

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 characteristics 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 14 V to 40 V
- DC operating voltage (V_{dc}) from 16 V to 56 V
Higher operating voltages are available upon request
- Power supply voltages (V_{dc}) 12 V, 24 V and 42 V
- 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 50 J
- Available in tape and reel for automatic insertion equipment
- RoHS compliant, REACH compliant, lead free, and halogen free
- AEC-Q200 qualified grade

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

Higher operating voltages are available upon request.

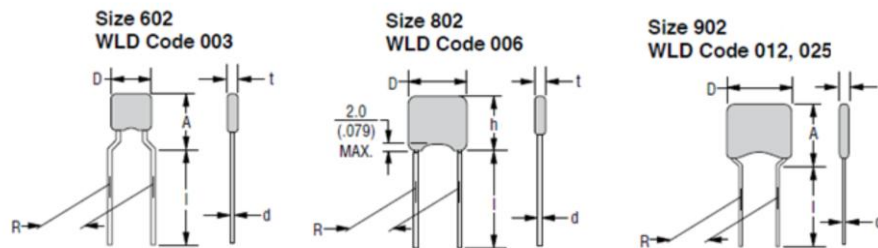
Standard Packaging Options - Bulk Quantities

Voltage Range (Vrms)	Model Size		
	602	802	902
14 to 40	1500	1500	1000

Standard Packaging Options - Reel Quantities

Voltage Range (Vrms)	Model Size		
	602	802	902
14	1500	1500	1500
17	1500	1500	1300
20	1500	1500	1300
30	1300	1300	1300
40	1300	1300	1300

Device Ratings and Dimensions

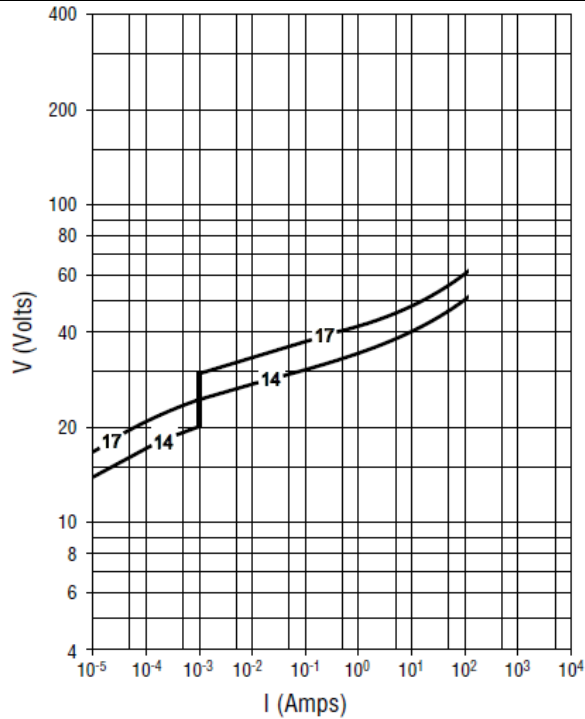


Power Supply	Part Number	V _{RMS} (volts)	V _{DC} (volts)	V _N (1 mA) (volts)	V _{JUMP} (volts)	V _C (volts)	I _C (8/20 uSec) (amps)	I _{MAX} (8/20 uSec) (amps)	W _{MAX} (10/1000 uSec) (joules)	WLD (joules)	P _{max} (watts)	C _{TYP} (@ 1 kHz) (nF)	D _{max} (mm)	t _{max} (mm)	h _{max} (mm)	R (mm)	d (mm)
12 V	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
	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
24 V	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
	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
42 V	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

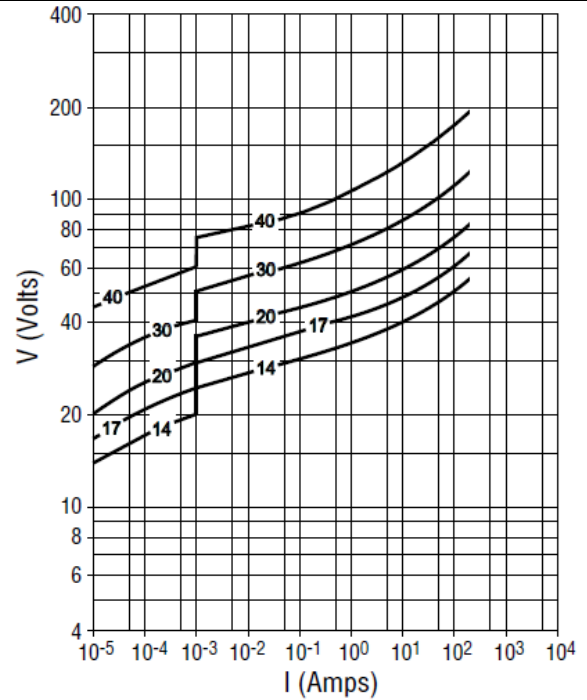
Types AVL/AVYL35 are available upon request

Protection Levels

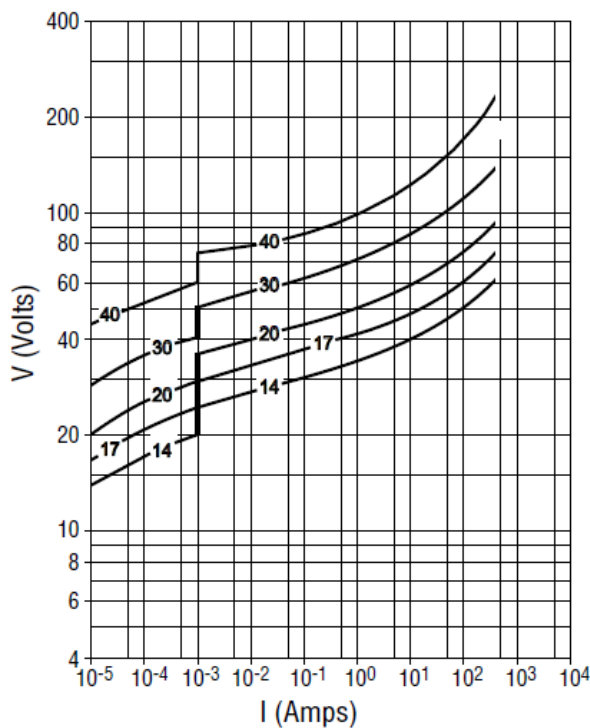
Model Size 602
AVL14K602003 to AVL40K602003



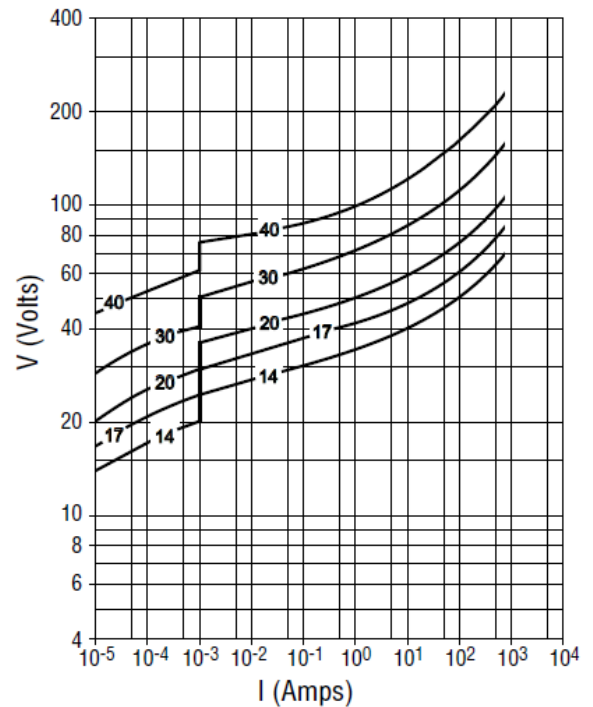
Model Size 802
AVL14K802006 to AVL40K802006



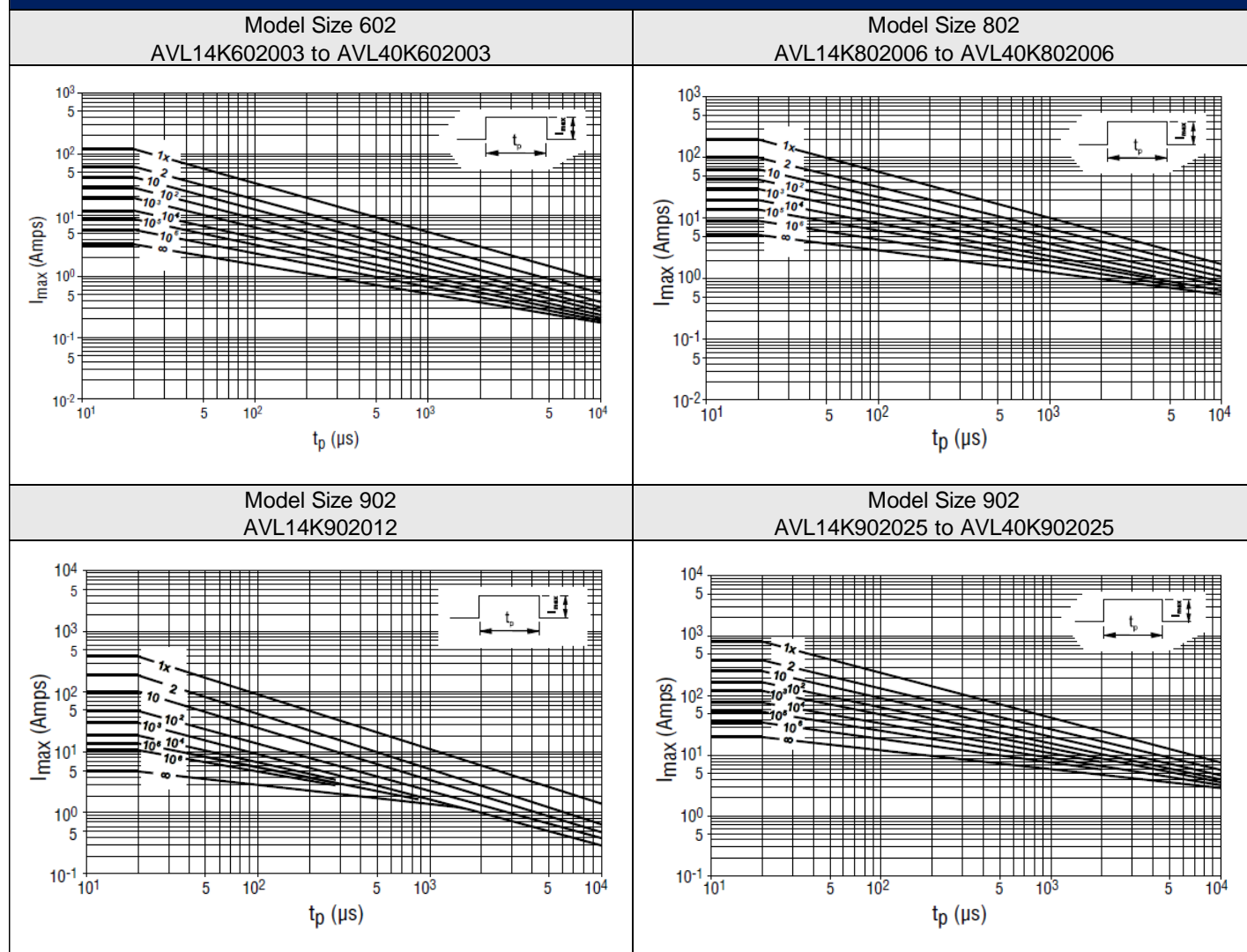
Model Size 902
AVL14K902012



Model Size 902
AVL14K902025 to AVL40K902025



PULSE RATING CURVE



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

A		V		L		2		0		K		8		0		2		0		0		6		T			
Product Series				Vrms				Tolerance				Disc Size (mm)				Lead Spacing				W _{LD}				Packaging			
Code		Description		See Device Ratings & Dimensions Table				Code		Tol		Code		Size		Code		Spacing		Code		Size		Code		Description	
AVL		Standard						K		10%		60		6 mm		2		5 mm		003		3		B		Bulk	
AVYL		High Temp										80		8 mm						006		6		T		Tape and Reel	
												90		9 mm						012		12					
																				025		25					