



**MAIDA STYLE NUMBER** D6521ZOV151RA20

**MAIDA ITEM NUMBER** 01-0127

The Standard Series is our broadest and most comprehensive line of radial-leaded varistors. These components consist of wire leads and have nominal disk diameters from 5mm to 25mm. They are available with maximum continuous operating voltages (MCOV) ranging from 11VAC to 1000VAC (up to 1500VAC upon request). The Standard Series is designed to handle most low and medium power applications requiring through-hole components. Most sizes are available in Tape and Reel and ammo pack.

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 Standard Series components by the Maida Style Number:

**D 65 21 ZOV 131 RA 20 T1N**

**Coating Designation**

D – Standard Epoxy Coating  
 P – Phenolic Coating  
 None – Denote no conformal coating.

**Nominal Sizes**

58 - 5mm      69 - 14mm  
 73 - 7mm      64 - 16mm  
 68 - 8mm      63 - 18mm  
 61 - 10mm     65 - 20mm  
 71 - 11mm     66 - 25mm  
 62 - 12mm

**Lead Configuration**

**Material Identifier**

Zinc Oxide Varistor (ZOV)

**AC Voltage Rating**

Two significant figures plus number of zeroes that follow, i.e. 131 is 130VAC

**Special Instructions**

RA is standard (RB, RD, RX optional)

**Rating Code**

Up to four numbers

**Optional Taping Code**

T - Tape and Reel or Tape and Ammo  
 Followed by two digit alphanumeric

**Electrical Specifications**

|                                    |           |
|------------------------------------|-----------|
| Continuous AC Voltage              | 150 VAC   |
| Continuous DC Voltage              | 200 VDC   |
| Maximum DC Leakage @ 200 VDC       | 200 uA    |
| Low Varistor Voltage Limit         | 212 VDC   |
| High Varistor Voltage Limit        | 259 VDC   |
| Nominal Varistor Voltage           | 236 VDC   |
| Current for Varistor Voltage       | 1 mA      |
| Maximum Clamp Voltage              | 395 V     |
| Maximum Clamp Voltage Test Current | 100 A     |
| Peak Current Rating (1 Pulse)      | 12000 A   |
| Peak Current Rating (2 Pulse)      | 9000 A    |
| Energy Rating (8X20us)             | 170 J     |
| Typical Capacitance                | 2000 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:   | 5-5kA    |
| C-UL File Number    | E321173  |
| VDE File Number     | 40037899 |
| CSA File Number     |          |
| SEV File Number     |          |

**MAIDA DEVELOPMENT COMPANY**

P.O. Box 3529

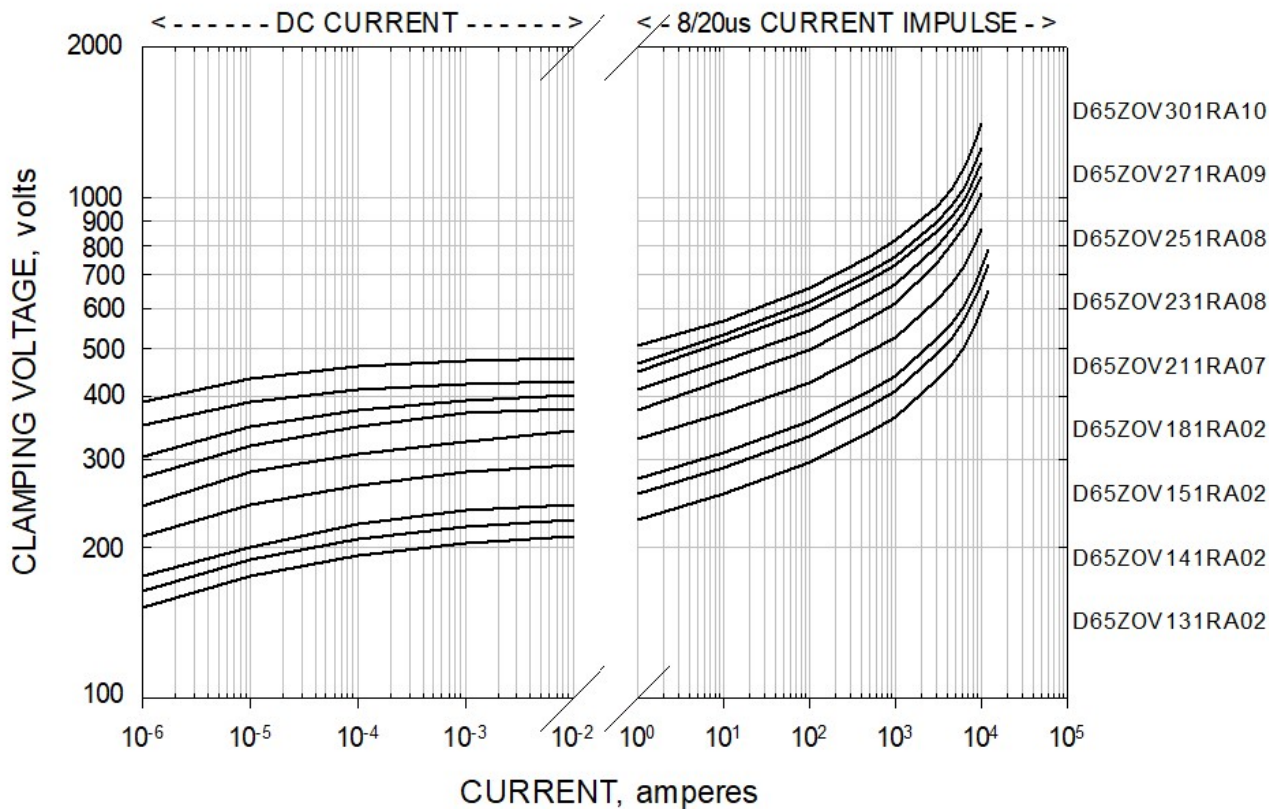
Hampton, Virginia 23663

Ph: (757) 723-0785 Fax (757) 722-1194

[www.maida.com](http://www.maida.com)

## Characteristic Graphs

### D65 (20mm) SERIES





\* Contact Maida for a more detailed configuration drawing.

### Physical Specifications

|                       |           |
|-----------------------|-----------|
| Lead Style            | 110B1C    |
| X Nominal             | 0.3 in.   |
| X Tolerance           | 0.04 in.  |
| Y Nominal             | 0.074 in. |
| Y Tolerance           | 0.03 in.  |
| Z Nominal             | 0.309 in. |
| Z Tolerance           | 0.04 in.  |
| Lead Length Nominal   | 1.00 in.  |
| Lead Length Tolerance | min. in.  |
| d Nominal             | 0.032 in. |
| Wire Gauge            | 20 AWG    |
| Minimum Marking       | Z151-20UL |
| Nominal Disk Size     | 20 mm     |
| D Maximum             | 0.905 in. |
| T Maximum             | 0.212 in. |
| H Maximum             | 1.03 in.  |
| Coating Type          | EPOXY     |

### Thermal Specifications

|                                    |            |
|------------------------------------|------------|
| Minimum Operating Temperature      | -40 °C     |
| Maximum Operating Temperature      | 85 °C      |
| Varistor Voltage Temperature Coeff | -0.05 %/°C |
| Minimum Storage Temperature        | -50 °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.  |