

Surface Mount Fuses

Subminiature Surface Mount

RoHS NANO² FUSE Very Fast-Acting 451/453 Series



The Nano² 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, Minimum
200%	1/16–10	5 seconds, Maximum
	12–15	20 seconds, Maximum

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.

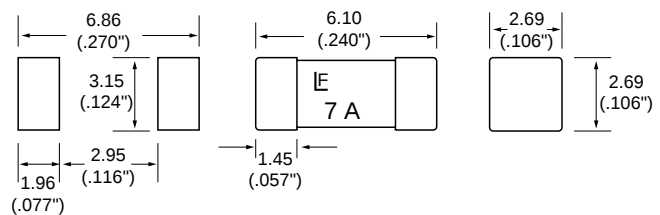
Insulation Resistance (After Opening): MIL-STD-202, Method 302, Test Condition A, (10,000 ohms minimum).

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).

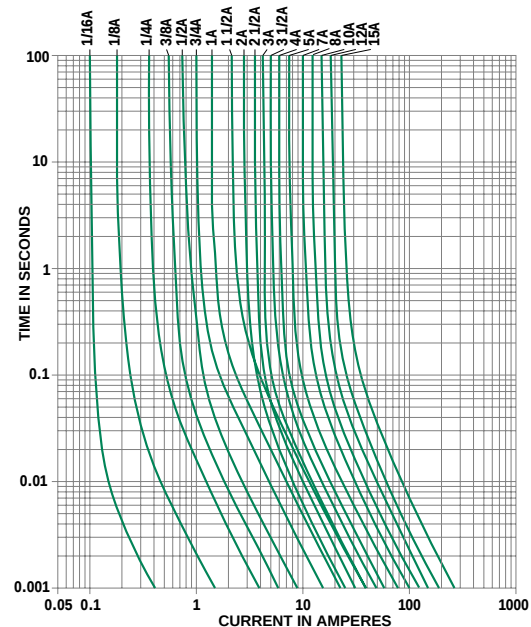
Moisture Resistance: MIL-STD-202, Method 106, High Humidity (90–98 RH), Heat (65°C).

Tin-Lead Plated Catalog #	Silver Plated Catalog #	Ampere Rating	Voltage Rating	Nominal Resistance Cold Ohms	Nominal Melting I ² t A ² Sec.
–	R451.062	0.062	125	5.50	0.00019
–	R451.080	0.080	125	4.05	0.00033
–	R451.100	0.100	125	3.10	0.00138
–	R451.125	0.125	125	1.70	0.00286
R451.160	0453.160	0.160	125	1.80	0.00306
R451.200	0453.200	0.200	125	1.40	0.00652
R451.250	0453.250	0.250	125	1.05	0.01126
R451.315	0453.315	0.315	125	0.78	0.0231
R451.375	0453.375	0.375	125	0.610	0.0425
R451.400	0453.400	0.400	125	0.560	0.0484
R451.500	0453.500	0.500	125	0.420	0.0795
R451.630	0453.630	0.630	125	0.305	0.143
R451.750	0453.750	0.750	125	0.245	0.185
R451.800	0453.800	0.800	125	0.212	0.271
R451.001.	0453.001.	1.0	125	0.153	0.459
R451 1.25	0453 1.25	1.25	125	0.0780	0.664
R451 01.5	0453 01.5	1.5	125	0.0630	0.853
R451 01.6	0453 01.6	1.6	125	0.0580	1.060
R451 002.	0453 002.	2.0	125	0.0367	0.530
R451 02.5	0453 02.5	2.5	125	0.0286	1.029
R451 003.	0453 003.	3.0	125	0.0227	1.650
R451 3.15	0453 3.15	3.15	125	0.0215	1.920
R451 03.5	0453 03.5	3.5	125	0.0200	2.469
R451 004.	0453 004.	4	125	0.0160	3.152
R451 005.	0453 005.	5	125	0.0125	5.566
R451 06.3	0453 06.3	6.3	125	0.0096	9.17
R451 007.	0453 007.	7	125	0.0090	10.32
R451 008.	0453 008.	8	125	0.0077	20.23
R451 010.	0453 010.	10	125	0.0056	26.46
R451 012.	0453 012.	12	65	0.0049	47.97
R451 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.

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:
Other Threats
Short Circuit/Current Overload



Part: **0451004.**
Series: [451 Series - NANO2®](#) [Very Fast-Acting Subminiature Surface Mount Fuse](#)
Technology:: Surface Mount (SMT)

PARAMETERS		
Package Type	Pkg Type	Subminiature Ceramic
Mount Method	Mount	Surface Mount
Peak Pulse Current - 10x1000µs	I _{PP} 10x1000µs (A)	0
Peak Pulse Current - 10x160µs	I _{PP} 10x160µs (A)	0
Peak Pulse Current - 10x560µs	I _{PP} 10x560µs (A)	0
Peak Pulse Current - 2x10µs	I _{pppp} 2x10µs (A)	0
	Mount2-NA	Fuse Block/ Clip / Holder
Fuse Opening Characteristic	Opening	Very Fast-Acting
Lead-Free	Pb Free	Y
Package Size / Form Factor	Size	Subminiature
Current Rating	Amp Rating (A)	4.0000
Voltage Rating	Voltage Rating (V)	125
Nominal Cold Resistance	Resistance (Ohms)	0.0160
Norminal Melting I ² t	I ² t (A ² Sec)	3.1520
Certifications	Cert	
Interrupt Ratings	IR	300A @ 32V 50A @ 125V 50A @ 125V
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Series Datasheets
 **451 and 453 Series Data Sheet**
451_453.pdf (51 K)
Last Updated: June 15, 2005