

## Leaded Varistors

### SuperioR Series

#### Construction

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

#### Features

- High-energy SuperioR series E3
- Very high surge current ratings of 12 kA
- High energy ratings up to 320 J
- PSpice models

#### Approvals

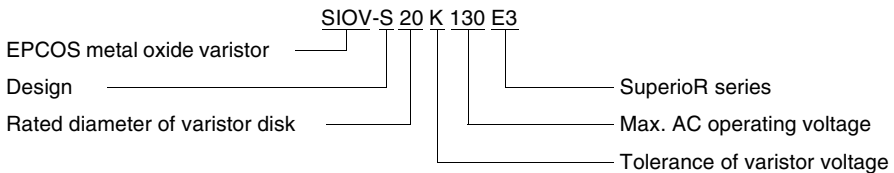
- UL, CSA (all types  $\geq$  K115)
- CECC

#### Taping

- For ordering information see page 206 ff, chapter “Leaded Varistors: Taping”

#### Type designation

Detailed description of coding system on page 39, chapter “General Technical Information”



#### General technical data

|                                               |                                    |                                  |
|-----------------------------------------------|------------------------------------|----------------------------------|
| Climatic category                             | 40/85/56                           | in accordance with IEC 60068-1   |
| LCT                                           | – 40 °C                            |                                  |
| UCT                                           | + 85 °C                            |                                  |
| Damp heat, steady state<br>(93 % r.h., 40 °C) | 56 days                            | in accordance with IEC 60068-2-3 |
| Operating temperature                         | – 40 ... + 85 °C                   | in accordance with CECC 42 000   |
| Storage temperature                           | – 40 ... + 125 °C                  |                                  |
| Electric strength                             | $\geq 2,5 \text{ kV}_{\text{RMS}}$ | in accordance with CECC 42 000   |
| Insulation resistance                         | $\geq 10 \text{ M}\Omega$          | in accordance with CECC 42 000   |
| Response time                                 | < 25 ns                            |                                  |



## Leaded Varistors

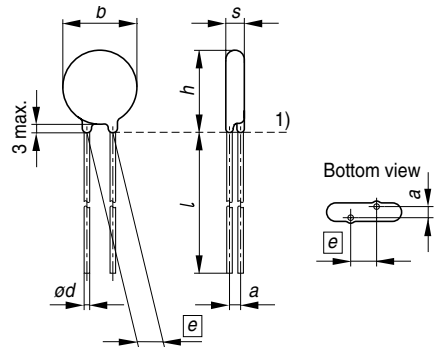
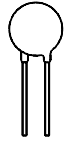
### SuperioR Series

#### Maximum ratings ( $T_A = 85\text{ °C}$ )

| Type<br>(untaped)<br>SIOV- | Ordering code   | $V_{RMS}$<br>V | $V_{DC}$<br>V | $i_{max}$<br>8/20 $\mu s$<br>A | $W_{max}$<br>(2 ms)<br>J | $P_{max}$<br>W |
|----------------------------|-----------------|----------------|---------------|--------------------------------|--------------------------|----------------|
| S20K115E3                  | B72220S3111K101 | 115            | 150           | 12000                          | 110                      | 1,0            |
| S20K130E3                  | B72220S3131K101 | 130            | 170           | 12000                          | 130                      | 1,0            |
| S20K140E3                  | B72220S3141K101 | 140            | 180           | 12000                          | 140                      | 1,0            |
| S20K150E3                  | B72220S3151K101 | 150            | 200           | 12000                          | 150                      | 1,0            |
| S20K175E3                  | B72220S3171K101 | 175            | 225           | 12000                          | 180                      | 1,0            |
| S20K210E3                  | B72220S3211K101 | 210            | 270           | 12000                          | 210                      | 1,0            |
| S20K230E3                  | B72220S3231K101 | 230            | 300           | 12000                          | 220                      | 1,0            |
| S20K250E3                  | B72220S3251K101 | 250            | 320           | 12000                          | 250                      | 1,0            |
| S20K275E3                  | B72220S3271K101 | 275            | 350           | 12000                          | 260                      | 1,0            |
| S20K300E3                  | B72220S3301K101 | 300            | 385           | 12000                          | 290                      | 1,0            |
| S20K320E3                  | B72220S3321K101 | 320            | 420           | 12000                          | 320                      | 1,0            |

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

| Type<br>(untaped)<br>SIOV- | V <sub>v</sub><br>(1 mA)<br>V | ΔV <sub>v</sub><br>(1 mA)<br>% | Max. clamping voltage |        | C <sub>typ</sub><br>(1 kHz)<br>pF | Derating<br>curve<br>Page | V/I char-<br>acteristic<br>Page |
|----------------------------|-------------------------------|--------------------------------|-----------------------|--------|-----------------------------------|---------------------------|---------------------------------|
|                            |                               |                                | v<br>V                | i<br>A |                                   |                           |                                 |
| S20K115E3                  | 180                           | ± 10                           | 300                   | 100    | 1520                              | 257                       | 278                             |
| S20K130E3                  | 205                           | ± 10                           | 340                   | 100    | 1340                              | 257                       | 278                             |
| S20K140E3                  | 220                           | ± 10                           | 360                   | 100    | 1240                              | 257                       | 278                             |
| S20K150E3                  | 240                           | ± 10                           | 395                   | 100    | 1160                              | 257                       | 278                             |
| S20K175E3                  | 270                           | ± 10                           | 455                   | 100    | 1000                              | 257                       | 278                             |
| S20K210E3                  | 330                           | ± 10                           | 550                   | 100    | 830                               | 257                       | 278                             |
| S20K230E3                  | 360                           | ± 10                           | 595                   | 100    | 760                               | 257                       | 278                             |
| S20K250E3                  | 390                           | ± 10                           | 650                   | 100    | 700                               | 257                       | 278                             |
| S20K275E3                  | 430                           | ± 10                           | 710                   | 100    | 630                               | 257                       | 278                             |
| S20K300E3                  | 470                           | ± 10                           | 775                   | 100    | 580                               | 257                       | 278                             |
| S20K320E3                  | 510                           | ± 10                           | 840                   | 100    | 540                               | 257                       | 278                             |



1) Seating plane according to IEC 60717

VAR0408-C

## Dimensions

| Type           | $e \pm 1$<br>mm | $a \pm 1$<br>mm | $b_{\max}$<br>mm | $s_{\max}$<br>mm | $h_{\max}$<br>mm | $l_{\min}$<br>mm | $d \pm 0,05$<br>mm |
|----------------|-----------------|-----------------|------------------|------------------|------------------|------------------|--------------------|
| SIOV-S20K115E3 | 10,0            | 1,8             | 22,5             | 4,8              | 26,0             | 30,0             | 1,0                |
| SIOV-S20K130E3 | 10,0            | 2,0             | 22,5             | 5,0              | 26,0             | 30,0             | 1,0                |
| SIOV-S20K140E3 | 10,0            | 2,1             | 22,5             | 5,1              | 26,0             | 30,0             | 1,0                |
| SIOV-S20K150E3 | 10,0            | 2,2             | 22,5             | 5,2              | 26,0             | 30,0             | 1,0                |
| SIOV-S20K175E3 | 10,0            | 2,3             | 22,5             | 5,3              | 26,0             | 30,0             | 1,0                |
| SIOV-S20K210E3 | 10,0            | 2,4             | 22,5             | 5,4              | 26,0             | 30,0             | 1,0                |
| SIOV-S20K230E3 | 10,0            | 2,9             | 22,5             | 5,9              | 26,0             | 30,0             | 1,0                |
| SIOV-S20K250E3 | 10,0            | 3,1             | 22,5             | 6,1              | 27,0             | 30,0             | 1,0                |
| SIOV-S20K275E3 | 10,0            | 3,3             | 22,5             | 6,3              | 27,0             | 30,0             | 1,0                |
| SIOV-S20K300E3 | 10,0            | 3,6             | 22,5             | 6,6              | 27,0             | 30,0             | 1,0                |
| SIOV-S20K320E3 | 10,0            | 3,8             | 22,5             | 6,8              | 27,0             | 30,0             | 1,0                |

## Weight

| Size              | approx.       |                                                                               |
|-------------------|---------------|-------------------------------------------------------------------------------|
| S20K115 ... 320E3 | 4,0 ... 7,0 g | The weight of varistors in between these voltage classes can be interpolated. |

**Herausgegeben von EPCOS AG****Unternehmenskommunikation, Postfach 80 17 09, 81617 München, DEUTSCHLAND****☎ ++49 89 636 09, FAX (0 89) 636-2 26 89**

© EPCOS AG 2002. Vervielfältigung, Veröffentlichung, Verbreitung und Verwertung dieser Broschüre und ihres Inhalts ohne ausdrückliche Genehmigung der EPCOS AG nicht gestattet.

Bestellungen unterliegen den vom ZVEI empfohlenen Allgemeinen Lieferbedingungen für Erzeugnisse und Leistungen der Elektroindustrie, soweit nichts anderes vereinbart wird.

Diese Broschüre ersetzt die vorige Ausgabe.

Fragen über Technik, Preise und Liefermöglichkeiten richten Sie bitte an den Ihnen nächstgelegenen Vertrieb der EPCOS AG oder an unsere Vertriebsgesellschaften im Ausland. Bauelemente können aufgrund technischer Erfordernisse Gefahrstoffe enthalten. Auskünfte darüber bitten wir unter Angabe des betreffenden Typs ebenfalls über die zuständige Vertriebsgesellschaft einzuholen.

**Published by EPCOS AG****Corporate Communications, P.O. Box 80 17 09, 81617 Munich, GERMANY****☎ ++49 89 636 09, FAX (0 89) 636-2 26 89**

© EPCOS AG 2002. Reproduction, publication and dissemination of this brochure and the information contained therein without EPCOS' prior express consent is prohibited.

Purchase orders are subject to the General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry recommended by the ZVEI (German Electrical and Electronic Manufacturers' Association), unless otherwise agreed.

This brochure replaces the previous edition.

For questions on technology, prices and delivery please contact the Sales Offices of EPCOS AG or the international Representatives.

Due to technical requirements components may contain dangerous substances. For information on the type in question please also contact one of our Sales Offices.