

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



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

**Description**

- 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

[General Product Information](#)
[Packaging Details](#)

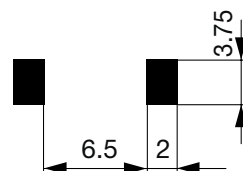
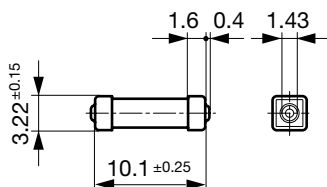
Weblinks

[Approvals](#), [RoHS](#), [CHINA-RoHS](#), [e-Store](#), [Distributor-Stock-Check](#),
[Accessories](#), [Product Change Notification \(PCN\)](#)

Technical Data

Rated Voltage	600VAC, 125VDC
Rated Current	0.5 - 2A
Breaking Capacity	60A
Characteristic	Time-Lag T
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

Soldering Methods	Reflow
Solderability	245 °C / 3sec acc. to IEC 60068-2-58, Test Td
Resistance to Soldering Heat	260 °C / 10sec acc. to IEC 60068-2-58, Test Td
Flammability	min. UL 94V-1 (acc. to EIA/IS-722, Test 4.12)

Dimensions
 10.1 mm


Soldering pads

Pre-Arcing Time

Rated Current In	1.0 x In min.	2.5 x In min.	2.5 x In max
0.5 A - 2 A	4 h	1 s	120 s

Variants

Rated Current [A]	Rated Voltage [VAC]	Voltage Drop 1.0 In typ. [mV]	Cold Resistance typ. [$m\Omega$]	Melting I ² t 10.0 Intyp. [A ² s]	Order Number
0.5	600	107	210	1.14	2000.0010
1.25	600	94	73.2	21.4	2000.0011
2	600	55	27.8	22.3	2000.0012

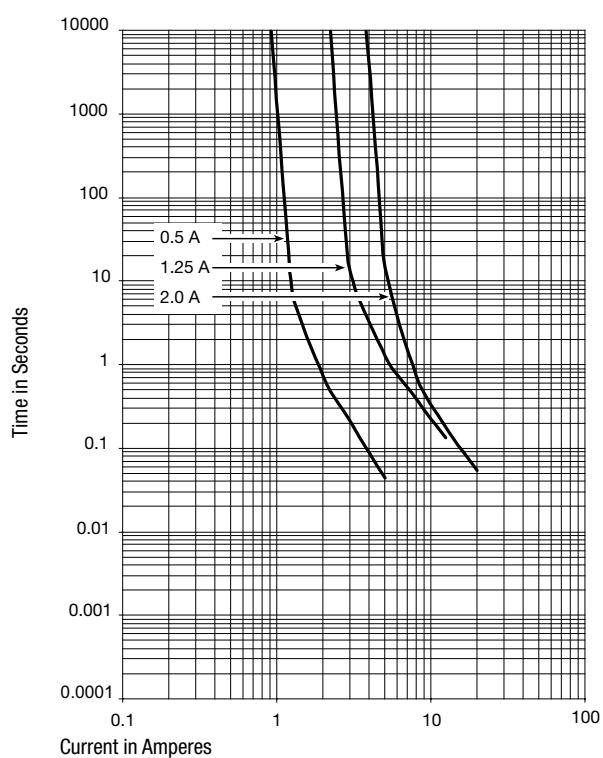
1) 60 A @ 600 VAC / 60 A @ 125 VDC

Packaging Unit

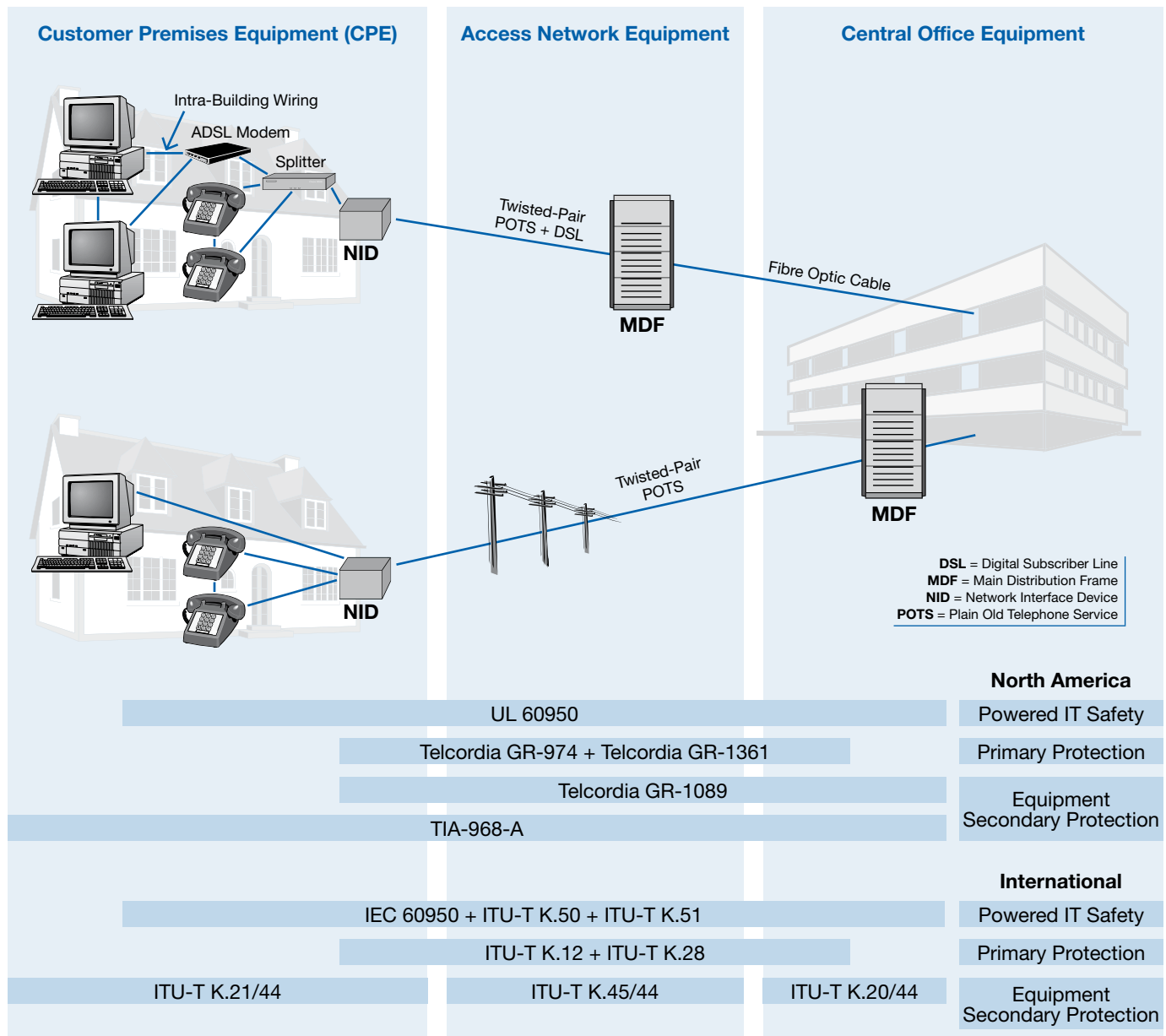
.xx = .11 Plastic Bag (100 pcs.)

.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
Customer Premises Equipment (CPE) 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	TF 600, 0.5 A (2000.0010.xx)	TF 600, 2 A (2000.0012.xx)
	UL 60950 / IEC 60950	TF 600, 1.25 A (2000.0011.xx)	
	ITU-T K.21/44		
Access Network Equipment Remote terminals, line repeaters, multiplexers, cross-connects	Telcordia GR-1089	TF 600, 1.25 A (2000.0011.xx)	TF 600, 2 A (2000.0012.xx)
	TIA-968-A		
	UL 60950 / IEC 60950		
Central Office Equipment Analog linecards (SLIC), ISDN linecards, xDSL modems, ADSL/VDSL splitters, T1/E1 linecards, multiplexers, servers	ITU-T K.45/44		
	Telcordia GR-1089	TF 600, 1.25 A (2000.0011.xx)	TF 600, 2 A (2000.0012.xx)
	TIA-968-A		
	UL 60950 / IEC 60950		
	ITU-T K.20/44		

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	First Level	First Level	First Level	First Level	First Level	Second Level
GR-1089	Test 1	Test 2	Test 3	Test 4	Test 5	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	Type A	Type A	Type B	Type B
(former FCC Part 68)	Metallic	Longitudinal	Metallic	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	First Level	First Level	First Level	First Level	First Level	First Level	First Level	First Level	First Level
GR-1089	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7	Test 8	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	Second Level	Second Level	Second Level	Second Level	Second Level
GR-1089	Test 1	Test 2	Test 3	Test 4	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 Induction	Power 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	Longitudinal	Longitudinal	Longitudinal	Longitudinal	Longitudinal	Metallic	Metallic	Metallic	Metallic
IEC 60950	Test 1	Test 2	Test 3	Test 4	Test 5	Test 1	Test 2	Test 3	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