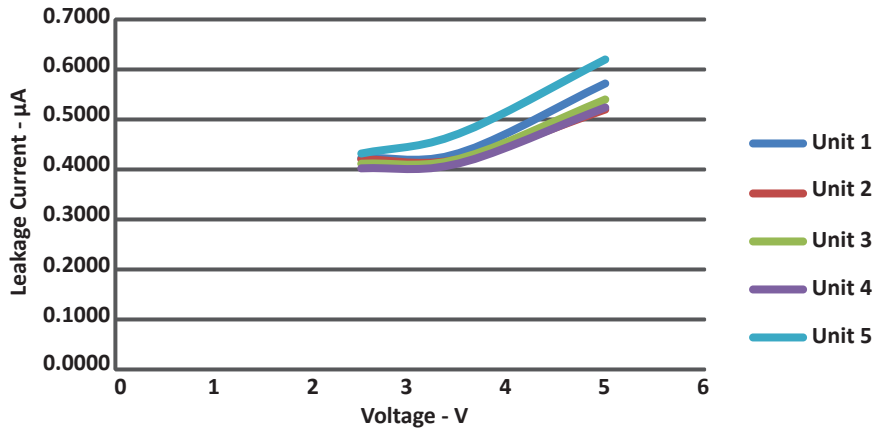


**FIGURE 3**  
**OVERSHOOT & CLAMPING VOLTAGE**

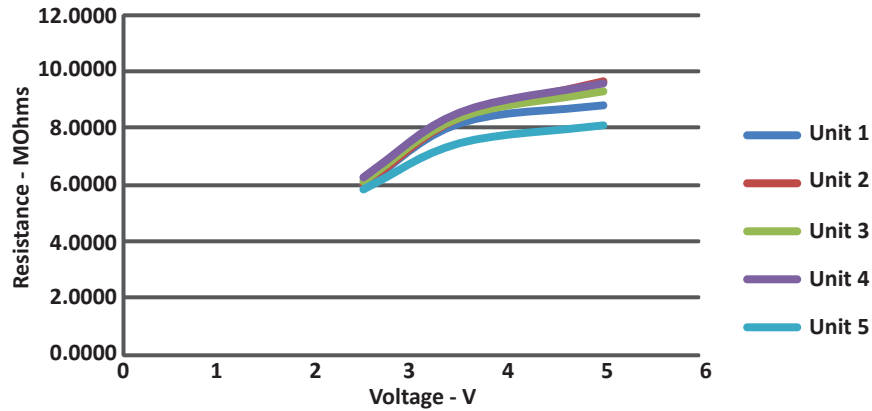


TYPICAL DEVICE CHARACTERISTICS

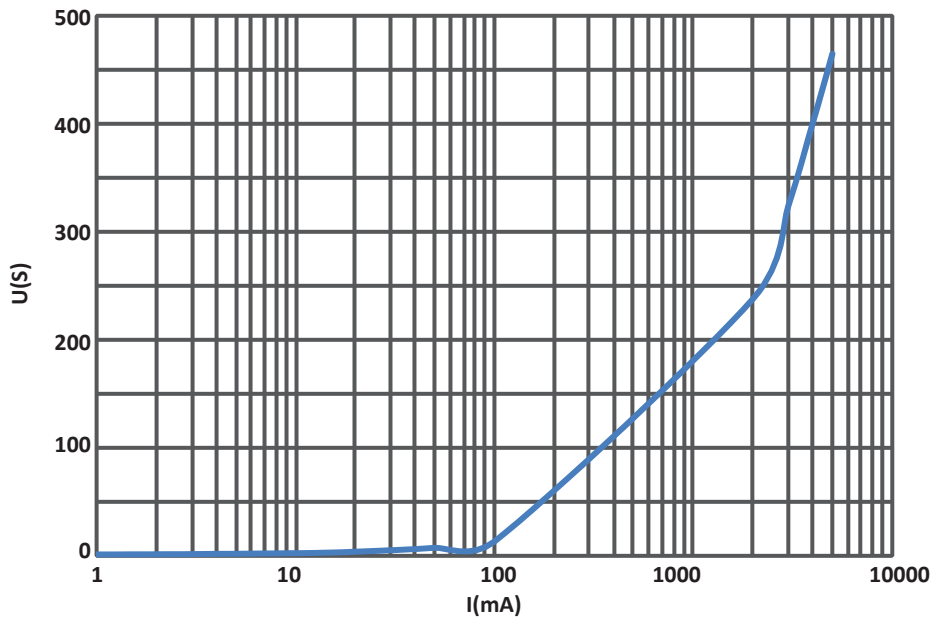
**FIGURE 4**  
VOLTAGE VS LEAKAGE ACROSS PIN 1-2



**FIGURE 5**  
VOLTAGE VS RESISTANCE ACROSS PIN 1-2



**FIGURE 6**  
UI CURVE



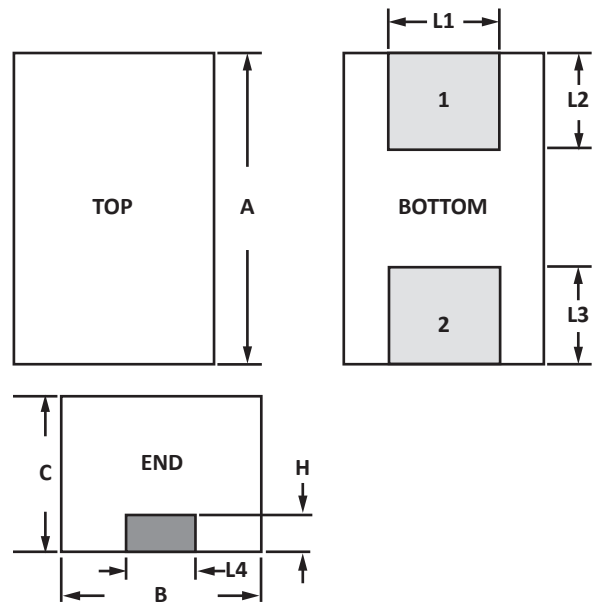
## DFN-2-0402 PACKAGE INFORMATION

## OPTION 1 - OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.99	1.04	0.039	0.041
B	0.58	0.64	0.023	0.025
C	0.43	0.48	0.017	0.019
H	0.13	0.18	0.005	0.007
L1	0.28	0.33	0.011	0.013
L2	0.23	0.28	0.009	0.011
L3	0.23	0.28	0.009	0.011
L4	0.18	0.23	0.007	0.009

## NOTES

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

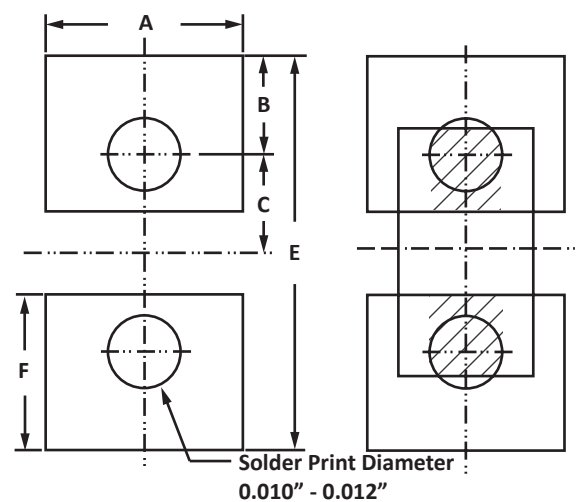


## OPTION 1 - PAD LAYOUT DIMENSIONS

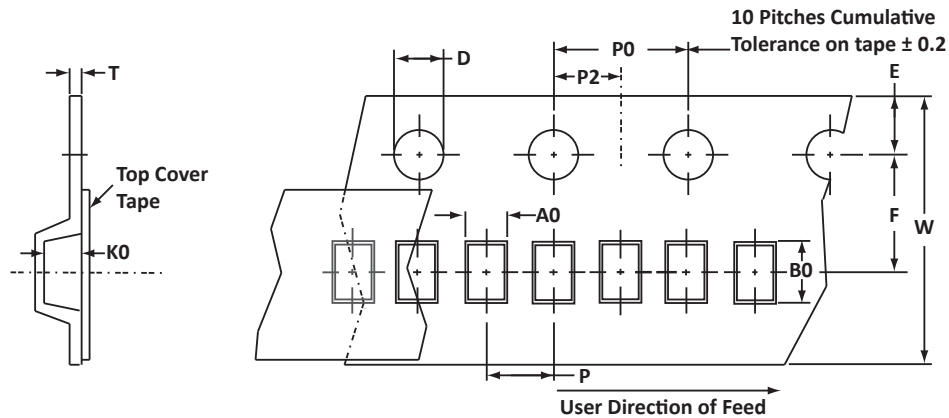
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.737	0.787	0.029	0.031
B	0.331	0.381	0.013	0.015
C	0.356	0.406	0.014	0.016
E	1.423	1.523	0.056	0.060
F	0.534	0.584	0.021	0.023

## NOTES

1. Controlling dimension: inches.
2. 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	0.70 ± 0.05	1.15 ± 0.05	0.60 ± 0.003	1.55 ± 0.10	1.75 ± 0.10	3.50 ± 0.05	8.00 ± 0.30	4.00 ± 0.10	2.00 ± 0.05	2.00 ± 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
PRSB6.8C	-LF	-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.

### CONTACT US

#### Corporate Headquarters

2929 South Fair Lane  
Tempe, Arizona 85282  
USA

#### By Telephone

General: 602-431-8101  
Sales: & Marketing: 602-414-5109  
Customer Service: 602-414-5114  
Product Technical Support: 602-414-5107

#### By Fax

General: 602-431-2288

#### By E-mail:

Asia Sales: [asiasales@protekdevices.com](mailto:asiasales@protekdevices.com)  
Europe Sales: [europesales@protekdevices.com](mailto:europesales@protekdevices.com)  
U.S. Sales: [ussales@protekdevices.com](mailto:ussales@protekdevices.com)  
Distributor Sales: [distysales@protekdevices.com](mailto:distysales@protekdevices.com)  
Customer Service: [service@protekdevices.com](mailto:service@protekdevices.com)  
Technical Support: [support@protekdevices.com](mailto:support@protekdevices.com)

#### ProTek Devices (Asia Pacific) Pte. Ltd.

8 Ubi Road 2, #06-19  
Zervex  
Singapore - 408538  
Tel: +65-67488312  
Fax: +65-67488313

#### Web

[www.protekdevices.com](http://www.protekdevices.com)

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