

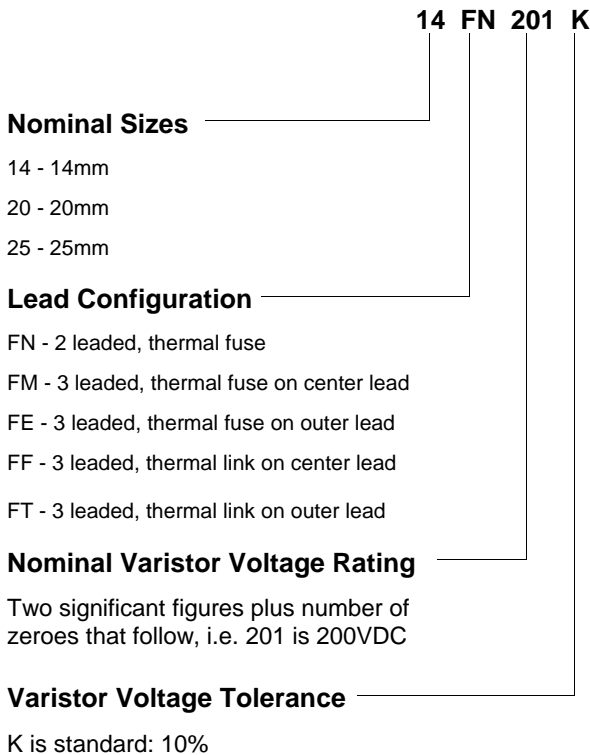


**MAIDA STYLE NUMBER** 20FM511K

**MAIDA ITEM NUMBER** 01-2386

The Thermally Protected Series is designed for safe disconnection of the varistor from the circuit due to abnormal operating conditions. These components consist of 2 or 3 leaded wire leads, a thermal disconnect (FN, FM, FN), and have nominal diameters of 14mm, 20mm, and 25mm. Fusible link designs (FF, FT) are also available.

The Maida Style Number is the typical means to identify our components when ordered. The style number identifies several parameters that are important for the characteristics of the device. An alternative ordering method, if known, is by our Item Number. The following example is the standard part numbering system when ordering our TMOV Series components by the Maida Style Number:



**Electrical Specifications**

Continuous AC Voltage	320 VAC
Continuous DC Voltage	415 VDC
Maximum DC Leakage @ 415 VDC	200 uA
Low Varistor Voltage Limit	459 VDC
High Varistor Voltage Limit	561 VDC
Nominal Varistor Voltage	510 VDC
Current for Varistor Voltage	1 mA
Maximum Clamp Voltage	845 V
Maximum Clamp Voltage Test Current	100 A
Peak Current Rating (1 Pulse)	10000 A
Peak Current Rating (2 Pulse)	6000 A
Energy Rating (8X20us)	380 J
Typical Capacitance	780 pF
Impulse Response Time	< 50 ns
Minimum Hipot of Coating	2500 VDC
Minimum I.R. of Coating	1000 MΩ
Current/Energy Derating Above 85°C	-2.5 %/°C

**Special Notes:**

**Safety Agency Recognitions**

UL 1449 File Number            E321173  
 - Tested to Type:                4CA-3kA

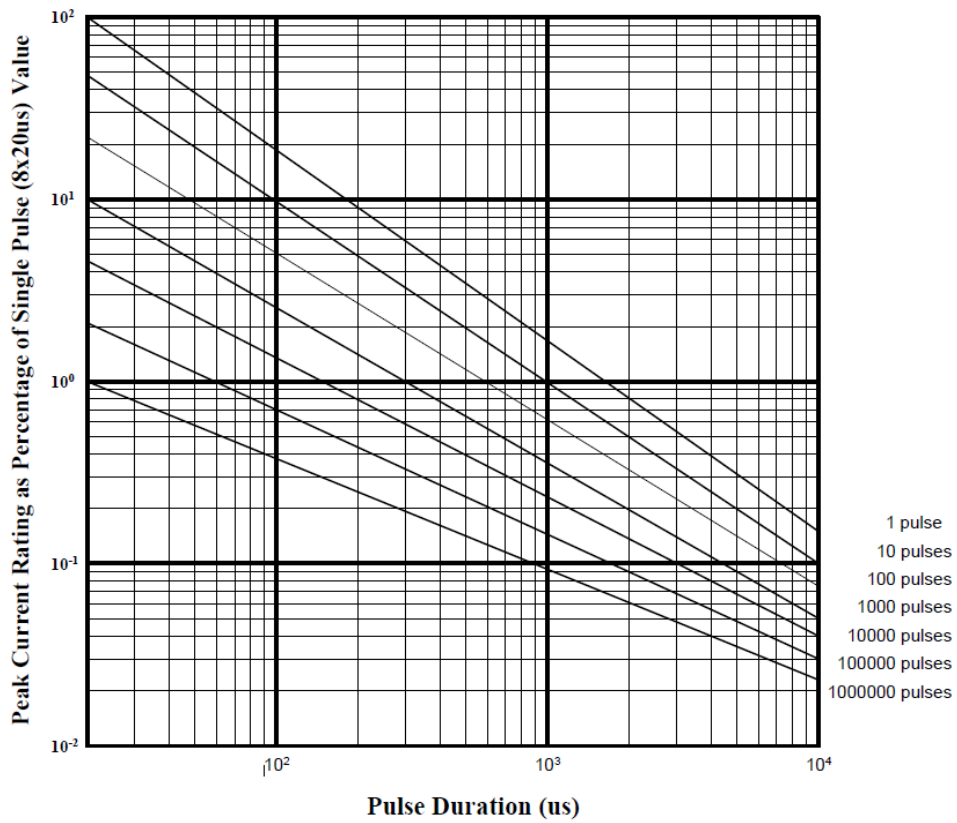
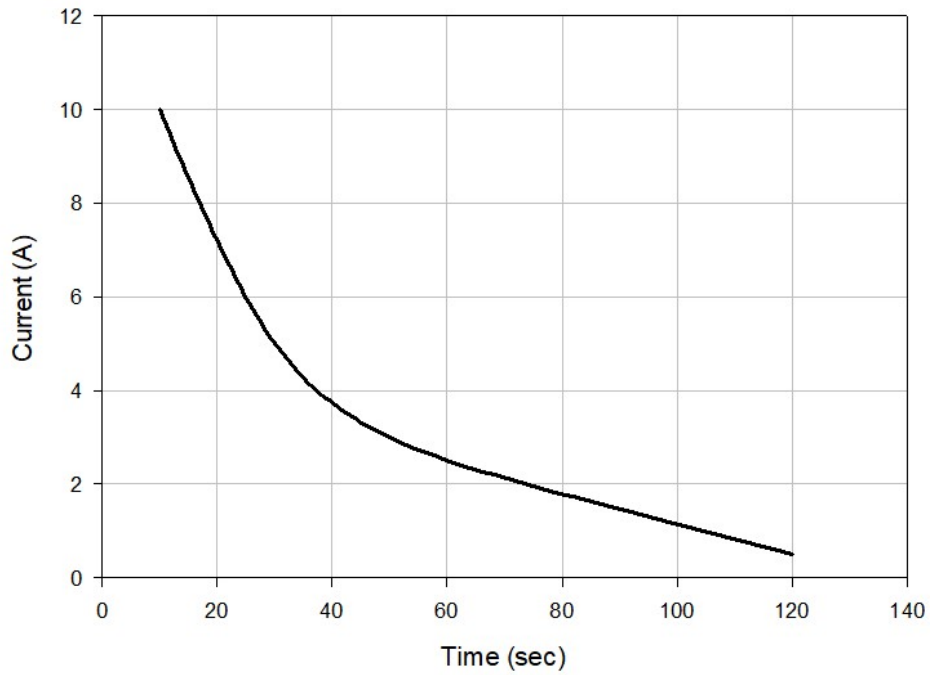
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 CSA File Number  
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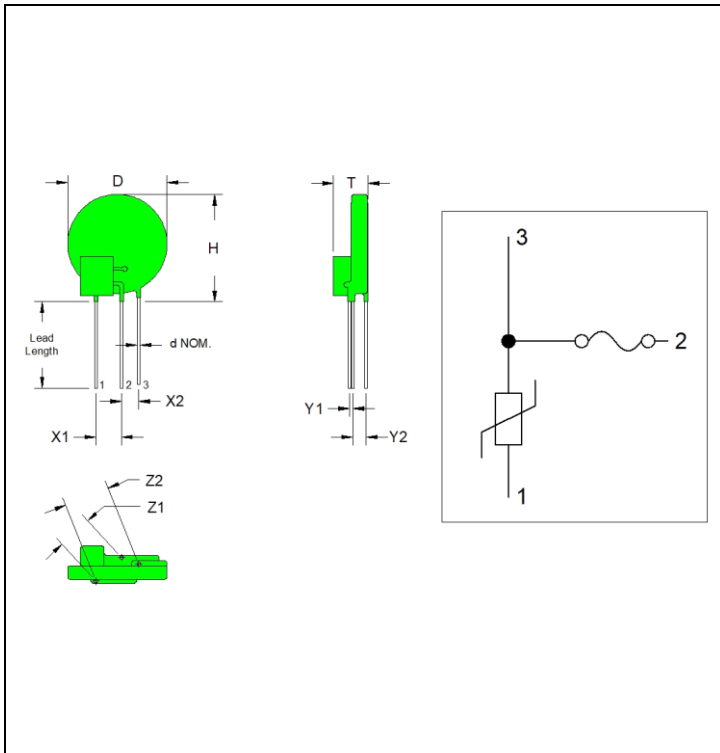
**MAIDA DEVELOPMENT COMPANY**  
 P.O. Box 3529  
 Hampton, Virginia 23663  
 Ph: (757) 723-0785 Fax (757) 722-1194  
[www.maida.com](http://www.maida.com)

## Characteristic Graphs

### Disconnect Response: Current vs Time

#### Typical Characteristic Curve





\* Contact Maida for a more detailed configuration drawing.

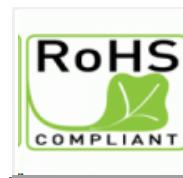
### Physical Specifications

X1 Nominal	0.295 in.
X1 Tolerance	0.039 in.
X2 Nominal	0.197 in.
X2 Tolerance	0.039 in.
Y1 Nominal	0.067 in.
Y1 Tolerance	0.039 in.
Y2 Nominal	0.168 in.
Y2 Tolerance	0.039 in.
Z1 Nominal	0.377 in.
Z1 Tolerance	0.039 in.
Z2 Nominal	0.52 in.
Z2 Tolerance	0.039 in.
Lead Length Nominal	0.394 in.
Lead Length Tolerance	min. in.
d Nominal	0.04 in.
Wire Gauge	18 AWG
Minimum Marking	MDC-FV-20M511K
Nominal Disk Size	20 mm
D Maximum	0.945 in.
T Maximum	0.461 in.
H Maximum	1.024 in.
Coating Type	EPOXY

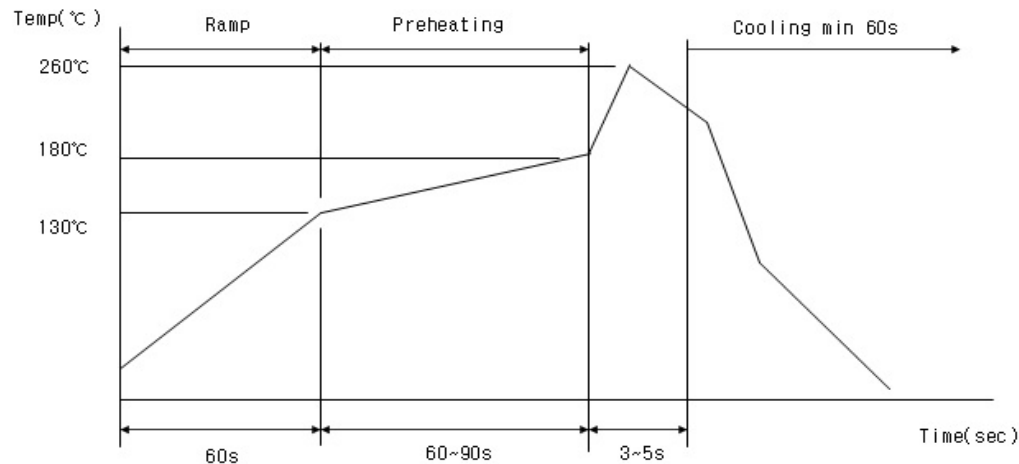
### Thermal Specifications

Minimum Operating Temperature	-55 °C
Maximum Operating Temperature	85 °C
Varistor Voltage Temperature Coeff	-0.05 %/°C
Minimum Storage Temperature	-55 °C
Maximum Storage Temperature	125 °C
Recommended Solder Temperature	260 °C
Recommended Reflow Temperature	260 °C

### Environmental Compliances



### Recommended Soldering Profile



## MOV Terminology

TECHNICAL TERM	DESCRIPTION
Operating Temperature	Operating Temperature Range without Derating.
Storage Temperature	Storage Temperature Range without Voltage Applied.
Curent / Energy Derating	Derating of maximum Values when Operated above +85°C
Varistor Voltage Temperature Coefficient	$\frac{V_v \text{ at } 85^\circ\text{C} - V_v \text{ at } 25^\circ\text{C}}{V_v \text{ at } 25^\circ\text{C}} \times \frac{1}{60} \times 100$ <p>Where Vv is varistor voltage at 1mADC</p>
Insulation Resistance	Minimum resistance between shorted terminals and varistor surface.
HiPot Encapsulation	Minimum voltage applied for one minute between shorted terminals and varistor surface.
Impulse Response Time	Time lag between application of surge and varistor's "turn-on" conduction state.
DC Leakage Current	Maximum current with specified DC voltage applied.
Applied Voltage - AC	Maximum continuous sinusoidal RMS voltage which may be applied (MCOV).
Applied Voltage - DC	Maximum continuous DC voltage which may be applied.
Transient Energy (Joules)	The maximum energy absorbed with a varistor voltage change of less than $\pm 10\%$ when one impulse of an 8x20us current waveform is applied.
Transient Peak Current	The maximum current with a varistor voltage change of less than $\pm 10\%$ when one impulse of an 8x20us current waveform is applied.
Varistor Voltage	Voltage across the varistor measured at 1mADC
Maximum Clamping Voltage	Peak voltage across the varistor with a specific peak impulse current applied (8x20us).
Capacitance	Typical value measured at 1Vrms and a test frequency of 1KHz.