

Kunde / customer :

Artikelnummer / part number : **820 523 006**

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

Bezeichnung :

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

DIAM: **20** mm

ROHS Compliant

A Elektrische Eigenschaften / Electrical Properties :

TECHNICAL DATA

| Part Number | Breakdown Voltage (V@mA) (*1) | Tolerance (%) | Working Voltage | | Clamping Voltage V (*2) | Current Clamp. Volt. (A) | Peak Current Withstanding C. A (*3) |
|--------------------|----------------------------------|------------------|-----------------|-----------|----------------------------|--------------------------------|---|
| | | | AC | DC | | | |
| 820 523 006 | 47 | 15 | 30 | 38 | 93 | 20 | 2000 |

* 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 μ s waveform for 1 time

| Part Number | Rated Wattage (W) | Energy J (*4) | Capacitance pF (*5) | UL (*6) | Certification | | Diameter (mm) |
|--------------------|----------------------|------------------|------------------------|------------|---------------|-------------|------------------|
| | | | | | CSA (*7) | VDE (*8) | |
| 820 523 006 | 0.2 | 17.0 | 12100 | yes | - | yes | 20 |

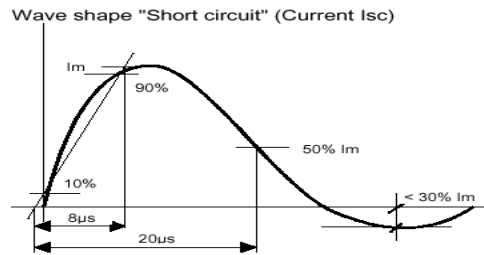
* 4. The Energy measured at 10/1000 μ s waveform for 1 time

* 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

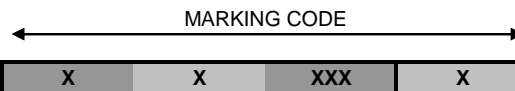


| Wave during | T1 | T2 |
|-----------------|------------|--------------|
| 8/20 μ s | 8 μ s | 20 μ s |
| 10/1000 μ s | 10 μ s | 1000 μ s |

ORDER CODE

820

Varistor Type



Serie

Diameter

Vrms Voltage

Tolerance

Code

S

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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DIAM: **20** mm

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 & P₁ . Unit : (mm)

| Diameter | Ø 5 | | | Ø 7 | | | Ø 10 | | | Ø 14 | | | Ø 20 | | |
|----------|--------------|---------------|----------------|---------------|----------------|-----|---------------|----------------|-----|---------------|----------------|-----|---------------|----------------|-----|
| | Voltage Code | T max A+/-0,8 | P ₁ | T max A+/-0,8 | P ₁ | | T max A+/-0,8 | P ₁ | | T max A+/-0,8 | P ₁ | | T max A+/-0,8 | P ₁ | |
| 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. :

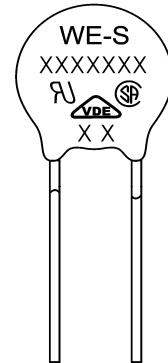
MARKING

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 |

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Bezeichnung :

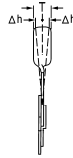
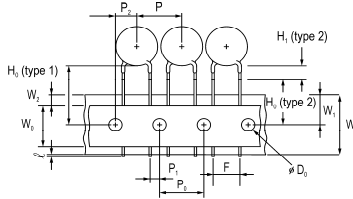
description : **Disk Varistor Standard WE-VD**

DIAM: **20** mm

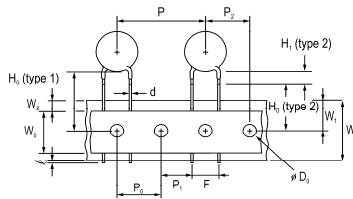
E Rollenspezifikation / Tape and Reel Specification :

TAPE

1/2" pitch

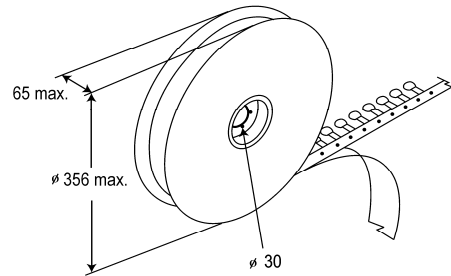


1.0" pitch



REEL DIMENSION

(Unit : mm)



| Item | Ø 5 / 7 | Ø 10 | Ø 10 / 14 / 20 | Ø 14 / 20 |
|-------------------------|----------------------|-----------|-----------------------|----------------------|
| Taping pitch | 1/2" | | 1.0" | |
| I | 1,1 mm maxi. | | 1,1 mm maxi. | |
| H ₁ (type 2) | 3,5 mm max. | 5 mm max. | 5 mm maxi. | |
| H ₀ (type 2) | 16 +/-0,5 mm | | 16 +/-0,5 mm | |
| H ₀ (type 1) | 16 à 21 mm | | 16 à 21 mm | |
| h | +/-2 mm | | +/-2 mm | |
| W | 18 mm +1 / - 0,5 mm | | 18 mm +1 / - 0,5 mm | |
| W ₀ | 10 mm | | 12 mm | |
| W ₁ | 9 mm +0,75 / -0,5 mm | | 9 mm +0,75 / -0,5 mm | |
| W ₂ | 3 mm maxi. | | 3 mm maxi. | |
| F | 5 mm +0,8 / -0,2 mm | | 7,5 mm +0,8 / -0,2 mm | 10 mm +0,8 / -0,2 mm |
| P | 12,7 mm +/-1 mm | | 25,4 mm +/-1 mm | |
| P ₀ | 12,7 mm +/-0,3 mm | | 12,7 mm +/-0,3 mm | |
| P ₁ | 3,85 mm +/-0,7 mm | | 8,95 mm +/-0,7 mm | 7,7 mm +/-0,7 mm |
| P ₂ | 6,35 mm +/-1,3 mm | | 12,7 mm +/-1,3 mm | |
| D ₀ | 4 mm +/-0,2 mm | | 4 mm +/-0,2 mm | |
| d | 0,6 mm +/-0,05 mm | | 0,8 mm +/-0,05 mm | 1,0 mm +/-0,05 mm |
| t ₁ | 0,7 mm +/-0,05 mm | | 0,6 mm +/-0,05 mm | |
| t ₂ | 1,6 mm maxi. | | 1,8 mm maxi. | |

| | | | | | | |
|--|--------------------------|-------------------------|------------|-----------|-------------------------|--------------|
| Freigabe erteilt / general release: | Kunde / customer | | | | | |
| | Unterschrift / signature | | | JB | Version 5 | 2010-07-19 |
| Datum / date | Würth Elektronik | | | JP Penlou | New P/N | 2006-06-01 |
| | | | | JP Penlou | Customer Layout | 2006-05-11 |
| Geprüft / checked | 2010-07-19 | Kontrolliert / approved | JP. Penlou | JP Penlou | Factory codes | 2005-11-16 |
| | | | | JP Penlou | Lead Free Marking | 2004-10-19 |
| | | | | Name | Änderung / modification | Datum / date |

Würth Elektronik eiSos GmbH & Co.KG