

ULTRA LOW CAPACITANCE MULTI-LINE STEERING DIODE ARRAY



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, 8/20μs 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 < 0.1μA
- Ultra Low Capacitance: 5pF per Diode
- RoHS Compliant
- REACH Compliant

MECHANICAL CHARACTERISTICS

- Molded 14 Pin Dual-In-Line (DIP) Package
- Approximate Weight: 1.2 grams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:

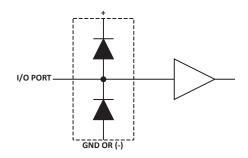
Pure-Tin - Sn, 100: 260-270°C

• Flammability Rating UL 94V-0

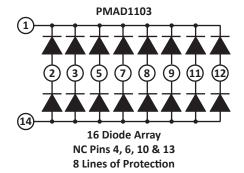
APPLICATIONS

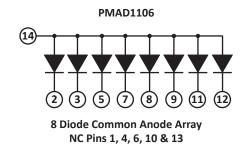
- High Frequency Data Lines
- RS-232 & RS-422 Interface Networks
- Ethernet 10/100 Base T
- Computer I/O Ports

CIRCUIT DIAGRAM

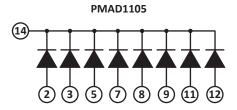


PIN IDENTIFICATION AND CONFIGURATION

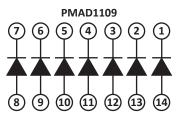




8 Lines of Protection



8 Diode Common Cathode Array NC Pins 1, 4, 6, 10 & 13 8 Lines of Protection

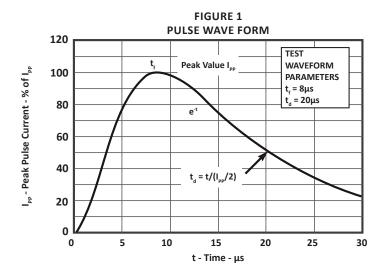


7 Isolated Diode Array (Independent) 7 Lines of Protection

TYPICAL DEVICE CHARACTERISTICS

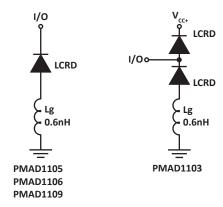
MAXIMUM RATINGS @ 25°C Unless Otherwise Specified				
PARAMETER	SYMBOL	VALUE	UNITS	
Continuous Power Dissipation	P _{PK}	500	Milliwatts	
Continuous Forward Current (Single Diode)	I _P	400	mA	
Repetitive Peak Forward Current @ tp = 5μs, F = 50kHz	I _{FRM}	700	mA	
Operating Temperature	T _A	-55 to 150	°C	
Storage Temperature	T _{stg}	-55 to 150	°C	

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified					
PART NUMBER	REPETITIVE PEAK REVERSE VOLTAGE @ 10µA V RRM VOLTS	MAXIMUM FORWARD PEAK PULSE CURRENT @ 8/20µs I FM AMPS	MAXIMUM FORWARD VOLTAGE @ 100mA V _F VOLTS	MAXIMUM REVERSE LEAKAGE CURRENT V _{RRM} @ 40V I _R μΑ	MAXIMUM CAPACITANCE (Per Diode) @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



SPICE MODEL

FIGURE 1 SPICE MODEL



LCRD - Low Capacitance Rectifier Diode Lg - Lead Inductance

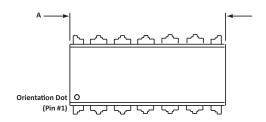
TABLE 1 - SPICE PARAMETERS				
PARAMETER	UNIT	LCRD		
BV	V	200		
IBV	μΑ	0.01		
C _{jo}	pF	5		
I _s	А	1E-13		
Vj	V	0.6		
М	-	0.33		
N	-	1		
R _s	Ohms	0.31		
TT	s 1E-9			
EG	EG eV 1.11			

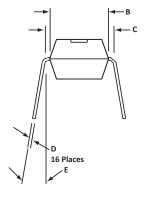
14 PIN DIP PACKAGE INFORMATION

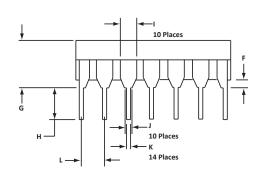
OUTLINE DIMENSIONS				
MILLIMETERS		INCHES		
MIN	MAX	MIN	MAX	
18.16	19.56	0.715	0.770	
6.10	6.60	0.240	0.260	
7.37	7.87	0.290	0.310	
0.20	0.38	0.008	0.015	
0°	10°	0°	10°	
0.38	1.01	0.015	0.039	
3.69	4.69	0.145	0.185	
2.92	3.43	0.115	0.135	
1.02	1.78	0.040	0.070	
1.32	2.41	0.052	0.095	
0.38	0.53	0.015	0.021	
2.54		0.100		
	MILLIN MIN 18.16 6.10 7.37 0.20 0° 0.38 3.69 2.92 1.02 1.32 0.38	MILLIMETERS MIN MAX 18.16 19.56 6.10 6.60 7.37 7.87 0.20 0.38 0° 10° 0.38 1.01 3.69 4.69 2.92 3.43 1.02 1.78 1.32 2.41 0.38 0.53	MILLIMETERS INC MIN MAX MIN 18.16 19.56 0.715 6.10 6.60 0.240 7.37 7.87 0.290 0.20 0.38 0.008 0° 10° 0° 0.38 1.01 0.015 3.69 4.69 0.145 2.92 3.43 0.115 1.02 1.78 0.040 1.32 2.41 0.052 0.38 0.53 0.015	



- 1. Dimensions are exclusive of mold flash and metal burrs.
- 2. 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

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

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



COMPANY INFORMATION

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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