# 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.

## ELECTRICAL CHARACTERISTICS:

| % of Ampere Rating | Ampere Rating | Opening Time |
|---|---|---|
| 100% | 1/16–15 | 4 hours, **Min**imum |
| 200% | 1/16–10 | 5 seconds, **Max**imum |
| | 12–15 | 20 seconds, **Max**imum |

**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).

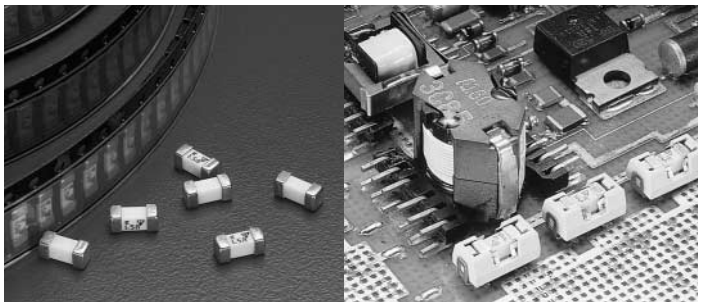
**Resistance to Soldering Heat:** MIL-STD-202, Method 210, Test Condition B (10 sec. at 260°C).

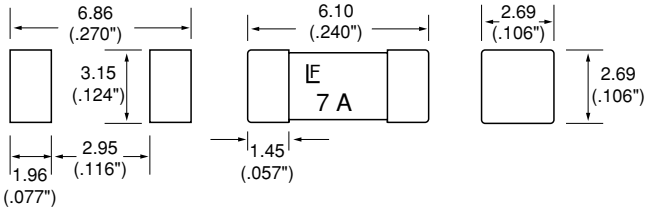
**Thermal Shock:** MIL-STD-202, Method 107, Test Condition B (–65 to 125°C).

**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 I²t A² 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 |

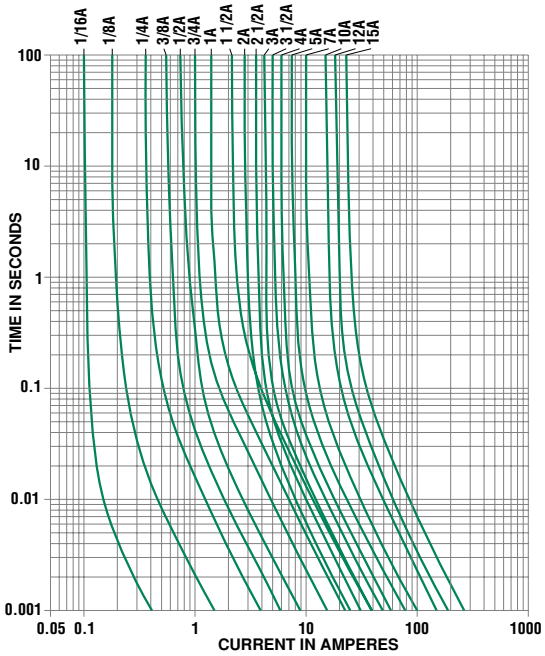
Refer to pg. 271 for SMF Omni-Blok® Holder, Series **154** 000.






Recommended pad layout

### Average Time Current Curves




## PHYSICAL SPECIFICATIONS:

**Materials:** Body: Ceramic
Terminations: Tin-Lead Alloy or Silver Plated Caps.

**Soldering Parameters:**
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, part 3); 1,000 per reel, add packaging suffix, MR; 5,000 per reel, add packaging suffix NR.

**PATENTED**