

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 AVL 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 (V_{rms}) from 14V to 40V
- DC operating voltage (V_{dc}) from 16V to 56V
Higher operating voltages are available upon request
- Power supply voltages (V_{dc}) 12V, 24V and 42V
- Broad range of current and energy handling capabilities realized with either type of construction
- AVYL high temperature product will have performance characteristics different from the AVL listed here.
Contact Stackpole for specific details.
- In-line leads on automotive MLV varistors
- MLV varistors: +125°C continuous operating temperature is available upon request (+150°C for AVYL)
- W_{LD} up to 50J
- Available in tape and reel for automatic insertion equipment
- 100% RoHS compliant and lead free without exemption
- Halogen free
- REACH compliant
- AEC-Q200 qualified Grade

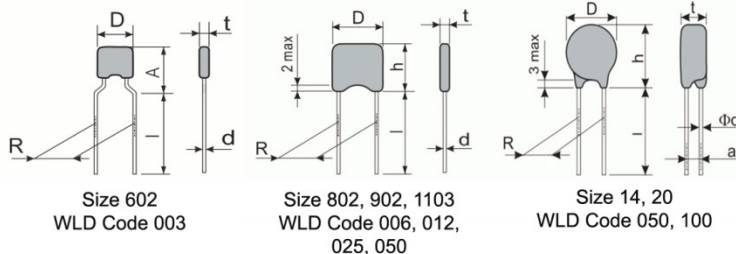
| General Technical Data | | |
|---|-----------------|-----------------|
| Specification | MLV | SLV |
| Operating Ambient Temperature for W_{LD} above 50J - AVL | -40°C to +125°C | -40°C to +85°C |
| Operating Ambient Temperature for W_{LD} above 50J - AVYL | -40°C to +150°C | -40°C to +150°C |
| Storage 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 $W_{LD} \leq 50J$ - MLV | 40/125/56 | 40/85/56 |

Higher operating voltages are available upon request.

Standard Packaging Options / Quantity

| Series | Voltage Range (Vrms) | Model Size | Packaging Options: 7mm, 10mm, 14mm, 20mm and 23mm | | |
|-----------|----------------------|------------|---|---------------|-----------|
| | | | Bulk | Tape and Reel | Ammo Pack |
| AVL, AVYL | 14 - 40 | 60 2 | 1500 | 2000 | 2000 |
| | 14 - 40 | 80 2 | 1000 | 1500 | 1500 |
| | 14 - 40 | 90 2 | 1000 | 1500 | 1500 |
| | 14 - 20 | 110 3 | 700 | 1000 | 1000 |
| | 25 - 40 | 20 | 400 | 700 | 800 |
| | 25 - 40 | 40 | 400 | 700 | 800 |

Device Ratings and Dimensions

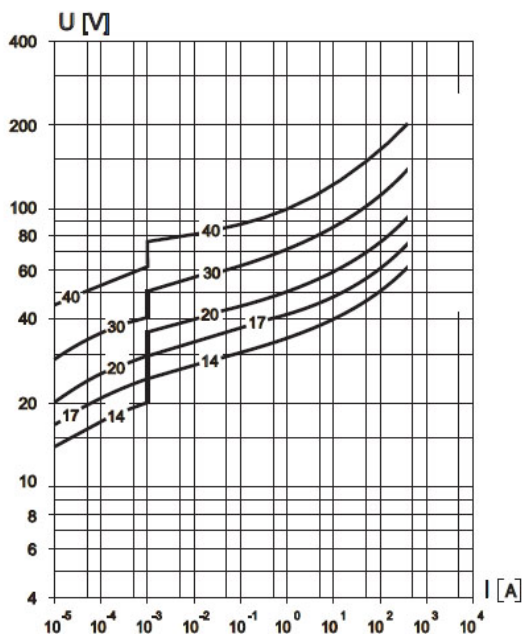


| Power Supply | Part Number | V _{RMS} (volts) | V _{DC} (volts) | V _N (1 mA) (volts) | V _{JUMP} (volts) | V _C (volts) | I _C (8/20 uSec) (amps) | I _{MAX} (8/20 uSec) (amps) | W _{MAX} (10/1000 uSec) (joules) | WLD (joules) | P max (watts) | C _{TYP} (@ 1 kHz) (nF) | D max (mm) | t max (mm) | h max (mm) | R (mm) | d (mm) |
|--------------|-------------|-----------------------------|----------------------------|-------------------------------------|------------------------------|---------------------------|---|---|--|-----------------|---------------------|---------------------------------------|------------------|------------------|------------------|-----------|-----------|
| 12V | 14K602003 | 14 | 16 | 24 | 24.5 | 40 | 2.5 | 400 | 1.6 | 3 | 0.01 | 2.5 | 7 | 4.5 | 7 | 5 | 0.6 |
| | 14K802006 | 14 | 16 | 24 | 24.5 | 40 | 5 | 800 | 2.4 | 6 | 0.015 | 4.6 | 8 | 4.5 | 9 | 5 | 0.6 |
| | 14K902012 | 14 | 16 | 24 | 24.5 | 40 | 5 | 1200 | 4.4 | 12 | 0.03 | 10.5 | 9 | 4.5 | 12 | 5 | 0.6 |
| | 14K902025 | 14 | 16 | 24 | 24.5 | 40 | 10 | 2000 | 6 | 25 | 0.08 | 22 | 9 | 5.5 | 12 | 5 | 0.6 |
| | 14K1103050 | 14 | 16 | 24 | 24.5 | 40 | 10 | 2000 | 13.2 | 50 | 0.1 | 29 | 11 | 6.5 | 12 | 7.5 | 0.6 |
| | 17K602003 | 17 | 20 | 27 | 30 | 44 | 2.5 | 400 | 1.8 | 3 | 0.01 | 2 | 7 | 4.5 | 7 | 5 | 0.6 |
| | 17K802006 | 17 | 20 | 27 | 30 | 44 | 5 | 800 | 2.9 | 6 | 0.015 | 4 | 8 | 4.5 | 9 | 5 | 0.6 |
| | 17K902025 | 17 | 20 | 27 | 30 | 44 | 10 | 2000 | 7.2 | 25 | 0.08 | 18 | 9 | 5.5 | 12 | 5 | 0.6 |
| 17K1103050 | 17 | 20 | 27 | 30 | 44 | 10 | 2000 | 15.8 | 50 | 0.1 | 24 | 11 | 6.5 | 12 | 7.5 | 0.6 | |
| 24V | 20K602003 | 20 | 26 | 33 | 30 | 54 | 2.5 | 400 | 1.9 | 3 | 0.01 | 1.8 | 7 | 4.5 | 7 | 5 | 0.6 |
| | 20K802006 | 20 | 26 | 33 | 30 | 54 | 5 | 800 | 3 | 6 | 0.015 | 3.5 | 8 | 4.5 | 9 | 5 | 0.6 |
| | 20K902025 | 20 | 26 | 33 | 30 | 54 | 10 | 2000 | 9 | 25 | 0.08 | 13 | 9 | 4.5 | 12 | 5 | 0.6 |
| | 20K1103050 | 20 | 26 | 33 | 30 | 54 | 10 | 2000 | 17 | 50 | 0.1 | 18 | 11 | 6.5 | 12 | 7.5 | 0.6 |
| | 25K14050 | 25 | 28 | 39 | 40 | 77 | 20 | 2000 | 28 | 50 | 0.2 | 14 | 22.5 | 4.6 | 24 | 10 | 1 |
| | 25K20100 | 25 | 28 | 39 | 40 | 77 | 20 | 2000 | 50 | 100 | 0.3 | 28 | 22.5 | 5.6 | 24 | 10 | 1 |
| | 30K602003 | 30 | 34 | 47 | 50 | 77 | 2.5 | 400 | 2.3 | 3 | 0.01 | 1.3 | 7 | 4.5 | 7 | 5 | 0.6 |
| | 30K802006 | 30 | 34 | 47 | 50 | 77 | 5 | 800 | 3.8 | 6 | 0.015 | 2 | 8 | 4.5 | 9 | 5 | 0.6 |
| | 30K902025 | 30 | 34 | 47 | 50 | 77 | 10 | 2000 | 18 | 25 | 0.08 | 12 | 9 | 4.5 | 12 | 5 | 0.6 |
| | 30K14050 | 30 | 34 | 47 | 50 | 93 | 20 | 2000 | 34 | 50 | 0.2 | 13.5 | 22.5 | 4.6 | 24 | 10 | 1 |
| 30K20100 | 30 | 34 | 47 | 50 | 93 | 20 | 2000 | 60 | 100 | 0.3 | 26 | 22.5 | 5.6 | 24 | 10 | 1 | |
| 42V | 40K602003 | 40 | 56 | 68 | 65 | 110 | 2.5 | 400 | 2.6 | 3 | 0.01 | 1.1 | 7 | 4.5 | 7 | 5 | 0.6 |
| | 40K802006 | 40 | 56 | 68 | 65 | 110 | 5 | 800 | 4.8 | 6 | 0.015 | 1.8 | 8 | 4.5 | 9 | 5 | 0.6 |
| | 40K902025 | 40 | 56 | 68 | 65 | 110 | 10 | 2000 | 18 | 25 | 0.08 | 6.6 | 9 | 4.5 | 12 | 5 | 0.6 |
| | 40K14050 | 40 | 56 | 68 | 65 | 135 | 20 | 2000 | 37 | 50 | 0.2 | 12.5 | 22.5 | 4.6 | 24 | 10 | 1 |
| | 40K20100 | 40 | 56 | 68 | 65 | 135 | 20 | 2000 | 76 | 100 | 0.3 | 24 | 22.5 | 5.6 | 24 | 10 | 1 |

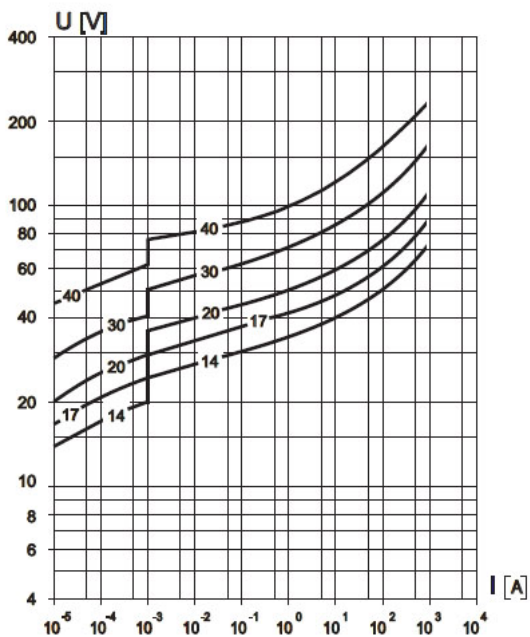
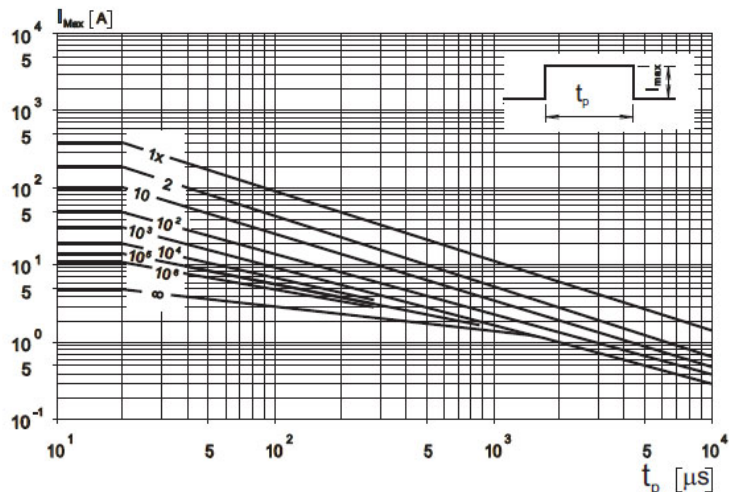
Types AVL/AVYL35 are available upon request

Protection Levels

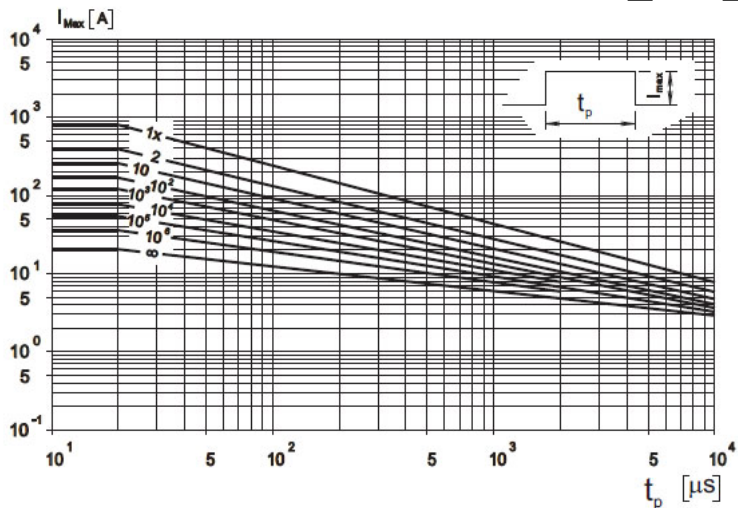
(With the worst-case condition in the tolerance region)



AVL14-40K60_003_

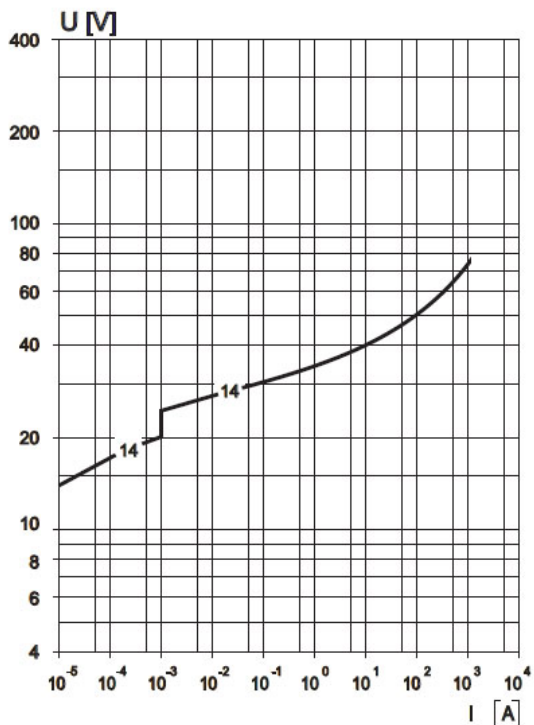


AVL14-40K80_006_

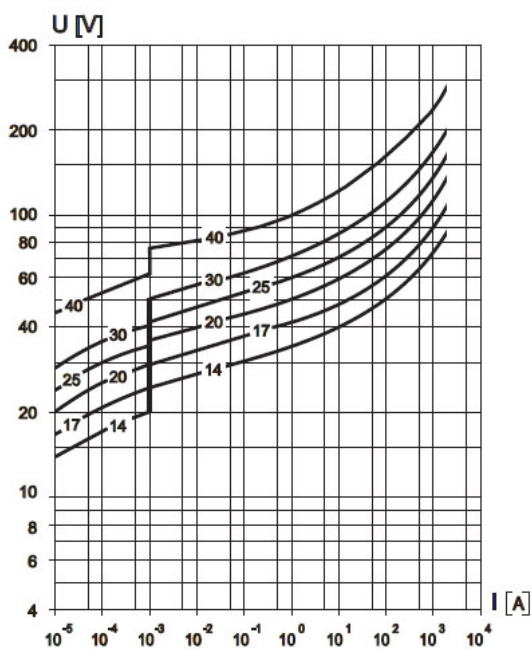
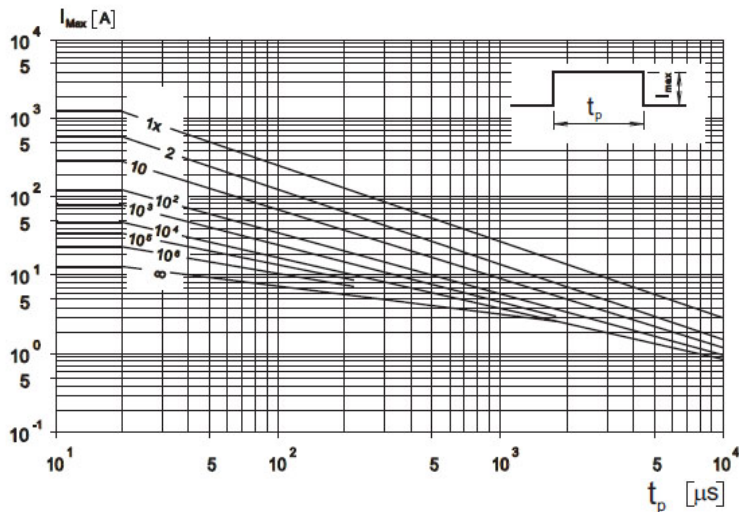


Protection Levels

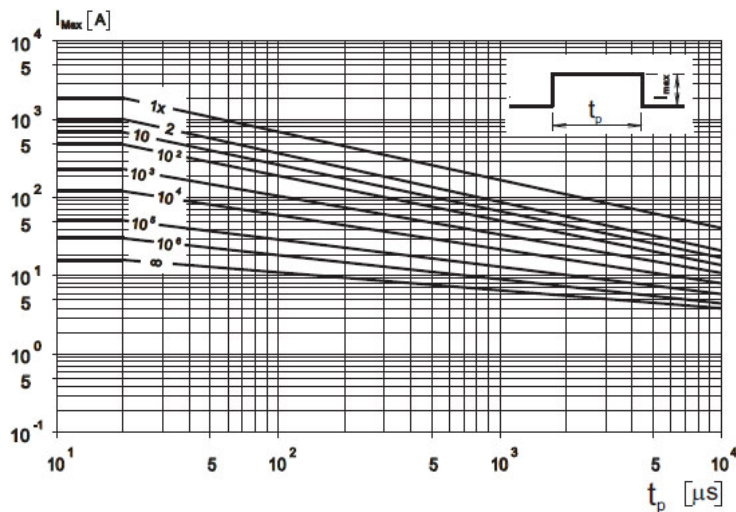
(With the worst-case condition in the tolerance region)



AV14K902012_



AVL14-20K90-110_025-050_
AVL25-40K90-110_050-100_



RoHS Compliance

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union’s directive regarding “Restrictions on Hazardous Substances” (RoHS 3). As part of this ongoing program, we periodically update this document with the status regarding the availability of our compliant components. All our standard part numbers are compliant to EU Directive 2011/65/EU of the European Parliament as amended by Directive (EU) 2015/863/EU as regards the list of restricted substances.

| RoHS Compliance Status | | | | | | |
|-------------------------|---|----------------------------|--------------------------------|-----------------------------------|--|---------------------------------------|
| Standard Product Series | Description | Package / Termination Type | Standard Series RoHS Compliant | Lead-Free Termination Composition | Lead-Free Mfg. Effective Date (Std Product Series) | Lead-Free Effective Date Code (YY/WW) |
| AVL_AVYL | Automotive Leaded Varistor Straight Leads | Leaded | YES | 100% Matte Sn | Jul-05 | 05/27 |

“Conflict Metals” Commitment

We at Stackpole Electronics, Inc. are joined with our industry in opposing the use of metals mined in the “conflict region” of the eastern Democratic Republic of the Congo (DRC) in our products. Recognizing that the supply chain for metals used in the electronics industry is very complex, we work closely with our own suppliers to verify to the extent possible that the materials and products we supply do not contain metals sourced from this conflict region. As such, we are in compliance with the requirements of Dodd-Frank Act regarding Conflict Minerals.

Compliance to “REACH”

We certify that all passive components supplied by Stackpole Electronics, Inc. are SVHC (Substances of Very High Concern) free and compliant with the requirements of EU Directive 1907/2006/EC, “The Registration, Evaluation, Authorization and Restriction of Chemicals”, otherwise referred to as REACH. Contact us for complete list of REACH Substance Candidate List.

Environmental Policy

It is the policy of Stackpole Electronics, Inc. (SEI) to protect the environment in all localities in which we operate. We continually strive to improve our effect on the environment. We observe all applicable laws and regulations regarding the protection of our environment and all requests related to the environment to which we have agreed. We are committed to the prevention of all forms of pollution.

How to Order

