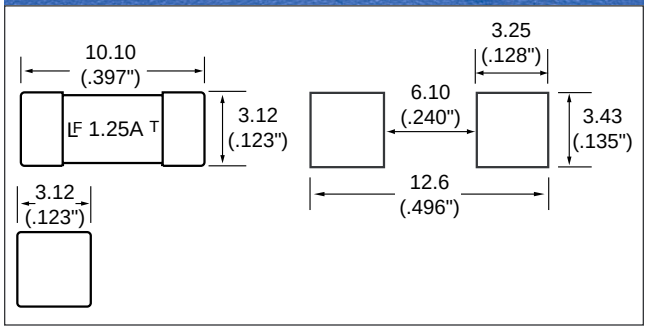
MINIATURE SURFACE MOUNT

Telecom NANO²® Fuse 461 Series

- Surface mount overcurrent protection from power cross and allows compliance with lightning surges.
- Meets UL 1950 3rd Edition (formerly UL 1459) power cross requirements stand alone.
- Designed to allow compliance with Bellcore/Telcordia GR-1089-CORE and FCC 47 part 68 Surge Specifications.
- Provides coordinated protection with Littelfuse Surgector™ suppression devices.
- Ideal for use in telecommunication equipment including line cards, modems, fax machines, phones, answering machines, caller ID devices and other products connected to phone network.
- 2A rating has improved temperature rise performance under 2.2A surge current testing.



ELECTRICAL CHARACTERISTICS:

% of Ampere Rating	Opening Time
100%	4 hours, **Min**imum
250%	1 Second, **Min.;** 120 Seconds, **Max.**

AGENCY APPROVALS: Recognized under the Components Program of Underwriters Laboratories and Certified by CSA. Product is recognized to meet the following interrupting ratings and Power Fault tests:

INTERRUPTING RATINGS:
50 amperes at 250 VAC.

Overvoltage/AC Power Fault (Power Cross) Requirements:

Standard/ Test	Surge Voltage (VAC)	Surge Current (A)	Duration	Rating Selection for Compliance[3]
GR-1089	1000	5	0.5 Sec.	1.25A, 2.0A
GR-1089	600	60[1]	5 Sec.	1.25A, 2.0A
UL 1950 3rd Edition	600	40	1.5 Sec.	0.5, 1.25A, 2.0A
GR-1089 UL 1950 3rd Edition	600	7	5 Sec.	0.5, 1.25A, 2.0A
GR-1089 UL 1950 3rd Edition	100-600	2.2	30 Min.[2]	0.5, 1.25A, 2.0A[3]
GR-1089	277	25	15 Min.	0.5, 1.25A, 2.0A
UL 1950 3rd Edition	120	25	30 Min.	0.5, 1.25A, 2.0A

[1] The 1.25 rating is designed to enable equipment compliance with GR-1089. Application testing is strongly recommended as actual application and compliance testing will produce random closing angle surge conditions. Actual circuit resistance may enhance equipment performance under surge conditions.
[2] See UL 1950 for test procedures for fuses and testing at 135%.
[3] Peak operating temperature of 2.0A fuse is <50°C.

ENVIRONMENTAL SPECIFICATIONS:
Operating Temperature Range: –55°C to 125°C.

ORDERING INFORMATION:

Catalog Number	Ampere Rating	Voltage Rating	Nominal Resistance Cold Ohms	Nominal Melting I²t A² Sec.
0461.500	0.5	250	.560	.840[4]
0461 1.25	1.25	250	.110	16.5[4]
0461 002.	2.00	250	.050	17.5[4]

[4] I²t is calculated at 10 msec or less. I²t at 10 times rated current has a typical value of: 24 A²sec (2.0A), 22 A²sec (1.25A), 1.3 A²sec (0.5A).

PHYSICAL SPECIFICATIONS:
Materials: Body: Ceramic.
Terminations: Silver Plated Brass Caps.
Tin/Lead also available, add suffix, T.

Soldering Parameters:
Reflow Solder — 230°C, 30 seconds maximum.
Wave Solder — 260°C, 3 seconds maximum. Contact Littelfuse for mounting considerations.

PACKAGING SPECIFICATIONS: 24mm Tape and Reel per EIA-RS481-2, (IEC 286 part 3); 2500 fuses per reel, add suffix, ER.

Environmental/Lightning Surge Requirements

Standard/ Test	Surge Voltage (Vpk)	Duration/ Wave Form (µSec.)	Surge Current (A)	Repetitions (Each Polarity)	Rating Selection for Compliance Stand Alone[5]
GR-1089 1st Level	600	10 x 1000	100	25	1.25A, 2.0A
	1000	10 x 360	100	25	1.25A, 2.0A
	1000	10 x 1000	100	25	1.25A, 2.0A
	2500	2 x 10	500	10	1.25A, 2.0A
	1000	10 x 360	25	5	0.5, 1.25A, 2.0A
GR-1089 2nd Level	5000	2 x 10	500	1	1.25A, 2.0A
FCC 47 Part 68 Type A Metallic	800	10 x 560	100	1	1.25A, 2.0A
FCC 47 Part 68 Type A Longitudinal	1500	10 x 160	200	1	1.25A, 2.0A
FCC 47 Part 68 Type B Metallic	1000	voltage 9 x 720 current 5 x 320	25	1	0.5, 1.25A, 2.0A
FCC 47 Part 68 Type B Longitudinal	1500	voltage 9 x 720 current 5 x 320	37.5	1	0.5, 1.25A, 2.0A

[5] Additional series resistance used in conjunction with the fuse may allow compliance by fuse ratings not listed.