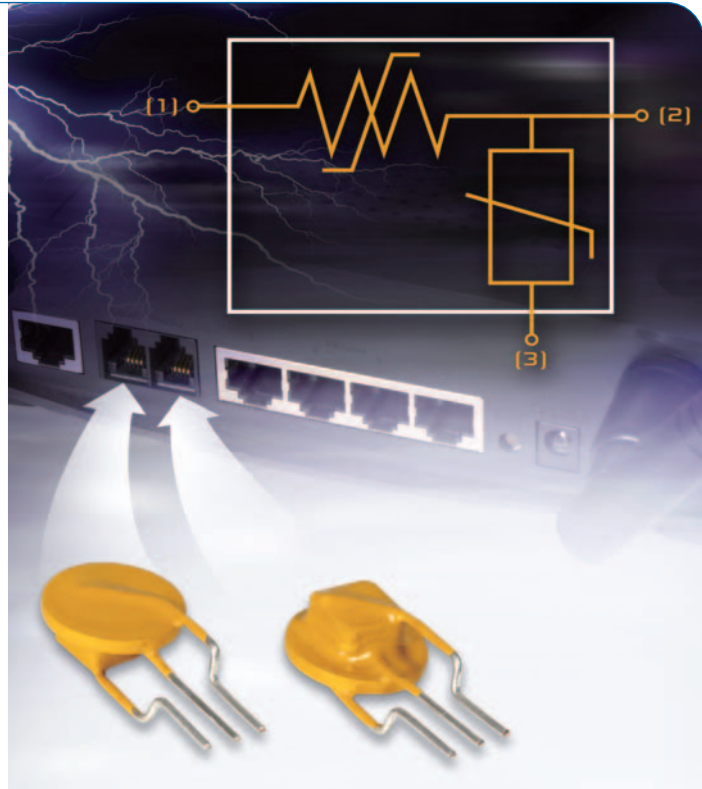


The 2Pro product is an integrated overcurrent/overvoltage protection device. The RoHS-compliant component incorporates PolySwitch PPTC (Polymeric Positive Temperature Coefficient) and metal oxide varistor technology in a single device to help reduce board space requirements and component count.

Damage to telephony communications equipment can be caused by various sources including lightning and ESD surges, power contact and induction with AC lines. The 2Pro TM2P-10271 and TM2P-10271E devices help provide current limiting during overcurrent events, and voltage clamping during overvoltage events. After a fault condition is removed and power is cycled, 2Pro devices will reset so that communications equipment remains operational.

With the introduction of the 2Pro devices Raychem Circuit Protection helps address the need for resettable circuit protection devices for use in cost-sensitive PSTN (Public Switched Telephone Network) and VoIP (Voice over Internet Protocol) telephony equipment. The widespread use of VoIP gateways in homes and enterprise environments as the primary means of voice delivery requires the utmost safety and reliability in equipment. 2Pro circuit protection devices help manufacturers comply with global safety standards, including UL 60950, TIA-968-A, IEC 60950, and ITU-T K.20/K.21. The UL 497A listed protector also helps provide ESD protection.



Benefits:

- Single device helps reduce component count and footprint
- Helps reduce warranty returns
- Helps equipment comply with surge tests per: TIA-968-A, IEC 60950, ITU-T K.20/K.21
- Helps simplify UL 60950 testing
- Helps equipment comply with UL 60950

Features:

- Single overcurrent, overvoltage and ESD protection device
- Resettable overcurrent protection
- UL 497A listed protector (#E258475)
- RoHS compliant

Applications:

- Cordless telephones
- VoIP gateways
- Fax machines
- Data modems
- Set-top boxes
- Security systems
- MDF modules
- Analog and ISDN linecards

Table 2P1 - Electrical Characteristics for 2Pro Devices

Overcurrent (terminals 1 – 2) — Performance ratings @ 20°C

| Part Number | I _{HOLD} (A) | I _{TRIP} (A) | Resistance† (Ω) | | | Time to Trip (s)† @ 1A | |
|--------------|--------------------------|--------------------------|--------------------|--------|---------|---------------------------|-----|
| | | | R min. | R max. | R1 max* | Typ | Max |
| TM2P-10271 | 0.15 | 0.30 | 7.0 | 14.0 | 16.0 | 0.3 | 3 |
| TM2P-10271E‡ | 0.15 | 0.30 | 6.0 | 12.0 | 14.0 | 0.4 | 4 |

Overvoltage (terminals 2 – 3)

| | Varistor Voltage V @ 1mA | | DC Resistance @ 100V (MΩ) | Maximum Clamping Voltage @ 25A (V) | Rated Wattage (W) |
|--------------|-----------------------------|-----------|---------------------------------|--|-------------------------|
| | DC (V) | Tolerance | | | |
| TM2P-10271 | 270 | ± 10% | >10 | 455 | 0.25 |
| TM2P-10271E‡ | 270 | ± 10% | >10 | 455 | 0.25 |

* Maximum device resistance at 20°C measured 1 hour post trip.

† Corresponds to operation below varistor voltages.

‡ Data is preliminary.

Electrical Schematic

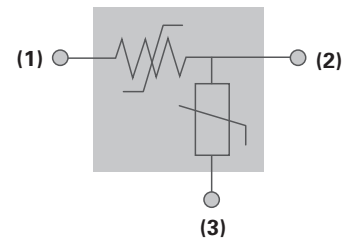


Table 2P2 - Mechanical Dimensions for 2Pro Devices

| | A | | B | | C | | D | | E | F | |
|------|-----|--------|-----|--------|-----|--------|---------|-----|---------|-----|--------|
| | Min | Max | Min | Max | Min | Max | Min | Max | Nom | Min | Max |
| mm | — | 12 | — | 15 | — | 6.6 | 6.0 | — | 2.5 | — | 12 |
| inch | — | (0.47) | — | (0.59) | — | (0.26) | (0.236) | — | (0.098) | — | (0.47) |

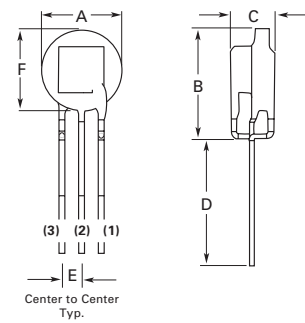


Figure 2P1 - Typical Time-to-Trip at 25°C for 2Pro Devices

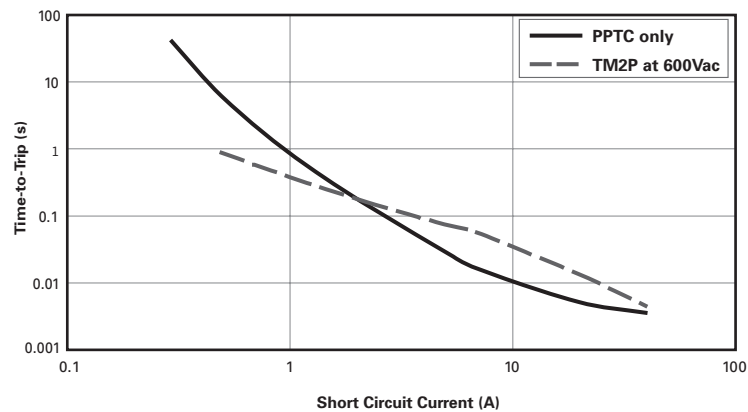


Table 2P3 - Physical Characteristics and Environmental Specifications for 2Pro Devices

Physical Characteristics

| | |
|---------------------------|---|
| Lead material | 22 AWG Sn plated copper |
| Flammability | IEC 695-2-2 Needle flame test for 20s |
| Soldering characteristics | ANSI approved IPC/EIA/JEDEC J-STD-002, Category 3 |
| Solder heat withstand | IEC-STD 68-2-20, Section 5, Test Tb, Method 1A |

Environmental Specifications

| Test | Conditions |
|--------------------|--------------------------------------|
| Passive aging | 60°C, 1000 hours / 85°C, 1000 hours |
| Humidity aging | 85°C, 85% RH, 1000 hours |
| Active aging | 60°C, 90% RH, 60Vdc bias, 1000 hours |
| Thermal shock | 125°C, -55°C (10 times) |
| Solvent resistance | MIL-STD-202, Method 215K |

Note: Storage conditions: 40°C max., 70% RH max., devices should remain in original sealed bag prior to use. Devices may not meet specified values if these storage conditions are exceeded.

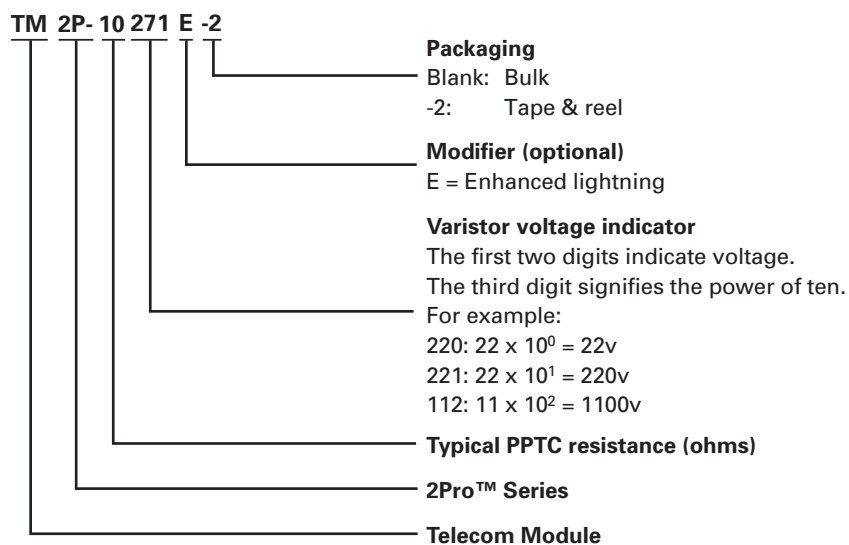
Table 2P4 - Packaging and Marking Information for 2Pro Devices

| Part Number | Bag Quantity | Tape & Reel Quantity | Standard Package | Part Marking | Agency Recognition |
|---------------|--------------|----------------------|------------------|----------------|--------------------------|
| TM2P-10271 | 500 | - | 10,000 | 1027 & Batch # | UL 497A/File No. E258475 |
| TM2P-10271-2 | - | 1,500 | 7,500 | 1027 & Batch # | UL 497A/File No. E258475 |
| TM2P-10271E | 500 | - | 10,000 | 3527 & Batch # | Pending |
| TM2P-10271E-2 | - | 1,500 | 7,500 | 3527 & Batch # | Pending |

Table 2P5 - Ordering Information for 2Pro Devices

| | |
|-------------|---------------------------------------|
| Bulk | 500 pieces/bag 10,000 pieces/box |
| Tape & Reel | 1,500 pieces/reel 7,500 pieces/box |

Part Numbering System for 2Pro Devices



WARNING:

All information, including illustrations, is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their application. Tyco Electronics Corporation makes no warranties as to the accuracy or completeness of the information, and disclaims any liability regarding its use. Tyco Electronics' only obligations are those in the Company's Standard Terms and Conditions of Sale for this product, and in no case will Tyco Electronics be liable for any incidental, indirect, or consequential damages arising from the sale, resale, use, or misuse of the product. Specifications are subject to change without notice. In addition, Tyco Electronics reserves the right to make changes without notification to Buyer—to materials or processing that do not affect compliance with any applicable specification.

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