

# **SIOV metal oxide varistors**

Leaded varistors, StandarD series

**Series/Type:** B722\*  
**Date:** March 2018

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**Standard series**
**Construction**

- Round varistor element, leaded
- Coating: epoxy resin, flame-retardant to UL 94 V-0
- Terminals: tinned wire

**Features**

- Wide operating voltage range 11 ... 1100 V<sub>RMS</sub>
- High surge current ratings up to 8 kA
- No derating up to 105 °C ambient temperature
- PSpice models

**Approvals**

- UL
- CSA (all types ≥ K115)
- VDE
- CQC S05/07 (K11 ... K460), S10/S14 (K11 ... K680), S20 (K11 ... K1000)
- IEC

**Delivery mode**

- Bulk (standard), taped versions on reel or in Ammo pack upon request.
- For further details refer to chapter "Taping, packaging and lead configuration" for leaded varistors.

**Options**

S10\* types with lead spacing 5.0 mm and S20\* types with lead spacing 7.5 mm are also available on request.

**General technical data**

|                       |                |              |                   |
|-----------------------|----------------|--------------|-------------------|
| Climatic category     | to IEC 60068-1 | 40/105/56    |                   |
| Operating temperature | to IEC 61051   | -40 ... +105 | °C                |
| Storage temperature   |                | -40 ... +125 | °C                |
| Electric strength     | to IEC 61051   | ≥ 2.5        | kV <sub>RMS</sub> |
| Insulation resistance | to IEC 61051   | ≥ 100        | MΩ                |


**Leaded varistors**
**B722\***
**Standard series**
**Electrical specifications and ordering codes**
**Maximum ratings ( $T_A = 105\text{ }^\circ\text{C}$ )**

| Ordering code                             | Type<br>(untaped)<br>SIOV- | $V_{RMS}$<br><br>V | $V_{DC}$<br><br>V | $i_{max}$<br>(8/20 $\mu$ s)<br>1 time<br>A | $I_n^{1)}$<br>(8/20 $\mu$ s)<br>15 times<br>A | $W_{max}$<br>(2 ms)<br><br>J | $P_{max}$<br><br>W |
|---|----------------------------|--------------------|-------------------|--|---|------------------------------|--------------------|
| <b><math>V_{RMS} = 11\text{ V}</math></b> |                            |                    |                   |  |   |                              |                    |
| B72205S0110K101                           | S05K11                     | 11                 | 14                | 100  | 50  | 0.3                          | 0.01               |
| B72207S0110K101                           | S07K11                     | 11                 | 14                | 250  | 100   | 0.8                          | 0.02               |
| B72210S0110K101                           | S10K11                     | 11                 | 14                | 500  | 250   | 1.7                          | 0.05               |
| B72214S0110K101                           | S14K11                     | 11                 | 14                | 1000                                       | 500   | 3.2                          | 0.10               |
| B72220S0110K101                           | S20K11                     | 11                 | 14                | 2000                                       | 1000  | 10.0                         | 0.20               |
| <b><math>V_{RMS} = 14\text{ V}</math></b> |                            |                    |                   |  |   |                              |                    |
| B72205S0140K101                           | S05K14                     | 14                 | 18                | 100  | 50  | 0.4                          | 0.01               |
| B72207S0140K101                           | S07K14                     | 14                 | 18 <sup>2)</sup>  | 250  | 100   | 0.9                          | 0.02               |
| B72210S0140K101                           | S10K14                     | 14                 | 18 <sup>2)</sup>  | 500  | 250   | 2.0                          | 0.05               |
| B72214S0140K101                           | S14K14                     | 14                 | 18 <sup>2)</sup>  | 1000                                       | 500   | 4.0                          | 0.10               |
| B72220S0140K101                           | S20K14                     | 14                 | 18 <sup>2)</sup>  | 2000                                       | 1000  | 12.0                         | 0.20               |
| <b><math>V_{RMS} = 17\text{ V}</math></b> |                            |                    |                   |  |   |                              |                    |
| B72205S0170K101                           | S05K17                     | 17                 | 22                | 100  | 50  | 0.5                          | 0.01               |
| B72207S0170K101                           | S07K17                     | 17                 | 22                | 250  | 100   | 1.1                          | 0.02               |
| B72210S0170K101                           | S10K17                     | 17                 | 22                | 500  | 250   | 2.5                          | 0.05               |
| B72214S0170K101                           | S14K17                     | 17                 | 22                | 1000                                       | 500   | 5.0                          | 0.10               |
| B72220S0170K101                           | S20K17                     | 17                 | 22                | 2000                                       | 1000  | 14.0                         | 0.20               |
| <b><math>V_{RMS} = 20\text{ V}</math></b> |                            |                    |                   |  |   |                              |                    |
| B72205S0200K101                           | S05K20                     | 20                 | 26                | 100  | 50  | 0.6                          | 0.01               |
| B72207S0200K101                           | S07K20                     | 20                 | 26                | 250  | 100   | 1.3                          | 0.02               |
| B72210S0200K101                           | S10K20                     | 20                 | 26                | 500  | 250   | 3.1                          | 0.05               |
| B72214S0200K101                           | S14K20                     | 20                 | 26                | 1000                                       | 500   | 6.0                          | 0.10               |
| B72220S0200K101                           | S20K20                     | 20                 | 26                | 2000                                       | 1000  | 18.0                         | 0.20               |
| <b><math>V_{RMS} = 25\text{ V}</math></b> |                            |                    |                   |  |   |                              |                    |
| B72205S0250K101                           | S05K25                     | 25                 | 31                | 100  | 50  | 0.7                          | 0.01               |
| B72207S0250K101                           | S07K25                     | 25                 | 31                | 250  | 100   | 1.6                          | 0.02               |
| B72210S0250K101                           | S10K25                     | 25                 | 31                | 500  | 250   | 3.7                          | 0.05               |
| B72214S0250K101                           | S14K25                     | 25                 | 31                | 1000                                       | 500   | 7.0                          | 0.10               |
| B72220S0250K101                           | S20K25                     | 25                 | 31                | 2000                                       | 1000  | 22.0                         | 0.20               |
| <b><math>V_{RMS} = 30\text{ V}</math></b> |                            |                    |                   |  |   |                              |                    |
| B72205S0300K101                           | S05K30                     | 30                 | 38                | 100  | 50  | 0.9                          | 0.01               |
| B72207S0300K101                           | S07K30                     | 30                 | 38                | 250  | 100   | 2.0                          | 0.02               |
| B72210S0300K101                           | S10K30                     | 30                 | 38                | 500  | 250   | 4.4                          | 0.05               |
| B72214S0300K101                           | S14K30                     | 30                 | 38                | 1000                                       | 500   | 9.0                          | 0.10               |
| B72220S0300K101                           | S20K30                     | 30                 | 38                | 2000                                       | 1000  | 26.0                         | 0.20               |

1) **Note:** Nominal discharge current  $I_n$ , according to UL 1449, 4<sup>th</sup> edition.

2) Jump-start strength (max. 24 V, 5 minutes)


**Characteristics (T<sub>A</sub> = 25 °C)**

| Ordering code                 | V <sub>V</sub><br>(1 mA)<br>V | ΔV <sub>V</sub><br>(1 mA)<br>% | V <sub>C,max</sub><br>(i <sub>C</sub> )<br>V | i <sub>C</sub><br>A | C <sub>typ</sub><br>(1 kHz)<br>pF |
|-------------------------------|-------------------------------|--------------------------------|--|---------------------|-----------------------------------|
| <b>V<sub>RMS</sub> = 11 V</b> |                               |                                |  |                     |                                   |
| B72205S0110K101               | 18                            | ±10                            | 36   | 1.0                 | 1750                              |
| B72207S0110K101               | 18                            | ±10                            | 36   | 2.5                 | 2750                              |
| B72210S0110K101               | 18                            | ±10                            | 36   | 5.0                 | 6250                              |
| B72214S0110K101               | 18                            | ±10                            | 36   | 10.0                | 12100                             |
| B72220S0110K101               | 18                            | ±10                            | 36   | 20.0                | 23000                             |
| <b>V<sub>RMS</sub> = 14 V</b> |                               |                                |  |                     |                                   |
| B72205S0140K101               | 22                            | ±10                            | 43   | 1.0                 | 1450                              |
| B72207S0140K101               | 22                            | ±10                            | 43   | 2.5                 | 2300                              |
| B72210S0140K101               | 22                            | ±10                            | 43   | 5.0                 | 5200                              |
| B72214S0140K101               | 22                            | ±10                            | 43   | 10.0                | 9950                              |
| B72220S0140K101               | 22                            | ±10                            | 43   | 20.0                | 19000                             |
| <b>V<sub>RMS</sub> = 17 V</b> |                               |                                |  |                     |                                   |
| B72205S0170K101               | 27                            | ±10                            | 53   | 1.0                 | 1200                              |
| B72207S0170K101               | 27                            | ±10                            | 53   | 2.5                 | 1900                              |
| B72210S0170K101               | 27                            | ±10                            | 53   | 5.0                 | 4350                              |
| B72214S0170K101               | 27                            | ±10                            | 53   | 10.0                | 8200                              |
| B72220S0170K101               | 27                            | ±10                            | 53   | 20.0                | 15600                             |
| <b>V<sub>RMS</sub> = 20 V</b> |                               |                                |  |                     |                                   |
| B72205S0200K101               | 33                            | ±10                            | 65   | 1.0                 | 980                               |
| B72207S0200K101               | 33                            | ±10                            | 65   | 2.5                 | 1600                              |
| B72210S0200K101               | 33                            | ±10                            | 65   | 5.0                 | 3650                              |
| B72214S0200K101               | 33                            | ±10                            | 65   | 10.0                | 6800                              |
| B72220S0200K101               | 33                            | ±10                            | 65   | 20.0                | 13000                             |
| <b>V<sub>RMS</sub> = 25 V</b> |                               |                                |  |                     |                                   |
| B72205S0250K101               | 39                            | ±10                            | 77   | 1.0                 | 850                               |
| B72207S0250K101               | 39                            | ±10                            | 77   | 2.5                 | 1400                              |
| B72210S0250K101               | 39                            | ±10                            | 77   | 5.0                 | 3200                              |
| B72214S0250K101               | 39                            | ±10                            | 77   | 10.0                | 5850                              |
| B72220S0250K101               | 39                            | ±10                            | 77   | 20.0                | 11100                             |
| <b>V<sub>RMS</sub> = 30 V</b> |                               |                                |  |                     |                                   |
| B72205S0300K101               | 47                            | ±10                            | 93   | 1.0                 | 720                               |
| B72207S0300K101               | 47                            | ±10                            | 93   | 2.5                 | 1200                              |
| B72210S0300K101               | 47                            | ±10                            | 93   | 5.0                 | 2750                              |
| B72214S0300K101               | 47                            | ±10                            | 93   | 10.0                | 4950                              |
| B72220S0300K101               | 47                            | ±10                            | 93   | 20.0                | 9350                              |


**Leaded varistors**
**B722\***
**Standard series**
**Electrical specifications and ordering codes**
**Maximum ratings ( $T_A = 105\text{ }^\circ\text{C}$ )**

| Ordering code                             | Type<br>(untaped)<br>SIOV- | $V_{RMS}$<br><br>V | $V_{DC}$<br><br>V | $i_{max}$<br>(8/20 $\mu$ s)<br>1 time<br>A | $I_n$ <sup>1)</sup><br>(8/20 $\mu$ s)<br>15 times<br>A | $W_{max}$<br>(2 ms)<br>J | $P_{max}$<br><br>W |
|---|----------------------------|--------------------|-------------------|--|--|--------------------------|--------------------|
| <b><math>V_{RMS} = 35\text{ V}</math></b> |                            |                    |                   |  |  |                          |                    |
| B72205S0350K101                           | S05K35                     | 35                 | 45                | 100  | 50   | 1.1                      | 0.01               |
| B72207S0350K101                           | S07K35                     | 35                 | 45                | 250  | 100  | 2.5                      | 0.02               |
| B72210S0350K101                           | S10K35                     | 35                 | 45                | 500  | 250  | 5.4                      | 0.05               |
| B72214S0350K101                           | S14K35                     | 35                 | 45                | 1000                                       | 500  | 10.0                     | 0.10               |
| B72220S0350K101                           | S20K35                     | 35                 | 45                | 2000                                       | 1000   | 33.0                     | 0.20               |
| <b><math>V_{RMS} = 40\text{ V}</math></b> |                            |                    |                   |  |  |                          |                    |
| B72205S0400K101                           | S05K40                     | 40                 | 56                | 100  | 50   | 1.3                      | 0.01               |
| B72207S0400K101                           | S07K40                     | 40                 | 56                | 250  | 100  | 3.0                      | 0.02               |
| B72210S0400K101                           | S10K40                     | 40                 | 56                | 500  | 250  | 6.4                      | 0.05               |
| B72214S0400K101                           | S14K40                     | 40                 | 56                | 1000                                       | 500  | 13.0                     | 0.10               |
| B72220S0400K101                           | S20K40                     | 40                 | 56                | 2000                                       | 1000   | 37.0                     | 0.20               |
| <b><math>V_{RMS} = 50\text{ V}</math></b> |                            |                    |                   |  |  |                          |                    |
| B72205S0500K101                           | S05K50                     | 50                 | 65                | 400  | 150  | 1.8                      | 0.10               |
| B72207S0500K101                           | S07K50                     | 50                 | 65                | 1200                                       | 500  | 4.2                      | 0.25               |
| B72210S0500K101                           | S10K50                     | 50                 | 65                | 2500                                       | 1500   | 8.4                      | 0.40               |
| B72214S0500K101                           | S14K50                     | 50                 | 65                | 4500                                       | 3000   | 15.0                     | 0.60               |
| B72220S0500K101                           | S20K50                     | 50                 | 65                | 6500                                       | 3000   | 27.0                     | 1.00               |
| <b><math>V_{RMS} = 60\text{ V}</math></b> |                            |                    |                   |  |  |                          |                    |
| B72205S0600K101                           | S05K60                     | 60                 | 85                | 400  | 150  | 2.2                      | 0.10               |
| B72207S0600K101                           | S07K60                     | 60                 | 85                | 1200                                       | 500  | 4.8                      | 0.25               |
| B72210S0600K101                           | S10K60                     | 60                 | 85                | 2500                                       | 1500   | 10.0                     | 0.40               |
| B72214S0600K101                           | S14K60                     | 60                 | 85                | 4500                                       | 3000   | 17.0                     | 0.60               |
| B72220S0600K101                           | S20K60                     | 60                 | 85                | 6500                                       | 3000   | 33.0                     | 1.00               |
| <b><math>V_{RMS} = 75\text{ V}</math></b> |                            |                    |                   |  |  |                          |                    |
| B72205S0750K101                           | S05K75                     | 75                 | 100               | 400  | 150  | 2.5                      | 0.10               |
| B72207S0750K101                           | S07K75                     | 75                 | 100               | 1200                                       | 500  | 5.9                      | 0.25               |
| B72210S0750K101                           | S10K75                     | 75                 | 100               | 2500                                       | 1500   | 12.0                     | 0.40               |
| B72214S0750K101                           | S14K75                     | 75                 | 100               | 4500                                       | 3000   | 20.0                     | 0.60               |
| B72220S0750K101                           | S20K75                     | 75                 | 100               | 6500                                       | 3000   | 40.0                     | 1.00               |
| <b><math>V_{RMS} = 95\text{ V}</math></b> |                            |                    |                   |  |  |                          |                    |
| B72205S0950K101                           | S05K95                     | 95                 | 125               | 400  | 150  | 3.4                      | 0.10               |
| B72207S0950K101                           | S07K95                     | 95                 | 125               | 1200                                       | 500  | 7.6                      | 0.25               |
| B72210S0950K101                           | S10K95                     | 95                 | 125               | 2500                                       | 1500   | 15.0                     | 0.40               |
| B72214S0950K101                           | S14K95                     | 95                 | 125               | 4500                                       | 3000   | 25.0                     | 0.60               |
| B72220S0950K101                           | S20K95                     | 95                 | 125               | 6500                                       | 3000   | 50.0                     | 1.00               |

<sup>1)</sup> **Note:** Nominal discharge current  $I_n$ , according to UL 1449, 4<sup>th</sup> edition.


**Leaded varistors**
**B722\***
**StandarD series**
**Characteristics (T<sub>A</sub> = 25 °C)**

| Ordering code                 | V <sub>V</sub><br>(1 mA)<br>V | ΔV <sub>V</sub><br>(1 mA)<br>% | V <sub>C,max</sub><br>(i <sub>C</sub> )<br>V | i <sub>C</sub><br>A | C <sub>typ</sub><br>(1 kHz)<br>pF |
|-------------------------------|-------------------------------|--------------------------------|--|---------------------|-----------------------------------|
| <b>V<sub>RMS</sub> = 35 V</b> |                               |                                |  |                     |                                   |
| B72205S0350K101               | 56                            | ±10                            | 110  | 1.0                 | 620                               |
| B72207S0350K101               | 56                            | ±10                            | 110  | 2.5                 | 1050                              |
| B72210S0350K101               | 56                            | ±10                            | 110  | 5.0                 | 2400                              |
| B72214S0350K101               | 56                            | ±10                            | 110  | 10.0                | 4200                              |
| B72220S0350K101               | 56                            | ±10                            | 110  | 20.0                | 8000                              |
| <b>V<sub>RMS</sub> = 40 V</b> |                               |                                |  |                     |                                   |
| B72205S0400K101               | 68                            | ±10                            | 135  | 1.0                 | 520                               |
| B72207S0400K101               | 68                            | ±10                            | 135  | 2.5                 | 900                               |
| B72210S0400K101               | 68                            | ±10                            | 135  | 5.0                 | 2100                              |
| B72214S0400K101               | 68                            | ±10                            | 135  | 10.0                | 3550                              |
| B72220S0400K101               | 68                            | ±10                            | 135  | 20.0                | 6750                              |
| <b>V<sub>RMS</sub> = 50 V</b> |                               |                                |  |                     |                                   |
| B72205S0500K101               | 82                            | ±10                            | 135  | 5.0                 | 300                               |
| B72207S0500K101               | 82                            | ±10                            | 135  | 10.0                | 530                               |
| B72210S0500K101               | 82                            | ±10                            | 135  | 25.0                | 950                               |
| B72214S0500K101               | 82                            | ±10                            | 135  | 50.0                | 1800                              |
| B72220S0500K101               | 82                            | ±10                            | 135  | 100.0               | 3800                              |
| <b>V<sub>RMS</sub> = 60 V</b> |                               |                                |  |                     |                                   |
| B72205S0600K101               | 100                           | ±10                            | 165  | 5.0                 | 250                               |
| B72207S0600K101               | 100                           | ±10                            | 165  | 10.0                | 480                               |
| B72210S0600K101               | 100                           | ±10                            | 165  | 25.0                | 870                               |
| B72214S0600K101               | 100                           | ±10                            | 165  | 50.0                | 1650                              |
| B72220S0600K101               | 100                           | ±10                            | 165  | 100.0               | 3600                              |
| <b>V<sub>RMS</sub> = 75 V</b> |                               |                                |  |                     |                                   |
| B72205S0750K101               | 120                           | ±10                            | 200  | 5.0                 | 210                               |
| B72207S0750K101               | 120                           | ±10                            | 200  | 10.0                | 430                               |
| B72210S0750K101               | 120                           | ±10                            | 200  | 25.0                | 720                               |
| B72214S0750K101               | 120                           | ±10                            | 200  | 50.0                | 1370                              |
| B72220S0750K101               | 120                           | ±10                            | 200  | 100.0               | 2900                              |
| <b>V<sub>RMS</sub> = 95 V</b> |                               |                                |  |                     |                                   |
| B72205S0950K101               | 150                           | ±10                            | 250  | 5.0                 | 185                               |
| B72207S0950K101               | 150                           | ±10                            | 250  | 10.0                | 335                               |
| B72210S0950K101               | 150                           | ±10                            | 250  | 25.0                | 690                               |
| B72214S0950K101               | 150                           | ±10                            | 250  | 50.0                | 1200                              |
| B72220S0950K101               | 150                           | ±10                            | 250  | 100.0               | 2500                              |


**Leaded varistors**
**B722\***
**Standard series**
**Electrical specifications and ordering codes**
**Maximum ratings ( $T_A = 105\text{ }^\circ\text{C}$ )**

| Ordering code                              | Type<br>(untaped)<br>SIOV- | $V_{RMS}$<br><br>V | $V_{DC}$<br><br>V | $i_{max}$<br>(8/20 $\mu$ s)<br>1 time<br>A | $I_n$ <sup>1)</sup><br>(8/20 $\mu$ s)<br>15 times<br>A | $W_{max}$<br>(2 ms)<br><br>J | $P_{max}$<br><br>W |
|--|----------------------------|--------------------|-------------------|--|--|------------------------------|--------------------|
| <b><math>V_{RMS} = 115\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72205S0111K101                            | S05K115                    | 115                | 150               | 400  | 150  | 3.6                          | 0.10               |
| B72207S0111K101                            | S07K115                    | 115                | 150               | 1200                                       | 500  | 8.4                          | 0.25               |
| B72210S0111K101                            | S10K115                    | 115                | 150               | 2500                                       | 1500   | 18.0                         | 0.40               |
| B72214S0111K101                            | S14K115                    | 115                | 150               | 4500                                       | 3000   | 30.0                         | 0.60               |
| B72220S0111K101                            | S20K115                    | 115                | 150               | 6500                                       | 3000   | 60.0                         | 1.00               |
| <b><math>V_{RMS} = 130\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72205S0131K101                            | S05K130                    | 130                | 170               | 400  | 150  | 4.2                          | 0.10               |
| B72207S0131K101                            | S07K130                    | 130                | 170               | 1200                                       | 500  | 9.5                          | 0.25               |
| B72210S0131K101                            | S10K130                    | 130                | 170               | 2500                                       | 1500   | 19.0                         | 0.40               |
| B72214S0131K101                            | S14K130                    | 130                | 170               | 4500                                       | 3000   | 34.0                         | 0.60               |
| B72220S0131K101                            | S20K130                    | 130                | 170               | 8000                                       | 3000   | 74.0                         | 1.00               |
| <b><math>V_{RMS} = 140\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72205S0141K101                            | S05K140                    | 140                | 180               | 400  | 150  | 4.5                          | 0.10               |
| B72207S0141K101                            | S07K140                    | 140                | 180               | 1200                                       | 500  | 10.0                         | 0.25               |
| B72210S0141K101                            | S10K140                    | 140                | 180               | 2500                                       | 1500   | 22.0                         | 0.40               |
| B72214S0141K101                            | S14K140                    | 140                | 180               | 4500                                       | 3000   | 36.0                         | 0.60               |
| B72220S0141K101                            | S20K140                    | 140                | 180               | 8000                                       | 3000   | 78.0                         | 1.00               |
| <b><math>V_{RMS} = 150\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72205S0151K101                            | S05K150                    | 150                | 200               | 400  | 150  | 4.9                          | 0.10               |
| B72207S0151K101                            | S07K150                    | 150                | 200               | 1200                                       | 500  | 11.0                         | 0.25               |
| B72210S0151K101                            | S10K150                    | 150                | 200               | 2500                                       | 1500   | 24.0                         | 0.40               |
| B72214S0151K101                            | S14K150                    | 150                | 200               | 4500                                       | 3000   | 40.0                         | 0.60               |
| B72220S0151K101                            | S20K150                    | 150                | 200               | 8000                                       | 3000   | 85.0                         | 1.00               |
| <b><math>V_{RMS} = 175\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72205S0171K101                            | S05K175                    | 175                | 225               | 400  | 150  | 5.6                          | 0.10               |
| B72207S0171K101                            | S07K175                    | 175                | 225               | 1200                                       | 500  | 13.0                         | 0.25               |
| B72210S0171K101                            | S10K175                    | 175                | 225               | 2500                                       | 1500   | 28.0                         | 0.40               |
| B72214S0171K101                            | S14K175                    | 175                | 225               | 4500                                       | 3000   | 46.0                         | 0.60               |
| B72220S0171K101                            | S20K175                    | 175                | 225               | 8000                                       | 3000   | 98.0                         | 1.00               |
| <b><math>V_{RMS} = 230\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72205S0231K101                            | S05K230                    | 230                | 300               | 400  | 150  | 7.2                          | 0.10               |
| B72207S0231K101                            | S07K230                    | 230                | 300               | 1200                                       | 500  | 17.0                         | 0.25               |
| B72210S0231K101                            | S10K230                    | 230                | 300               | 2500                                       | 1500   | 36.0                         | 0.40               |
| B72214S0231K101                            | S14K230                    | 230                | 300               | 4500                                       | 3000   | 60.0                         | 0.60               |
| B72220S0231K101                            | S20K230                    | 230                | 300               | 8000                                       | 3000   | 130.0                        | 1.00               |

<sup>1)</sup> **Note:** Nominal discharge current  $I_n$  according to UL 1449, 4<sup>th</sup> edition.


**Characteristics (T<sub>A</sub> = 25 °C)**

| Ordering code                  | V <sub>V</sub><br>(1 mA)<br>V | ΔV <sub>V</sub><br>(1 mA)<br>% | V <sub>C,max</sub><br>(i <sub>C</sub> )<br>V | i <sub>C</sub><br>A | C <sub>typ</sub><br>(1 kHz)<br>pF |
|--------------------------------|-------------------------------|--------------------------------|--|---------------------|-----------------------------------|
| <b>V<sub>RMS</sub> = 115 V</b> |                               |                                |  |                     |                                   |
| B72205S0111K101                | 180                           | ±10                            | 300  | 5.0                 | 155                               |
| B72207S0111K101                | 180                           | ±10                            | 300  | 10.0                | 280                               |
| B72210S0111K101                | 180                           | ±10                            | 300  | 25.0                | 580                               |
| B72214S0111K101                | 180                           | ±10                            | 300  | 50.0                | 1000                              |
| B72220S0111K101                | 180                           | ±10                            | 300  | 100.0               | 2100                              |
| <b>V<sub>RMS</sub> = 130 V</b> |                               |                                |  |                     |                                   |
| B72205S0131K101                | 205                           | ±10                            | 340  | 5.0                 | 135                               |
| B72207S0131K101                | 205                           | ±10                            | 340  | 10.0                | 245                               |
| B72210S0131K101                | 205                           | ±10                            | 340  | 25.0                | 500                               |
| B72214S0131K101                | 205                           | ±10                            | 340  | 50.0                | 880                               |
| B72220S0131K101                | 205                           | ±10                            | 340  | 100.0               | 1850                              |
| <b>V<sub>RMS</sub> = 140 V</b> |                               |                                |  |                     |                                   |
| B72205S0141K101                | 220                           | ±10                            | 360  | 5.0                 | 125                               |
| B72207S0141K101                | 220                           | ±10                            | 360  | 10.0                | 230                               |
| B72210S0141K101                | 220                           | ±10                            | 360  | 25.0                | 470                               |
| B72214S0141K101                | 220                           | ±10                            | 360  | 50.0                | 820                               |
| B72220S0141K101                | 220                           | ±10                            | 360  | 100.0               | 1700                              |
| <b>V<sub>RMS</sub> = 150 V</b> |                               |                                |  |                     |                                   |
| B72205S0151K101                | 240                           | ±10                            | 395  | 5.0                 | 115                               |
| B72207S0151K101                | 240                           | ±10                            | 395  | 10.0                | 210                               |
| B72210S0151K101                | 240                           | ±10                            | 395  | 25.0                | 430                               |
| B72214S0151K101                | 240                           | ±10                            | 395  | 50.0                | 750                               |
| B72220S0151K101                | 240                           | ±10                            | 395  | 100.0               | 1550                              |
| <b>V<sub>RMS</sub> = 175 V</b> |                               |                                |  |                     |                                   |
| B72205S0171K101                | 270                           | ±10                            | 455  | 5.0                 | 100                               |
| B72207S0171K101                | 270                           | ±10                            | 455  | 10.0                | 190                               |
| B72210S0171K101                | 270                           | ±10                            | 455  | 25.0                | 380                               |
| B72214S0171K101                | 270                           | ±10                            | 455  | 50.0                | 670                               |
| B72220S0171K101                | 270                           | ±10                            | 455  | 100.0               | 1350                              |
| <b>V<sub>RMS</sub> = 230 V</b> |                               |                                |  |                     |                                   |
| B72205S0231K101                | 360                           | ±10                            | 595  | 5.0                 | 70                                |
| B72207S0231K101                | 360                           | ±10                            | 595  | 10.0                | 130                               |
| B72210S0231K101                | 360                           | ±10                            | 595  | 25.0                | 265                               |
| B72214S0231K101                | 360                           | ±10                            | 595  | 50.0                | 530                               |
| B72220S0231K101                | 360                           | ±10                            | 595  | 100.0               | 1000                              |


**Leaded varistors**
**B722\***
**Standard series**
**Electrical specifications and ordering codes**
**Maximum ratings ( $T_A = 105\text{ }^\circ\text{C}$ )**

| Ordering code                              | Type<br>(untaped)<br>SIOV- | $V_{RMS}$<br><br>V | $V_{DC}$<br><br>V | $i_{max}$<br>(8/20 $\mu$ s)<br>1 time<br>A | $I_n$ <sup>1)</sup><br>(8/20 $\mu$ s)<br>15 times<br>A | $W_{max}$<br>(2 ms)<br><br>J | $P_{max}$<br><br>W |
|--|----------------------------|--------------------|-------------------|--|--|------------------------------|--------------------|
| <b><math>V_{RMS} = 250\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72205S0251K101                            | S05K250                    | 250                | 320               | 400  | 150  | 8.2                          | 0.10               |
| B72207S0251K101                            | S07K250                    | 250                | 320               | 1200                                       | 500  | 19.0                         | 0.25               |
| B72210S0251K101                            | S10K250                    | 250                | 320               | 2500                                       | 1500   | 38.0                         | 0.40               |
| B72214S0251K101                            | S14K250                    | 250                | 320               | 4500                                       | 3000   | 65.0                         | 0.60               |
| B72220S0251K101                            | S20K250                    | 250                | 320               | 8000                                       | 3000   | 140.0                        | 1.00               |
| <b><math>V_{RMS} = 275\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72205S0271K101                            | S05K275                    | 275                | 350               | 400  | 150  | 8.6                          | 0.10               |
| B72207S0271K101                            | S07K275                    | 275                | 350               | 1200                                       | 500  | 21.0                         | 0.25               |
| B72210S0271K101                            | S10K275                    | 275                | 350               | 2500                                       | 1500   | 43.0                         | 0.40               |
| B72214S0271K101                            | S14K275                    | 275                | 350               | 4500                                       | 3000   | 71.0                         | 0.60               |
| B72220S0271K101                            | S20K275                    | 275                | 350               | 8000                                       | 3000   | 151.0                        | 1.00               |
| <b><math>V_{RMS} = 300\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72205S0301K101                            | S05K300                    | 300                | 385               | 400  | 150  | 9.6                          | 0.10               |
| B72207S0301K101                            | S07K300                    | 300                | 385               | 1200                                       | 500  | 23.0                         | 0.25               |
| B72210S0301K101                            | S10K300                    | 300                | 385               | 2500                                       | 1500   | 47.0                         | 0.40               |
| B72214S0301K101                            | S14K300                    | 300                | 385               | 4500                                       | 3000   | 76.0                         | 0.60               |
| B72220S0301K101                            | S20K300                    | 300                | 385               | 8000                                       | 3000   | 173.0                        | 1.00               |
| <b><math>V_{RMS} = 320\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72205S0321K101                            | S05K320                    | 320                | 420               | 400  | 150  | 11.0                         | 0.10               |
| B72207S0321K101                            | S07K320                    | 320                | 420               | 1200                                       | 500  | 25.0                         | 0.25               |
| B72210S0321K101                            | S10K320                    | 320                | 420               | 2500                                       | 1500   | 50.0                         | 0.40               |
| B72214S0321K101                            | S14K320                    | 320                | 420               | 4500                                       | 3000   | 84.0                         | 0.60               |
| B72220S0321K101                            | S20K320                    | 320                | 420               | 8000                                       | 3000   | 184.0                        | 1.00               |
| <b><math>V_{RMS} = 350\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72205S0351K101                            | S05K350                    | 350                | 460               | 400  | 150  | 12.0                         | 0.10               |
| B72207S0351K101                            | S07K350                    | 350                | 460               | 1200                                       | 500  | 27.0                         | 0.25               |
| B72210S0351K101                            | S10K350                    | 350                | 460               | 2500                                       | 1500   | 45.0                         | 0.40               |
| B72214S0351K101                            | S14K350                    | 350                | 460               | 4500                                       | 3000   | 80.0                         | 0.60               |
| B72220S0351K101                            | S20K350                    | 350                | 460               | 8000                                       | 3000   | 150.0                        | 1.00               |
| <b><math>V_{RMS} = 385\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72205S0381K101                            | S05K385                    | 385                | 505               | 400  | 150  | 13.0                         | 0.10               |
| B72207S0381K101                            | S07K385                    | 385                | 505               | 1200                                       | 500  | 28.0                         | 0.25               |
| B72210S0381K101                            | S10K385                    | 385                | 505               | 2500                                       | 1500   | 40.0                         | 0.40               |
| B72214S0381K101                            | S14K385                    | 385                | 505               | 4500                                       | 3000   | 80.0                         | 0.60               |
| B72220S0381K101                            | S20K385                    | 385                | 505               | 8000                                       | 3000   | 150.0                        | 1.00               |

<sup>1)</sup> **Note:** Nominal discharge current  $I_n$  according to UL 1449, 4<sup>th</sup> edition.


**Leaded varistors**
**B722\***
**StandarD series**
**Characteristics (T<sub>A</sub> = 25 °C)**

| Ordering code                  | V <sub>V</sub><br>(1 mA)<br>V | ΔV <sub>V</sub><br>(1 mA)<br>% | V <sub>C,max</sub><br>(i <sub>C</sub> )<br>V | i <sub>C</sub><br>A | C <sub>typ</sub><br>(1 kHz)<br>pF |
|--------------------------------|-------------------------------|--------------------------------|--|---------------------|-----------------------------------|
| <b>V<sub>RMS</sub> = 250 V</b> |                               |                                |  |                     |                                   |
| B72205S0251K101                | 390                           | ±10                            | 650  | 5.0                 | 65                                |
| B72207S0251K101                | 390                           | ±10                            | 650  | 10.0                | 120                               |
| B72210S0251K101                | 390                           | ±10                            | 650  | 25.0                | 245                               |
| B72214S0251K101                | 390                           | ±10                            | 650  | 50.0                | 490                               |
| B72220S0251K101                | 390                           | ±10                            | 650  | 100.0               | 940                               |
| <b>V<sub>RMS</sub> = 275 V</b> |                               |                                |  |                     |                                   |
| B72205S0271K101                | 430                           | ±10                            | 710  | 5.0                 | 60                                |
| B72207S0271K101                | 430                           | ±10                            | 710  | 10.0                | 110                               |
| B72210S0271K101                | 430                           | ±10                            | 710  | 25.0                | 220                               |
| B72214S0271K101                | 430                           | ±10                            | 710  | 50.0                | 440                               |
| B72220S0271K101                | 430                           | ±10                            | 710  | 100.0               | 850                               |
| <b>V<sub>RMS</sub> = 300 V</b> |                               |                                |  |                     |                                   |
| B72205S0301K101                | 470                           | ±10                            | 775  | 5.0                 | 55                                |
| B72207S0301K101                | 470                           | ±10                            | 775  | 10.0                | 100                               |
| B72210S0301K101                | 470                           | ±10                            | 775  | 25.0                | 200                               |
| B72214S0301K101                | 470                           | ±10                            | 775  | 50.0                | 400                               |
| B72220S0301K101                | 470                           | ±10                            | 775  | 100.0               | 780                               |
| <b>V<sub>RMS</sub> = 320 V</b> |                               |                                |  |                     |                                   |
| B72205S0321K101                | 510                           | ±10                            | 840  | 5.0                 | 50                                |
| B72207S0321K101                | 510                           | ±10                            | 840  | 10.0                | 90                                |
| B72210S0321K101                | 510                           | ±10                            | 840  | 25.0                | 185                               |
| B72214S0321K101                | 510                           | ±10                            | 840  | 50.0                | 370                               |
| B72220S0321K101                | 510                           | ±10                            | 840  | 100.0               | 720                               |
| <b>V<sub>RMS</sub> = 350 V</b> |                               |                                |  |                     |                                   |
| B72205S0351K101                | 560                           | ±10                            | 910  | 5.0                 | 48                                |
| B72207S0351K101                | 560                           | ±10                            | 910  | 10.0                | 80                                |
| B72210S0351K101                | 560                           | ±10                            | 910  | 25.0                | 160                               |
| B72214S0351K101                | 560                           | ±10                            | 910  | 50.0                | 350                               |
| B72220S0351K101                | 560                           | ±10                            | 910  | 100.0               | 660                               |
| <b>V<sub>RMS</sub> = 385 V</b> |                               |                                |  |                     |                                   |
| B72205S0381K101                | 620                           | ±10                            | 1025   | 5.0                 | 45                                |
| B72207S0381K101                | 620                           | ±10                            | 1025   | 10.0                | 85                                |
| B72210S0381K101                | 620                           | ±10                            | 1025   | 25.0                | 175                               |
| B72214S0381K101                | 620                           | ±10                            | 1025   | 50.0                | 315                               |
| B72220S0381K101                | 620                           | ±10                            | 1025   | 100.0               | 600                               |


**Leaded varistors**
**B722\***
**Standard series**
**Electrical specifications and ordering codes**
**Maximum ratings ( $T_A = 105\text{ }^\circ\text{C}$ )**

| Ordering code                              | Type<br>(untaped)<br>SIOV- | $V_{RMS}$<br><br>V | $V_{DC}$<br><br>V | $i_{max}$<br>(8/20 $\mu$ s)<br>1 time<br>A | $I_n$ <sup>1)</sup><br>(8/20 $\mu$ s)<br>15 times<br>A | $W_{max}$<br>(2 ms)<br><br>J | $P_{max}$<br><br>W |
|--|----------------------------|--------------------|-------------------|--|--|------------------------------|--------------------|
| <b><math>V_{RMS} = 420\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72205S0421K101                            | S05K420                    | 420                | 560               | 400  | 150  | 14.0                         | 0.10               |
| B72207S0421K101                            | S07K420                    | 420                | 560               | 1200                                       | 500  | 32.0                         | 0.25               |
| B72210S0421K101                            | S10K420                    | 420                | 560               | 2500                                       | 1500   | 45.0                         | 0.40               |
| B72214S0421K101                            | S14K420                    | 420                | 560               | 4500                                       | 3000   | 90.0                         | 0.60               |
| B72220S0421K101                            | S20K420                    | 420                | 560               | 8000                                       | 3000   | 175.0                        | 1.00               |
| <b><math>V_{RMS} = 440\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72205S0441K101                            | S05K440                    | 440                | 585               | 400  | 150  | 16.0                         | 0.10               |
| B72207S0441K101                            | S07K440                    | 440                | 585               | 1200                                       | 500  | 34.0                         | 0.25               |
| B72210S0441K101                            | S10K440                    | 440                | 585               | 2500                                       | 1500   | 47.0                         | 0.40               |
| B72214S0441K101                            | S14K440                    | 440                | 585               | 4500                                       | 3000   | 95.0                         | 0.60               |
| B72220S0441K101                            | S20K440                    | 440                | 585               | 8000                                       | 3000   | 185.0                        | 1.00               |
| <b><math>V_{RMS} = 460\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72205S0461K101                            | S05K460                    | 460                | 615               | 400  | 150  | 18.0                         | 0.10               |
| B72207S0461K101                            | S07K460                    | 460                | 615               | 1200                                       | 500  | 36.0                         | 0.25               |
| B72210S0461K101                            | S10K460                    | 460                | 615               | 2500                                       | 1500   | 50.0                         | 0.40               |
| B72214S0461K101                            | S14K460                    | 460                | 615               | 4500                                       | 3000   | 100.0                        | 0.60               |
| B72220S0461K101                            | S20K460                    | 460                | 615               | 8000                                       | 3000   | 195.0                        | 1.00               |
| <b><math>V_{RMS} = 510\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72210S0511K101                            | S10K510                    | 510                | 670               | 2500                                       | 1500   | 55.0                         | 0.40               |
| B72214S0511K101                            | S14K510                    | 510                | 670               | 4500                                       | 3000   | 110.0                        | 0.60               |
| B72220S0511K101                            | S20K510                    | 510                | 670               | 6500                                       | 3000   | 190.0                        | 1.00               |
| <b><math>V_{RMS} = 550\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72210S0551K101                            | S10K550                    | 550                | 745               | 2500                                       | 1500   | 60.0                         | 0.40               |
| B72214S0551K101                            | S14K550                    | 550                | 745               | 4500                                       | 3000   | 120.0                        | 0.60               |
| B72220S0551K101                            | S20K550                    | 550                | 745               | 6500                                       | 3000   | 210.0                        | 1.00               |
| <b><math>V_{RMS} = 625\text{ V}</math></b> |                            |                    |                   |  |  |                              |                    |
| B72210S0621K101                            | S10K625                    | 625                | 825               | 2500                                       | 1500   | 68.0                         | 0.40               |
| B72214S0621K101                            | S14K625                    | 625                | 825               | 4500                                       | 3000   | 130.0                        | 0.60               |
| B72220S0621K101                            | S20K625                    | 625                | 825               | 6500                                       | 3000   | 230.0                        | 1.00               |

<sup>1)</sup> **Note:** Nominal discharge current  $I_n$ , according to UL 1449, 4<sup>th</sup> edition.


**Characteristics (T<sub>A</sub> = 25 °C)**

| Ordering code                  | V <sub>V</sub><br>(1 mA)<br>V | ΔV <sub>V</sub><br>(1 mA)<br>% | V <sub>C,max</sub><br>(i <sub>C</sub> )<br>V | i <sub>C</sub><br>A | C <sub>typ</sub><br>(1 kHz)<br>pF |
|--------------------------------|-------------------------------|--------------------------------|--|---------------------|-----------------------------------|
| <b>V<sub>RMS</sub> = 420 V</b> |                               |                                |  |                     |                                   |
| B72205S0421K101                | 680                           | ±10                            | 1120   | 5.0                 | 40                                |
| B72207S0421K101                | 680                           | ±10                            | 1120   | 10.0                | 75                                |
| B72210S0421K101                | 680                           | ±10                            | 1120   | 25.0                | 165                               |
| B72214S0421K101                | 680                           | ±10                            | 1120   | 50.0                | 290                               |
| B72220S0421K101                | 680                           | ±10                            | 1120   | 100.0               | 550                               |
| <b>V<sub>RMS</sub> = 440 V</b> |                               |                                |  |                     |                                   |
| B72205S0441K101                | 715                           | ±10                            | 1180   | 5.0                 | 37                                |
| B72207S0441K101                | 715                           | ±10                            | 1180   | 10.0                | 72                                |
| B72210S0441K101                | 715                           | ±10                            | 1180   | 25.0                | 158                               |
| B72214S0441K101                | 715                           | ±10                            | 1180   | 50.0                | 275                               |
| B72220S0441K101                | 715                           | ±10                            | 1180   | 100.0               | 530                               |
| <b>V<sub>RMS</sub> = 460 V</b> |                               |                                |  |                     |                                   |
| B72205S0461K101                | 750                           | ±10                            | 1240   | 5.0                 | 35                                |
| B72207S0461K101                | 750                           | ±10                            | 1240   | 10.0                | 70                                |
| B72210S0461K101                | 750                           | ±10                            | 1240   | 25.0                | 150                               |
| B72214S0461K101                | 750                           | ±10                            | 1240   | 50.0                | 260                               |
| B72220S0461K101                | 750                           | ±10                            | 1240   | 100.0               | 500                               |
| <b>V<sub>RMS</sub> = 510 V</b> |                               |                                |  |                     |                                   |
| B72210S0511K101                | 820                           | ±10                            | 1355   | 25.0                | 140                               |
| B72214S0511K101                | 820                           | ±10                            | 1355   | 50.0                | 240                               |
| B72220S0511K101                | 820                           | ±10                            | 1355   | 100.0               | 460                               |
| <b>V<sub>RMS</sub> = 550 V</b> |                               |                                |  |                     |                                   |
| B72210S0551K101                | 910                           | ±10                            | 1500   | 25.0                | 120                               |
| B72214S0551K101                | 910                           | ±10                            | 1500   | 50.0                | 215                               |
| B72220S0551K101                | 910                           | ±10                            | 1500   | 100.0               | 410                               |
| <b>V<sub>RMS</sub> = 625 V</b> |                               |                                |  |                     |                                   |
| B72210S0621K101                | 1000                          | ±10                            | 1650   | 25.0                | 110                               |
| B72214S0621K101                | 1000                          | ±10                            | 1650   | 50.0                | 200                               |
| B72220S0621K101                | 1000                          | ±10                            | 1650   | 100.0               | 380                               |


**Leaded varistors**
**B722\***
**Standard series**
**Electrical specifications and ordering codes**
**Maximum ratings ( $T_A = 105\text{ °C}$ )**

| Ordering code             | Type<br>(untaped)<br>SIOV- | $V_{RMS}$<br>V | $V_{DC}$<br>V | $i_{max}$<br>(8/20 $\mu$ s)<br>1 time<br>A | $I_n^{1)}$<br>(8/20 $\mu$ s)<br>15 times<br>A | $W_{max}$<br>(2 ms)<br>J | $P_{max}$<br>W |
|---------------------------|----------------------------|----------------|---------------|--|---|--------------------------|----------------|
| $V_{RMS} = 680\text{ V}$  |                            |                |               |  |   |                          |                |
| B72210S0681K101           | S10K680                    | 680            | 895           | 2500                                       | 1500  | 72.0                     | 0.40           |
| B72214S0681K101           | S14K680                    | 680            | 895           | 4500                                       | 3000  | 140.0                    | 0.60           |
| B72220S0681K101           | S20K680                    | 680            | 895           | 6500                                       | 3000  | 250.0                    | 1.00           |
| $V_{RMS} = 1100\text{ V}$ |                            |                |               |  |   |                          |                |
| B72214S0102K101           | S14K1000 <sup>2)</sup>     | 1100           | 1465          | 4500                                       | 3000  | 230.0                    | 0.60           |
| B72220S0102K101           | S20K1000 <sup>2)</sup>     | 1100           | 1465          | 6500                                       | 3000  | 410.0                    | 1.00           |

**Characteristics ( $T_A = 25\text{ °C}$ )**

| Ordering code             | $V_v$<br>(1 mA)<br>V | $\Delta V_v$<br>(1 mA)<br>% | $V_{c,max}$<br>( $i_c$ )<br>V | $i_c$<br>A | $C_{typ}$<br>(1 kHz)<br>pF |
|---------------------------|----------------------|-----------------------------|-------------------------------|------------|----------------------------|
| $V_{RMS} = 680\text{ V}$  |                      |                             |                               |            |                            |
| B72210S0681K101           | 1100                 | $\pm 10$                    | 1815                          | 25.0       | 100                        |
| B72214S0681K101           | 1100                 | $\pm 10$                    | 1815                          | 50.0       | 180                        |
| B72220S0681K101           | 1100                 | $\pm 10$                    | 1815                          | 100.0      | 340                        |
| $V_{RMS} = 1100\text{ V}$ |                      |                             |                               |            |                            |
| B72214S0102K101           | 1800                 | $\pm 10$                    | 2970                          | 50.0       | 110                        |
| B72220S0102K101           | 1800                 | $\pm 10$                    | 2970                          | 100.0      | 210                        |

1) Note: Nominal discharge current  $I_n$ , according to UL 1449, 4<sup>th</sup> edition.

2) Operating voltage differs from type designation.


**Leaded varistors**
**B722\***
**StandarD series**
**Dimensional drawings**


1) Seating plane to IEC 60717

VAR0408-C-E

**Weight**

| Nominal diameter<br>mm | $V_{RMS}$<br>V | Weight<br>g  |
|------------------------|----------------|--------------|
| 5                      | 11 ... 460     | 0.3 ... 0.7  |
| 7                      | 11 ... 460     | 0.4 ... 1.1  |
| 10                     | 11 ... 680     | 1.0 ... 3.0  |
| 14                     | 11 ... 1000    | 1.4 ... 7.6  |
| 20                     | 11 ... 1000    | 2.7 ... 15.7 |

The weight of varistors in between these voltage classes can be interpolated.

**Dimensions**

| Ordering code                      | [e] ±1<br>mm | a (typical)<br>mm | w <sub>max</sub><br>mm | th <sub>max</sub><br>mm | h <sub>max</sub><br>mm | l <sub>min</sub><br>mm | d ±0.05<br>mm |
|------------------------------------|--------------|-------------------|------------------------|-------------------------|------------------------|------------------------|---------------|
| <b><math>V_{RMS} = 11 V</math></b> |              |                   |                        |                         |                        |                        |               |
| B72205S0110K101                    | 5.0          | 1.2               | 7.0                    | 3.3                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0110K101                    | 5.0          | 1.2               | 9.0                    | 3.4                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0110K101                    | 7.5          | 1.4               | 12.0                   | 4.0                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0110K101                    | 7.5          | 1.4               | 15.5                   | 4.0                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0110K101                    | 10.0         | 1.5               | 21.5                   | 4.5                     | 25.5                   | 25.0                   | 1.0           |
| <b><math>V_{RMS} = 14 V</math></b> |              |                   |                        |                         |                        |                        |               |
| B72205S0140K101                    | 5.0          | 1.3               | 7.0                    | 3.4                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0140K101                    | 5.0          | 1.3               | 9.0                    | 3.5                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0140K101                    | 7.5          | 1.5               | 12.0                   | 4.2                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0140K101                    | 7.5          | 1.5               | 15.5                   | 4.2                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0140K101                    | 10.0         | 1.6               | 21.5                   | 4.6                     | 25.5                   | 25.0                   | 1.0           |
| <b><math>V_{RMS} = 17 V</math></b> |              |                   |                        |                         |                        |                        |               |
| B72205S0170K101                    | 5.0          | 1.4               | 7.0                    | 3.5                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0170K101                    | 5.0          | 1.4               | 9.0                    | 3.6                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0170K101                    | 7.5          | 1.6               | 12.0                   | 4.4                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0170K101                    | 7.5          | 1.7               | 15.5                   | 4.4                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0170K101                    | 10.0         | 1.8               | 21.5                   | 4.8                     | 25.5                   | 25.0                   | 1.0           |
| <b><math>V_{RMS} = 20 V</math></b> |              |                   |                        |                         |                        |                        |               |
| B72205S0200K101                    | 5.0          | 1.2               | 7.0                    | 3.5                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0200K101                    | 5.0          | 1.2               | 9.0                    | 3.6                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0200K101                    | 7.5          | 1.6               | 12.0                   | 4.5                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0200K101                    | 7.5          | 1.6               | 15.5                   | 4.6                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0200K101                    | 10.0         | 2.1               | 21.5                   | 5.1                     | 25.5                   | 25.0                   | 1.0           |


**Leaded varistors**
**B722\***
**Standard series**

| Ordering code                 | [e] ±1<br>mm | a (typical)<br>mm | w <sub>max</sub><br>mm | th <sub>max</sub><br>mm | h <sub>max</sub><br>mm | l <sub>min</sub><br>mm | d ±0.05<br>mm |
|-------------------------------|--------------|-------------------|------------------------|-------------------------|------------------------|------------------------|---------------|
| <b>V<sub>RMS</sub> = 25 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0250K101               | 5.0          | 1.3               | 7.0                    | 3.6                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0250K101               | 5.0          | 1.3               | 9.0                    | 3.7                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0250K101               | 7.5          | 1.4               | 12.0                   | 4.2                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0250K101               | 7.5          | 1.4               | 15.5                   | 4.2                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0250K101               | 10.0         | 1.8               | 21.5                   | 4.7                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 30 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0300K101               | 5.0          | 1.5               | 7.0                    | 3.6                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0300K101               | 5.0          | 1.5               | 9.0                    | 3.7                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0300K101               | 7.5          | 1.5               | 12.0                   | 4.4                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0300K101               | 7.5          | 1.5               | 15.5                   | 4.4                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0300K101               | 10.0         | 2.0               | 21.5                   | 4.9                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 35 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0350K101               | 5.0          | 1.6               | 7.0                    | 3.7                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0350K101               | 5.0          | 1.6               | 9.0                    | 3.9                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0350K101               | 7.5          | 1.6               | 12.0                   | 4.4                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0350K101               | 7.5          | 1.6               | 15.5                   | 4.5                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0350K101               | 10.0         | 2.2               | 21.5                   | 5.1                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 40 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0400K101               | 5.0          | 1.8               | 7.0                    | 3.9                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0400K101               | 5.0          | 1.8               | 9.0                    | 4.1                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0400K101               | 7.5          | 1.7               | 12.0                   | 4.8                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0400K101               | 7.5          | 1.7               | 15.5                   | 4.9                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0400K101               | 10.0         | 2.4               | 21.5                   | 5.4                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 50 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0500K101               | 5.0          | 1.3               | 7.0                    | 3.3                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0500K101               | 5.0          | 1.3               | 9.0                    | 3.3                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0500K101               | 7.5          | 1.4               | 12.0                   | 3.9                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0500K101               | 7.5          | 1.4               | 15.5                   | 3.9                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0500K101               | 10.0         | 1.6               | 21.5                   | 4.3                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 60 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0600K101               | 5.0          | 1.4               | 7.0                    | 3.3                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0600K101               | 5.0          | 1.4               | 9.0                    | 3.3                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0600K101               | 7.5          | 1.4               | 12.0                   | 4.0                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0600K101               | 7.5          | 1.5               | 15.5                   | 4.0                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0600K101               | 10.0         | 1.7               | 21.5                   | 4.4                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 75 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0750K101               | 5.0          | 1.5               | 7.0                    | 3.4                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0750K101               | 5.0          | 1.5               | 9.0                    | 3.6                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0750K101               | 7.5          | 1.5               | 12.0                   | 4.2                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0750K101               | 7.5          | 1.5               | 15.5                   | 4.2                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0750K101               | 10.0         | 1.8               | 21.5                   | 4.6                     | 25.5                   | 25.0                   | 1.0           |


**Leaded varistors**
**B722\***
**StandarD series**

| Ordering code                  | [e] ±1<br>mm | a (typical)<br>mm | w <sub>max</sub><br>mm | th <sub>max</sub><br>mm | h <sub>max</sub><br>mm | l <sub>min</sub><br>mm | d ±0.05<br>mm |
|--------------------------------|--------------|-------------------|------------------------|-------------------------|------------------------|------------------------|---------------|
| <b>V<sub>RMS</sub> = 95 V</b>  |              |                   |                        |                         |                        |                        |               |
| B72205S0950K101                | 5.0          | 1.5               | 7.0                    | 3.4                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0950K101                | 5.0          | 1.5               | 9.0                    | 3.4                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0950K101                | 7.5          | 1.5               | 12.0                   | 4.0                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0950K101                | 7.5          | 1.5               | 15.5                   | 4.0                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0950K101                | 10.0         | 1.8               | 21.5                   | 4.5                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 115 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0111K101                | 5.0          | 1.5               | 7.0                    | 3.6                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0111K101                | 5.0          | 1.5               | 9.0                    | 3.6                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0111K101                | 7.5          | 1.6               | 12.0                   | 4.2                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0111K101                | 7.5          | 1.7               | 15.5                   | 4.2                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0111K101                | 10.0         | 1.9               | 21.5                   | 4.6                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 130 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0131K101                | 5.0          | 1.6               | 7.0                    | 3.6                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0131K101                | 5.0          | 1.6               | 9.0                    | 3.6                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0131K101                | 7.5          | 1.8               | 12.0                   | 4.2                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0131K101                | 7.5          | 1.9               | 15.5                   | 4.2                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0131K101                | 10.0         | 2.0               | 21.5                   | 4.7                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 140 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0141K101                | 5.0          | 1.7               | 7.0                    | 3.7                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0141K101                | 5.0          | 1.7               | 9.0                    | 3.7                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0141K101                | 7.5          | 1.9               | 12.0                   | 4.3                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0141K101                | 7.5          | 2.0               | 15.5                   | 4.3                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0141K101                | 10.0         | 2.1               | 21.5                   | 4.8                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 150 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0151K101                | 5.0          | 1.8               | 7.0                    | 3.8                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0151K101                | 5.0          | 1.8               | 9.0                    | 3.8                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0151K101                | 7.5          | 2.0               | 12.0                   | 4.4                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0151K101                | 7.5          | 2.1               | 15.5                   | 4.4                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0151K101                | 10.0         | 2.2               | 21.5                   | 4.9                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 175 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0171K101                | 5.0          | 2.0               | 7.0                    | 3.9                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0171K101                | 5.0          | 2.0               | 9.0                    | 4.0                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0171K101                | 7.5          | 2.2               | 12.0                   | 4.6                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0171K101                | 7.5          | 2.2               | 15.5                   | 4.6                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0171K101                | 10.0         | 2.3               | 21.5                   | 5.0                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 230 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0231K101                | 5.0          | 1.5               | 7.0                    | 4.0                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0231K101                | 5.0          | 1.5               | 9.0                    | 4.0                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0231K101                | 7.5          | 1.7               | 12.0                   | 4.7                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0231K101                | 7.5          | 1.7               | 15.5                   | 4.7                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0231K101                | 10.0         | 1.8               | 21.5                   | 5.1                     | 25.5                   | 25.0                   | 1.0           |


**Leaded varistors**
**B722\***
**Standard series**

| Ordering code                  | [e] ±1<br>mm | a (typical)<br>mm | w <sub>max</sub><br>mm | th <sub>max</sub><br>mm | h <sub>max</sub><br>mm | l <sub>min</sub><br>mm | d ±0.05<br>mm |
|--------------------------------|--------------|-------------------|------------------------|-------------------------|------------------------|------------------------|---------------|
| <b>V<sub>RMS</sub> = 250 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0251K101                | 5.0          | 1.5               | 7.0                    | 4.2                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0251K101                | 5.0          | 1.5               | 9.0                    | 4.2                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0251K101                | 7.5          | 1.7               | 12.0                   | 4.8                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0251K101                | 7.5          | 1.7               | 15.5                   | 4.8                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0251K101                | 10.0         | 1.9               | 21.5                   | 5.3                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 275 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0271K101                | 5.0          | 1.6               | 7.0                    | 4.3                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0271K101                | 5.0          | 1.6               | 9.0                    | 4.4                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0271K101                | 7.5          | 1.8               | 12.0                   | 5.0                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0271K101                | 7.5          | 1.8               | 15.5                   | 5.0                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0271K101                | 10.0         | 2.0               | 21.5                   | 5.4                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 300 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0301K101                | 5.0          | 1.7               | 7.0                    | 4.5                     | 8.5                    | 25.0                   | 0.6           |
| B72207S0301K101                | 5.0          | 1.7               | 9.0                    | 4.5                     | 11.0                   | 25.0                   | 0.6           |
| B72210S0301K101                | 7.5          | 1.9               | 12.0                   | 5.1                     | 14.5                   | 25.0                   | 0.8           |
| B72214S0301K101                | 7.5          | 1.9               | 15.5                   | 5.2                     | 18.5                   | 25.0                   | 0.8           |
| B72220S0301K101                | 10.0         | 2.1               | 21.5                   | 5.6                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 320 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0321K101                | 5.0          | 1.9               | 7.0                    | 4.8                     | 9.0                    | 25.0                   | 0.6           |
| B72207S0321K101                | 5.0          | 1.9               | 9.0                    | 4.8                     | 11.5                   | 25.0                   | 0.6           |
| B72210S0321K101                | 7.5          | 2.1               | 12.0                   | 5.4                     | 15.0                   | 25.0                   | 0.8           |
| B72214S0321K101                | 7.5          | 2.1               | 15.5                   | 5.4                     | 19.0                   | 25.0                   | 0.8           |
| B72220S0321K101                | 10.0         | 2.3               | 21.5                   | 5.8                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 350 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0351K101                | 5.0          | 2.0               | 7.0                    | 4.9                     | 9.0                    | 25.0                   | 0.6           |
| B72207S0351K101                | 5.0          | 2.0               | 9.0                    | 4.9                     | 11.5                   | 25.0                   | 0.6           |
| B72210S0351K101                | 7.5          | 2.2               | 12.0                   | 5.6                     | 15.0                   | 25.0                   | 0.8           |
| B72214S0351K101                | 7.5          | 2.2               | 15.5                   | 5.6                     | 19.0                   | 25.0                   | 0.8           |
| B72220S0351K101                | 10.0         | 2.4               | 21.5                   | 6.0                     | 25.5                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 385 V</b> |              |                   |                        |                         |                        |                        |               |
| B72205S0381K101                | 5.0          | 2.1               | 7.0                    | 5.1                     | 9.0                    | 25.0                   | 0.6           |
| B72207S0381K101                | 5.0          | 2.1               | 9.0                    | 5.2                     | 11.5                   | 25.0                   | 0.6           |
| B72210S0381K101                | 7.5          | 2.4               | 12.0                   | 5.8                     | 15.0                   | 25.0                   | 0.8           |
| B72214S0381K101                | 7.5          | 2.4               | 15.5                   | 5.9                     | 19.0                   | 25.0                   | 0.8           |
| B72220S0381K101                | 10.0         | 2.5               | 21.5                   | 6.3                     | 26.0                   | 25.0                   | 1.0           |


**Leaded varistors**
**B722\***
**StandarD series**

| Ordering code                   | [e] ±1<br>mm | a (typical)<br>mm | w <sub>max</sub><br>mm | th <sub>max</sub><br>mm | h <sub>max</sub><br>mm | l <sub>min</sub><br>mm | d ±0.05<br>mm |
|---------------------------------|--------------|-------------------|------------------------|-------------------------|------------------------|------------------------|---------------|
| <b>V<sub>RMS</sub> = 420 V</b>  |              |                   |                        |                         |                        |                        |               |
| B72205S0421K101                 | 5.0          | 2.4               | 7.0                    | 5.4                     | 9.0                    | 25.0                   | 0.6           |
| B72207S0421K101                 | 5.0          | 2.4               | 9.0                    | 5.4                     | 11.5                   | 25.0                   | 0.6           |
| B72210S0421K101                 | 7.5          | 2.6               | 12.0                   | 6.1                     | 15.0                   | 25.0                   | 0.8           |
| B72214S0421K101                 | 7.5          | 2.6               | 15.5                   | 6.1                     | 19.0                   | 25.0                   | 0.8           |
| B72220S0421K101                 | 10.0         | 2.7               | 21.5                   | 6.5                     | 26.0                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 440 V</b>  |              |                   |                        |                         |                        |                        |               |
| B72205S0441K101                 | 5.0          | 2.4               | 7.0                    | 5.5                     | 9.0                    | 25.0                   | 0.6           |
| B72207S0441K101                 | 5.0          | 2.4               | 9.0                    | 5.5                     | 11.5                   | 25.0                   | 0.6           |
| B72210S0441K101                 | 7.5          | 2.7               | 12.0                   | 6.2                     | 15.0                   | 25.0                   | 0.8           |
| B72214S0441K101                 | 7.5          | 2.7               | 15.5                   | 6.3                     | 19.0                   | 25.0                   | 0.8           |
| B72220S0441K101                 | 10.0         | 2.8               | 21.5                   | 6.7                     | 26.0                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 460 V</b>  |              |                   |                        |                         |                        |                        |               |
| B72205S0461K101                 | 5.0          | 2.6               | 7.0                    | 5.7                     | 9.0                    | 25.0                   | 0.6           |
| B72207S0461K101                 | 5.0          | 2.6               | 9.0                    | 5.7                     | 11.5                   | 25.0                   | 0.6           |
| B72210S0461K101                 | 7.5          | 2.8               | 12.0                   | 6.3                     | 15.0                   | 25.0                   | 0.8           |
| B72214S0461K101                 | 7.5          | 2.8               | 15.5                   | 6.4                     | 19.0                   | 25.0                   | 0.8           |
| B72220S0461K101                 | 10.0         | 3.0               | 21.5                   | 6.8                     | 26.0                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 510 V</b>  |              |                   |                        |                         |                        |                        |               |
| B72210S0511K101                 | 7.5          | 3.1               | 12.0                   | 6.7                     | 15.0                   | 25.0                   | 0.8           |
| B72214S0511K101                 | 7.5          | 3.1               | 15.5                   | 6.8                     | 19.0                   | 25.0                   | 0.8           |
| B72220S0511K101                 | 10.0         | 3.2               | 21.5                   | 7.1                     | 26.0                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 550 V</b>  |              |                   |                        |                         |                        |                        |               |
| B72210S0551K101                 | 7.5          | 3.4               | 12.0                   | 7.1                     | 15.0                   | 25.0                   | 0.8           |
| B72214S0551K101                 | 7.5          | 3.4               | 15.5                   | 7.2                     | 19.0                   | 25.0                   | 0.8           |
| B72220S0551K101                 | 10.0         | 3.6               | 21.5                   | 7.5                     | 26.0                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 625 V</b>  |              |                   |                        |                         |                        |                        |               |
| B72210S0621K101                 | 7.5          | 3.7               | 12.0                   | 7.5                     | 15.0                   | 25.0                   | 0.8           |
| B72214S0621K101                 | 7.5          | 3.7               | 15.5                   | 7.5                     | 19.0                   | 25.0                   | 0.8           |
| B72220S0621K101                 | 10.0         | 3.9               | 21.5                   | 7.9                     | 26.0                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 680 V</b>  |              |                   |                        |                         |                        |                        |               |
| B72210S0681K101                 | 7.5          | 4.1               | 12.0                   | 7.9                     | 15.0                   | 25.0                   | 0.8           |
| B72214S0681K101                 | 7.5          | 4.1               | 15.5                   | 8.0                     | 19.0                   | 25.0                   | 0.8           |
| B72220S0681K101                 | 10.0         | 4.2               | 21.5                   | 8.4                     | 26.0                   | 25.0                   | 1.0           |
| <b>V<sub>RMS</sub> = 1100 V</b> |              |                   |                        |                         |                        |                        |               |
| B72214S0102K101                 | 7.5          | 6.3               | 15.5                   | 11.0                    | 20.5                   | 25.0                   | 0.8           |
| B72220S0102K101                 | 10.0         | 6.4               | 21.5                   | 11.4                    | 28.5                   | 25.0                   | 1.0           |



**Leaded varistors**

**B722\***

**Standard series**

**Reliability data**

| Test                                    | Test methods/conditions  | Requirement   |
|---|--|---|
| Varistor voltage                        | The voltage between two terminals with the specified measuring current applied is called $V_V$ (1 mA <sub>DC</sub> @ 0.2 ... 2 s).   | To meet the specified value   |
| Clamping voltage                        | The maximum voltage between two terminals with the specified standard impulse current (8/20 $\mu$ s) applied.  | To meet the specified value   |
| Endurance at upper category temperature | 1000 h at UCT<br>After having continuously applied the maximum allowable AC voltage at UCT $\pm 2$ °C for 1000 h, the specimen shall be stored at room temperature and normal humidity for 1 to 2 h.<br>Thereafter, the change of $V_V$ shall be measured.   | $ \Delta V/V$ (1 mA) $\leq 10\%$  |
| Surge current derating, 8/20 $\mu$ s    | 10 surge currents (8/20 $\mu$ s), unipolar, interval 30 s, amplitude corresponding to derating curve for 10 impulses at 20 $\mu$ s   | $ \Delta V/V$ (1 mA) $\leq 10\%$<br>(measured in direction of surge current)<br>No visible damage |
| Surge current derating, 2 ms            | 10 surge currents (2 ms), unipolar, interval 120 s, amplitude corresponding to derating curve for 10 impulses at 2 ms  | $ \Delta V/V$ (1 mA) $\leq 10\%$<br>(measured in direction of surge current)<br>No visible damage |
| Electric strength                       | IEC 61051-1, test 4.9.2<br>Metal balls method, 2500 V <sub>RMS</sub> , 60 s<br>The varistor is placed in a container holding 1.6 $\pm$ 0.2 mm diameter metal balls such that only the terminations of the varistor are protruding.<br>The specified voltage shall be applied between both terminals of the specimen connected together and the electrode inserted between the metal balls. | No breakdown  |


**Leaded varistors**
**B722\***
**StandarD series**

| Test                        | Test methods/conditions  | Requirement   |
|-----------------------------|--|---|
| Climatic sequence           | <p>The specimen shall be subjected to:</p> <p>a) dry heat at UCT, 16 h, IEC 60068-2-2, test Ba</p> <p>b) damp heat, 1st cycle:<br/>55 °C, 93% r. H., 24 h, IEC 60068-2-30, test Db</p> <p>c) cold, LCT, 2 h, IEC 60068-2-1, test Aa</p> <p>d) damp heat, additional 5 cycles:<br/>55 °C/25 °C, 93% r. H., 24 h/cycle, IEC 60068-2-30, test Db.</p> <p>Then the specimen shall be stored at room temperature and normal humidity for 1 to 2 h.</p> <p>Thereafter, the change of <math>V_V</math> shall be measured. Thereafter, insulation resistance <math>R_{ins}</math> shall be measured at <math>V = 500 V</math>.</p> | $ \Delta V/V (1 mA)  \leq 10\%$<br>$R_{ins} \geq 100 M\Omega$ |
| Rapid change of temperature | IEC 60068-2-14, test Na, LCT/UCT, dwell time 30 min, 5 cycles  | $ \Delta V/V (1 mA)  \leq 5\%$<br>No visible damage           |
| Damp heat, steady state     | IEC 60068-2-78, test Ca<br><br>The specimen shall be subjected to $40 \pm 2$ °C, 90 to 95% r. H. for 56 days without load / with 10% of the maximum continuous DC operating voltage $V_{DC}$ . Then stored at room temperature and normal humidity for 1 to 2 h.<br><br>Thereafter, the change of $V_V$ shall be measured. Thereafter, insulation resistance $R_{ins}$ shall be measured at $V = 500 V$ (insulated varistors only).  | $ \Delta V/V (1 mA)  \leq 10\%$<br>$R_{ins} \geq 100 M\Omega$ |



| Test                         | Test methods/conditions  | Requirement  |
|------------------------------|--|--|
| Solderability                | <p>IEC 60068-2-20, test Ta, method 1 with modified conditions for lead-free solder alloys: 245 °C, 3 s:</p> <p>After dipping the terminals to a depth of approximately 3 mm from the body in a soldering bath of 245 °C for 3 s, the terminals shall be visually examined.</p>   | <p>The inspection shall be carried out under adequate light with normal eyesight or with the assistance of a magnifier capable of giving a magnification of 4 to 10 times. The dipped surface shall be covered with a smooth and bright solder coating with no more than small amounts of scattered imperfections such as pinholes or un-wetted or de-wetted areas. These imperfections shall not be concentrated in one area.</p> |
| Resistance to soldering heat | <p>IEC 60068-2-20, test Tb, method 1A, 260 °C, 10 s:</p> <p>Each lead shall be dipped into a solder bath having a temperature of 260 ±5 °C to a point 2.0 to 2.5 mm from the body of the specimen, be held there for 10 ±1 s and then be stored at room temperature and normal humidity for 1 to 2 h.</p> <p>The change of <math>V_V</math> shall be measured and the specimen shall be visually examined.</p> | <p><math> \Delta V/V (1 \text{ mA})  \leq 5\%</math></p> <p>No visible damage</p>  |
| Tensile strength             | <p>IEC 60068-2-21, test Ua1</p> <p>After gradually applying the force specified below and keeping the unit fixed for 10 s, the terminal shall be visually examined for any damage.</p> <p>Force for wire diameter:</p> <p>0.6 mm = 10 N<br/>0.8 mm = 10 N<br/>1.0 mm = 20 N</p>  | <p><math> \Delta V/V (1 \text{ mA})  \leq 5\%</math></p> <p>No break of solder joint, no wire break</p>  |


**Leaded varistors**
**B722\***
**StandarD series**

| Test        | Test methods/conditions   | Requirement   |
|-------------|---|---|
| Vibration   | IEC 60068-2-6, test Fc, method B4<br>Frequency range: 10 ... 55 Hz<br>Amplitude: 0.75 mm or 98 m/s <sup>2</sup><br>Duration: 6 h (3 · 2 h)<br>Pulse: sine wave<br>After repeatedly applying a single harmonic vibration according to the table above.<br>The change of $V_v$ shall be measured and the specimen shall be visually examined. | $ \Delta V/V (1 \text{ mA})  \leq 5\%$<br>No visible damage |
| Bump        | IEC 60068-2-29, test Eb<br>Pulse duration: 6 ms<br>Max. acceleration: 400 m/s <sup>2</sup><br>Number of bumps: 4000<br>Pulse: half sine   | $ \Delta V/V (1 \text{ mA})  \leq 5\%$<br>No visible damage |
| Fire hazard | IEC 60695-11-5 (needle flame test)<br>Severity: vertical 10 s   | 5 s max.  |

**Note:**

UCT = Upper category temperature

LCT = Lower category temperature

 $R_{ins}$  = Insulation resistance



**v/i characteristics**

$v = f(i)$  - for explanation of the characteristics refer to "General technical information", 1.6.3  
 A = Leakage current, B = Protection level } for worst-case varistor tolerances



SIOV-S05 ...



**v/i characteristics**

$v = f(i)$  - for explanation of the characteristics refer to "General technical information", 1.6.3

A = Leakage current, B = Protection level } for worst-case varistor tolerances



SIOV-S07 ...



**v/i characteristics**

$v = f(i)$  - for explanation of the characteristics refer to "General technical information", 1.6.3  
 A = Leakage current, B = Protection level } for worst-case varistor tolerances



SIOV-S10 ...



**v/i characteristics**

$v = f(i)$  - for explanation of the characteristics refer to "General technical information", 1.6.3

A = Leakage current, B = Protection level } for worst-case varistor tolerances



SIOV-S14 ...



**v/i characteristics**

$v = f(i)$  - for explanation of the characteristics refer to "General technical information", 1.6.3  
 A = Leakage current, B = Protection level } for worst-case varistor tolerances



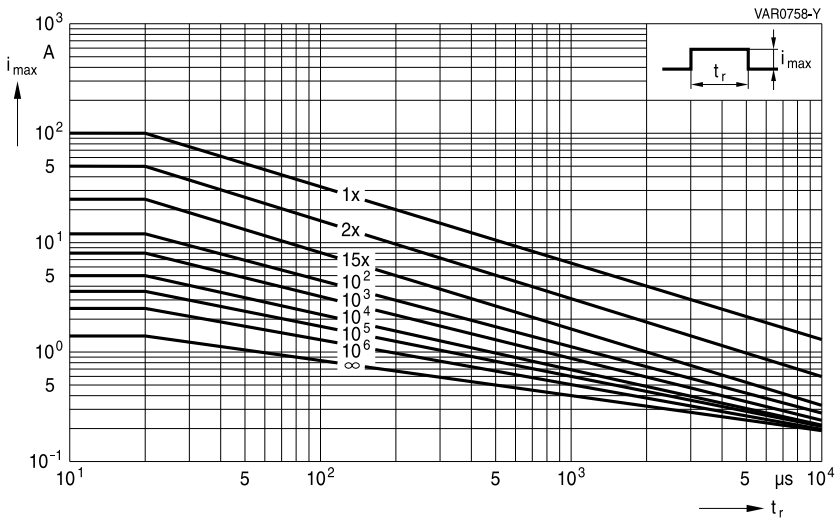
SIOV-S20 ...



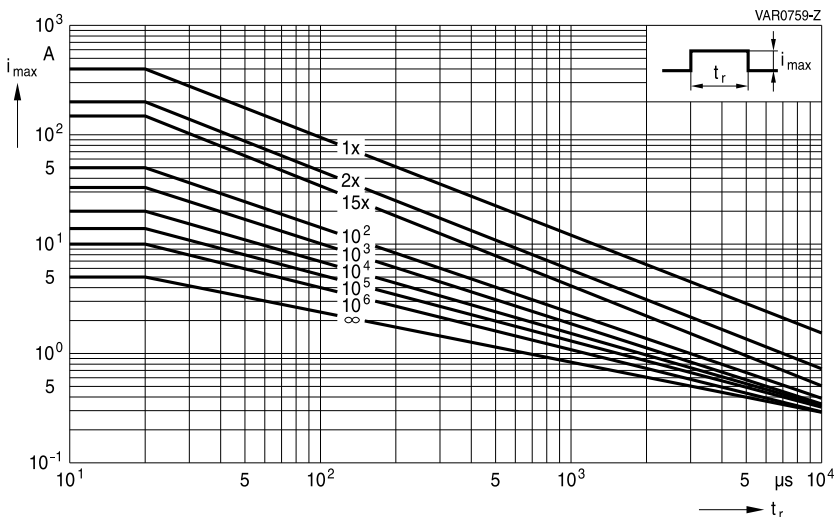
**Derating curves**

Maximum surge current  $i_{max} = f(t_r, \text{pulse train})$

For explanation of the derating curves refer to "General technical information", section 1.8.1



**SIOV-S05K11 ... K40**



**SIOV-S05K50 ... K460**



**Derating curves**

Maximum surge current  $i_{max} = f(t_r, \text{pulse train})$

For explanation of the derating curves refer to "General technical information", section 1.8.1



**SIOV-S07K11 ... K40**



**SIOV-S07K50 ... K460**



**Derating curves**

Maximum surge current  $i_{max} = f(t_r, \text{pulse train})$

For explanation of the derating curves refer to "General technical information", section 1.8.1



**SIOV-S10K11 ... K40**



**SIOV-S10K50 ... K320**



**Derating curves**

Maximum surge current  $i_{max} = f(t_r, \text{pulse train})$

For explanation of the derating curves refer to "General technical information", section 1.8.1



**SIOV-S10K350 ... K680**



**SIOV-S14K11 ... K40**



**Derating curves**

Maximum surge current  $i_{max} = f(t_r, \text{pulse train})$

For explanation of the derating curves refer to "General technical information", section 1.8.1



**SIOV-S14K50 ... K320**



**SIOV-S14K350 ... K1000**



**Derating curves**

Maximum surge current  $i_{max} = f(t_r, \text{pulse train})$

For explanation of the derating curves refer to "General technical information", section 1.8.1



**SIOV-S20K11 ... K40**



**SIOV-S20K50 ... K115**



**Derating curves**

Maximum surge current  $i_{max} = f(t_r, \text{pulse train})$

For explanation of the derating curves refer to "General technical information", section 1.8.1



**SIOV-S20K130 ... K320**



**SIOV-S20K350 ... K460**



**Derating curves**

Maximum surge current  $i_{max} = f(t_r, \text{pulse train})$

For explanation of the derating curves refer to "General technical information", section 1.8.1



**SIOV-S20K510 ... K1000**

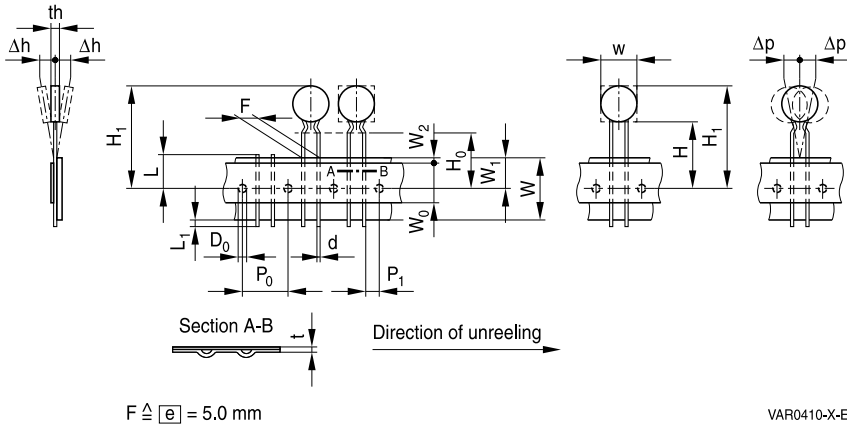

**Taping, packaging and lead configuration**
**1 EPCOS ordering code system**
**For leaded varistors**




## 2 Taping and packaging of leaded varistors

Tape packaging for lead spacing  $e = 5$  fully conforms to IEC 60286-2, while for lead spacings  $e = 7.5$  and  $10$  the taping mode is based on this standard.

### 2.1 Taping in accordance with IEC 60286-2 for lead spacing 5.0 mm



### 2.2 Taping based on IEC 60286-2 for lead spacing 7.5 and 10 mm




**2.3 Tape dimensions (in mm)**

| Symbol         | $e = 5.0$      | Tolerance   | $e = 7.5$          | Tolerance    | $e = 10.0$   | Tolerance    | Remarks                                      |
|----------------|----------------|-------------|--------------------|--------------|--------------|--------------|--|
| w              |                | max.        |                    | max.         |              | max.         | see tables in each series under "Dimensions" |
| th             |                | max.        |                    | max.         |              | max.         |  |
| d              | 0.6            | $\pm 0.05$  | 0.8                | $\pm 0.05$   | 1.0          | $\pm 0.05$   |  |
| P <sub>0</sub> | 12.7           | $\pm 0.3$   | 12.7 <sup>1)</sup> | $\pm 0.3$    | 12.7         | $\pm 0.3$    | $\pm 1$ mm/20 sprocket holes                 |
| P <sub>1</sub> | 3.85           | $\pm 0.7$   | 8.95               | $\pm 0.8$    | 7.7          | $\pm 0.8$    |  |
| F              | 5.0            | $+0.6/-0.1$ | 7.5                | $\pm 0.8$    | 10.0         | $\pm 0.8$    | measured at top of component body            |
| $\Delta h$     | 0              | $\pm 2.0$   | depends on s       |              | depends on s |              |  |
| $\Delta p$     | 0              | $\pm 1.3$   | 0                  | $\pm 2.0$    | 0            | $\pm 2.0$    |  |
| W              | 18.0           | $\pm 0.5$   | 18.0               | $\pm 0.5$    | 18.0         | $\pm 0.5$    | Peel-off force $\geq 5$ N                    |
| W <sub>0</sub> | 5.5            | min.        | 11.0               | min.         | 11.0         | min.         |  |
| W <sub>1</sub> | 9.0            | $\pm 0.5$   | 9.0                | $+0.75/-0.5$ | 9.0          | $+0.75/-0.5$ |  |
| W <sub>2</sub> | 3.0            | max.        | 3.0                | max.         | 3.0          | max.         |  |
| H              | 18.0           | $+2.0/-0$   | 18.0               | $+2.0/-0$    | 18.0         | $+2.0/-0$    | 2)<br>3)                                     |
| H <sub>0</sub> | 16.0<br>(18.0) | $\pm 0.5$   | 16.0<br>(18.0)     | $\pm 0.5$    | 16.0         | $\pm 0.5$    |  |
| H <sub>1</sub> | 32.2           | max.        | 45.0               | max.         | 45.0         | max.         |  |
| D <sub>0</sub> | 4.0            | $\pm 0.2$   | 4.0                | $\pm 0.2$    | 4.0          | $\pm 0.2$    | without lead                                 |
| t              | 0.9            | max.        | 0.9                | max.         | 0.9          | max.         |  |
| L              | 11.0           | max.        | 11.0               | max.         | 11.0         | max.         |  |
| L <sub>1</sub> | 0.5            | max.        |                    |              |              |              |  |

1) Taping with P<sub>0</sub> = 15.0 mm upon request

2) Applies only to uncrimped types

3) Applies only to crimped types (H<sub>0</sub> = 18 upon request)



## 2.4 Taping mode

Example: B72210S0271K1 5 1  
|  
Digit 14

| Digit 14 | Taping mode | Reel type | Seating plane height $H_0$<br>for crimped types<br>mm | Seating plane height $H$<br>for uncrimped types<br>mm | Pitch distance<br>$P_0$<br>mm |
|----------|-------------|-----------|---|---|-------------------------------|
| 0        | —           | Bulk      | —   | —   | —                             |
| 1        | G           | I         | 16  | 18  | 12.7                          |
| 2        | G2          | I         | 18  | —   | 12.7                          |
| 3        | G3          | II        | 16  | 18  | 12.7                          |
| 4        | G4          | II        | 18  | —   | 12.7                          |
| 5        | G5          | III       | 16  | 18  | 12.7                          |
| 6        | GA          | Ammo pack | 16  | 18  | 12.7                          |
| 7        | G2A         | Ammo pack | 18  | —   | 12.7                          |

### Internal coding for special taping

|      |           |    |    |      |
|------|-----------|----|----|------|
| G6   | III       | 18 | —  | 12.7 |
| G10  | II        | 16 | 18 | 15.0 |
| G11  | II        | 18 | —  | 15.0 |
| G10A | Ammo pack | 16 | 18 | 15.0 |
| G11A | Ammo pack | 18 | —  | 15.0 |

## 2.5 Reel dimension



### Dimensions (in mm)

| Reel type | d        | f     | n          | w       |
|-----------|----------|-------|------------|---------|
| I         | 360 max. | 31 ±1 | approx. 45 | 54 max. |
| II        | 360 max. | 31 ±1 | approx. 55 | 64 max. |
| III       | 500 max. | 23 ±1 | approx. 59 | 72 max. |

If reel type III is not compatible with insertion equipment because of its large diameter, nominal disk diameter 10 mm and 14 mm can be supplied on reel II upon request (taping mode G3).



## 2.6 Ammo pack dimensions



VAR0402-G

## 3 Lead configuration

Straight leads are standard for disk varistors. Other lead configurations as crimp style or customer-specific lead wire length according to 3.1, 3.2, 3.3 and 3.4 are optional. Crimped leads (non-standard) are differently crimped for technical reasons; the individual crimp styles are denoted by consecutive numbers (S, S2 through S5) as shown in the dimensional drawings below.

The crimp styles of the individual types can be seen from the type designation in the ordering tables.

### 3.1 Crimp style mode

Example: B72210S0271K **5** 01

Digit 13

| Digit 13 of ordering code | Crimp style              | Figure |
|---------------------------|--------------------------|--------|
| 1                         | Standard, straight leads | 1      |
| 2                         | S2                       | 2      |
| 3                         | S3                       | 3      |
| 5                         | S5                       | 4      |
| Available upon request    |                          |        |
| Internal coding           | —                        | 5      |



**3.2 Standard leads and non-standard crimp styles**

The basic dimensions in figure 1 to 5 are valid for types with either round or square (EnergetiQ series) component head.

**Standard, straight leads**



**Figure 1**

**Non-standard, crimp style S2**



**Figure 2**

**Non-standard, crimp style S3**



**Figure 3**

**Non-standard, crimp style S5**



**Figure 4**



### 3.3 Trimmed leads (non-standard)

Varistors with cut leads available upon request.

Lead length tolerances:

Straight leads  $\pm 0.8$  mm

Crimped leads  $\pm 0.5$  mm

Minimum lead length 3.0 mm



1) Seating plane to IEC 60717

\*) For round component head

\*\*\*) For EnergetiQ series, square component head

VAR0642-U-E

**Figure 5**





## Mounting

1. Potting, sealing or adhesive compounds can produce chemical reactions in the SIOV ceramic that will degrade the component's electrical characteristics.
2. Overloading SIOVs may result in ruptured packages and expulsion of hot materials. For this reason SIOVs should be physically shielded from adjacent components.

## Operation

1. Use SIOVs only within the specified temperature operating range.
2. Use SIOVs only within the specified voltage and current ranges.
3. Environmental conditions must not harm SIOVs. Use SIOVs only in normal atmospheric conditions. Avoid use in deoxidizing gases (chlorine gas, hydrogen sulfide gas, ammonia gas, sulfuric acid gas etc), corrosive agents, humid or salty conditions. Contact with any liquids and solvents should be prevented.

## Display of ordering codes for EPCOS products

The ordering code for one and the same EPCOS product can be represented differently in data sheets, data books, other publications, on the EPCOS website, or in order-related documents such as shipping notes, order confirmations and product labels. **The varying representations of the ordering codes are due to different processes employed and do not affect the specifications of the respective products.** Detailed information can be found on the Internet under [www.epcos.com/orderingcodes](http://www.epcos.com/orderingcodes)


**Symbols and terms**

| Symbol             | Term   |
|--------------------|--|
| C                  | Capacitance  |
| $C_{typ}$          | Typical capacitance  |
| i                  | Current  |
| $i_c$              | Current at which $V_{c, max}$ is measured                                |
| $I_{leak}$         | Leakage current  |
| $i_{max}$          | Maximum surge current (also termed peak current)                         |
| $I_{max}$          | Maximum discharge current  |
| $I_n$              | Nominal discharge current to UL 1449                                     |
| LCT                | Lower category temperature   |
| $L_{typ}$          | Typical inductance   |
| $P_{max}$          | Maximum average power dissipation  |
| $R_{ins}$          | Insulation resistance  |
| $R_{min}$          | Minimum resistance   |
| $T_A$              | Ambient temperature  |
| $t_r$              | Duration of equivalent rectangular wave                                  |
| UCT                | Upper category temperature   |
| v                  | Voltage  |
| $V_{clamp}$        | Clamping voltage   |
| $V_{c, max}$       | Maximum clamping voltage at specified current $i_c$                      |
| $V_{DC}$           | DC operating voltage   |
| $V_{jump}$         | Maximum jump start voltage   |
| $V_{max}$          | Maximum voltage  |
| $V_{op}$           | Operating voltage  |
| $V_{RMS}$          | AC operating voltage, root-mean-square value                             |
| $V_{RMS, op, max}$ | Root-mean-square value of max. DC operating voltage incl. ripple current |
| $V_{surge}$        | Super imposed surge voltage  |
| $V_V$              | Varistor voltage   |
| $\Delta V_V$       | Tolerance of varistor voltage  |
| $W_{LD}$           | Maximum load dump  |
| $W_{max}$          | Maximum energy absorption  |
| $e$                | Lead spacing   |

All dimensions are given in mm.

The commas used in numerical values denote decimal points.

## Important notes

The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application**. As a rule we are either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether a product with the properties described in the product specification is suitable for use in a particular customer application.
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## Important notes

8. The trade names EPCOS, CeraCharge, CeraDiode, CeraLink, CeraPad, CeraPlas, CSMP, CTVS, DeltaCap, DigiSiMic, ExoCore, FilterCap, FormFit, LeaXield, MiniBlue, MiniCell, MKD, MKK, MotorCap, PCC, PhaseCap, PhaseCube, PhaseMod, PhiCap, PowerHap, PQSine, PQvar, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, SiMic, SIMID, SineFormer, SIOV, ThermoFuse, WindCap are **trademarks registered or pending** in Europe and in other countries. Further information will be found on the Internet at [www.tdk-electronics.tdk.com/trademarks](http://www.tdk-electronics.tdk.com/trademarks).

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