

## Raychem FT600 Series Overcurrent Fuse

## New surface-mount fuse products for overcurrent protection of communications equipment



## Benefits:

- When combined with a SiBar™ overvoltage protection device, assists equipment in meeting regulatory standards with no additional series components
- Improved temperature rise performance over other similar SMT fuse devices under sneak current testing
- High density placement in multi-port system designs

## Features:

- The lightning robust surface-mount fuse offers overcurrent protection from power faults
- Designed to assist equipment in complying with telecom specifications including UL60950, FCC Part 68, and Telcordia GR-1089
- Small footprint and low resistance
- Low profile

## Target Applications:

- xDSL and ADSL linecards and modems
- T1/E1 systems
- Twisted pair telecom ports requiring Telcordia GR-1089, UL60950 and FCC Part 68 compliance

## Interrupt Voltage and Current Ratings

| Part Number | Ampere Rating (A) | Voltage Rating (V) | Typical Resistance ( $\Omega$ ) | Typical I <sup>2</sup> t (A <sup>2</sup> s)* |
|-------------|-------------------|--------------------|---------------------------------|----------------------------------------------|
| FT600-0500  | 0.50              | 250                | 0.5                             | 1                                            |
| FT600-1250  | 1.25              | 250                | 0.1                             | 16                                           |
| FT600-2000  | 2.00              | 250                | 0.05                            | 18                                           |

The FTxxx devices are designed to carry 100% of rated current for 4 hours minimum and 250% of rated current for 1 second minimum, 120 seconds maximum. Resistance measured at 10% of rated current.

\*It is calculated at 10 ms or less.

Power Cross

|            | GR-1089<br>1000Vac, 5A, 0.5sec | GR-1089<br>600Vac, 60A, 5sec | UL60950<br>600Vac, 40A, 1.5sec | GR-1089/UL60950<br>600Vac, 7A, 5sec | GR-1089/UL60950<br>600Vac, 2.2A, 30min | GR-1089<br>277Vac, 25A, 15min | UL60950<br>120Vac, 25A, 30min |
|------------|--------------------------------|------------------------------|--------------------------------|-------------------------------------|----------------------------------------|-------------------------------|-------------------------------|
| FT600-0500 |                                |                              | ✓                              | ✓                                   | ✓                                      | ✓                             | ✓                             |
| FT600-1250 | ✓                              | ✓                            | ✓                              | ✓                                   | ✓                                      | ✓                             | ✓                             |
| FT600-2000 | ✓                              | ✓                            | ✓                              | ✓                                   | ✓                                      | ✓                             | ✓                             |

Note: FT600-1250 and FT600-2000 are designed to assist equipment in complying with Telcordia GR-1089 specifications. In-circuit testing is strongly recommended.

Lightning Surge

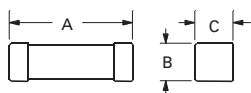
| Telcordia GR-1089           | First Level Test 1 | First Level Test 2 | First Level Test 3 | First Level Test 4 | First Level Test 5 | Second Level Test 1 |
|-----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------|
| Surge Voltage (Vpk)         | 600                | 1000               | 1000               | 2500               | 1000               | 5000                |
| Wave Form ( $\mu$ s)        | 10x1000            | 10x360             | 10x1000            | 2x10               | 10x360             | 2x10                |
| Surge Current (A)           | 100                | 100                | 100                | 500                | 25                 | 500                 |
| Repetitions (each polarity) | 25                 | 25                 | 25                 | 10                 | 5                  | 1                   |
| FT600-0500                  |                    |                    |                    |                    |                    |                     |
| FT600-1250                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                   |
| FT600-2000                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                   |

| FCC Part 68                        | Type A Metallic | Type A Longitudinal | Type B Metallic | Type B Longitudinal |
|------------------------------------|-----------------|---------------------|-----------------|---------------------|
| Surge Voltage (Vpk)                | 800             | 1500                | 1000            | 1500                |
| Short Circuit Wave Form ( $\mu$ s) | 10x560          | 10x160              | 5x320           | 5x320               |
| Surge Current (A)                  | 100             | 200                 | 25              | 37.5                |
| Repetitions (each polarity)        | 1               | 1                   | 1               | 1                   |
| FT600-0500                         | Fuse open       | Fuse open           | ✓               | ✓                   |
| FT600-1250                         | ✓               | ✓                   | ✓               | ✓                   |
| FT600-2000                         | ✓               | ✓                   | ✓               | ✓                   |

The FT600-0500, FT600-1250 and FT600-2000 are designed to meet the FCC Part 68 lightning surge requirements. Note that Type A tests allow for an overcurrent protection component to fuse open during the surge.

## Product Dimensions



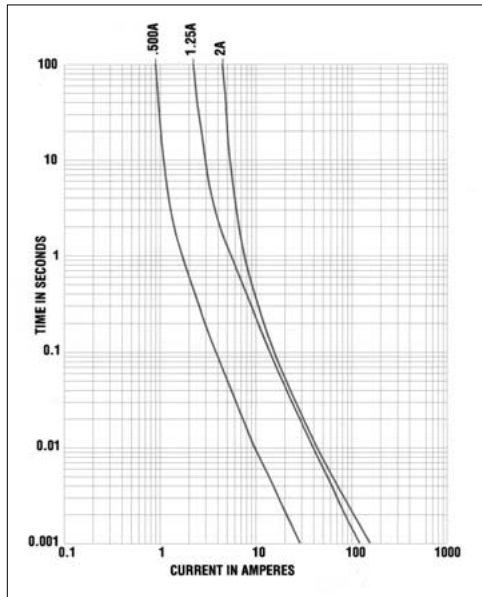
## Dimensions in millimeters (inches)

| A (Max.)     | B (Max.)    | C (Max.)    |
|--------------|-------------|-------------|
| 10.5 (0.413) | 3.4 (0.133) | 3.4 (0.133) |

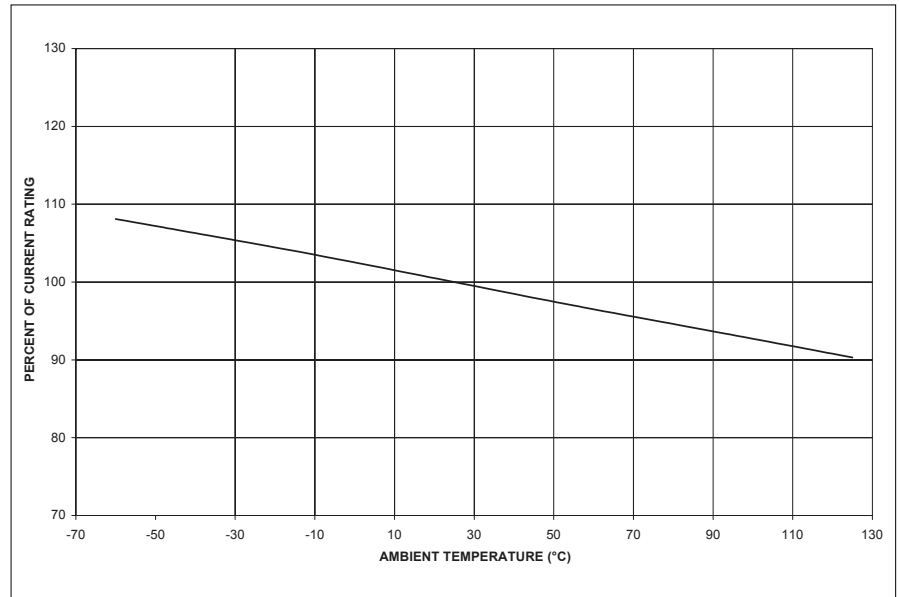
## Details

|                           |                                               |
|---------------------------|-----------------------------------------------|
| Termination material      | Silver-plated brass                           |
| Body material             | Ceramic                                       |
| Termination solderability | Per IEC-60127-4                               |
| Solder heat withstand     | Per MIL-STD-202, Method 210, Test Condition J |
| Solvent resistance        | Per MIL-STD-202F, Method 215J                 |
| Storage temperature       | -40/+85°C                                     |
| Storage humidity          | Per MIL-STD-202F, Method 106F                 |

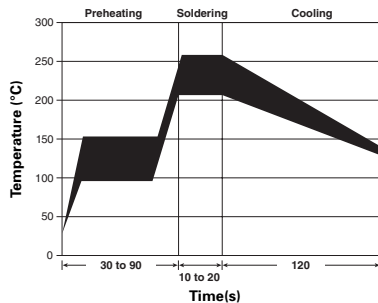
**Typical Time-to-Open Characteristics (at 25° C)**



**Thermal Derating Curve**



**Solder Reflow Recommendations**



**Solder Reflow**

- Recommended reflow methods: IR, vapor phase oven, hot air oven.
- Devices can be cleaned using standard industry methods and solvents.

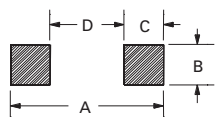
**Ordering Information**

|                  |                                              |
|------------------|----------------------------------------------|
| Part numbers     | FT600-0500-2<br>FT600-1250-2<br>FT600-2000-2 |
| Devices per reel | 2,500/reel                                   |
| Standard package | 10,000/box                                   |

Note: The -2 designates tape and reel, the package style for this product.

**Recommended Pad Layout**

The dimensions in the table below provide the recommended pad layout for each FT600 device.



**Dimensions in millimeters (inches)**

| A            | B           | C           | D           |
|--------------|-------------|-------------|-------------|
| 12.6 (0.496) | 4.0 (0.157) | 3.7 (0.145) | 5.2 (0.204) |

**Agency Recognitions**

|     |                |
|-----|----------------|
| UL  | File # E197536 |
| CSA | Pending        |

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