# PRINTED CIRCUIT SERIES SPECIFICATIONS

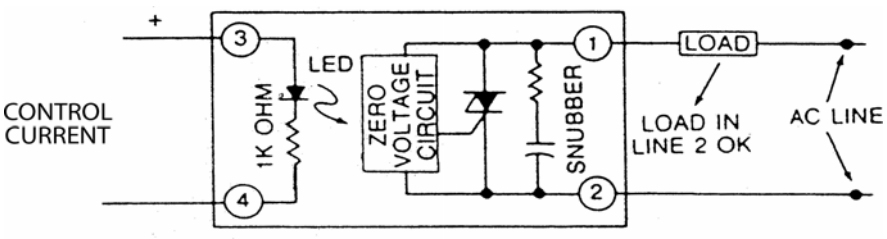
## AC Power: MP and P Series

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 or P120D2 | MP120D4 or P120D4 | MP240D2 or P240D2 | MP240D4 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**** (24V allowed) | 3VDC**** (24V allowed) | 3VDC**** (24V allowed) | 3VDC**** (24V allowed) | 3VDC**** (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 |
| $I^2t$ Rating t=8.3 (ms) | 2 | 30 | 2 | 30 | 30 |
| Isolation Voltage | 4,000 $V_{RMS}$ | 4,000 $V_{RMS}$ | 4,000 $V_{RMS}$ | 4,000 $V_{RMS}$ | 4,000 $V_{RMS}$ |
| θjc*** °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)
*** θjc = 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.)

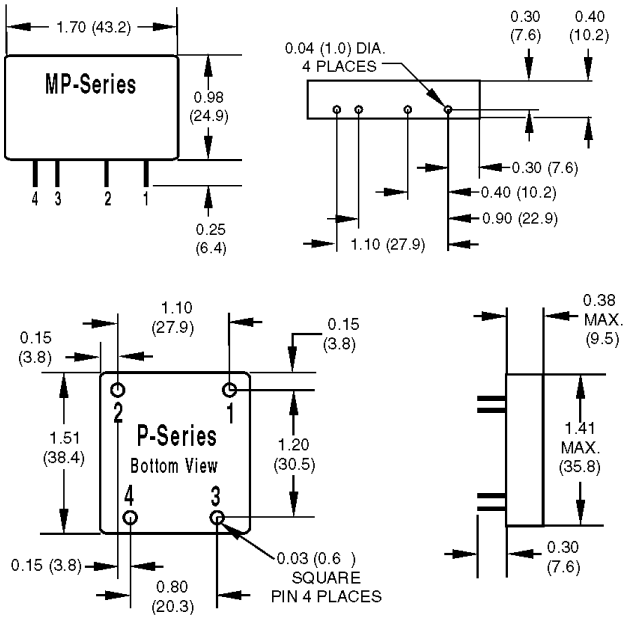
### Surge Current Data

| 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.