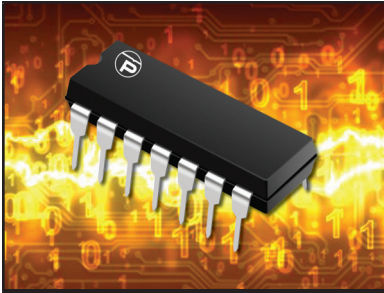


## ULTRA LOW CAPACITANCE MULTI-LINE STEERING DIODE ARRAY



**14 PIN DIP PACKAGE**

### DESCRIPTION

The PMAD Series are a low distortion steering diodes. These devices are intended for use in high frequency analog or digital data I/O ports for protection against Electrostatic Discharge (ESD) and Electrical Fast Transients (EFT). The PMAD Series is connected between rail-to-rail voltage bus or rail-to-ground for clamping and diverting overvoltage transients for the protection of sensitive network interface circuits.

This series provides low capacitance, which insures signal integrity up to 900MHz, while complete isolation between adjacent diodes keeps cross-talk to a minimum. The PMAD Series is available in a 14 pin DIP and meets the IEC 61000-4-2, IEC 61000-4-4 and IEC 61000-4-5 requirements.

### FEATURES

- 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 (Surge): 24A, 8/20 $\mu$ s - Level 2(Line-Gnd) & Level 3(Line-Line)
- 500 Milliwatt Continuous Power Dissipation
- Monolithic Design
- ESD Protection > 25 kilovolts
- Protects up to 7 to 8 I/O Lines
- Working Voltage > 50 Volts
- Low Leakage Current < 0.1 $\mu$ A
- Ultra Low Capacitance: 5pF per Diode
- RoHS Compliant
- REACH Compliant

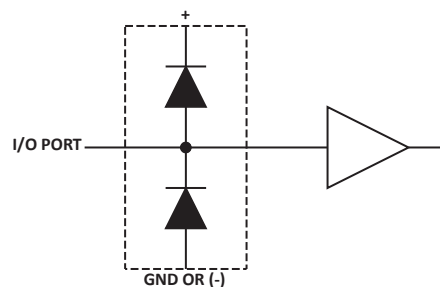
### APPLICATIONS

- High Frequency Data Lines
- RS-232 & RS-422 Interface Networks
- Ethernet 10/100 Base T
- Computer I/O Ports

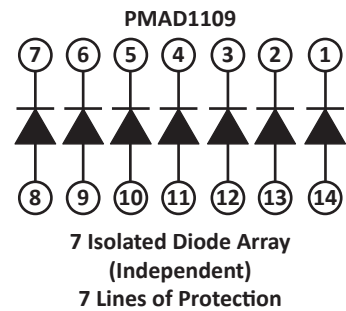
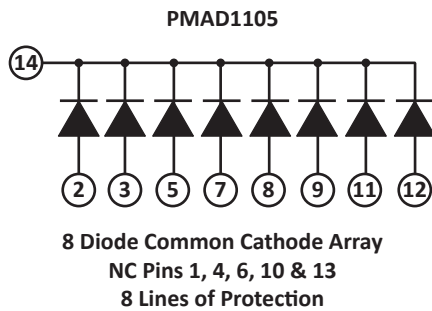
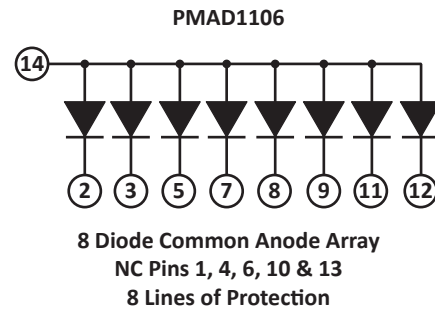
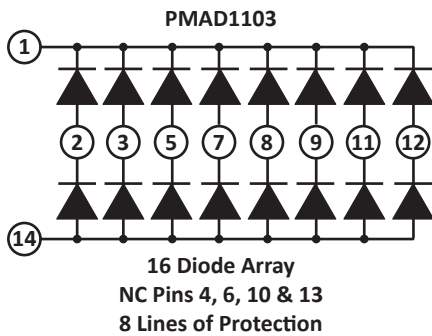
### MECHANICAL CHARACTERISTICS

- Molded 14 Pin Dual-In-Line (DIP) Package
- Approximate Weight: 1.2 grams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:  
Pure-Tin - Sn, 100: 260-270°C
- Flammability Rating UL 94V-0

### CIRCUIT DIAGRAM



## PIN IDENTIFICATION AND CONFIGURATION



## TYPICAL DEVICE CHARACTERISTICS

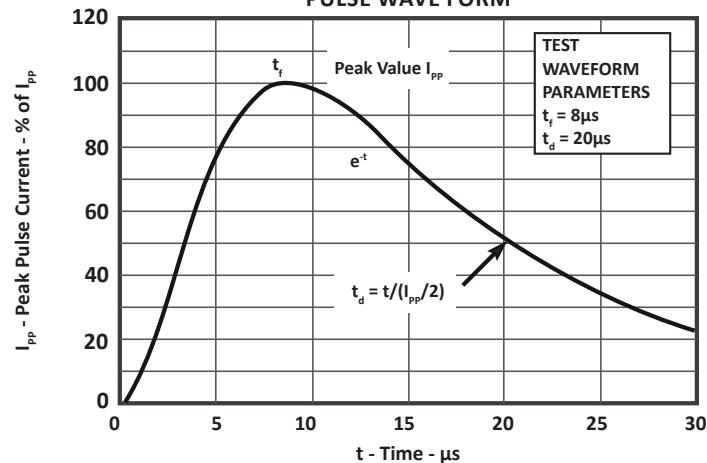
## MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

PARAMETER	SYMBOL	VALUE	UNITS
Continuous Power Dissipation	$P_{PK}$	500	Milliwatts
Continuous Forward Current (Single Diode)	$I_P$	400	mA
Repetitive Peak Forward Current @ $t_p = 5\mu s$ , $F = 50kHz$	$I_{FRM}$	700	mA
Operating Temperature	$T_A$	-55 to 150	°C
Storage Temperature	$T_{STG}$	-55 to 150	°C

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

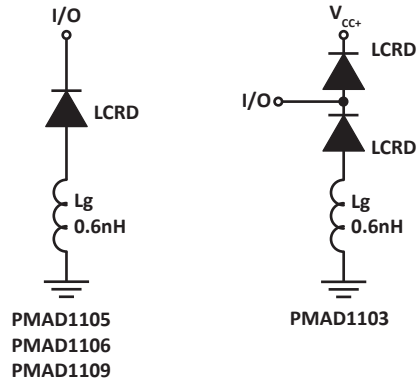
PART NUMBER	REPETITIVE PEAK REVERSE VOLTAGE	MAXIMUM FORWARD PEAK PULSE CURRENT	MAXIMUM FORWARD VOLTAGE	MAXIMUM REVERSE LEAKAGE CURRENT	MAXIMUM CAPACITANCE (Per Diode)
	@ 10 $\mu A$ $V_{RRM}$ VOLTS	@ 8/20 $\mu s$ $I_{FM}$ AMPS	@ 100mA $V_F$ VOLTS	$V_{RRM}$ @ 40V $I_R$ $\mu A$	@ 4V, 1MHz $C_J$ pF
PMAD1103	50	40	1.2	0.1	5
PMAD1105	50	40	1.2	0.1	5
PMAD1106	50	40	1.2	0.1	5
PMAD1109	50	40	1.2	0.1	5

FIGURE 1  
PULSE WAVE FORM



## SPICE MODEL

FIGURE 1  
SPICE MODEL



LCRD - Low Capacitance Rectifier Diode  
Lg - Lead Inductance

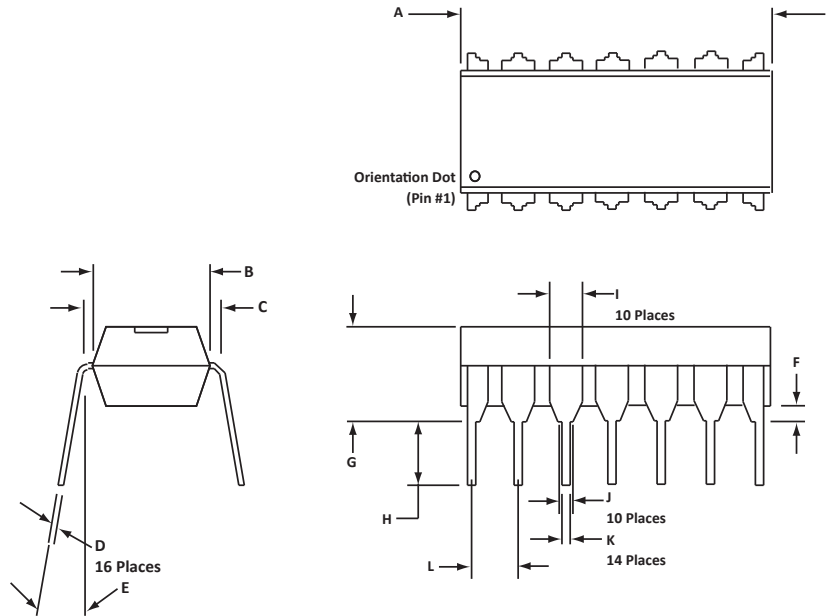
TABLE 1 - SPICE PARAMETERS		
PARAMETER	UNIT	LCRD
BV	V	200
IBV	$\mu\text{A}$	0.01
$C_{jo}$	pF	5
$I_s$	A	1E-13
Vj	V	0.6
M	-	0.33
N	-	1
$R_s$	Ohms	0.31
TT	s	1E-9
EG	eV	1.11

## 14 PIN DIP PACKAGE INFORMATION

OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	18.16	19.56	0.715	0.770
B	6.10	6.60	0.240	0.260
C	7.37	7.87	0.290	0.310
D	0.20	0.38	0.008	0.015
E	0°	10°	0°	10°
F	0.38	1.01	0.015	0.039
G	3.69	4.69	0.145	0.185
H	2.92	3.43	0.115	0.135
I	1.02	1.78	0.040	0.070
J	1.32	2.41	0.052	0.095
K	0.38	0.53	0.015	0.021
L	2.54		0.100	

**NOTES**

- Dimensions are exclusive of mold flash and metal burrs.
- Dimension "L" is between centers.



## ORDERING INFORMATION

BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PMADxxxx	-LF	n/a	n/a	n/a	25

## NOTES

- Marking on Part - logo, part number, date code and pin one defined by dot on top of package.
- This series is only available in a lead-free configuration.

Package outline per document number 06002.R4 10/11.

## COMPANY INFORMATION

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### COMPANY PROFILE

In business more than 20 years, ProTek Devices™ is a privately-held company located in Tempe, Arizona, that offers a product line of transient voltage suppressors (TVS); avalanche breakdown diodes; steering diode TVS arrays and other surge suppressor component products. These TVS devices protect electronic systems from the effects of lightning, electrostatic discharge (ESD), nuclear electromagnetic pulses (NEMP), inductive switching and EMI / RFI. ProTek Devices also offers high performance interface and linear products that include analog switches; multiplexers; LED drivers; audio control ICs; RF and related high frequency products. The analog devices work in a host of consumer; industrial; automotive and other applications.

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