



## Surge arresters

### 2-electrode arresters

**Series/Type:** EHV6\* series  
**Ordering code:**  
**Version/Date:** Issue 10 / 2014-01-30

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## Product description

The EHV6\* series was specially designed to meet the strictest protection requirements. An optimized design features a high level of protection against fast rising transients usually caused by lightning disturbance. For use in high-frequency applications the series offers ultra-low capacitance and shows only marginal signal losses up to high frequencies. The devices are extremely reliable and are able to withstand high surge currents without destruction.

All tubes are produced to ISO TS 16949 standard together with products that have been in use in automotive applications for almost 20 years. The arresters are tested by automotive standards like IEC 60068 and can sustain high humidity environments and heavy vibration while maintaining full operability at all times. They can withstand high AC voltages without ignition. The EPCOS EHV series is fully UL graded and can be delivered for many different voltage levels as well as in different wire configurations.

### Features

- Built to automotive standard (ISO TS 16949)
- Small sizes
- Fast response time
- High current handling capability
- Stable performance over service life
- Low capacitance and insertion loss
- High insulation resistance
- RoHS-compatible

### Applications


#### Automotive:

- On-board battery chargers
- Vehicle charging stations

#### Others:

- LED lighting
- Power supplies
- Photovoltaic
- Antenna protection
- Air-conditioning

## Product characteristics

Physical dimensions without lead wires (diameter × length)	∅ 0.24 × 0.28	in
	∅ 6.0 × 7.0	mm
Weight	~ 0.8	g
Operating temperature	-40 ... +125	°C
Recommended storage <sup>1)</sup>		
- temperature	+5 ... +35	°C
- humidity	45 ... 80	%
- period	≤ 2	years
Climatic category (IEC 60068-1)	40/ 125/ 21	
Moisture sensitivity level <sup>2)</sup>	1	
Marking, blue positive	<b>EPCOS</b> XXXX YY XXXX = Nominal voltage YY = Year of production	
Certifications	UL 1449 (E319264)	

#### Notes:

<sup>1)</sup> Specified in terms of corrosion against Sn-plating

<sup>2)</sup> Tests according JEDEC J-STD-020

**Surge arresters**
**2-electrode arresters**
**EHV6\* series**
**Electrical specifications**

Type	EHV6*- H25..	EHV6*- H30..	EHV6*- H36..	EHV6*- H40..	EHV6*- H45..	Unit
Nominal DC spark-over voltage <sup>3) 4)</sup>	2500	3000	3600	4000	4500	V
Tolerance	±20					%
Minimum	2000	2400	2880	3200	3600	V
Maximum	3000	3600	4320	4800	5400	V
Impulse spark-over voltage						
@ 100 V/μs for 99% of values typical values	< 3300 < 3000	< 3800 < 3400	< 4350 < 4150	< 5000 < 4600	< 5200 < 4800	V V
@ 1 kV/μs for 99% of values typical values	< 3400 < 3100	< 4000 < 3500	< 4500 < 4300	< 5400 < 4800	< 5500 < 5000	V V
@ 5 kV/μs for 99% of values typical values	< 3900 < 3400	< 4500 < 4000	< 5000 < 4500	< 5600 < 5000	< 6000 < 5500	V V
Service life						
300 operations 8/20 μs	100					A
3 operations 8/20 μs	3					kA
1 operation 8/20 μs	5					kA
Insulation resistance @ 100 V <sub>DC</sub>	> 1					GΩ
Capacitance	< 1					pF
Arc voltage @ 1 A	~ 45	~ 45	~ 45	~ 50	~ 50	V
Glow to arc transition current	< 0.3	< 0.3	< 0.3	< 0.3	~ 0.3	A
Glow voltage @ 0.1 A	~ 240	~ 240	~ 240	~ 250	~ 250	V
AC withstand voltage (1 min) <sup>5)</sup>	1250	1500	1800	2000	2250	V

Notes:

<sup>3)</sup> At delivery AQL 0.65 level II, DIN ISO 2859

<sup>4)</sup> In ionized mode

<sup>5)</sup> AC withstand voltage still valid after service life

Terms and current waveforms in accordance with: ITU-T Rec. K. 12; IEC 61643-21; 61643-311; IEC 61663-2.

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#### Explanation of type:

1	2	3	4	5	6	7	8	9	10	11	
<b>E</b>	<b>H</b>	<b>V</b>	<b>6</b>	<b>2</b>	<b>-</b>	<b>H</b>	<b>3</b>	<b>6</b>	<b>B</b>	<b>2</b>	
↓ Product code				↓ High voltage			↓				
∅ wire		DC spark-over voltage				Bending style					
1	1.0 mm	e.g. 36 = 36 × 10 <sup>2</sup> V = 3600 V				blank	straight wires				
2	0.8 mm					B...	bended for tray				
3	0.6 mm					T...	bended for tape				

#### Explanation of ordering code:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
<b>B</b>	<b>8</b>	<b>8</b>	<b>0</b>	<b>6</b>	<b>9</b>	<b>X</b>	<b>1</b>	<b>6</b>	<b>8</b>	<b>3</b>	<b>S</b>	<b>1</b>	<b>0</b>	<b>2</b>		
↓ Product group: Surge arresters							↓ Type code					↓				
							<b>Packing</b>					<b>Packing unit</b>				
							S	Stripes					<b>Code</b>	<b>Pieces</b>	<b>Code</b>	<b>Pieces</b>
							T	Tape					101	10	252	250
							B	Blister tray					102	100	253	2500
							C	Bulk					103	1000	352	350
												202	200	403	4000	
												203	2000	502	500	
												251	25	902	900	

Dimensions in mm and wire configurations

**EHV6\*-H...**

Type	Ordering code
EHV62-H25	B88069X1893S102 / B88069X1893T502
EHV63-H25	B88069X2733S102 / B88069X2733T502
EHV63-H30	B88069X2553S102 / B88069X2553T502
EHV62-H36	B88069X1683S102 / B88069X1683T502
EHV63-H36	B88069X3003S102 / B88069X3003T502
EHV62-H40	B88069X2103S102 / B88069X2103T502
EHV63-H40	B88069X2563S102 / B88069X2563T502
EHV62-H45	B88069X1793S102 / B88069X1793T502
EHV63-H45	B88069X2573S102 / B88069X2573T502

wires tin-plated

**EHV6\*-H...B1**

Type	Ordering code
EHV62-H36B1	B88069X2213B502

wires tin-plated

**EHV6\*-H...B2**

Type	Ordering code
EHV63-H25B2	B88069X2023B502
EHV63-H30B2	B88069X2043B502
EHV62-H36B2	B88069X1693B502
EHV63-H36B2	B88069X2073B502
EHV63-H40B2	B88069X2633B502
EHV63-H45B2	B88069X2643B502

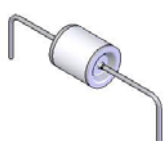
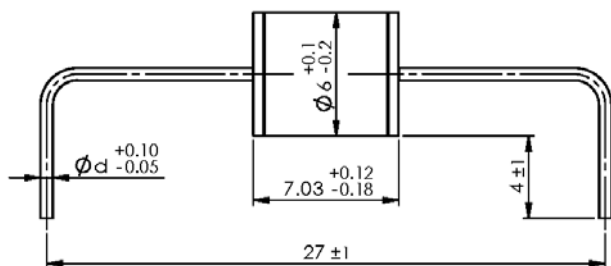
wires tin-plated

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### EHV6\* series

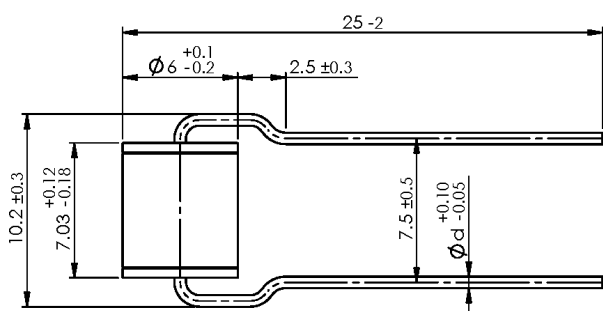
#### EHV6\*-H.. B7



wires tin-plated

Type	Ordering code
EHV63-H30B7	B88069X2053B252
EHV63-H36B7	B88069X2083B252

#### EHV6\*-H.. T7



wires tin-plated

Type	Ordering code
EHV63-H25T7	B88069X2033A802
EHV63-H30T7	B88069X2063A802
EHV63-H36T7	B88069X2093A802
EHV63-H45T7	B88069X2953A802

Packing advices

<p><b>B88069X...S102</b> = 100 pcs. on 5 taped stripes</p>		
<p><b>B88069X...T502</b> = 500 pcs. on tape and reel</p>		

<p><b>B88069X...B502</b> = 500 pcs. on trays</p>	
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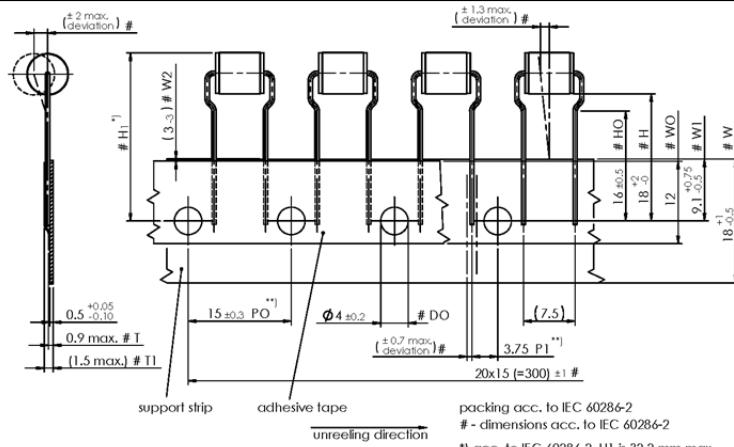
<p><b>B88069X...B252</b> = 250 pcs. on trays</p>	
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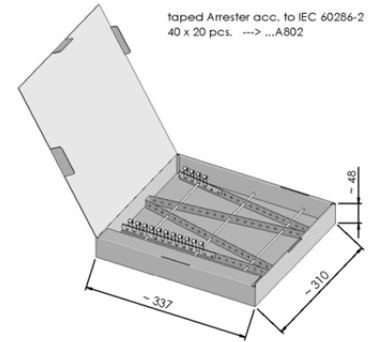
### EHV6\* series

**B88069X...A802**  
= 800 pcs. in  
ammo pack



Tape force

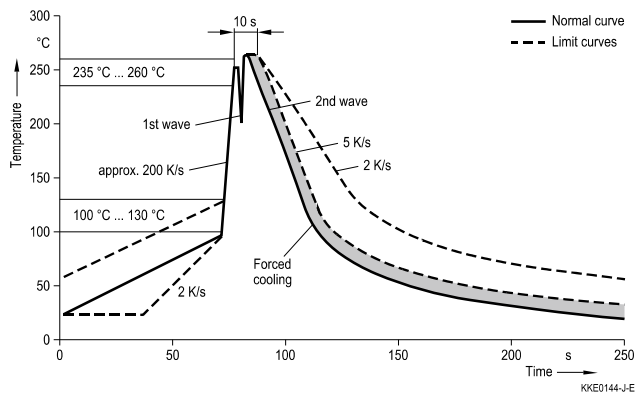
- the extraction force for components in the tape plane, vertical to the direction of unreeling shall be  $\geq 5$  N
- break force of the tape  $\geq 15$  N



packing acc. to IEC 60286-2  
# - dimensions acc. to IEC 60286-2  
\*) acc. to IEC 60286-2, H1 is 32.2 mm max.  
\*\*) PO (15 mm) and P1 (3.75 mm) is customised,  
upon request

## Soldering parameter

### Wave soldering



Wave profile feature	Pb-free assembly
Solder	Sn 95.5 / Ag 3.8 / Cu 0.7
Solder bath temperature	263 ( $\pm 3$ ) °C
Dwell time	< 3 s

Soldering profile applied to a single soldering process.



### Cautions and warnings

- Do not operate surge arresters in power supply networks, whose maximum operating voltage exceeds the minimum spark-over voltage of the surge arresters.
- Surge arresters may become hot in the event of longer periods of current stress (burn risk). In the event of overload the connectors may fail or the component may be destroyed.
- If the contacts of the surge arresters are defective, current load can cause sparks and loud noises.
- Surge arresters must be handled with care and must not be dropped.
- Do not continue to use damaged surge arresters.

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