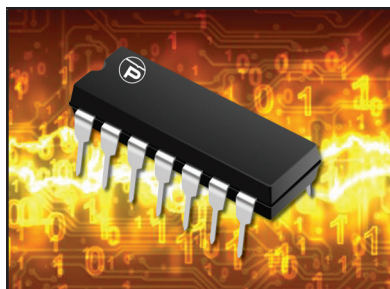


ULTRA LOW CAPACITANCE MULTI-LINE STEERING DIODE ARRAY



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

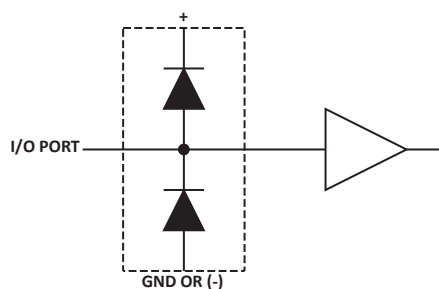
APPLICATIONS

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

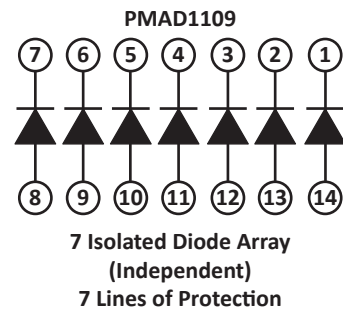
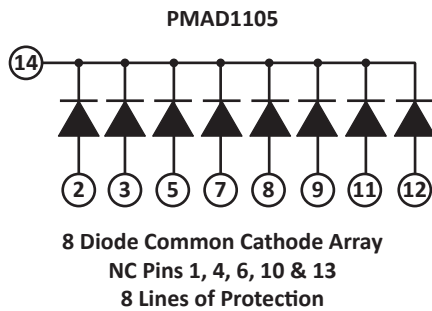
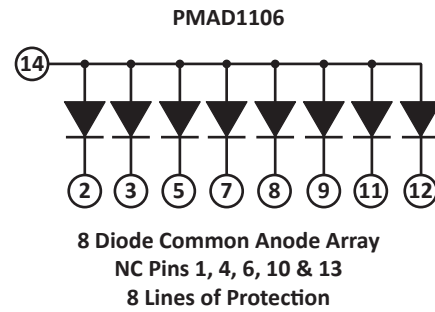
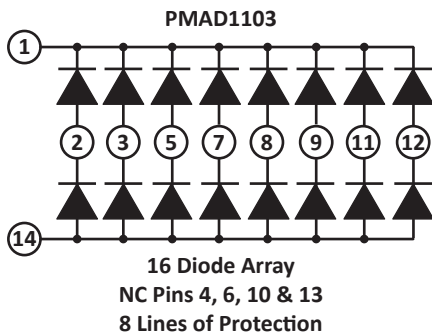
MECHANICAL CHARACTERISTICS

- 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

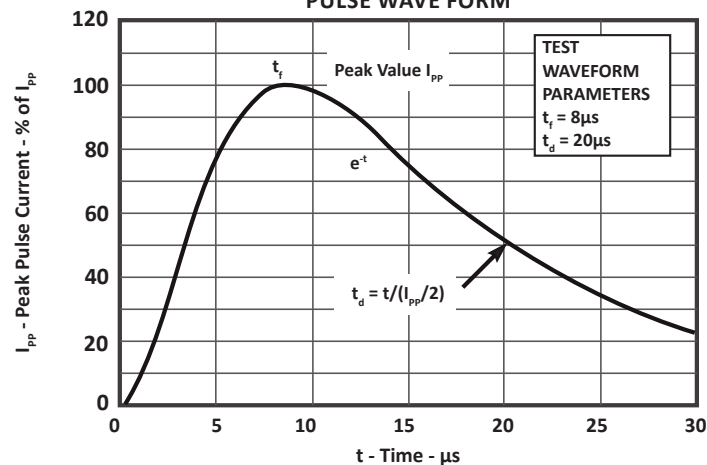
MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

| 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 |

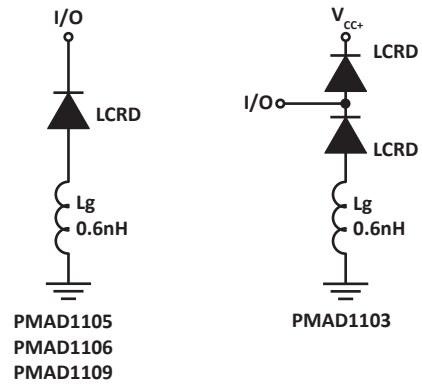
ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

| PART NUMBER | REPETITIVE PEAK REVERSE VOLTAGE @ 10 μA V_{RRM} VOLTS | MAXIMUM FORWARD PEAK PULSE CURRENT @ 8/20 μs I_{FM} AMPS | MAXIMUM FORWARD VOLTAGE @ 100mA V_F VOLTS | MAXIMUM REVERSE LEAKAGE CURRENT V_{RRM} @ 40V I_R μA | 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 |

FIGURE 1
PULSE WAVE FORM



SPICE MODEL

FIGURE 1
SPICE MODEL


LCRD - Low Capacitance Rectifier Diode
 Lg - Lead Inductance

TABLE 1 - SPICE PARAMETERS

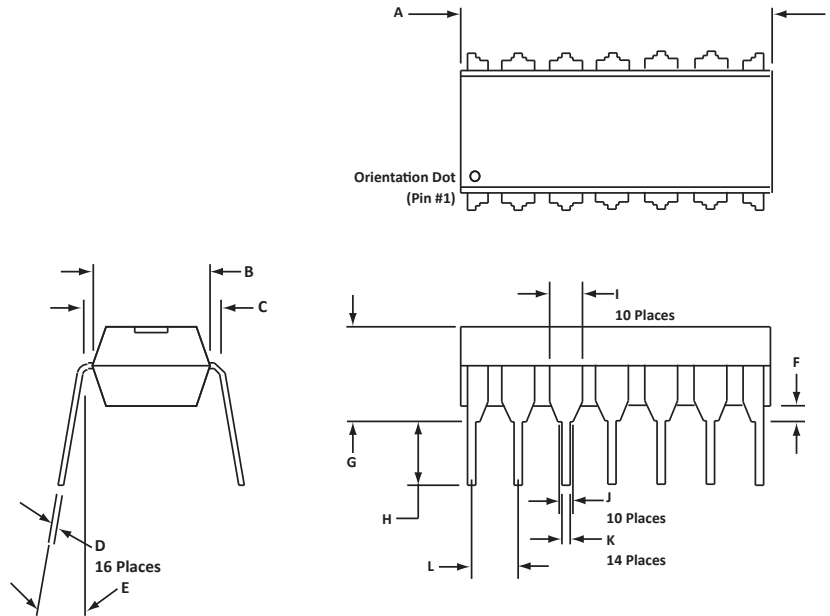
| PARAMETER | UNIT | LCRD |
|-----------------|---------|-------|
| BV | V | 200 |
| IBV | μ A | 0.01 |
| C _{jo} | pF | 5 |
| I _s | A | 1E-13 |
| Vj | V | 0.6 |
| M | - | 0.33 |
| N | - | 1 |
| R _s | Ohms | 0.31 |
| TT | s | 1E-9 |
| EG | eV | 1.11 |

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.

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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