

## PRINTED CIRCUIT SERIES SPECIFICATIONS

### AC Power: MP and P Series

The MP Series packaging is designed with a minimum footprint to allow maximum relay density on the printed circuit board.  
The P Series power relays provide low-profile for 0.5-inch (12.7 mm)

center mounting on printed circuit boards.  
Operating temperature: -40 °C to 100 °C. (Ambient temperature will affect the current rating.)

|  | MP120D2<br>or P120D2                 | MP120D4<br>or P120D4                   | MP240D2<br>or P240D2                  | MP240D4<br>or P240D4                    | MP380D4                                 |
|--|--------------------------------------|--|---------------------------------------|---|---|
| Nominal AC Line Voltage                | 120                                  | 120                                    | 240                                   | 240                                     | 380                                     |
| Nominal Current Rating (Amps)          | 2*                                   | 4*                                     | 2*                                    | 4*                                      | 4*                                      |
| 1 cycle Surge (Amps) Peak              | 20                                   | 85                                     | 20                                    | 85                                      | 85                                      |
| Nominal Signal Input Resistance (Ohms) | 1000                                 | 1000                                   | 1000                                  | 1000                                    | 1000                                    |
| Signal Pick-up Voltage                 | 3VDC****<br>(24V allowed)            | 3VDC****<br>(24V allowed)              | 3VDC****<br>(24V allowed)             | 3VDC****<br>(24V allowed)               | 3VDC****<br>(24V allowed)               |
| Signal Drop-out Voltage                | 1 VDC                                | 1 VDC                                  | 1 VDC                                 | 1 VDC                                   | 1 VDC                                   |
| Peak Repetitive Voltage Maximum        | 600                                  | 600                                    | 600                                   | 600                                     | 800                                     |
| Maximum Output Voltage Drop            | 1.6 volts                            | 1.6 volts                              | 1.6 volts                             | 1.6 volts                               | 1.6 volts                               |
| Off-State Leakage mA Maximum**         | 5 mA                                 | 5 mA                                   | 5 mA                                  | 5 mA                                    | 5 mA                                    |
| Operating Voltage Range (Volts AC)     | 12-140                               | 12-140                                 | 24-280                                | 24-280                                  | 24-420                                  |
| I <sup>2</sup> t Rating t=8.3 (ms)     | 2                                    | 30                                     | 2                                     | 30                                      | 30                                      |
| Isolation Voltage                      | 4,000 V <sub>RMS</sub>               | 4,000 V <sub>RMS</sub>                 | 4,000 V <sub>RMS</sub>                | 4,000 V <sub>RMS</sub>                  | 4,000 V <sub>RMS</sub>                  |
| θ <sub>jc</sub> *** °C/Watt            | 20                                   | 6.5                                    | 20                                    | 6.5                                     | 6.5                                     |
| Dissipation Watts/Amp                  | 1.2                                  | 1.2                                    | 1.2                                   | 1.2                                     | 1.2                                     |
| Rating (Motor Load)                    | 1 FLA at 120 VAC<br>6 LRA at 120 VAC | 2.5 FLA at 240 VAC<br>6 LRA at 240 VAC | 1 FLA at 120 VAC<br>15 LRA at 120 VAC | 2.5 FLA at 240 VAC<br>15 LRA at 240 VAC | 2.5 FLA at 380 VAC<br>15 LRA at 380 VAC |

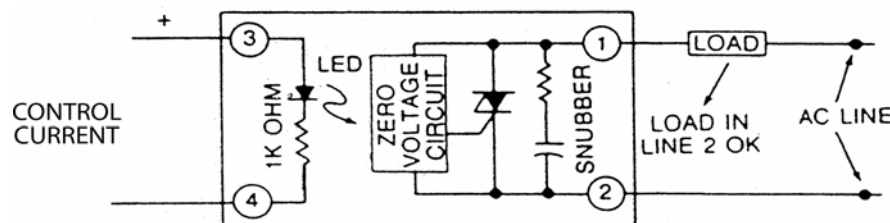
**Notes:** \* Ambient temperature will affect the current rating. For details, see the Thermal Ratings chart.

\*\* Operating Frequency: 25 to 65 Hz (operates at 400 Hz with 6 times the offstate leakage)

\*\*\* θ<sub>jc</sub> = Thermal resistance from internal junction to base. Maximum internal junction temperature is 110 °C.

\*\*\*\* = P Series 32 volts maximum.

### Connection Diagram



*NOTE: Part numbers ending in -17 are replacement parts only. Their specifications are identical to the same part number without the -17. For example, P240D4-17 is identical to P240D4.*

Control Current varies with control voltage. For details, see "Control Current Calculation" on page 17.

## AC Power: MP and P Series (cont.)

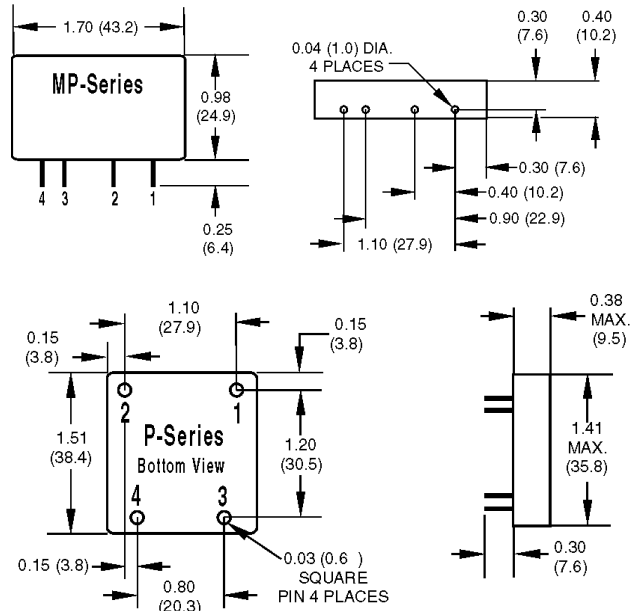
### Surge Current Data

| Time (Seconds) | Time* (Cycles) | 2-Amp Peak Amps | 4-Amp Peak Amps |
|----------------|----------------|-----------------|-----------------|
| 0.017          | 1              | 20              | 85              |
| 0.050          | 3              | 18              | 66              |
| 0.100          | 6              | 15              | 53              |
| 0.200          | 12             | 11              | 45              |
| 0.500          | 30             | 9               | 37              |
| 1              | 60             | 8.5             | 31              |
| 2              | 120            | 8               | 28              |
| 3              | 180            | 7.5             | 27              |
| 4              | 240            | 7               | 26              |
| 5              | 300            | 6.5             | 25              |
| 10             | 600            | 6               | 24              |

Note: \*60 Hz

### Dimensional Drawings

NOTE: All dimensions are nominal.



### Thermal Ratings

Ambient temperature will affect the current rating.

