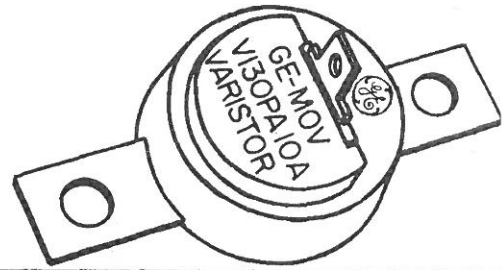
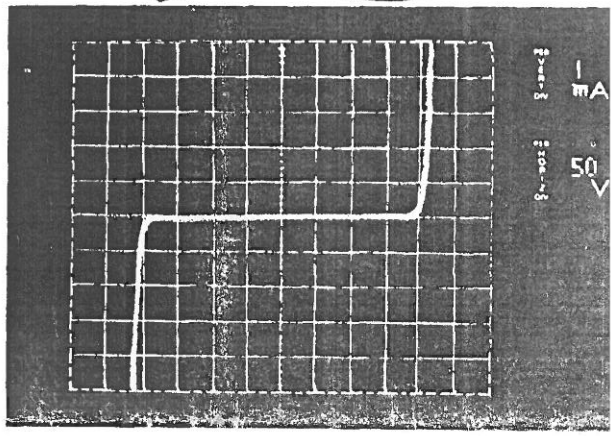
# GE-MOV®
## Metal Oxide Varistors

**RATINGS OF 170-750 VOLTS D.C., 130-575 VOLTS RMS.**

**SERIES PA**




I-V Oscillograph (Actual Photo)

**Description:**

GE-MOV® zinc oxide varistors are voltage dependent, symmetrical resistors which perform in a manner similar to back-to-back zener diodes in circuit protective functions and offers advantages in performance and economics. When exposed to high energy voltage transients, the varistor impedence changes from a very high standby valve to a very low conducting valve thus clamping the transient voltage to a safe level. The energy of the incoming high voltage pulse is absorbed by the GE-MOV® varistor, thus protecting sensitive circuit components.

**Replacement For:**

- Zener Diodes
- Silicon Carbide
- Selenium Thyrectors
- R-C Networks (non dv/dt)

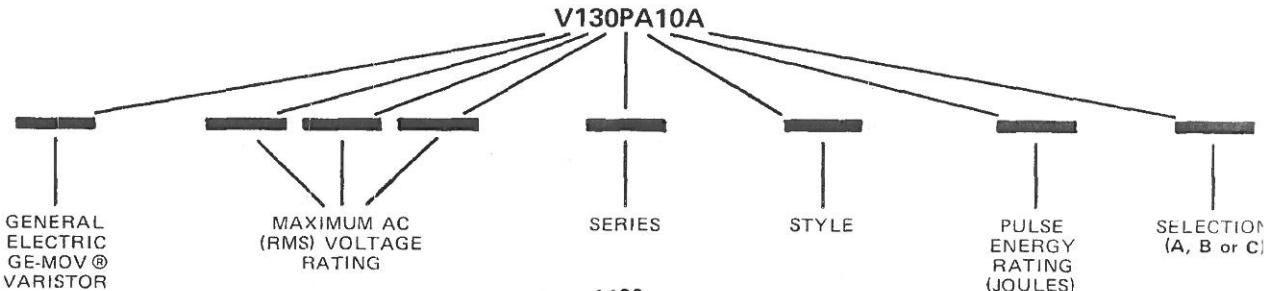
**Features:**

- Up to 15 Watt Average Power Dissipation
- NEMA Creep and Strike Distances
- Excellent Clamping (as low as 1.7 @ 200 amps.)
- Discharge Current Capability as high as 4000 amps.
- Energy Dissipation up to 80 watt-seconds
- Nanosecond Response
- Low Standby Power Dissipation
- Quick Connect Terminal

**Benefits:**

- Improves Circuit, Component and System Reliability
- Extends Contact Life
- Reduction of Lightning Effects
- Promotes System Cost Reduction
- Reduces System Size and Weight Requirements
- Increases Product Safety
- No Follow-On Current

**Model Number Nomenclature:**



**Ratings:**

Maximum Energy, Power and Peak Current ..... See Rating Table
Storage Temperature, $T_{STG}$ ..... -40°C to +125°C
Maximum Hot Spot Temperature, $T_{HS}$ ..... 125°C
Operating Case Temperature (without derating) ..... 70°C
Maximum Thermal Impedance Case to Ambient for Maximum Recurrent Peak AC Voltage ..... ≤ 8°C/Watt
Maximum Thermal Impedance Case to Ambient for Maximum DC Input ..... ≤ 5°C/Watt
Maximum Voltage Temperature Coefficient ..... -0.05%/°C

**Mechanical:**

Insulating Resistance – Megohms ..... > 1000
Hipot Encapsulation – Volts DC for 1 Minute ..... 2500
Maximum Weight ..... 45 Grams

**MAXIMUM RATINGS AND CHARACTERISTICS**

| MODEL NUMBER [5] | RATINGS | | | | | | CHARACTERISTICS | | |
|---|---|---|---|---|---|---|---|---|---|
| | RMS [1,2] APPLIED VOLTAGE 50-60 HZ | RECURRENT PEAK APPLIED VOLTAGE | DC [1] APPLIED VOLTAGE | ENERGY [3] | AVERAGE [3] POWER DISSIPATION | PEAK [4] CURRENT | VARISTOR PEAK VOLTAGE @1MA AC MIN. | VARISTOR PEAK VOLTAGE @1MA AC MAX. | THERMAL RESISTANCE HOT SPOT TO CASE |
| | VOLTS | VOLTS | VOLTS | JOULES | WATTS | AMPERES | VOLTS | VOLTS | °C/WATT |
| V130PA10 (–) | 130 | 184 | 170 | 10 | 8 | 4000 | 185 | 255 | 6.8 |
| 20 (–) | | | | 20 | 15 | 4000 | | | 3.6 |
| V150PA10 (–) | 150 | 212 | 195 | 10 | 8 | 4000 | 214 | 298 | 6.8 |
| 20 (–) | | | | 20 | 15 | 4000 | | | 3.6 |
| V250PA10 (–) | 250 | 354 | 330 | 10 | 4 | 4000 | 358 | 480 | 13.7 |
| 20 (–) | | | | 20 | 7 | 4000 | | | 7.8 |
| 40 (–) | | | | 40 | 13 | 4000 | | | 4.2 |
| V275PA10 (–) | 275 | 389 | 360 | 10 | 4 | 4000 | 390 | 523 | 13.7 |
| 20 (–) | | | | 20 | 7 | 4000 | | | 7.8 |
| 40 (–) | | | | 40 | 13 | 4000 | | | 4.2 |
| V320PA40 (–) | 320 | 452 | 415 | 40 | 12 | 4000 | 448 | 601 | 4.5 |
| V420PA20 (–) | 420 | 595 | 540 | 20 | 5 | 4000 | 585 | 802 | 11.0 |
| 40 (–) | | | | 40 | 10 | 4000 | | | 5.5 |
| V460PA20 (–) | 460 | 650 | 600 | 20 | 5 | 4000 | 648 | 880 | 11.0 |
| 40 (–) | | | | 40 | 10 | 4000 | | | 5.5 |
| V480PA20 (–) | 480 | 679 | 625 | 20 | 3 | 4000 | 680 | 918 | 18.3 |
| 40 (–) | | | | 40 | 5 | 4000 | | | 11.0 |
| 80 (–) | | | | 80 | 10 | 4000 | | | 5.5 |
| V510PA20 (–) | 510 | 721 | 655 | 20 | 3 | 4000 | 713 | 962 | 18.3 |
| 40 (–) | | | | 40 | 5 | 4000 | | | 11.0 |
| 80 (–) | | | | 80 | 10 | | | | 5.5 |
| V550PA20 (–) | 550 | 778 | 720 | 20 | 3 | 4000 | 782 | 1072 | 18.3 |
| 40 (–) | | | | 40 | 5 | 4000 | | | 11.0 |
| 80 (–) | | | | 80 | 9 | 4000 | | | 6.1 |
| V575PA20 (–) | 575 | 813 | 750 | 20 | 3 | 4000 | 816 | 1119 | 18.3 |
| 40 (–) | | | | 40 | 5 | 4000 | | | 11.0 |
| 80 (–) | | | | 80 | 9 | 4000 | | | 6.1 |

1. Applied voltage is that voltage which appears across the varistor terminals when no transient is present. High line voltage conditions must be included in the value for applied voltage used to select the correct model.
2. For AC applications, a sinusoidal applied voltage is assumed to be the normal input condition. If applied voltage is non-sinusoidal, recurrent peak applied voltage values should be used to select correct model.
3. See Figure 12.
4. See Figure 13. Peak currents apply for full rated bias.
5. (–) indicates A, B or C selection. See Figures 1-11.