

# Surface Mount Fuses

## Subminiature Surface Mount

### RoHS NANO<sup>2</sup>® FUSE Very Fast-Acting 451/453 Series



The Nano<sup>2</sup> SMF Fuse is a very small, square surface mount fuse that is also available in a surface mount holder.

- 451 Series **RoHS Compliant** version now available, use ordering suffix 'L' (see example on data sheet).

#### ELECTRICAL CHARACTERISTICS:

% of Ampere Rating	Ampere Rating	Opening Time
100%	1/16–15	4 hours, <b>Minimum</b>
200%	1/16–10	5 seconds, <b>Maximum</b>
	12–15	20 seconds, <b>Maximum</b>

**AGENCY APPROVALS:** Recognized under the Components Program of Underwriters Laboratories and Certified by CSA. Approved by METI from 1 through 5 amperes.

**AGENCY FILE NUMBERS:** UL E10480, CSA LR 29862.

#### INTERRUPTING RATINGS:

- 1/16 – 8A 50 amperes at 125 VAC/VDC  
300 amperes at 32 VDC
- 10A 35 amperes at 125 VAC/50 amperes at 125 VDC  
300 amperes at 32 VDC
- 12A – 15A 50 amperes at 65 VAC/VDC  
300 amperes at 24 VDC

#### ENVIRONMENTAL SPECIFICATIONS:

**Operating Temperature:** –55°C to 125°C.

**Shock:** MIL-STD-202, Method 213, Test Condition I (100 G's peak for 6 milliseconds).

**Vibration:** MIL-STD-202, Method 201 (10–55 Hz).

**Salt Spray:** MIL-STD-202, Method 101, Test Condition B.

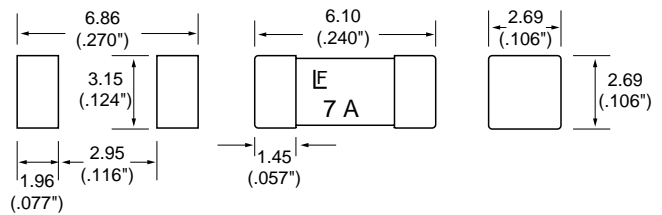
**Insulation Resistance (After Opening):** MIL-STD-202, Method 302, Test Condition A, (10,000 ohms minimum).

**Resistance to Soldering Heat:** MIL-STD-202, Method 210, Test Condition B (10 sec. at 260°C).

**Thermal Shock:** MIL-STD-202, Method 107, Test Condition B (–65 to 125°C).

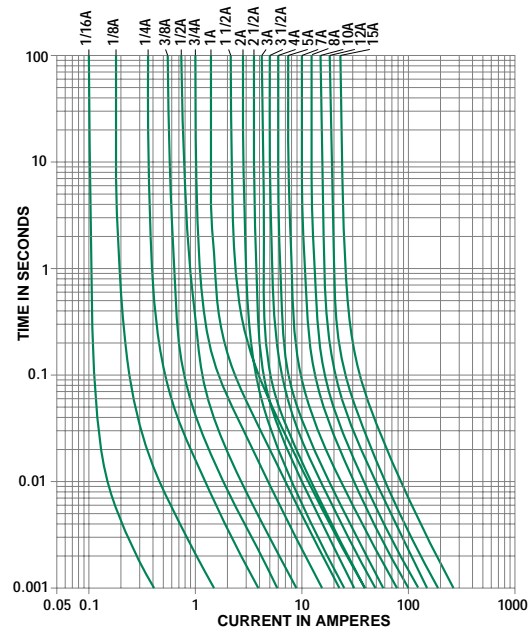
**Moisture Resistance:** MIL-STD-202, Method 106, High Humidity (90-98 RH), Heat (65°C).

Tin-Lead Plated Catalog #	Silver Plated Catalog #	Ampere Rating	Voltage Rating	Nominal Resistance Cold Ohms	Nominal Melting I <sup>2</sup> t A <sup>2</sup> Sec.
–	0451.062	0.062	125	5.50	0.00019
–	0451.080	0.080	125	4.05	0.00033
–	0451.100	0.100	125	3.10	0.00138
–	0451.125	0.125	125	1.70	0.00286
0451.160	0453.160	0.160	125	1.80	0.00306
0451.200	0453.200	0.200	125	1.40	0.00652
0451.250	0453.250	0.250	125	1.05	0.01126
0451.315	0453.315	0.315	125	0.78	0.0231
0451.375	0453.375	0.375	125	0.610	0.0425
0451.400	0453.400	0.400	125	0.560	0.0484
0451.500	0453.500	0.500	125	0.420	0.0795
0451.630	0453.630	0.630	125	0.305	0.143
0451.750	0453.750	0.750	125	0.245	0.185
0451.800	0453.800	0.800	125	0.212	0.271
0451.001.	0453.001.	1.0	125	0.153	0.459
0451.1.25	0453.1.25	1.25	125	0.0780	0.664
0451.01.5	0453.01.5	1.5	125	0.0630	0.853
0451.01.6	0453.01.6	1.6	125	0.0580	1.060
0451.002.	0453.002.	2.0	125	0.0367	0.530
0451.02.5	0453.02.5	2.5	125	0.0286	1.029
0451.003.	0453.003.	3.0	125	0.0227	1.650
0451.3.15	0453.3.15	3.15	125	0.0215	1.920
0451.03.5	0453.03.5	3.5	125	0.0200	2.469
0451.004.	0453.004.	4	125	0.0160	3.152
0451.005.	0453.005.	5	125	0.0125	5.566
0451.06.3	0453.06.3	6.3	125	0.0096	9.17
0451.007.	0453.007.	7	125	0.0090	10.32
0451.008.	0453.008.	8	125	0.0077	20.23
0451.010.	0453.010.	10	125	0.0056	26.46
0451.012.	0453.012.	12	65	0.0049	47.97
0451.015.	0453.015.	15	65	0.0037	97.82



Recommended pad layout

#### Average Time Current Curves



#### PHYSICAL SPECIFICATIONS:

- Materials:** Body: Ceramic  
Terminations: Tin-Lead Alloy  
RoHS Compliant Terminations: Gold over Nickel Plated Caps(451)  
Silver Plated Caps(453)

#### Soldering Parameters(see page 3 for typical soldering profile):

- Wave Solder — 260°C, 10 seconds maximum
- Reflow Solder — 260°C, 30 seconds maximum

**Solderability:** MIL-STD-202, Method 208.

**PACKAGING SPECIFICATIONS:** 12mm Tape and Reel per EIA-RS481-1 (IEC 286, part3); 1,000 pieces per reel, add packaging suffix, MR; 5,000 per reel, add packaging suffix NR.

**Options:** For RoHS Compliant 451 series add the letter 'L' to end of packaging suffix. Example: R451001.MRL (RoHS Compliant 1A, 1,000 per reel).

#### PATENTED

Refer to pg. 374 for SMF Omni-Blok® Holder, Series 154 000.