



**MAIDA STYLE NUMBER** S7580ZOV321RA640

**MAIDA ITEM NUMBER** 01-0689

The High Energy Series is our large tab-leaded and wire-leaded varistors. They are available in round and square shapes. These varistors are available in 25mm, 32mm, 34mm, 40mm, and 53mm configurations including single and dual designs. They are available with maximum continuous operating voltages (MCOV) ranging from 130VAC to 1000VAC (up to 1500VAC upon request). The High Energy Series is designed for pulse repetition and/or very large surge current environments. Numerous tab forms are available for all sizes, with limited wire led options.

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 HE Series components by the Maida Style Number:

**D 78 80 ZOV 131 RA 21**

**Coating Designation**

- D – Standard Epoxy Coating
- P – Phenolic Coating
- S – Square Disc Epoxy Coating
- PS – Square Disc Phenolic Coating
- None – Denotes no conformal coating.

**Nominal Sizes**

- S66 - 25mm Square
- 78 - 32mm
- S75 - 34mm Square
- 75 - 40mm
- 77 - 53mm

**Lead Configuration**

**Material Identifier**

Zinc Oxide Varistor

**AC Voltage Rating**

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

**Special Instructions**

RA is standard

**Rating Code**

Up to four numbers

**Electrical Specifications**

|                                    |           |
|------------------------------------|-----------|
| Continuous AC Voltage              | 320 VAC   |
| Continuous DC Voltage              | 420 VDC   |
| Maximum DC Leakage @ 420 VDC       | 200 uA    |
| Low Varistor Voltage Limit         | 453 VDC   |
| High Varistor Voltage Limit        | 553 VDC   |
| Nominal Varistor Voltage           | 503 VDC   |
| Current for Varistor Voltage       | 1 mA      |
| Maximum Clamp Voltage              | 850 V     |
| Maximum Clamp Voltage Test Current | 300 A     |
| Peak Current Rating (1 Pulse)      | 40000 A   |
| Peak Current Rating (2 Pulse)      | 32000 A   |
| Energy Rating (8X20us)             | 640 J     |
| Typical Capacitance                | 3160 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:   | 5-10kA  |
| C-UL File Number    | E321173 |
| VDE File Number     |         |
| CSA File Number     |         |
| SEV File Number     |         |

**MAIDA DEVELOPMENT COMPANY**

P.O. Box 3529

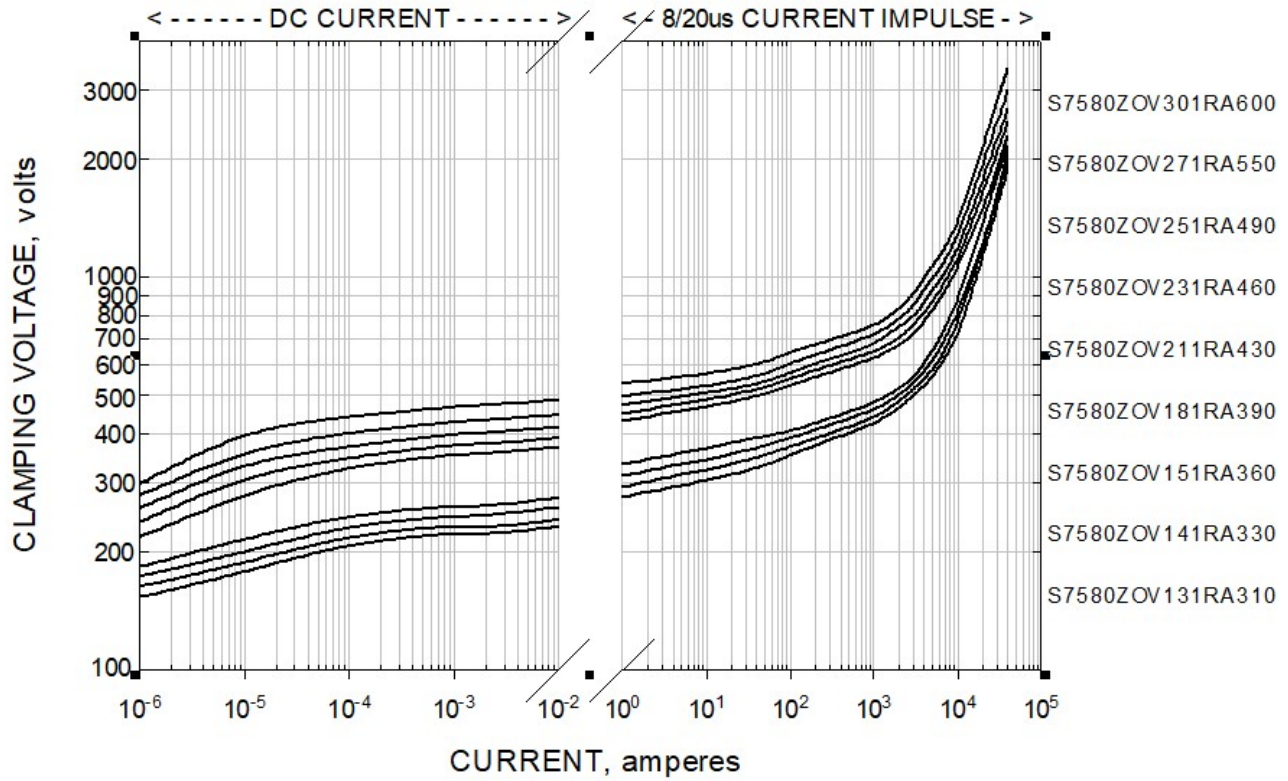
Hampton, Virginia 23663

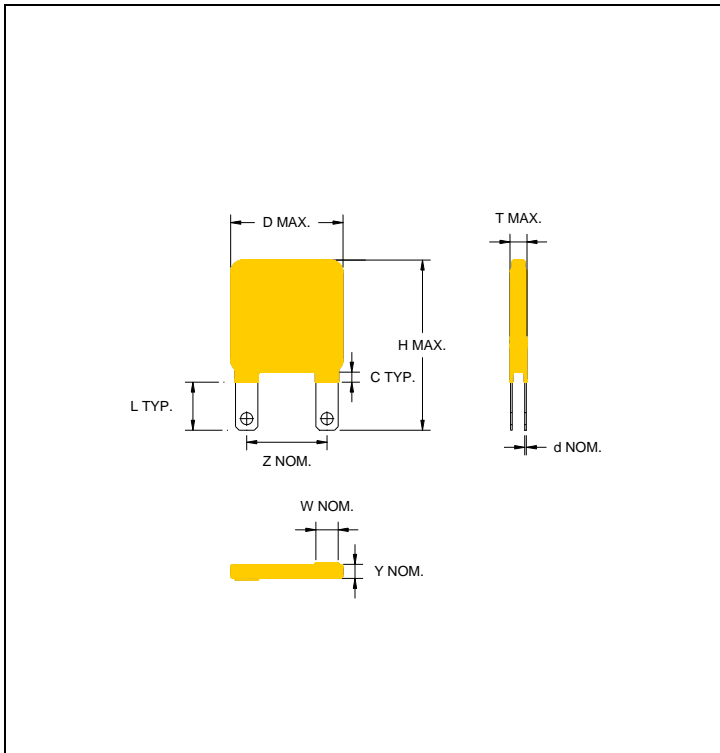
Ph: (757) 723-0785 Fax (757) 722-1194

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

## Characteristic Graphs

### S75 (34mm SQUARE) SERIES





\* Contact Maida for a more detailed configuration drawing.

### Physical Specifications

|                       |           |
|-----------------------|-----------|
| Lead Style            | 305       |
| X Nominal             | 1 in.     |
| X Tolerance           | 0.02 in.  |
| Y Nominal             | 0.16 in.  |
| Y Tolerance           | 0.04 in.  |
| Z Nominal             | in.       |
| Z Tolerance           | in.       |
| Lead Length Nominal   | in.       |
| Lead Length Tolerance | in.       |
| d Nominal             | 0.02 in.  |
| Wire Gauge            | 24 AWG    |
| Minimum Marking       | D4S-321UL |
| Nominal Disk Size     | 34 mm     |
| D Maximum             | 1.476 in. |
| T Maximum             | 0.312 in. |
| H Maximum             | 2.225 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.  |