

## ULTRA LOW CAPACITANCE STEERING DIODE/TVS ARRAY



### DESCRIPTION

The PAM251005 is an ultra low capacitance steering diode/TVS array. This device is designed to protect automotive equipment and systems from the damaging effects of ESD, EFT and other transient surges. The PAM251005 is available in the space-saving DFN-10 package configuration and is rated at 100 Watts peak pulse power per line for a 8/20μs waveshape.

This device meets the IEC 61000-4-2 (ESD), 61000-4-2 (EFT) and 61000-4-4 (Surge) 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

- AEC-Q101 Qualified
- 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 (Lightning): 3.5A - 8/20μs
- 100 Watts Peak Pulse Power per Line (tp=8/20μs)
- Protects 4 Lines
- Ultra Low Capacitance : 0.3pF Typical(I/O to I/O)
- RoHS Compliant

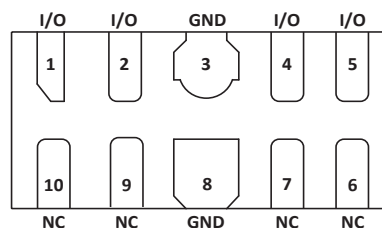
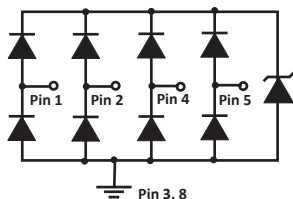
### APPLICATIONS

- HDMI
- USB 2.0
- USB 3.x

### MECHANICAL CHARACTERISTICS

- Molded JEDEC DFN-10 Package
- Approximate Weight: 7 milligrams
- Lead Finish: Lead-free
- Solder Reflow Temperature:  
Pure-Tin - Sn, 100: 260-270°C
- 8mm Tape and Reel Per EIA Standard 481
- Flammability Rating UL 94V-0

## CIRCUIT DIAGRAM & PIN CONFIGURATION



## TYPICAL DEVICE CHARACTERISTICS

## MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

PARAMETER	SYMBOL	VALUE	UNITS
Operating Temperature	$T_L$	-55 to 150	°C
Storage Temperature	$T_{STG}$	-55 to 150	°C
Peak Pulse Power ( $t_p = 8/20\mu s$ ) - See Figure 1	$P_{PP}$	100	Watts

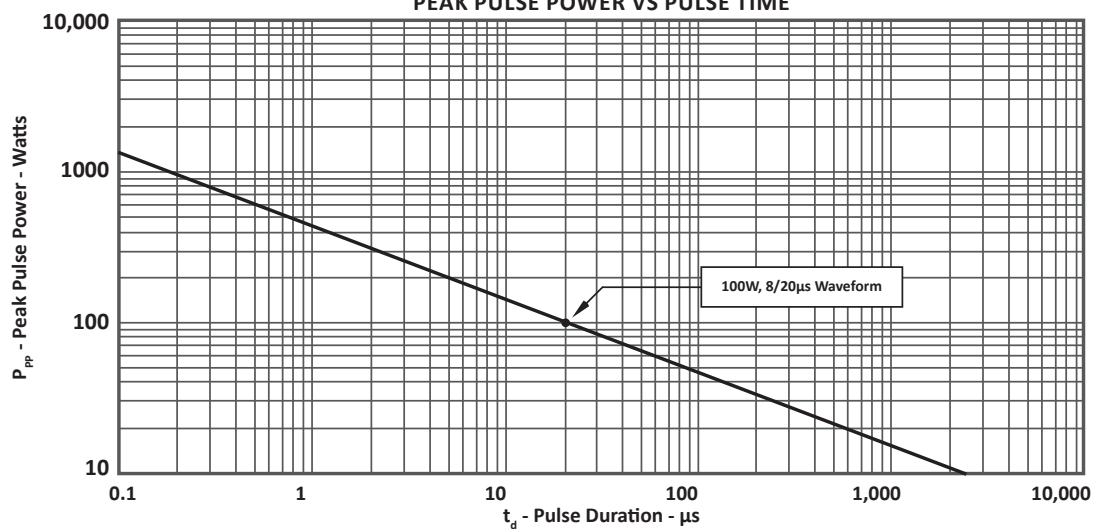
## ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER	DEVICE MARKING	RATED STAND-OFF VOLTAGE  $V_{WM}$ VOLTS	MINIMUM BREAKDOWN VOLTAGE  @ 1mA $V_{(BR)}$ VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2) (Note 1) @ $I_p = 1A$ $V_c$ VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2) (Note 1) @ $I_p = 3.5A$ $V_c$ VOLTS	MAXIMUM LEAKAGE CURRENT  @ $V_{WM}$ $I_D$ $\mu A$	TYPICAL CAPACITANCE (Note 1)  @ 0V, 1MHz C pF
PAM251005	5R2P	5.0	6.0	10.0	12.0	1.0	0.5

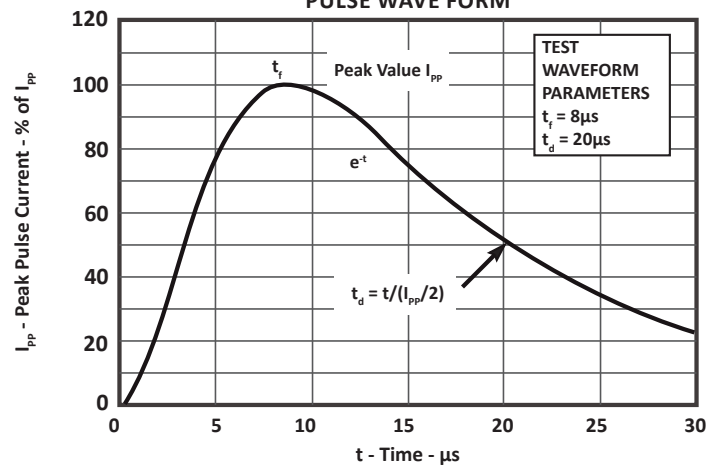
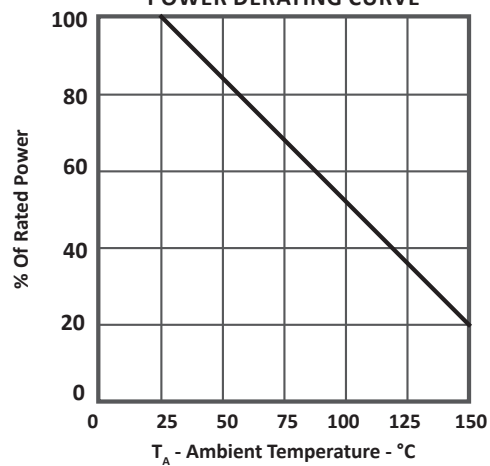
## NOTES

1. I/O to Ground.

FIGURE 1  
PEAK PULSE POWER VS PULSE TIME

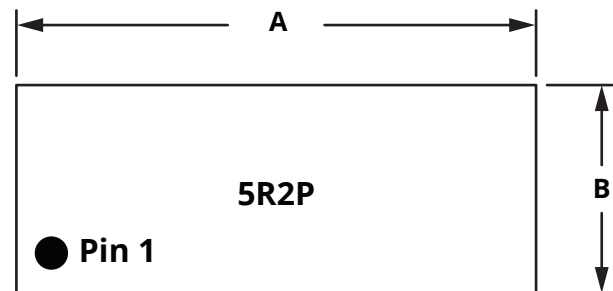
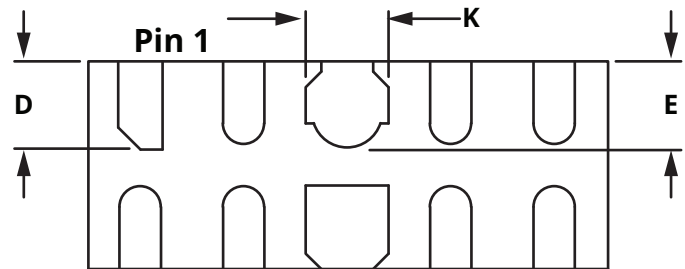
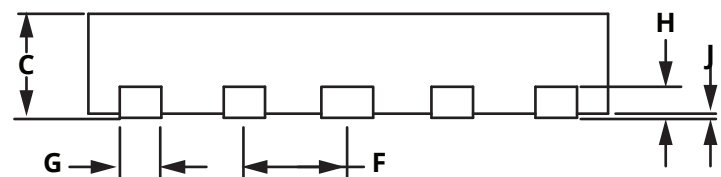


## TYPICAL DEVICE CHARACTERISTICS

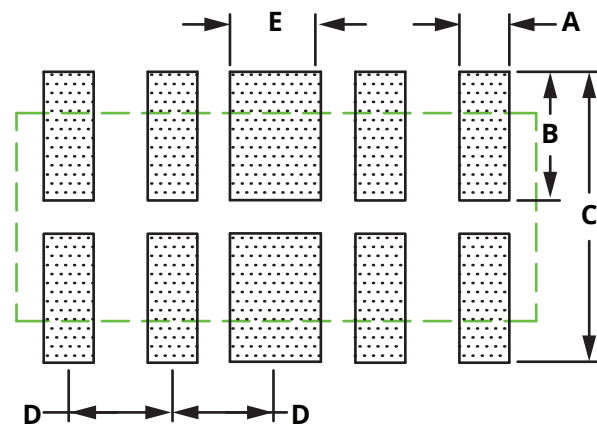
 FIGURE 2  
 PULSE WAVE FORM

 FIGURE 3  
 POWER DERATING CURVE


**PACKAGE INFORMATION**

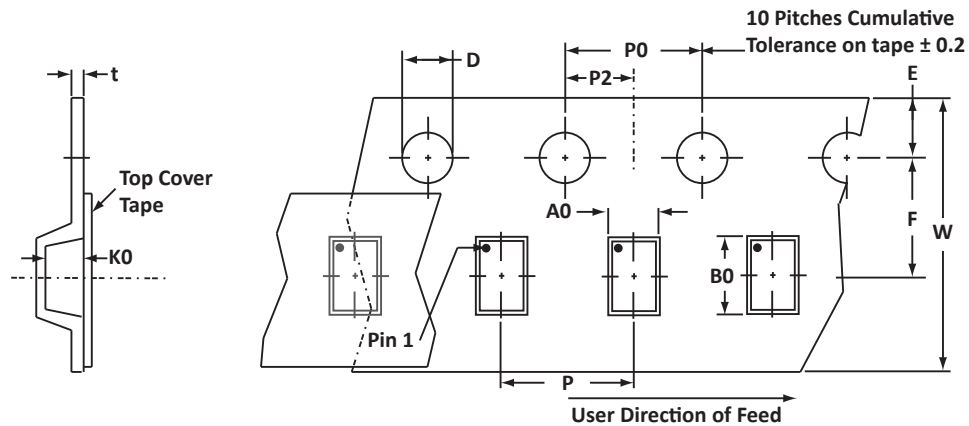
OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.40	2.60	0.094	0.102
B	0.90	1.10	0.035	0.043
C	0.46	0.60	0.018	0.024
D	0.30	0.45	0.012	0.018
E	0.30	0.56	0.012	0.022
F	0.50		0.020	
G	0.15	0.25	0.006	0.010
H	0.15		0.006	
J	0.00	0.05	0.000	0.002
K	0.35	0.45	0.014	0.018
<b>NOTES</b> 1. Controlling dimension: millimeters.				

**TOP VIEW**

**BOTTOM VIEW**

**SIDE VIEW**


PAD LAYOUT		
DIM	MILLIMETERS	INCHES
	NOMINAL	NOMINAL
A	0.24	0.009
B	0.675	0.026
C	1.55	0.061
D	0.50	0.020
E	0.44	0.017
<b>NOTES</b> 1. Controlling dimension: millimeters.		



## TAPE AND REEL



## SPECIFICATIONS

REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
178mm (7")	8mm	1.20 ± 0.10	2.75 ± 0.10	0.70 ± 0.10	1.55 ± 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 1 dot.

## ORDERING INFORMATION

BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PAM251005	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 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.

### 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)

#### Web

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

COPYRIGHT © ProTek Devices 2024 - This literature is subject to all applicable copyright laws and is not for resale in any manner.

SPECIFICATIONS: ProTek reserves the right to change the electrical and or mechanical characteristics described herein without notice.

DESIGN CHANGES: ProTek reserves the right to discontinue product lines without notice and that the final judgement concerning selection and specifications is the buyer's and that in furnishing engineering and technical assistance. ProTek assumes no responsibility with respect to the selection or specifications of such products. ProTek makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ProTek assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability without limitation special, consequential or incidental damages.

LIFE SUPPORT POLICY: ProTek Devices products are not authorized for use in life support systems without written consent from the factory.