

Surface Mount Fuse, 10.1 x 3.22 mm, Time-Lag T, Telecom



Telcordia GR-1089 · 600VAC · 125VDC · Time-Lag T



**Description**

- This product is phased-out without alternate Type.
- Directly solderable on printed circuit boards

**Standards**

- IEC 60127-4
- UL 248-14
- CSA C22.2 no. 248.14
- Telcordia GR-1089
- UL 60950 / IEC 60950
- ITU-T K.20 and K.21
- TIA-968-A

**Approvals**

- UL File Number: E41599

**Applications**

- Twisted pair telecom ports requiring Telcordia GR-1089 / TIA-968-A / ITU-T / UL 60950 / IEC 60950 compliance
- see following pages

**References**

[Packaging Details](#)

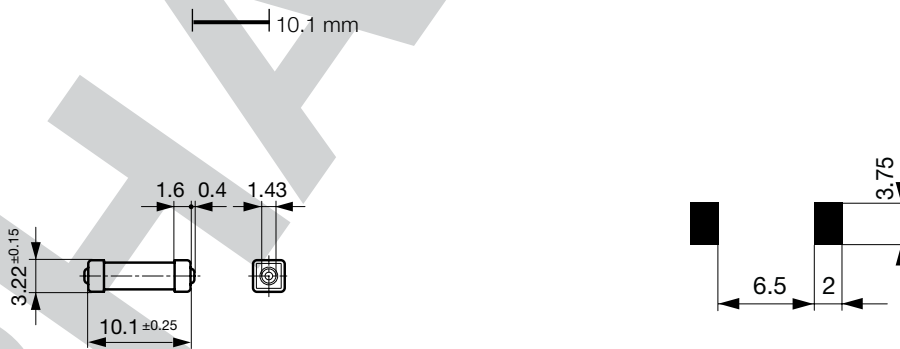
**Weblinks**

[pdf-datasheet](#), [html-datasheet](#), [General Product Information](#), [Approvals](#), [CE declaration of conformity](#), [RoHS](#), [CHINA-RoHS](#), [e-Shop](#), [SCHURTER-Stock-Check](#), [Distributor-Stock-Check](#), [Detailed request for product](#)

**Technical Data**

|                              |                                  |                              |   |
|------------------------------|----------------------------------|------------------------------|---|
| Rated Voltage                | 600VAC, 125VDC                   | Soldering Methods            | Reflow  |
| Rated current                | 0.5 - 2A                         | Solderability                | 245 °C / 3 sec acc. to IEC 60068-2-58, Test Td  |
| Breaking Capacity            | 60A                              | Resistance to Soldering Heat | 260 °C / 10 sec acc. to IEC 60068-2-58, Test Td |
| Characteristic               | Time-Lag T                       | Flammability                 | min. UL 94V-1 (acc. to EIA/IS-722, Test 4.12)   |
| Mounting                     | PCB,SMT                          |                              |   |
| Admissible Ambient Air Temp. | -55 °C to 125 °C                 |                              |   |
| Climatic Category            | 55/125/21 acc. to IEC 60068-1    |                              |   |
| Material: Housing            | Ceramic                          |                              |   |
| Material: Terminals          | Tin-Plated Copper Alloy          |                              |   |
| Unit Weight                  | 0.23 g                           |                              |   |
| Storage Conditions           | 0 °C to 60 °C, max. 70% r.h.     |                              |   |
| Product Marking              | ☐, Type, Current, Characteristic |                              |   |

**Dimensions**



Soldering pads

**Pre-Arcing Time**

| Rated Current I <sub>n</sub> | 1.0 x I <sub>n</sub> min. | 2.5 x I <sub>n</sub> min. | 2.5 x I <sub>n</sub> max |
|------------------------------|---------------------------|---------------------------|--------------------------|
| 0.5 A - 2 A                  | 4 h                       | 1 s                       | 120 s                    |

### Variants

| Mounting | Rated Voltage [VAC] | Voltage Drop 1.0 In typ. [mV] | Cold Resistance typ. [mΩ] | Melting I <sup>2</sup> t 10.0 Intyp. [A <sup>2</sup> s] | Order Number |
|----------|---------------------|-------------------------------|---------------------------|---|--------------|
| PCB      | 600                 | 94                            | 73.2                      | 21.4  | 2000.0011    |
| PCB      | 600                 | 55                            | 27.8                      | 22.3  | 2000.0012    |

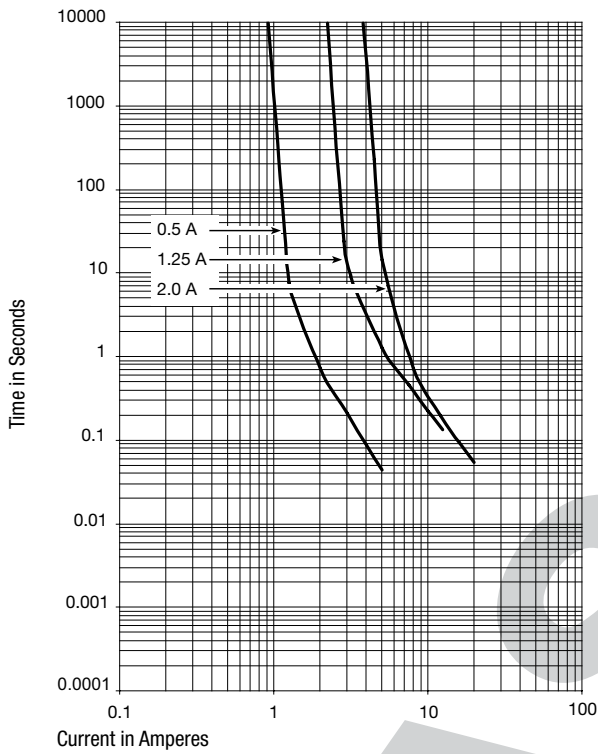
Most Popular. Availability for all products can be searched real-time: <http://www.schurter.com/en/Stock-Check/Stock-Check-SCHURTER>

1) 60 A @ 600 VAC / 60 A @ 125 VDC

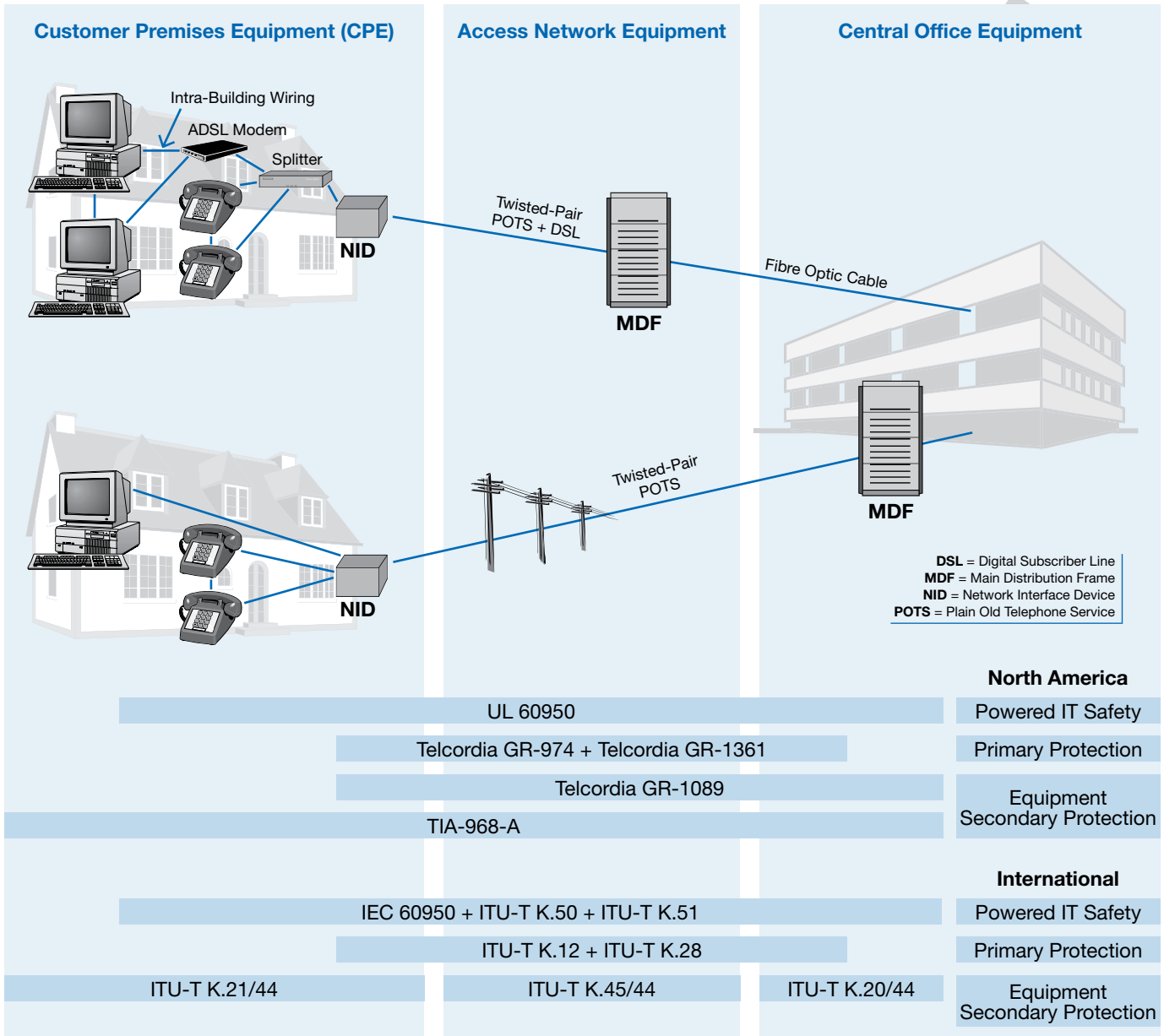
### Packaging Unit

.xx = .11 Plastic Bag (100 pcs.)  
 .xx = .24 Blister Tape 33 cm Reel (2000 pcs.)

### [Kennlinien]



GLOBAL TELECOM STANDARDS



HOW TO SELECT THE RIGHT FUSE-LINK FOR SECONDARY PROTECTION?

1. Select your equipment type
2. Use the Key Device Selection Criteria to determine best suitability for your application

| Application  | Specification   | Key Device Selection Criteria                                 |                            |
|--|---|---|----------------------------|
|  |   | Faster Time-to-Open   | Cooler Surface Temperature |
| <b>Customer Premises Equipment (CPE)</b><br>Modems (Analog, V.90, ISDN, xDSL), ADSL splitters, phone sets, fax machines, answering machines, caller ID, internet appliance, PBX systems, POS terminals | TIA-968-A<br>UL 60950 / IEC 60950<br>ITU-T K.21/44                      | TF 600, 0.5 A (2000.0010.xx)<br>TF 600, 1.25 A (2000.0011.xx) | TF 600, 2 A (2000.0012.xx) |
| <b>Access Network Equipment</b><br>Remote terminals, line repeaters, multiplexers, cross-connects  | Telcordia GR-1089<br>TIA-968-A<br>UL 60950 / IEC 60950<br>ITU-T K.45/44 | TF 600, 1.25 A (2000.0011.xx)                                 | TF 600, 2 A (2000.0012.xx) |
| <b>Central Office Equipment</b><br>Analog linecards (SLIC), ISDN linecards, xDSL modems, ADSL/VDSL splitters, T1/E1 linecards, multiplexers, servers   | Telcordia GR-1089<br>TIA-968-A<br>UL 60950 / IEC 60950<br>ITU-T K.20/44 | TF 600, 1.25 A (2000.0011.xx)                                 | TF 600, 2 A (2000.0012.xx) |

### 3. Use Agency Specification based on the requirement

#### Lighting Surge Specifications

Surges are short-duration increases in system voltage due to external events, such as lightning

| Telcordia<br>GR-1089        | First Level<br>Test 1 | First Level<br>Test 2 | First Level<br>Test 3 | First Level<br>Test 4 | First Level<br>Test 5 | Second Level<br>Test 1 |
|-----------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|
| Surge Voltage [V]           | 600                   | 1000                  | 1000                  | 2500                  | 1000                  | 6000                   |
| Surge Current [A]           | 100                   | 100                   | 100                   | 500                   | 25                    | 500                    |
| Waveform [us]               | 10x1000               | 10x360                | 10x1000               | 2x10                  | 10x360                | 2x10                   |
| Repetitions [each polarity] | 25                    | 25                    | 25                    | 10                    | 5                     | 1                      |
| 2000.0010.xx, 0.5 A         | *                     | *                     | *                     | *                     | ✓                     |                        |
| 2000.0011.xx, 1.25 A        | ✓                     | ✓                     | ✓                     | ✓                     | ✓                     | ✓                      |
| 2000.0012.xx, 2.0 A         | ✓                     | ✓                     | ✓                     | ✓                     | ✓                     | ✓                      |

■ Equipment under test can not be damaged & must continue to operate properly

\* If sufficient series resistance is used, the 0.5 A fuse may pass Test 1-4

| TIA-968-A<br>(former FCC Part 68) | Type A<br>Metallic | Type A<br>Longitudinal | Type B<br>Metallic | Type B<br>Longitudinal |
|-----------------------------------|--------------------|------------------------|--------------------|------------------------|
| Surge Voltage [V]                 | 800                | 1500                   | 1000               | 1500                   |
| Surge Current [A]                 | 100                | 200                    | 25                 | 37.5                   |
| Waveform [us]                     | 10x560             | 10x160                 | 5x320              | 5x320                  |
| Repetitions [each polarity]       | 1                  | 1                      | 1                  | 1                      |
| 2000.0010.xx, 0.5 A               | Fuse open          | Fuse open              | ✓                  | ✓                      |
| 2000.0011.xx, 1.25 A              | ✓                  | ✓                      | ✓                  | ✓                      |
| 2000.0012.xx, 2.0 A               | ✓                  | ✓                      | ✓                  | ✓                      |

■ Fuse can not open during type B events

| ITU-T K.20                  | Test   |
|-----------------------------|--------|
| Surge Voltage [V]           | 1000   |
| Surge Current [A]           | 67     |
| Waveform [us]               | 10x700 |
| Repetitions [each polarity] | 10     |
| 2000.0010.xx, 0.5 A         | 26 A*  |
| 2000.0011.xx, 1.25 A        | ✓      |
| 2000.0012.xx, 2.0 A         | ✓      |

■ Fuse does not open during test

\* If sufficient series resistance is used, the 0.5 A fuse may pass

#### Power Cross Specifications

A power-cross is an instance where a high-voltage circuit is inadvertently connected to a low-voltage circuit; for example, a power line can fall onto a telephone line during a storm initiating a power-cross event.

| Telcordia<br>GR-1089 | First Level<br>Test 1 | First Level<br>Test 2 | First Level<br>Test 3 | First Level<br>Test 4 | First Level<br>Test 5 | First Level<br>Test 6 | First Level<br>Test 7 | First Level<br>Test 8 | First Level<br>Test 9 |
|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Voltage [Vrms]       | 50                    | 100                   | 200, 400, 600         | 1000                  | see GR-1089           | 600                   | 440                   | 600                   | 1000                  |
| Overload Current [A] | 0.33                  | 0.17                  | 1                     | 1                     |                       | 0.5                   | 2.2                   | 3                     | 5                     |
| Duration             | 15 min.               | 15 min.               | 60x1 s                | 60x1 s                | 60x5 s                | 30 s                  | 5x2 s                 | 1.1 s                 | 0.5 s                 |
| 2000.0010.xx, 0.5 A  |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| 2000.0011.xx, 1.25 A | ✓                     | ✓                     | ✓                     | ✓                     | ✓                     | ✓                     | ✓                     | ✓                     | ✓                     |
| 2000.0012.xx, 2.0 A  | ✓                     | ✓                     | ✓                     | ✓                     | ✓                     | ✓                     | ✓                     | ✓                     | ✓                     |

■ Fuse not allowed to open

| Telcordia<br>GR-1089 | Second Level<br>Test 1 | Second Level<br>Test 2 | Second Level<br>Test 3 | Second Level<br>Test 4 | Second Level<br>Test 5 |
|----------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Voltage [Vrms]       | 120, 277               | 600                    | 600                    | 100-600                | see GR-1089            |
| Overload Current [A] | 25                     | 60                     | 7                      | 2.2                    |                        |
| Duration             | 15 min.                | 5 s                    | 5 s                    | 15 min.                | 15 min.                |
| 2000.0010.xx, 0.5 A  | ✓                      | ✓                      | ✓                      | ✓                      | ✓                      |
| 2000.0011.xx, 1.25 A | ✓                      | ✓                      | ✓                      | ✓*                     | ✓                      |
| 2000.0012.xx, 2.0 A  | ✓                      | ✓                      | ✓                      | ✓*                     | ✓                      |

■ Fuse opens in a safe and controlled manner before wiring simulator fuse (MDL 2.0)

\* Fuse does not open during test

| ITU-T K.20           | Power<br>Induction | Power<br>Contact |
|----------------------|--------------------|------------------|
| Voltage [Vrms]       | 300                | 250              |
| Current [A]          | 0.5                | 60               |
| Duration             | 200 ms             | 15 min.          |
| Repetitions          | 5                  | 1                |
| 2000.0010.xx, 0.5 A  | ✓                  | ✓*               |
| 2000.0011.xx, 1.25 A | ✓                  | ✓*               |
| 2000.0012.xx, 2.0 A  | ✓                  | ✓*               |

■ Fuse does not open during test

\* Fuse opens during test

| UL 60950<br>IEC 60950 | Longitudinal<br>Test 1 | Longitudinal<br>Test 2 | Longitudinal<br>Test 3 | Longitudinal<br>Test 4 | Longitudinal<br>Test 5 | Metallic<br>Test 1 | Metallic<br>Test 2 | Metallic<br>Test 3 | Metallic<br>Test 4 |
|-----------------------|------------------------|------------------------|------------------------|------------------------|------------------------|--------------------|--------------------|--------------------|--------------------|
| Voltage [V]           | 600                    | 600                    | 600                    | 200                    | 120                    | 600                | 600                | 600                | 600                |
| Current [A]           | 40                     | 7                      | 2.2                    | 2.2                    | 25                     | 40                 | 7                  | 2.2                | 2.2                |
| Time                  | 1.5 s                  | 5 s                    | 30 min.                | 30 min.                | 30 min.                | 1.5 s              | 5 s                | 30 min.            | 30 min.            |
| 2000.0010.xx, 0.5 A   | ✓                      | ✓                      | ✓                      | ✓                      | ✓                      | ✓                  | ✓                  | ✓                  | ✓                  |
| 2000.0011.xx, 1.25 A  | ✓                      | ✓                      | ✓*                     | ✓*                     | ✓                      | ✓                  | ✓                  | ✓*                 | ✓*                 |
| 2000.0012.xx, 2.0 A   | ✓                      | ✓                      | ✓*                     | ✓*                     | ✓                      | ✓                  | ✓                  | ✓*                 | ✓*                 |

■ Fuse opens in a safe and controlled manner before wiring simulator fuse (MDL 2.0)

\* Fuse does not open during test