

LOW CAPACITANCE MINIATURE TVS ARRAY**DESCRIPTION**

The PHSDxx Series are ultra-low snap-back semiconductor transient voltage suppressor arrays (TVS) designed to protect high-speed data applications such as HDMI, USB Type-C and Gigabit Ethernet from the damaging effects of ESD and EFT. The series offers an ideal combination of ultra-low capacitance, low clamping voltage, low leakage current while also maintaining robust ESD protection. The PHSDxx Series is available in a super-low profile, making these devices ideal for portable electronics.

FEATURES

- Compatible with IEC 61000-4-2 (ESD): Contact $\pm 10\text{kV}$, Air $\pm 14\text{kV}$
- Low Leakage Current
- Snap-Back Semiconductor Technology
- Bidirectional Configuration
- Provides 1 Line of Protection
- Low Clamping Voltage
- Easy Placement for Manufacturing
- Ultra-Low Capacitance
- RoHS Compliant & Halogen Free

APPLICATIONS

- USB Type-C
- HDMI 1.4/2.0/2.1 FRL and TMDS
- SWP/NFC
- SD-Card
- 1Gb/2.5G/5G/10G Ethernet

MECHANICAL CHARACTERISTICS

- Molded JEDEC DFN-2-0201 Package
- Lead-Free Plating
- Solder Reflow Temperature:
Pure-Tin - Sn, 100: 260-270°C
- 8mm Tape and Reel Per EIA Standard 481
- Flammability Rating UL 94V-0

PIN CONFIGURATION

TYPICAL DEVICE CHARACTERISTICS

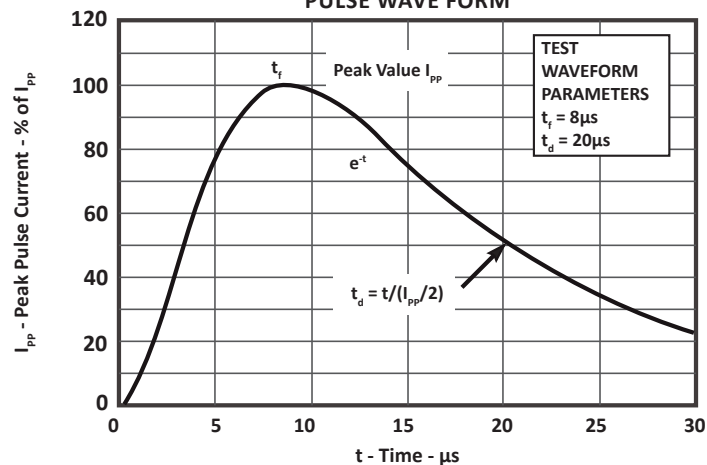
MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

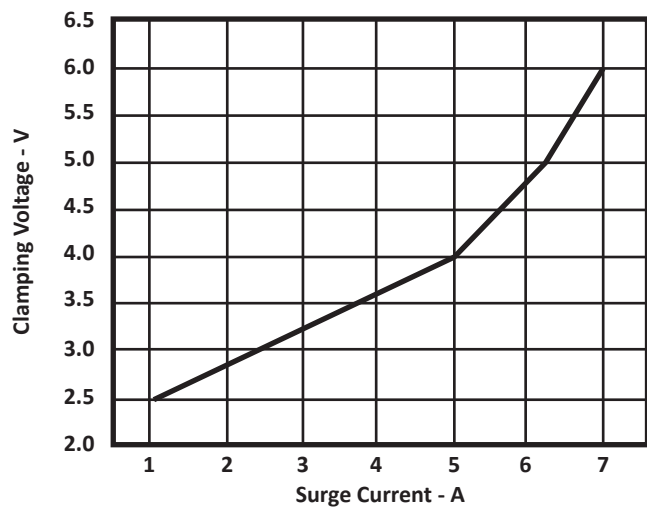
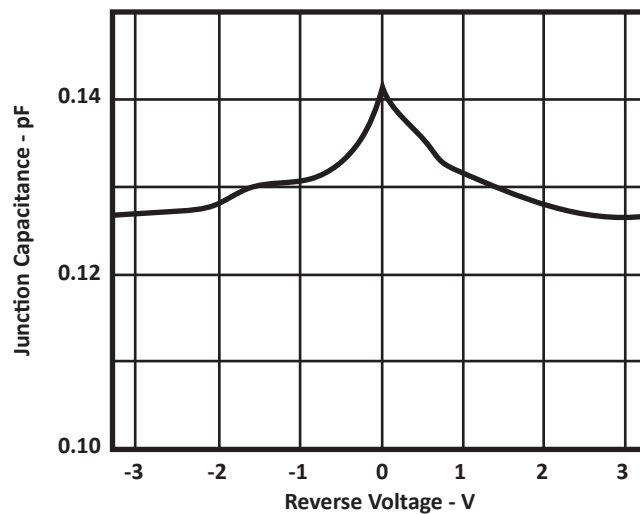
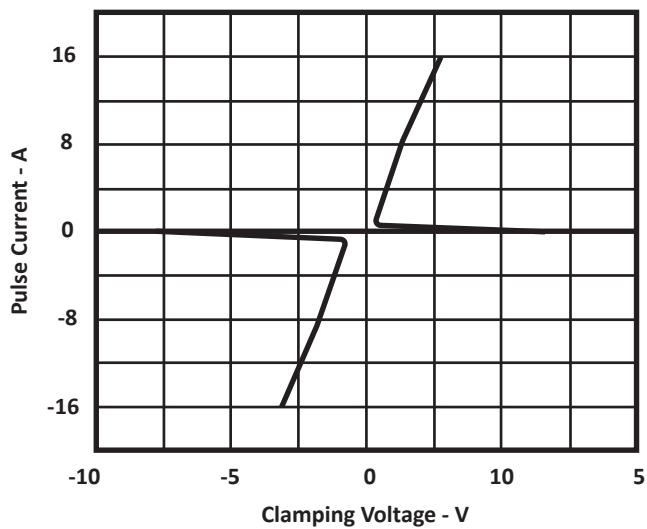
PARAMETER	SYMBOL	VALUE	UNITS
Storage Temperature	T_{STG}	-55 to 150	°C
Junction Temperature	T_J	-55 to 125	°C

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER	DEVICE MARKING	MAXIMUM REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	MINIMUM BREAKDOWN VOLTAGE @ 1mA $V_{(BR)}$ VOLTS	TYPICAL BREAKOVER VOLTAGE V_{BO} @ 20mA VOLTS	TYPICAL CLAMPING VOLTAGE V_C VOLTS	MAXIMUM PEAK PULSE CURRENT @ 8/20μs I_{PP} AMPS	MAXIMUM REVERSE LEAKAGE CURRENT I_R @ V_{RWM} nA	TYPICAL CAPACITANCE @ 0V, 1MHz C_J pF
PHSD05	3B	5.0	5.5	10	5.5	6.5	100	0.15
PHSD24	24B	24.0	25	33	5.5	6.0	100	0.15

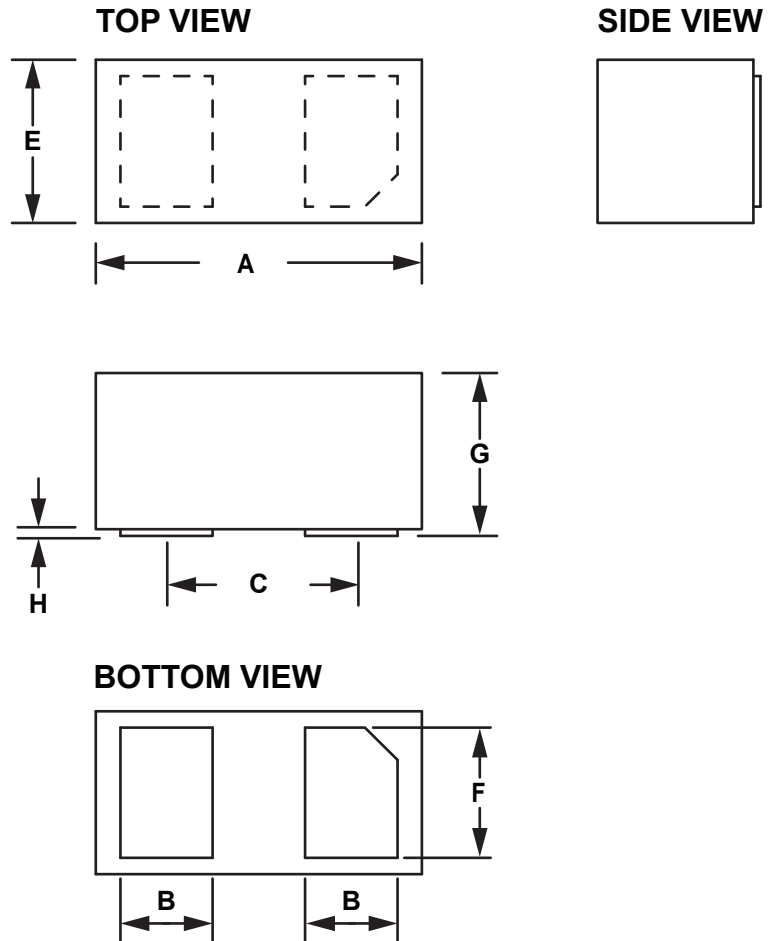
FIGURE 1
PULSE WAVE FORM



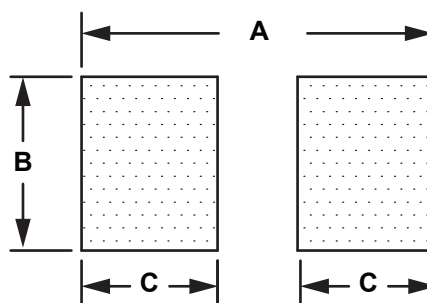
TYPICAL DEVICE CHARACTERISTICS**FIGURE 2****CLAMPING VOLTAGE VS SURGE CURRENT - PHSD05****FIGURE 3****JUNCTION CAPACITANCE VS REVERSE VOLTAGE - PHSD05****FIGURE 4****PULSE CURRENT VS CLAMPING VOLTAGE - PHSD05**

PACKAGE INFORMATION

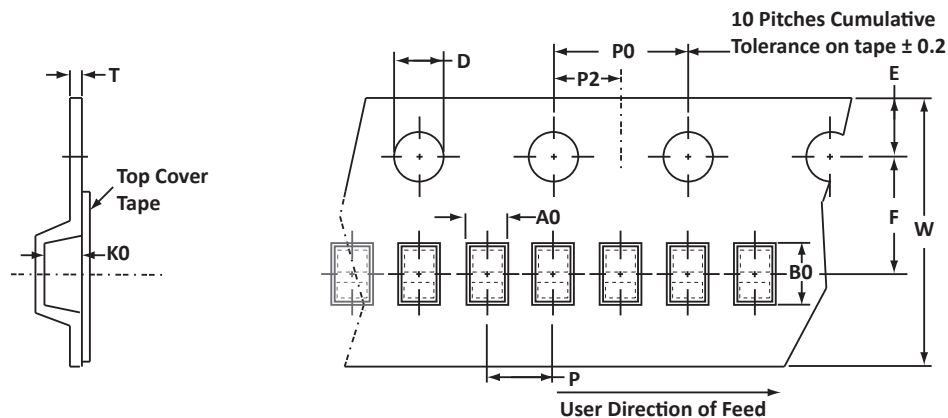
OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.59	0.64	0.023	0.025
B	0.15	0.21	0.006	0.008
C	0.36 REF		0.014 REF	
E	0.28	0.35	0.011	0.014
F	0.21	0.27	0.008	0.010
G	0.28	0.35	0.011	0.013
H		0.05		0.002
NOTES 1. Controlling dimension: inches.				



PAD LAYOUT DIMENSIONS		
DIM	MILLIMETERS	INCHES
	NOM	NOM
A	0.34	0.014
B	0.28	0.011
C	0.260	0.010
NOTES 1. Decimal tolerances for mounting pad: $\pm 0.003"$ (± 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	0.39 ± 0.03	0.70 ± 0.03	0.38 ± 0.02	1.50 ± 0.10	1.75 ± 0.10	3.50 ± 0.05	8.00 ± 0.30	4.00 ± 0.1	2.00 ± 0.05	2.00 ± 0.05	0.18 ± 0.03

NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Marking on Part - marking code (see page 2).

ORDERING INFORMATION

BASE PART NUMBER (xx = Voltage)	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PHSDxx	n/a	-T710	10,000	7"	n/a

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

COMPANY INFORMATION

COMPANY PROFILE

In business more than 30 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection that include Transient Voltage Suppressor (TVS) Arrays, Steering Diode Array Hybrids, High-power Components and Modules, as well as Steering Diodes, EMI Filter/TVS Arrays and Thyristor Surge Suppressors. These components deliver circuit protection in electronic systems from numerous overvoltage events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices is an ISO 9001 certified company.

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