

**Description:**

Almost all electronic systems in internal-combustion powered vehicles, e.g., anti-lock brakes, direct ignition, airbag control, wiper motors, etc. are susceptible to damage from destructive voltage transients.

Stackpole/KEKO's AV Series of leaded automotive varistors includes both multilayer and single layer components, defined by  $W_{LD}$  capability. Multilayer devices are intended  $W_{LD}$  applications requiring up to 50 Joules of energy, and single layer discs are for  $W_{LD}$  applications requiring above 50 Joules of energy.



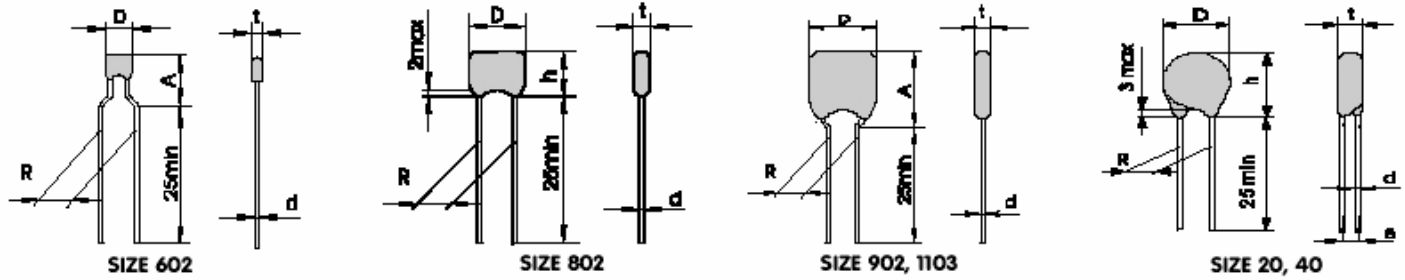
Automotive multilayer varistors offer excellent transient energy absorption due to improved internal energy distribution. Compared to an equivalent automotive disc varistor, they offer better electrical characteristic in much smaller size. Automotive disc varistors are specifically designed and used in applications requiring higher levels of  $W_{LD}$  energy absorption, which MLV devices are incapable of handling.

**Features:**

- AC operating voltage range (Vrms) from 14V to 35V
- DC operating voltage (Vdc) from 16V to 42V
- Power supply voltages (Vdc) 12V, 24V and 42V
- Broad range of current and energy handling capabilities realized with either type of construction
- In-line leads on automotive MLV varistors
- MLV varistors: +125°C continuous operating temperature (+150°C for AVY)
- $W_{LD}$  up to 50J

| General Technical Data                                     |                 |                 |
|--|-----------------|-----------------|
| Specification  | MLV             | SLV             |
| Operating Ambient Temperature for $W_{LD}$ above 50J - AV  | -40°C to +150°C | -40°C to +85°C  |
| Operating Ambient Temperature for $W_{LD}$ above 50J - AVY | -40°C to +150°C | -40°C to +150°C |
| Storage Temperature Range for $W_{LD}$ above 50J           | -40°C to +85°C  | -40°C to +125°C |
| Threshold Voltage Temperature Coefficient                  | ≤0.05% / °C     |                 |
| Insulation Resistance                                      | > 1Gohm         |                 |
| Response Time  | < 25ns          |                 |
| Climatic Category for $W_{LD}$ ≤ 50J - MLV                 | 40/125/56       | 40/85/56        |

| Standard Packaging Options / Quantities |                      |            |   |       |       |
|---|----------------------|------------|---|-------|-------|
| Series                                  | Voltage Range (Vrms) | Model Size | Packaging Options: 7mm, 10mm, 14mm, 20mm and 23mm |       |       |
|   |                      |            | B = Bulk; R = Reel; A = Ammo Pack                 |       |       |
|   |                      |            | B   | R     | A     |
| AV, AVY                                 | 14 - 35              | 60 2       | 1,500   | 2,000 | 2,000 |
|   | 14 - 35              | 80 2       | 1,000   | 1,500 | 1,500 |
|   | 14 - 35              | 90 2       | 1,000   | 1,500 | 1,500 |
|   | 14 - 20              | 110 3      | 700   | 1,000 | 1,000 |
|   | 25 - 35              | 20         | 400   | 700   | 800   |
|   | 25 - 35              | 40         | 400   | 700   | 800   |



**How to Order**

| SEI Type    | Lead Style         | Vrms              | Tolerance              | Disc Size   | Lead Spacing     | W <sub>LD</sub> | Packaging   |                |                       |             |                    |
|-------------|--------------------|-------------------|------------------------|-------------|------------------|-----------------|-------------|----------------|-----------------------|-------------|--------------------|
| <b>AV</b>   | <b>1</b>           | <b>20</b>         | <b>K</b>               | <b>80</b>   | <b>80</b>        | <b>201</b>      | <b>R1</b>   |                |                       |             |                    |
| <b>Type</b> | <b>Description</b> | <b>Model Size</b> | <b>Version</b>         | <b>Code</b> | <b>Tolerance</b> | <b>Size</b>     | <b>Code</b> | <b>Spacing</b> | <b>W<sub>LD</sub></b> | <b>Code</b> | <b>Description</b> |
| AV          | Standard           | 60 2              | 1 = Outward crimped    | K           | 10%              | 60 = 6mm        | 2           | 5mm            | 003 = 3               | B           | Bulk               |
| AVY         | High Temp          | 80 2              | 1 = Straight leads     |             |                  | 80 = 8mm        | 3           | 7.5mm          | 006 = 6               | R           | Reel               |
|             |                    | 80 2              | 5 = Straight with kink |             |                  | 90 = 9mm        |             |                | 012 = 12              | A           | Ammo               |
|             |                    | 90 2              | 1 = Inward crimped     |             |                  | 110 = 11mm      |             |                | 025 = 25              |             |                    |
|             |                    | 110 3             | 1 = Inward crimped     |             |                  | 20 = 20mm       |             |                | 050 = 50              |             |                    |
|             |                    | 20, 40            | 1 = Straight leads     |             |                  | 40 = 40mm       |             |                | 100 = 100             |             |                    |

**Device Ratings and Dimensions**

| Part Number             | V <sub>RMS</sub><br>(volts) | V <sub>DC</sub><br>(volts) | V <sub>N</sub><br>(volts) | V <sub>JUMP</sub><br>(volts) | V <sub>C</sub><br>(volts) | I <sub>C</sub><br>(amps) | I <sub>P</sub><br>(amps) | W <sub>MAX</sub><br>(joules) | W <sub>LD</sub><br>(joules) | P <sub>MAX</sub><br>(watts) | C <sub>TYP</sub><br>(pF) | D <sub>MAX</sub><br>(mm) | h <sub>MAX</sub><br>(mm) | R<br>(mm) | d<br>(mm) |
|-------------------------|-----------------------------|----------------------------|---------------------------|------------------------------|---------------------------|--------------------------|--------------------------|------------------------------|-----------------------------|-----------------------------|--------------------------|--------------------------|--------------------------|-----------|-----------|
| <b>12V Power Supply</b> |                             |                            |                           |                              |                           |                          |                          |                              |                             |                             |                          |                          |                          |           |           |
| AV 14 K 602 003         | 14                          | 16                         | 24                        | 24.5                         | 40                        | 2.5                      | 400                      | 1.6                          | 3                           | 0.01                        | 2,500                    | 7                        | 7                        | 5         | 0.6       |
| AV 17 K 602 003         | 17                          | 20                         | 27                        | 30                           | 44                        | 2.5                      | 400                      | 1.8                          | 3                           | 0.01                        | 2,000                    | 7                        | 7                        | 5         | 0.6       |
| AV 14 K 802 006         | 14                          | 16                         | 24                        | 24.5                         | 40                        | 5                        | 800                      | 2.4                          | 6                           | 0.015                       | 4,600                    | 8                        | 9                        | 5         | 0.6       |
| AV 17 K 802 006         | 17                          | 20                         | 27                        | 30                           | 44                        | 5                        | 800                      | 2.9                          | 6                           | 0.015                       | 4,000                    | 8                        | 9                        | 5         | 0.6       |
| AV 14 K 902 012         | 14                          | 16                         | 24                        | 24.5                         | 40                        | 5                        | 1,200                    | 4.4                          | 12                          | 0.03                        | 10,500                   | 9                        | 12                       | 5         | 0.6       |
| AV 14 K 902 025         | 14                          | 16                         | 24                        | 24.5                         | 40                        | 10                       | 2,000                    | 6                            | 25                          | 0.08                        | 22,000                   | 9                        | 12                       | 5         | 0.6       |
| AV 17 K 902 025         | 17                          | 20                         | 27                        | 30                           | 44                        | 10                       | 2,000                    | 7.2                          | 25                          | 0.08                        | 18,000                   | 9                        | 12                       | 5         | 0.6       |
| AV 14 K 1103 050        | 14                          | 16                         | 24                        | 24.5                         | 40                        | 10                       | 2,000                    | 13.2                         | 50                          | 0.04                        | 29,000                   | 11                       | 12                       | 7.5       | 0.6       |
| AV 17 K 1103 050        | 17                          | 20                         | 27                        | 30                           | 44                        | 10                       | 2,000                    | 15.8                         | 50                          | 0.04                        | 24,000                   | 11                       | 12                       | 7.5       | 0.6       |
| <b>24V Power Supply</b> |                             |                            |                           |                              |                           |                          |                          |                              |                             |                             |                          |                          |                          |           |           |
| AV 20 K 602 003         | 20                          | 26                         | 33                        | 30                           | 54                        | 2.5                      | 400                      | 1.9                          | 3                           | 0.01                        | 1,800                    | 7                        | 7                        | 5         | 0.6       |
| AV 30 K 602 003         | 30                          | 34                         | 47                        | 50                           | 77                        | 2.5                      | 400                      | 2.3                          | 3                           | 0.01                        | 1,300                    | 7                        | 7                        | 5         | 0.6       |
| AV 20 K 802 006         | 20                          | 26                         | 33                        | 30                           | 54                        | 5                        | 800                      | 3                            | 6                           | 0.015                       | 3,500                    | 8                        | 9                        | 5         | 0.6       |
| AV 30 K 802 006         | 30                          | 34                         | 47                        | 50                           | 77                        | 5                        | 800                      | 3.8                          | 6                           | 0.015                       | 2,000                    | 8                        | 9                        | 5         | 0.6       |
| AV 20 K 902 025         | 20                          | 26                         | 33                        | 30                           | 54                        | 10                       | 2,000                    | 9                            | 25                          | 0.08                        | 7,500                    | 9                        | 12                       | 5         | 0.6       |
| AV 30 K 902 025         | 30                          | 34                         | 47                        | 50                           | 77                        | 10                       | 2,000                    | 18                           | 25                          | 0.08                        | 16,000                   | 9                        | 12                       | 5         | 0.6       |
| AV 20 K 1103 050        | 20                          | 26                         | 33                        | 30                           | 54                        | 10                       | 2,000                    | 17                           | 50                          | 0.1                         | 18,000                   | 11                       | 12                       | 7.5       | 0.6       |
| AV 25 K 20 050          | 25                          | 28                         | 39                        | 40                           | 77                        | 20                       | 2,000                    | 28                           | 50                          | 0.2                         | 14,000                   | 22.5                     | 24                       | 10        | 1         |
| AV 30 K 20 050          | 30                          | 34                         | 47                        | 50                           | 93                        | 20                       | 2,000                    | 34                           | 50                          | 0.2                         | 13,500                   | 22.5                     | 24                       | 10        | 1         |
| AV 25 K 40 100          | 25                          | 28                         | 39                        | 40                           | 77                        | 20                       | 2,000                    | 50                           | 100                         | 0.3                         | 28,000                   | 22.5                     | 24                       | 10        | 1         |
| AV 30 K 40 100          | 30                          | 34                         | 47                        | 50                           | 93                        | 20                       | 2,000                    | 60                           | 100                         | 0.3                         | 26,000                   | 22.5                     | 24                       | 10        | 1         |
| <b>42V Power Supply</b> |                             |                            |                           |                              |                           |                          |                          |                              |                             |                             |                          |                          |                          |           |           |
| AV 35 K 602 003         | 35                          | 42                         | 56                        | 59                           | 90                        | 2.5                      | 400                      | 2.6                          | 3                           | 0.01                        | 1,000                    | 7                        | 7                        | 5         | 0.6       |
| AV 35 K 802 006         | 35                          | 42                         | 56                        | 59                           | 90                        | 5                        | 800                      | 4.8                          | 6                           | 0.015                       | 1,500                    | 8                        | 9                        | 5         | 0.6       |
| AV 35 K 902 025         | 35                          | 42                         | 56                        | 59                           | 90                        | 10                       | 2,000                    | 20                           | 25                          | 0.8                         | 12,800                   | 9                        | 12                       | 5         | 0.6       |
| AV 35 K 40 050          | 35                          | 42                         | 56                        | 59                           | 110                       | 20                       | 2,000                    | 41                           | 50                          | 0.2                         | 12,000                   | 22.5                     | 24                       | 10        | 1         |
| AV 35 K 40 100          | 35                          | 42                         | 56                        | 59                           | 110                       | 20                       | 2,000                    | 76                           | 100                         | 0.3                         | 23,000                   | 22.5                     | 24                       | 10        | 1         |