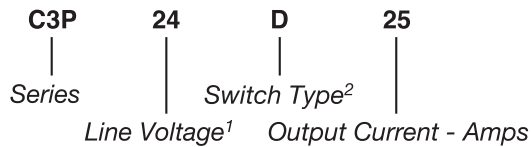


| Part Number | Description |
|-------------|--------------|
| C3P24D25 | 25A, 280 Vac |
| C3P24D25C | 25A, 280 Vac |

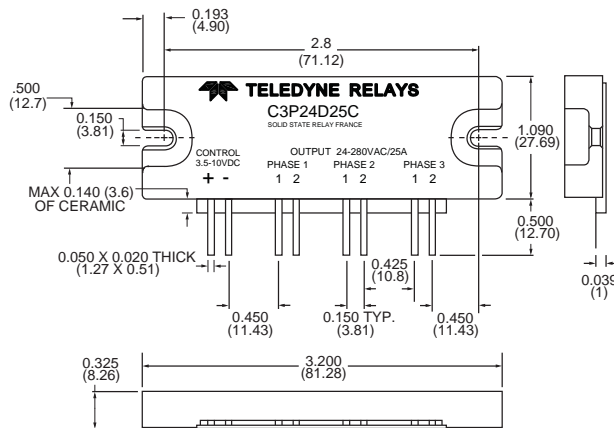
Part Number Explanation



NOTES

- 1) Line Voltage (nominal): 48 = 480 Vac
- 2) Switch Type: D = Zero-cross turn-on
- 3) Thermal Pad: -12 (ex: C3P24D25C-12)

MECHANICAL SPECIFICATION



WEIGHT: 1.093 oz. (31g)

Figure 1 — Dimensions in inches [mm]

INPUT (CONTROL) SPECIFICATION

| | Min | Max | Units |
|--|-----|-----|-------|
| Control Range | | | |
| C3P24D25 | 10 | 30 | Vdc |
| C3P24D25C | 3.5 | 10 | Vdc |
| Input Current Range | | | |
| | 9 | 30 | mA |
| Must Turn-Off Voltage | | | |
| | | 1 | Vdc |
| Input Internal Resistor (Typical) | | | |
| | | 250 | Ω |
| Input Resistance (See Figure 2) | | | |
| Reverse Voltage Protection | | | |
| C3P24D25 | | 30 | Vdc |
| C3P24D25C | | 10 | Vdc |



FEATURES/BENEFITS

- Three-phase solid state relay in a compact SIP package
- High-temperature plastic housing for mechanical ruggedness
- Tight zero-cross window for low EMI
- Exposed ceramic baseplate for reduced thermal resistance

DESCRIPTION

The Series C3P three-phase AC solid-state relays are designed to control medium amounts of power in three-phase applications. Optical isolation ensures complete protection of the C3P's control circuit from load transients. The C3P's compact plastic housing provides a low-cost alternative to large metallic three-phase contactors. The C3P is designed with heatsinking in mind. The ceramic baseplate provides excellent thermal performance. The relay's tight zero-cross window greatly reduces EMI.

APPLICATIONS

- Heating control
- HVAC controls
- Light/Lamp control
- Three-phase AC loads

CONTROL CHARACTERISTIC

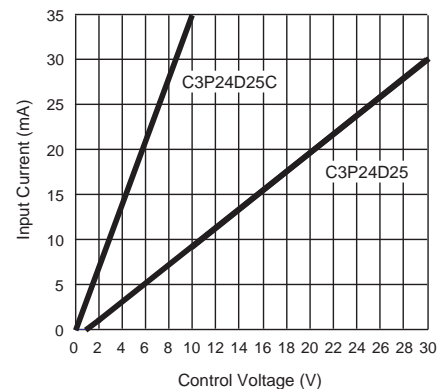


Figure 2

OUTPUT (LOAD) SPECIFICATION

| | Min | Max | Units |
|---|---------------------------|---------|------------------|
| Operating Range | 24 | 280 | Vrms |
| Peak Voltage | | 600 | Vpeak |
| Load Current Range (See Figure 4) | .05 | 25 | Arms |
| Maximum Surge Current Rating (Non-Repetitive) (See Figure 5) | | 250 | A |
| On-State Voltage Drop | $0.81 + (0.018 \times I)$ | | V |
| Zero-Cross Window (Typical) | | ±12 | V |
| Off-State Leakage Current (60 Hz) | | 1 | mA |
| Turn-On Time | | 8.3 | ms |
| Turn-Off Time | | 8.3 | ms |
| Off-State dv/dt | | 500 | V/μs |
| Operating Frequency Range | 47 | 2000(*) | Hz |
| I ² t for Match Fusing (<8.3 ms) | | 260 | A ² S |
| Thermal Resistance (One phase) R _{thj/c} | | | °C/W |
| Junction-Case | | 0.85 | °C/W |

ENVIRONMENTAL SPECIFICATION

| | Min | Max | Units |
|------------------------|------|-----|-------|
| Operating Temperature | -40 | 100 | °C |
| Storage Temperature | -55 | 100 | °C |
| Input-Output Isolation | 2500 | | Vi |
| Output-Case Isolation | 2500 | | Vi |
| Rated Impulse Voltage | 2500 | | V |

BLOCK DIAGRAM

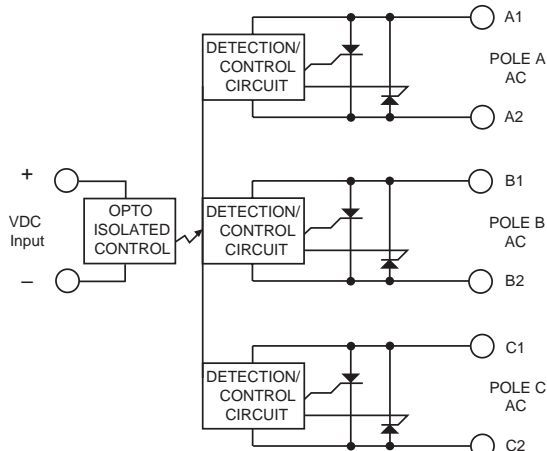


Figure 3

NOTES

1. Electrical specifications at 25 °C unless otherwise specified.
2. See figure 6 for output protection recommendation
3. For additional/custom options, contact factory

THERMAL CHARACTERISTICS

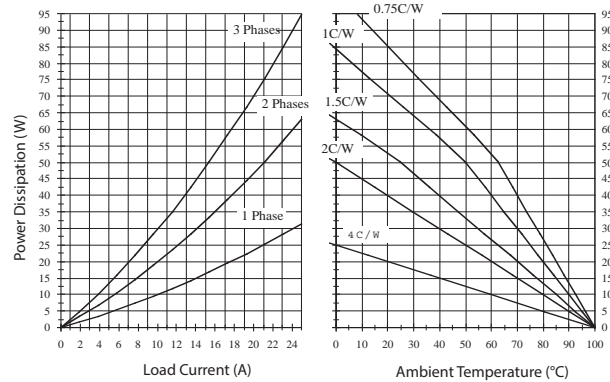


Figure 4

SURGE CURRENT

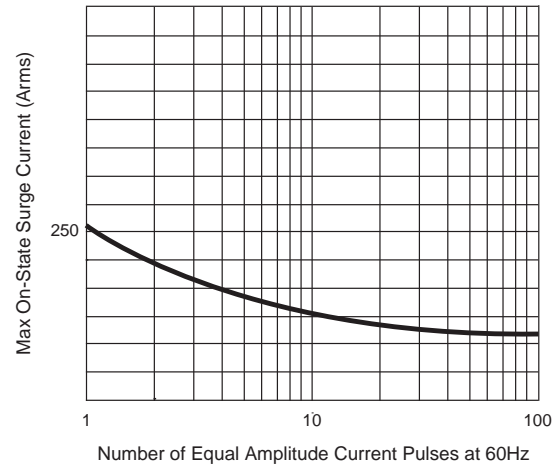


Figure 5

RECOMMENDED OUTPUT VOLTAGE PROTECTION

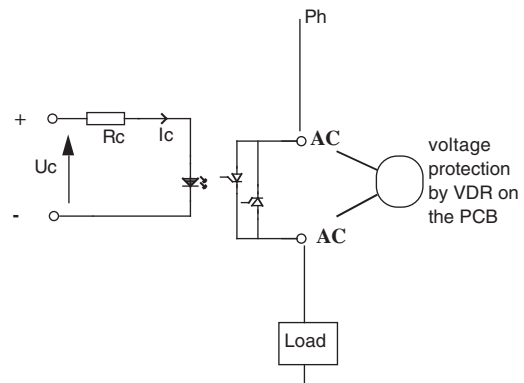


Figure 6

An external Voltage Dependent Resistor (VDR) is recommended in case of voltage spike.

NOTES

(*) Relay built with back-to-back thyristors and high performance optocouplers. Relays have been tested at Teledyne Relays with frequencies higher than 2000 Hz on a resistive load. For other loads the user will have to check functionality in final application.

Mouser Electronics

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