

Kunde / customer :

Artikelnummer / part number : **820 543 001**

Datum / Date : **2010-07-19**

Bezeichnung :

description : **Disk Varistor Standard WE-VD**

DIAM: **14** mm

ROHS Compliant

**A Elektrische Eigenschaften / Electrical Properties :**

TECHNICAL DATA

| Part Number        | Breakdown Voltage | Tolerance | Working Voltage |           | Clamping Voltage | Current Clamp. Volt. | Peak Current Withstanding C. |
|--------------------|-------------------|-----------|-----------------|-----------|------------------|----------------------|------------------------------|
|                    | (V@mA) (*1)       |           | AC              | DC        | V (*2)           | (A)                  | A (*3)                       |
| <b>820 543 001</b> | <b>47</b>         | <b>10</b> | <b>30</b>       | <b>38</b> | <b>93</b>        | <b>10</b>            | <b>1000</b>                  |

\* 1 The varistor voltage was measured at 0.1 mA current for 5 mm diameter and 1 mA current for other

\* 2 The Clamping voltage measured at "Current Clamping Voltage" see next column

\* 3 The Peak Current was tested at 8/20  $\mu$ s waveform for 1 time

| Part Number        | Rated Wattage | Energy      | Capacitance | UL         | Certification CSA | VDE        | Diameter  |
|--------------------|---------------|-------------|-------------|------------|-------------------|------------|-----------|
|                    | (W)           | J (*4)      | pF (*5)     | (*6)       | (*7)              | (*8)       | (mm)      |
| <b>820 543 001</b> | <b>0.1</b>    | <b>12.0</b> | <b>6420</b> | <b>yes</b> | <b>-</b>          | <b>yes</b> | <b>14</b> |

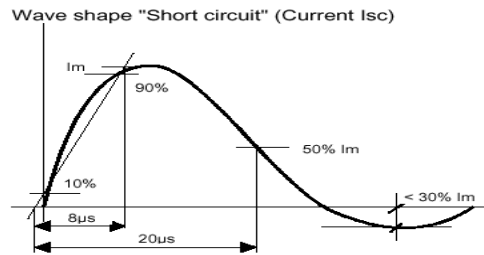
\* 4. The Energy measured at 10/1000  $\mu$ s waveform for 1 time

\* 5. The capacitance value measured at standard frequency @ 1kHz

\* 6. Certification UL N°E332875

\* 7. Certification CSA N°224856

\* 8. Certification VDE N°40016998 & 40016986



| Wave during     | T1         | T2           |
|-----------------|------------|--------------|
| 8/20 $\mu$ s    | 8 $\mu$ s  | 20 $\mu$ s   |
| 10/1000 $\mu$ s | 10 $\mu$ s | 1000 $\mu$ s |

ORDER CODE

**820**

Varistor Type

MARKING CODE

**X X XXX X**

Serie

Diameter

Vrms Voltage

Tolerance

Code

Special Type

Disc Varistor

5 = Standard  
4 = High Surge

5 = 5 mm  
7 = 7 mm  
1 = 10 mm  
4 = 14 mm  
2 = 20 mm

5 = 5%  
1 = 10%  
6 = 15%  
2 = 20%  
7 = 25%  
3 = 30%

Example:  
180 = 18 V  
271 = 270 V  
102 = 1 000 V

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**B Mechanische Abmessungen / Dimensions :**

SIZE

| Diameter* | Ø 5 | Ø 7 | Ø 10 | Ø 14 | Ø 20 |
|-----------|-----|-----|------|------|------|
| D max.    | 7,5 | 9,0 | 12,5 | 16,5 | 23,0 |
| d +/-0,05 | 0,6 | 0,6 | 0,8  | 0,8  | 1,0  |
| F +/-1,0  | 5,0 | 5,0 | 7,5  | 7,5  | 10,0 |
| H max.    | 11  | 13  | 18   | 22   | 28   |
| H1 max    | 3,5 | 3,5 | 5,0  | 5,0  | 5,0  |
| L1 min.   | 25  | 25  | 25   | 25   | 25   |
| L min.    | 24  | 24  | 24   | 24   | 24   |

(mm) - \*Nominal Disk Diameter of Bare Disk

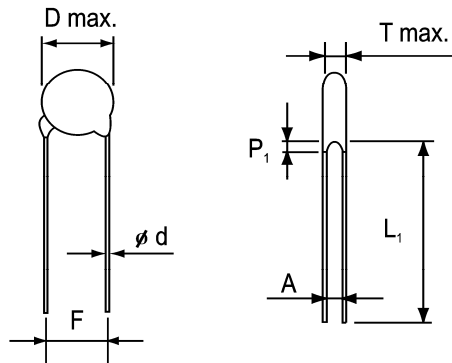


Table of T max., A & P<sub>1</sub> . Unit : (mm)

| Diameter | Ø 5           |                |     | Ø 7           |                |     | Ø 10          |                |     | Ø 14          |                |     | Ø 20          |                |     |
|----------|---------------|----------------|-----|---------------|----------------|-----|---------------|----------------|-----|---------------|----------------|-----|---------------|----------------|-----|
|          | T max A+/-0,8 | P <sub>1</sub> |     | T max A+/-0,8 | P <sub>1</sub> |     | T max A+/-0,8 | P <sub>1</sub> |     | T max A+/-0,8 | P <sub>1</sub> |     | T max A+/-0,8 | P <sub>1</sub> |     |
| 110      | 4,5           | 1,4            | 3,0 | 4,5           | 1,4            | 3,0 | 4,9           | 1,4            | 3,0 | 5,0           | 1,5            | 3,0 | 5,2           | 1,5            | 3,0 |
| 140      | 4,5           | 1,5            | 3,0 | 4,5           | 1,5            | 3,0 | 4,9           | 1,5            | 3,0 | 5,0           | 1,6            | 3,0 | 5,3           | 1,6            | 3,0 |
| 170      | 4,7           | 1,5            | 3,0 | 4,7           | 1,5            | 3,0 | 5,1           | 1,5            | 3,0 | 5,2           | 1,7            | 3,0 | 5,4           | 1,7            | 3,0 |
| 200      | 4,7           | 1,6            | 3,0 | 4,7           | 1,6            | 3,0 | 5,1           | 1,6            | 3,0 | 5,2           | 1,8            | 3,0 | 5,4           | 1,8            | 3,0 |
| 250      | 4,7           | 1,8            | 3,0 | 4,7           | 1,8            | 3,0 | 5,1           | 1,8            | 3,0 | 5,2           | 2,0            | 3,0 | 5,4           | 2,0            | 3,0 |
| 300      | 5,0           | 1,8            | 3,0 | 5,0           | 1,8            | 3,0 | 5,5           | 1,8            | 3,0 | 5,6           | 2,0            | 3,0 | 5,6           | 2,0            | 3,0 |
| 350      | 5,0           | 2,0            | 3,0 | 5,0           | 2,0            | 3,0 | 5,5           | 2,0            | 3,0 | 5,6           | 2,2            | 3,0 | 5,6           | 2,2            | 3,0 |
| 400      | 5,5           | 2,3            | 3,0 | 5,5           | 2,3            | 3,0 | 6,0           | 2,3            | 3,0 | 6,1           | 2,5            | 3,0 | 6,1           | 2,5            | 3,0 |
| 500      | 3,8           | 1,4            | 3,0 | 3,8           | 1,4            | 3,0 | 4,3           | 1,4            | 3,0 | 4,4           | 1,6            | 3,0 | 4,9           | 1,8            | 3,0 |
| 600      | 3,9           | 1,4            | 3,0 | 3,9           | 1,4            | 3,0 | 4,4           | 1,4            | 3,0 | 4,5           | 1,6            | 3,0 | 5,1           | 1,8            | 3,0 |
| 750      | 4,1           | 1,5            | 3,0 | 4,1           | 1,5            | 3,0 | 4,5           | 1,5            | 3,0 | 4,6           | 1,7            | 3,0 | 5,3           | 1,9            | 3,0 |
| 950      | 4,5           | 1,8            | 3,0 | 4,5           | 1,8            | 3,0 | 4,9           | 1,8            | 3,0 | 5,1           | 2,0            | 3,0 | 5,6           | 2,2            | 3,0 |
| 111      | 4,1           | 1,6            | 3,0 | 4,1           | 1,6            | 3,0 | 4,5           | 1,6            | 3,0 | 4,7           | 1,8            | 3,0 | 5,2           | 2,0            | 3,0 |
| 131      | 4,2           | 1,6            | 3,0 | 4,2           | 1,6            | 3,0 | 4,6           | 1,6            | 3,0 | 4,8           | 1,8            | 3,0 | 5,3           | 2,0            | 3,0 |
| 141      | 4,3           | 1,7            | 3,0 | 4,3           | 1,7            | 3,0 | 4,7           | 1,7            | 3,0 | 4,9           | 1,9            | 3,0 | 5,4           | 2,1            | 3,0 |
| 151      | 4,4           | 1,7            | 3,0 | 4,4           | 1,9            | 3,0 | 4,8           | 1,9            | 3,0 | 5,0           | 2,1            | 3,0 | 5,5           | 2,3            | 3,0 |
| 171      | 4,6           | 1,9            | 3,0 | 4,6           | 2,0            | 3,0 | 5,0           | 2,0            | 3,0 | 5,2           | 2,1            | 3,0 | 5,7           | 2,5            | 3,0 |
| 191      | 4,8           | 1,9            | 3,0 | 4,8           | 2,1            | 3,0 | 5,2           | 2,2            | 3,0 | 5,4           | 2,3            | 3,0 | 5,9           | 2,7            | 3,0 |
| 211      | 4,9           | 1,9            | 3,0 | 4,9           | 2,1            | 3,0 | 5,3           | 2,2            | 3,0 | 5,5           | 2,3            | 3,0 | 6,0           | 2,7            | 3,0 |
| 231      | 5,1           | 2,4            | 3,0 | 5,1           | 2,5            | 3,0 | 5,5           | 2,5            | 3,0 | 5,7           | 2,7            | 3,0 | 6,2           | 2,9            | 3,0 |
| 251      | 5,3           | 2,6            | 3,5 | 5,3           | 2,6            | 3,5 | 5,7           | 2,8            | 3,5 | 5,9           | 2,8            | 3,5 | 6,4           | 3,0            | 3,5 |
| 271      | 6,1           | 2,7            | 3,5 | 6,1           | 2,9            | 3,5 | 6,5           | 3,1            | 3,5 | 6,7           | 3,1            | 3,5 | 7,2           | 3,3            | 3,5 |
| 301      | 6,4           | 2,8            | 3,5 | 6,4           | 2,9            | 3,5 | 6,8           | 3,2            | 3,5 | 7,0           | 3,3            | 3,5 | 7,5           | 3,5            | 4,0 |
| 321      | 6,6           | 3,1            | 4,0 | 6,6           | 3,1            | 4,0 | 7,0           | 3,7            | 4,0 | 7,2           | 3,7            | 4,0 | 7,7           | 3,9            | 4,0 |
| 351      | 6,9           | 3,4            | 4,0 | 6,9           | 3,4            | 4,0 | 7,3           | 4,0            | 4,0 | 7,5           | 4,0            | 4,0 | 8,0           | 4,2            | 4,0 |
| 381      | 7,2           | 3,7            | 4,0 | 7,2           | 3,7            | 4,0 | 7,6           | 4,6            | 4,0 | 7,8           | 4,4            | 4,0 | 8,3           | 4,7            | 4,0 |
| 421      | 7,5           | 4,0            | 4,0 | 7,5           | 4,0            | 4,0 | 8,0           | 5,0            | 4,0 | 8,2           | 4,7            | 4,0 | 8,7           | 5,0            | 4,0 |
| 461      | 7,9           | 4,3            | 4,0 | 7,9           | 4,3            | 4,0 | 8,4           | 5,0            | 4,0 | 8,6           | 4,9            | 4,0 | 9,1           | 5,1            | 4,0 |
| 481      |               |                |     | 8,1           | 4,5            | 4,0 | 8,6           | 5,2            | 4,0 | 8,8           | 5,2            | 4,0 | 9,3           | 5,4            | 4,0 |
| 511      |               |                |     | 8,3           | 4,7            | 4,0 | 8,8           | 5,2            | 4,0 | 9,0           | 5,2            | 4,0 | 9,5           | 5,4            | 4,0 |
| 551      |               |                |     |               |                |     | 9,4           | 6,0            | 4,0 | 9,6           | 6,0            | 4,0 | 10,1          | 6,3            | 4,0 |
| 621      |               |                |     |               |                |     | 9,9           | 6,0            | 4,0 | 10,1          | 6,2            | 4,0 | 10,7          | 6,4            | 4,0 |
| 681      |               |                |     |               |                |     | 10,5          | 6,3            | 4,0 | 10,7          | 6,7            | 4,0 | 11,2          | 6,9            | 4,0 |
| 102      |               |                |     |               |                |     | 12,6          | 9,8            | 6,0 | 12,8          | 10,2           | 6,0 | 13,5          | 10,4           | 6,0 |

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**C Markierung / Marking Spec. :**

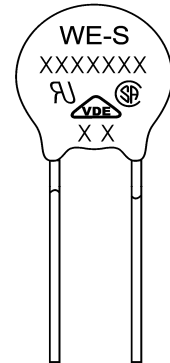
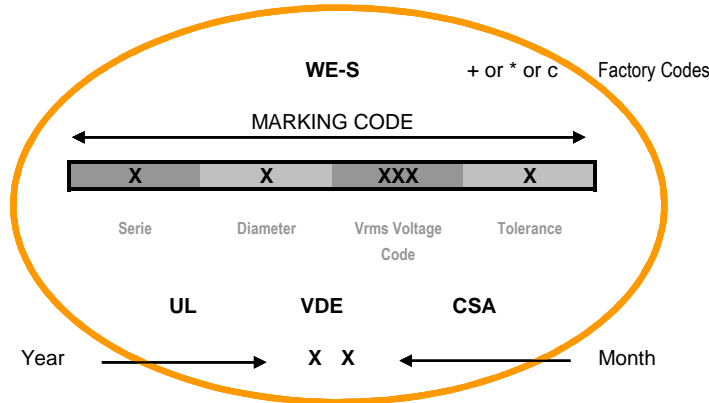
MARKING

Würth Elektronik

Characteristic

Certification

Date Code



**GENERAL CHARACTERISTICS**

|                                 |              |
|---------------------------------|--------------|
| Max. reponse time               | 25 n sec     |
| Operating temperature:          | -40 to +85°C |
| Insulation resistance (500VDC): | Over 1000 MΩ |

**LEAD FREE SOLDERING**

|                           |                  |
|---------------------------|------------------|
| Solder                    | Tin 100%         |
| Soldering temper ature at | 255°C +/-5 °C    |
| Profile soldering         | 270°C during 10s |

**D Verpackung / Packaging:**

QUANTITY PER PACKING UNIT

| Diameter      | Ø 5   |       | Ø 7   |       | Ø 10  |       | Ø 14  |      | Ø 20  |      |
|---------------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|
|               | Bulk  | Reel  | Bulk  | Reel  | Bulk  | Reel  | Bulk  | Reel | Bulk  | Reel |
| Voltage Serie | (Box) |       | (Box) |       | (Box) |       | (Box) |      | (Box) |      |
| 110 ~ 300     | 5 000 | 1 500 | 5 000 | 1 500 | 2 500 | 1 000 | 1 500 | 750  | 750   | 500  |
| 350 ~ 400     | 5 000 | 1 500 | 5 000 | 1 500 | 2 500 | 1 000 | 1 500 | 750  | 750   | 500  |
| 500 ~ 210     | 5 000 | 1 500 | 5 000 | 1 500 | 2 500 | 1 000 | 1 500 | 750  | 750   | 500  |
| 230 ~ 250     | 5 000 | 1 500 | 5 000 | 1 500 | 2 500 | 1 000 | 1 500 | 750  | 750   | 500  |
| 271 ~ 301     | 5 000 | 1 500 | 5 000 | 1 000 | 2 500 | 750   | 1 500 | 750  | 750   | 500  |
| 321 ~ 461     | 4 000 | 1 000 | 4 000 | 1 000 | 1 500 | 500   | 750   | 500  | 450   | 500  |
| 481 ~ 102     | -     | -     | -     | -     | 1 500 | 500   | 750   | 500  | 450   | 500  |

QUANTITY PER CARTON UNIT

| Packaging       | Bulk (Box)      | Reel               | Reel Ø 14 / 20  |
|-----------------|-----------------|--------------------|-----------------|
| Box size        | 290 x 155 x 110 | 350 x 350 x 108    | 350 x 350 x 7   |
| Carton size     | 310 x 328 x 250 | 371 x 371 x 590    | 370 x 370 x 468 |
| One carton with | 4 boxes         | 5 boxes (10 reels) | 6 boxes         |

