

## GENERAL DESCRIPTION

The ROV20-XXX (Radial-leaded Metal Oxide Varistor) products are 20mm radial leaded varistor devices suitable for protection of overvoltage transients.

ROV devices can provide protection for a wide variety of power systems against overvoltage faults such as lightning, power contact and power induction. Suitable for a broad range of applications including, but not limited to security, power supplies, surge strips, etc., the ROV device helps to protect valuable equipment from potential power surge damage by clamping high energy, short duration impulses. The ROV devices have high current handling and energy absorption capability and fast response times to help protect against transient faults.

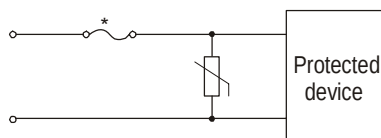
## FEATURES

- Radial leaded
- Broad Varistor voltage and  $V_{rms}$  range
  - Varistor voltage : 22V – 68V; 100V - 1800V
  - $V_{rms}$  voltage : 14V – 40V; 60V - 1000V
- Three surge capability series
  - Standard series, High surge series, Extra high surge series
- Various lead types
  - Straight, Kinked, Other
- Various packaging options
  - Bulk, Tape & Reel, Ammo Pack
- Helps designers meet the following standards
  - UL, CSA, VDE
- Fast response time
- High current and energy absorption capability

## APPLICATIONS

- Power supplies and power systems
- Line voltage
- Telecommunications systems
- Automotive systems
- Appliances

## TYPICAL APPLICATION SCHEMATIC



\*In some applications, a polymeric PTC device such as a Tyco Electronics PolySwitch device may be used instead of a fuse to provide a preferred solution.

## MATERIALS INFORMATION

RoHS Compliant

Directive 2002/95/EC  
Compliant

ELV Compliant

Directive 2000/53/EC  
Compliant

\*After May 1, 2005 all ROV devices will be produced as RoHS compliant devices.

# Metal Oxide Varistors

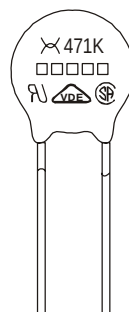
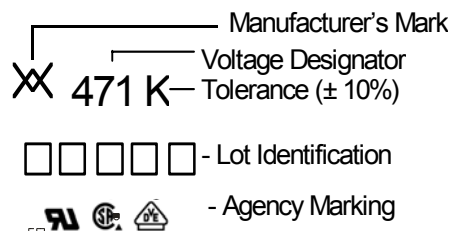
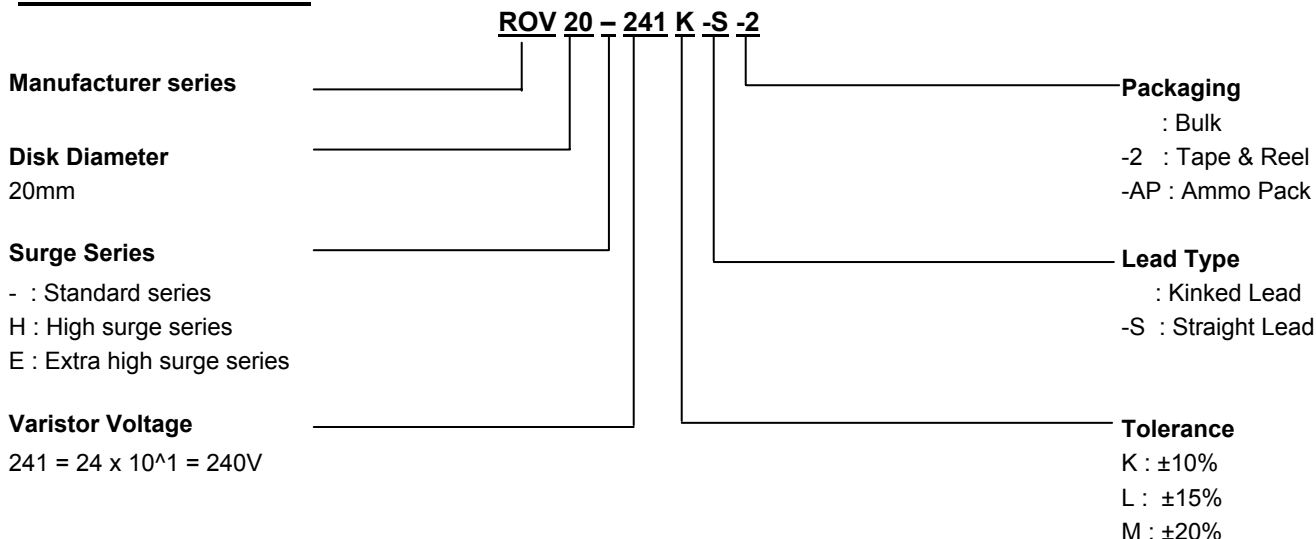
## Overvoltage Protection Device

Raychem Circuit Protection Products

**PRODUCT: ROV20, ROV20, ROV20E**  
**20mm Series**

DOCUMENT: SCD 25484  
PCN:  
REV LETTER: E  
REV DATE: JULY 19, 2007  
PAGE NO.: 2 of 13

## PART NUMBERING



## Lot Identification

RoHS compliant devices: 4 characters  
Non RoHS compliant devices: 5 characters with M at the end.

## GENERAL CHARACTERISTICS

|                                                            |                        |
|------------------------------------------------------------|------------------------|
| Storage temperature:                                       | -40°C ... +125°C       |
| Maximum operating temperature:                             | -40°C ... +85°C        |
| Maximum working surface temperature:                       | +115°C                 |
| Temperature coefficient of voltage:                        | 0 ...+0.05% / °C max.  |
| Insulation resistance of coating (@ 500 V <sub>DC</sub> ): | Over 1000MΩ            |
| Maximum response time:                                     | 25ns                   |
| Lead Material:                                             | 22AWG Sn Plated Copper |

## AGENCY RECOGNITION

Device Ratings and Characteristics Tables contain specific recognition information for each individual part. The table below details marking symbols for each agency recognition type.

| UL1414 | UL1449<br>(2nd Edition) | CSA | VDE |
|--------|-------------------------|-----|-----|
| ◆      | ●                       | ▲   | ■   |

## DEVICE RATINGS AND CHARACTERISTICS

### STANDARD SERIES

| Part Number | Varistor Voltage<br>V@1.0mA |           | Maximum Allowable Voltage              |                    | Maximum Clamping Voltage<br>V@100A | Maximum Surge Current<br>(8x20us) |                | Rated Wattage | Energy<br>(10x1000us) | Capacitance<br>(Typical) | Certifications                                                                      |
|-------------|-----------------------------|-----------|----------------------------------------|--------------------|------------------------------------|-----------------------------------|----------------|---------------|-----------------------|--------------------------|-------------------------------------------------------------------------------------|
|             | (V <sub>DC</sub> )          | Tolerance | V <sub>rms</sub><br>(V <sub>AC</sub> ) | (V <sub>DC</sub> ) | (V <sub>DC</sub> )                 | 1 Time<br>(A)                     | 2 Times<br>(A) | (W)           | (J)                   | @1kHz<br>(pF)            |  |
| ROV20-220M  | 22                          | ± 20%     | 14                                     | 18                 | 43 <sup>1)</sup>                   | 2000                              | 1000           | 0.20          | 8.0                   | 21200                    | • ■                                                                                 |
| ROV20-270M  | 27                          |           | 17                                     | 22                 | 53 <sup>1)</sup>                   |                                   |                |               | 10.0                  | 20000                    | • ■                                                                                 |
| ROV20-330M  | 33                          |           | 20                                     | 26                 | 65 <sup>1)</sup>                   |                                   |                |               | 12.0                  | 17200                    | • ■                                                                                 |
| ROV20-390L  | 39                          | ± 15%     | 25                                     | 31                 | 77 <sup>1)</sup>                   | 2000                              | 1000           | 0.20          | 14.0                  | 15003                    | • ■                                                                                 |
| ROV20-470L  | 47                          |           | 30                                     | 38                 | 93 <sup>1)</sup>                   |                                   |                |               | 17.0                  | 12080                    | • ■                                                                                 |
| ROV20-560L  | 56                          |           | 35                                     | 45                 | 110 <sup>1)</sup>                  |                                   |                |               | 20.0                  | 11600                    | • ■                                                                                 |
| ROV20-680L  | 68                          |           | 40                                     | 56                 | 135 <sup>1)</sup>                  |                                   |                |               | 24.0                  | 9600                     | • ■                                                                                 |
| ROV20-101K  | 100                         | ± 10%     | 60                                     | 85                 | 165                                | 6500                              | 4000           | 1.00          | 56.0                  | 4000                     | • ■                                                                                 |
| ROV20-121K  | 120                         |           | 75                                     | 100                | 200                                |                                   |                |               | 64.0                  | 3800                     | • ■                                                                                 |
| ROV20-151K  | 150                         |           | 95                                     | 125                | 250                                |                                   |                |               | 88.0                  | 3000                     | • ■                                                                                 |
| ROV20-181K  | 180                         |           | 115                                    | 150                | 300                                |                                   |                |               | 104.0                 | 2400                     | • ■                                                                                 |
| ROV20-201K  | 200                         |           | 130                                    | 170                | 340                                |                                   |                |               | 114.0                 | 1829                     | ◆ • ▲ ■                                                                             |
| ROV20-221K  | 220                         |           | 140                                    | 180                | 360                                |                                   |                |               | 124.0                 | 1600                     | ◆ • ▲ ■                                                                             |
| ROV20-241K  | 240                         |           | 150                                    | 200                | 395                                |                                   |                |               | 134.0                 | 1422                     | ◆ • ▲ ■                                                                             |
| ROV20-271K  | 270                         |           | 175                                    | 225                | 455                                |                                   |                |               | 158.0                 | 1261                     | ◆ • ▲ ■                                                                             |
| ROV20-301K  | 300                         |           | 195                                    | 250                | 505                                |                                   |                |               | 168.0                 | 1100                     | ◆ • ▲ ■                                                                             |
| ROV20-331K  | 330                         |           | 210                                    | 275                | 550                                |                                   |                |               | 184.0                 | 1106                     | ◆ • ▲ ■                                                                             |
| ROV20-361K  | 360                         |           | 230                                    | 300                | 595                                |                                   |                |               | 208.0                 | 987                      | ◆ • ▲ ■                                                                             |
| ROV20-391K  | 390                         |           | 250                                    | 320                | 650                                |                                   |                |               | 240.0                 | 975                      | ◆ • ▲ ■                                                                             |
| ROV20-431K  | 430                         |           | 275                                    | 350                | 710                                |                                   |                |               | 264.0                 | 858                      | ◆ • ▲ ■                                                                             |
| ROV20-471K  | 470                         |           | 300                                    | 385                | 775                                |                                   |                |               | 280.0                 | 761                      | ◆ • ▲ ■                                                                             |
| ROV20-511K  | 510                         |           | 320                                    | 418                | 842                                |                                   |                |               | 296.0                 | 792                      | ◆ • ▲ ■                                                                             |
| ROV20-561K  | 560                         |           | 350                                    | 460                | 920                                |                                   |                |               | 312.0                 | 679                      | ◆ • ▲ ■                                                                             |
| ROV20-621K  | 620                         |           | 385                                    | 505                | 1025                               |                                   |                |               | 328.0                 | 605                      | ◆ • ▲ ■                                                                             |
| ROV20-681K  | 680                         |           | 420                                    | 560                | 1120                               |                                   |                |               | 344.0                 | 553                      | ◆ • ▲ ■                                                                             |
| ROV20-751K  | 750                         |           | 460                                    | 615                | 1240                               |                                   |                |               | 360.0                 | 554                      | ◆ • ▲ ■                                                                             |

## Metal Oxide Varistors

### Overvoltage Protection Device

*Raychem Circuit Protection Products*

**PRODUCT: ROV20, ROV20, ROV20E**  
**20mm Series**

DOCUMENT: SCD 25484  
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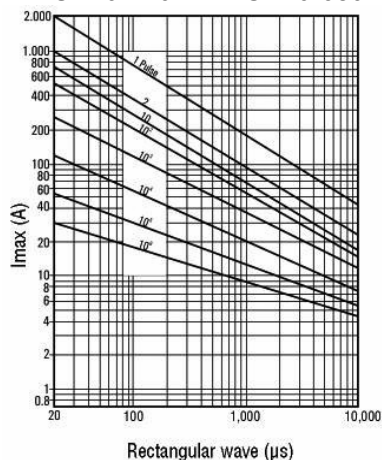
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|------------|------|--|------|---------|------|--|--|--|-------|-----|---------|
| ROV20-781K | 780  |  | 485  | 64<br>0 | 1290 |  |  |  | 368.0 | 481 | ◆ ● ▲ ■ |
| ROV20-821K | 820  |  | 510  | 67<br>0 | 1355 |  |  |  | 376.0 | 519 | ◆ ● ▲ ■ |
| ROV20-911K | 910  |  | 550  | 74<br>5 | 1500 |  |  |  | 408.0 | 444 | ◆ ● ▲ ■ |
| ROV20-102K | 1000 |  | 625  | 82<br>5 | 1650 |  |  |  | 448.0 | 400 | ◆ ● ▲ ■ |
| ROV20-112K | 1100 |  | 680  | 89<br>5 | 1815 |  |  |  | 496.0 | 360 | ◆ ● ▲ ■ |
| ROV20-182K | 1800 |  | 1000 | 1465    | 2970 |  |  |  | 695.0 | 260 | ■*      |

\* Pending VDE Recognition

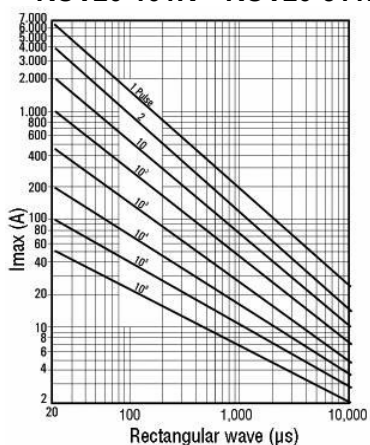
1) The clamping voltage for devices ROV20-220M to ROV20-680L is tested with 20A current.

**PULSE LIFETIME RATING CURVES**  
**STANDARD SERIES**

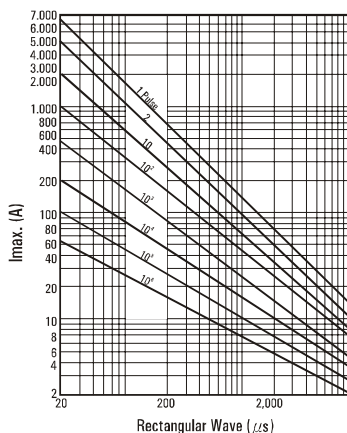
**ROV20-220M – ROV20-680K**



**ROV20-101K – ROV20-511K**

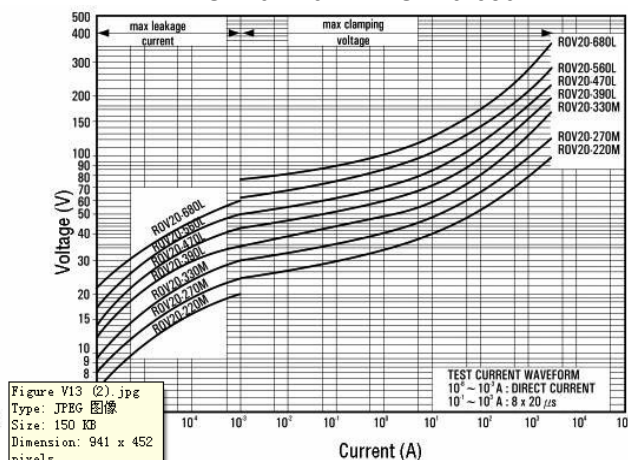


**ROV20-561K – ROV20-182K**

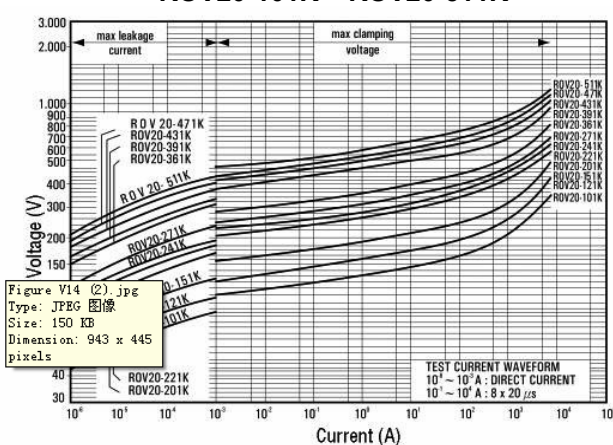


**V-I CHARACTERISTIC CURVES**  
**STANDARD SERIES**

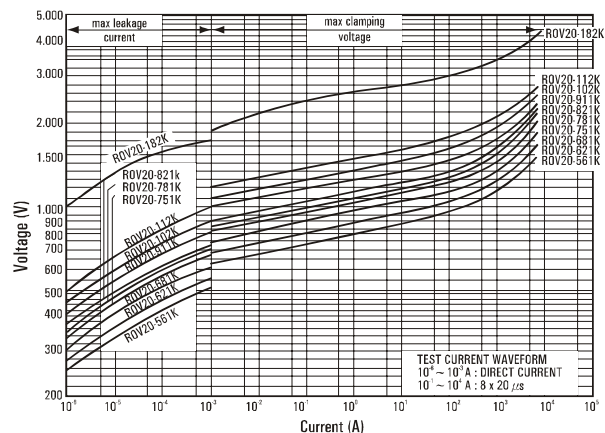
**ROV20-220M – ROV20-680K**



**ROV20-101K – ROV20-511K**



**ROV20-561K – ROV20-182K**



### DEVICE RATINGS AND CHARACTERISTICS

#### HIGH SURGE SERIES

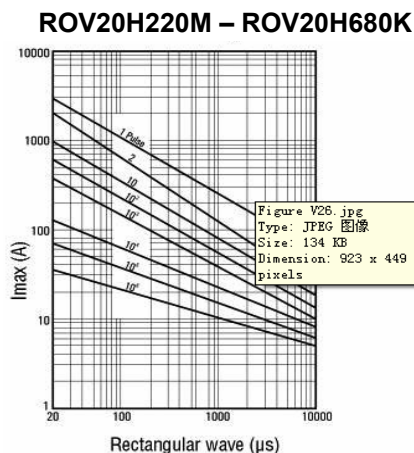
| Part Number    | Varistor Voltage<br>V@1.0mA |           | Maximum Allowable Voltage              |                    | Maximum Clamping Voltage<br>V@100A | Maximum Surge Current<br>(8x20us) |                   | Rated Wattage | Energy<br>(10x1000us) | Capacitance<br>(Typical) | Certifications                                                                      |
|----------------|-----------------------------|-----------|----------------------------------------|--------------------|------------------------------------|-----------------------------------|-------------------|---------------|-----------------------|--------------------------|-------------------------------------------------------------------------------------|
|                | (V <sub>DC</sub> )          | Tolerance | V <sub>rms</sub><br>(V <sub>AC</sub> ) | (V <sub>DC</sub> ) | (V <sub>DC</sub> )                 | 1<br>Time<br>(A)                  | 2<br>Times<br>(A) | (W)           | (J)                   | @1kHz<br>(pF)            |  |
| ROV20H220<br>M | 22                          | ± 20%     | 14                                     | 18                 | 43 <sup>1)</sup>                   | 3000                              | 2000              | 0.20          | 16.0                  | 21200                    | • ■                                                                                 |
| ROV20H270<br>M | 27                          |           | 17                                     | 22                 | 53 <sup>1)</sup>                   |                                   |                   |               | 19.0                  | 20000                    | • ■                                                                                 |
| ROV20H330<br>M | 33                          |           | 20                                     | 26                 | 65 <sup>1)</sup>                   |                                   |                   |               | 24.0                  | 17200                    | • ■                                                                                 |
| ROV20H390<br>L | 39                          | ± 15%     | 25                                     | 31                 | 77 <sup>1)</sup>                   |                                   |                   |               | 28.0                  | 15000                    | • ■                                                                                 |
| ROV20H470<br>L | 47                          |           | 30                                     | 38                 | 93 <sup>1)</sup>                   |                                   |                   |               | 34.0                  | 12100                    | • ■                                                                                 |
| ROV20H560<br>L | 56                          |           | 35                                     | 45                 | 110 <sup>1)</sup>                  |                                   |                   |               | 41.0                  | 11600                    | • ■                                                                                 |
| ROV20H680<br>L | 68                          |           | 40                                     | 56                 | 135 <sup>1)</sup>                  |                                   |                   |               | 49.0                  | 9600                     | • ■                                                                                 |
| ROV20H101<br>K | 100                         | ± 10%     | 60                                     | 85                 | 165                                | 10000                             | 6500              | 1.00          | 72.0                  | 4000                     | • ■                                                                                 |
| ROV20H121<br>K | 120                         |           | 75                                     | 100                | 200                                |                                   |                   |               | 88.0                  | 3800                     | • ■                                                                                 |
| ROV20H151<br>K | 150                         |           | 95                                     | 125                | 250                                |                                   |                   |               | 106.0                 | 3000                     | • ■                                                                                 |
| ROV20H181<br>K | 180                         |           | 115                                    | 150                | 300                                |                                   |                   |               | 130.0                 | 2400                     | • ■                                                                                 |
| ROV20H201<br>K | 200                         |           | 130                                    | 170                | 340                                |                                   |                   |               | 140.0                 | 1830                     | ◆ • ▲ ■                                                                             |
| ROV20H221<br>K | 220                         |           | 140                                    | 180                | 360                                |                                   |                   |               | 155.0                 | 1600                     | ◆ • ▲ ■                                                                             |
| ROV20H241<br>K | 240                         |           | 150                                    | 200                | 395                                |                                   |                   |               | 168.0                 | 1420                     | ◆ • ▲ ■                                                                             |
| ROV20H271<br>K | 270                         |           | 175                                    | 225                | 455                                |                                   |                   |               | 190.0                 | 1260                     | ◆ • ▲ ■                                                                             |
| ROV20H301<br>K | 300                         |           | 195                                    | 250                | 505                                |                                   |                   |               | 210.0                 | 1100                     | ◆ • ▲ ■                                                                             |
| ROV20H331<br>K | 330                         |           | 210                                    | 275                | 550                                |                                   |                   |               | 228.0                 | 1110                     | ◆ • ▲ ■                                                                             |
| ROV20H361<br>K | 360                         |           | 230                                    | 300                | 595                                |                                   |                   |               | 255.0                 | 990                      | ◆ • ▲ ■                                                                             |
| ROV20H391<br>K | 390                         |           | 250                                    | 320                | 650                                |                                   |                   |               | 275.0                 | 980                      | ◆ • ▲ ■                                                                             |
| ROV20H431<br>K | 430                         |           | 275                                    | 350                | 710                                |                                   |                   |               | 303.0                 | 860                      | ◆ • ▲ ■                                                                             |
| ROV20H471<br>K | 470                         |           | 300                                    | 385                | 775                                |                                   |                   |               | 350.0                 | 760                      | ◆ • ▲ ■                                                                             |
| ROV20H511<br>K | 510                         |           | 320                                    | 418                | 842                                |                                   |                   |               | 382.0                 | 790                      | ◆ • ▲ ■                                                                             |
| ROV20H561<br>K | 560                         |           | 350                                    | 460                | 920                                |                                   |                   |               | 410.0                 | 680                      | ◆ • ▲ ■                                                                             |



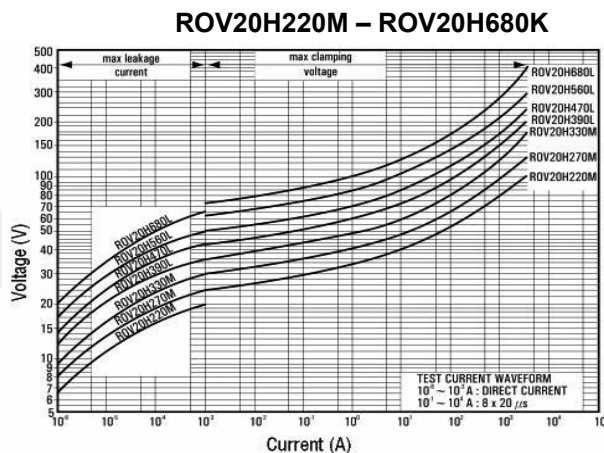
|                |      |  |     |     |      |  |  |  |       |     |         |
|----------------|------|--|-----|-----|------|--|--|--|-------|-----|---------|
| ROV20H621<br>K | 620  |  | 385 | 505 | 1025 |  |  |  | 420.0 | 600 | ◆ ● ▲ ■ |
| ROV20H681<br>K | 680  |  | 420 | 560 | 1120 |  |  |  | 430.0 | 550 | ◆ ● ▲ ■ |
| ROV20H751<br>K | 750  |  | 460 | 615 | 1240 |  |  |  | 440.0 | 550 | ◆ ● ▲ ■ |
| ROV20H781<br>K | 780  |  | 485 | 640 | 1290 |  |  |  | 450.0 | 480 | ◆ ● ▲ ■ |
| ROV20H821<br>K | 820  |  | 510 | 670 | 1355 |  |  |  | 460.0 | 520 | ◆ ● ▲ ■ |
| ROV20H911<br>K | 910  |  | 550 | 745 | 1500 |  |  |  | 510.0 | 440 | ◆ ● ▲ ■ |
| ROV20H102<br>K | 1000 |  | 625 | 825 | 1650 |  |  |  | 566.0 | 400 | ◆ ● ▲ ■ |
| ROV20H112<br>K | 1100 |  | 680 | 895 | 1815 |  |  |  | 620.0 | 360 | ◆ ● ▲ ■ |

- 1) The clamping voltage for devices ROV20H220M to ROV20H680L is tested with 20A current.

### PULSE LIFETIME RATING CURVES HIGH SURGE SERIES



### V-I CHARACTERISTIC CURVES HIGH SURGE SERIES



ROV20H101K

ROV20H511K

ROV20H101K – ROV20H511K

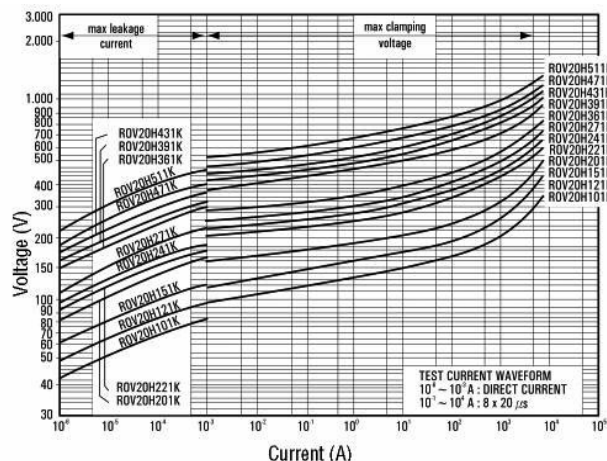
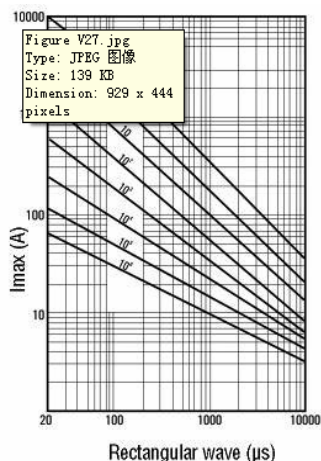
# Metal Oxide Varistors

## Overvoltage Protection Device

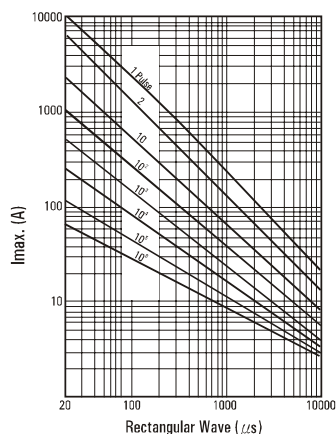
Raychem Circuit Protection Products

**PRODUCT: ROV20, ROV20, ROV20E**  
**20mm Series**

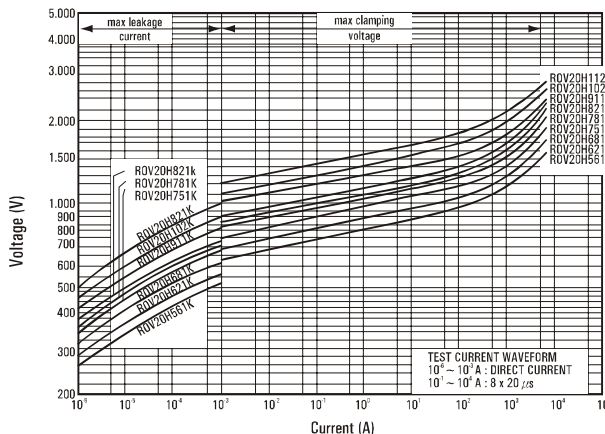
DOCUMENT: SCD 25484  
PCN:  
REV LETTER: E  
REV DATE: JULY 19, 2007  
PAGE NO.: 8 of 13



ROV20H561K – ROV20H182K



ROV20H561K – ROV20H182K



## DEVICE RATINGS AND CHARACTERISTICS

### EXTRA HIGH SURGE SERIES

| Part Number | Varistor Voltage<br>V@1.0mA |           | Maximum Allowable Voltage              |                    | Maximum Clamping Voltage<br>V@100A | Maximum Surge Current<br>(8x20us) |                | Rated Wattage | Energy<br>(10x1000us) | Capacitance<br>(Typical) | Certifications |
|-------------|-----------------------------|-----------|----------------------------------------|--------------------|------------------------------------|-----------------------------------|----------------|---------------|-----------------------|--------------------------|----------------|
|             | (V <sub>DC</sub> )          | Tolerance | V <sub>rms</sub><br>(V <sub>AC</sub> ) | (V <sub>DC</sub> ) | (V <sub>DC</sub> )                 | 1 Time<br>(A)                     | 2 Times<br>(A) | (W)           | (J)                   | @1kHz<br>(pF)            |                |
| ROV20E201K  | 200                         | ± 10%     | 130                                    | 170                | 340                                | 12500                             | 10000          | 1.00          | 168.0                 | 1830                     | ● ▲            |
| ROV20E221K  | 220                         |           | 140                                    | 180                | 360                                |                                   |                |               | 186.0                 | 1600                     | ● ▲            |
| ROV20E241K  | 240                         |           | 150                                    | 200                | 395                                |                                   |                |               | 202.0                 | 1420                     | ● ▲            |
| ROV20E271K  | 270                         |           | 175                                    | 225                | 455                                |                                   |                |               | 227.0                 | -----                    |                |
| ROV20E301K  | 300                         |           | 195                                    | 250                | 505                                |                                   |                |               | 252.0                 | -----                    |                |
| ROV20E331K  | 330                         |           | 210                                    | 275                | 550                                |                                   |                |               | 277.0                 | -----                    |                |



# Metal Oxide Varistors

## Overvoltage Protection Device

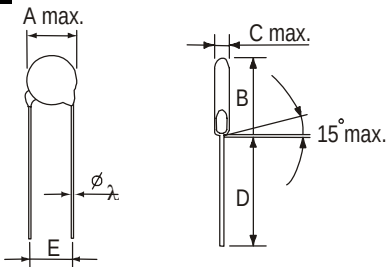
*Raychem Circuit Protection Products*

**PRODUCT: ROV20, ROV20, ROV20E  
20mm Series**

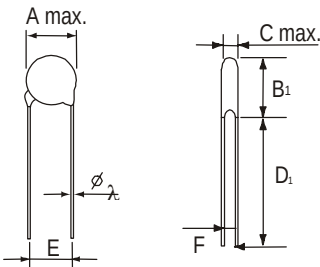
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|            |     |  |     |     |     |  |  |  |       |       |  |
|------------|-----|--|-----|-----|-----|--|--|--|-------|-------|--|
| ROV20E361K | 360 |  | 230 | 300 | 595 |  |  |  | 302.0 | ----- |  |
|------------|-----|--|-----|-----|-----|--|--|--|-------|-------|--|

### DIMENSIONS



**KINKED LEAD TYPE**  
Dimension Table



**STRAIGHT LEAD TYPE (-S)**  
Table of C max., F, and B<sub>1</sub> max.

# Metal Oxide Varistors

## Overvoltage Protection Device

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|                     |      |
|---------------------|------|
| A max.              | 23.0 |
| $\lambda \pm 0.05$  | 1.0  |
| E $\pm 1.0$         | 10.0 |
| B max.              | 28.0 |
| D <sub>1</sub> min. | 25.0 |
| D min.              | 24.0 |

| Type No. | C max. | F $\pm 0.8$ | B <sub>1</sub> max. |
|----------|--------|-------------|---------------------|
| 220M     | 5.3    | 1.0         | 26.5                |
| 270K     | 5.4    | 1.1         | 26.5                |
| 330K     | 5.4    | 1.2         | 26.5                |
| 390K     | 5.4    | 1.4         | 26.5                |
| 470K     | 5.6    | 1.4         | 26.5                |
| 560K     | 5.6    | 1.6         | 26.5                |
| 680K     | 6.1    | 1.9         | 26.5                |
| 101K     | 5.1    | 1.2         | 26.5                |
| 121K     | 5.3    | 1.3         | 26.5                |
| 151K     | 5.6    | 1.6         | 26.5                |
| 181K     | 5.2    | 1.4         | 26.5                |
| 201K     | 5.3    | 1.4         | 26.5                |
| 221K     | 5.4    | 1.5         | 26.5                |
| 241K     | 5.5    | 1.7         | 26.5                |
| 271K     | 5.7    | 1.9         | 26.5                |
| 301K     | 5.9    | 2.1         | 26.5                |
| 331K     | 6.0    | 2.1         | 26.5                |
| 361K     | 6.2    | 2.3         | 26.5                |
| 391K     | 6.4    | 2.4         | 26.5                |
| 431K     | 7.2    | 2.7         | 26.5                |
| 471K     | 7.5    | 2.9         | 27.0                |
| 511K     | 7.7    | 3.3         | 27.0                |
| 561K     | 8.0    | 3.6         | 27.0                |
| 621K     | 8.3    | 4.1         | 27.0                |
| 681K     | 8.7    | 4.4         | 27.0                |
| 751K     | 9.1    | 4.5         | 27.0                |
| 781K     | 9.3    | 4.8         | 27.0                |
| 821K     | 9.5    | 4.8         | 27.0                |
| 911K     | 10.1   | 5.7         | 27.0                |
| 102K     | 10.7   | 5.8         | 27.0                |
| 112K     | 11.2   | 6.3         | 27.0                |
| 182K     | 13.5   | 10.4        | 29.0                |

## PACKAGING

## Metal Oxide Varistors

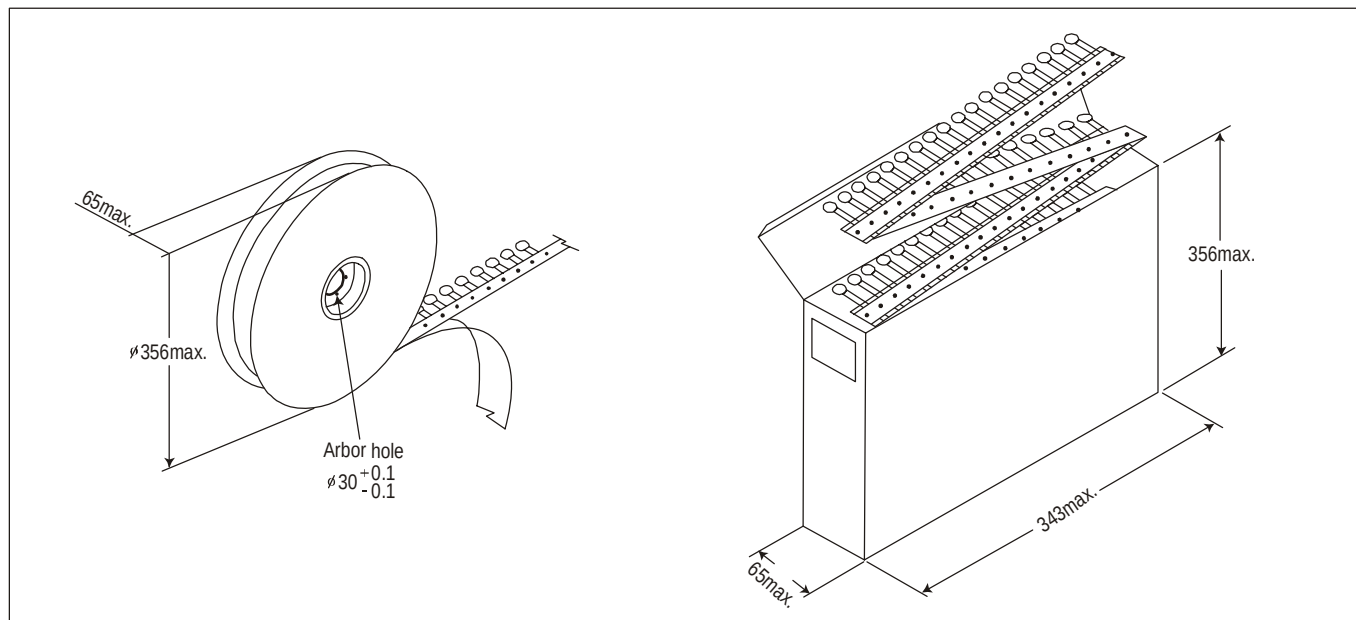
### Overvoltage Protection Device

*Raychem Circuit Protection Products*

**PRODUCT: ROV20, ROV20, ROV20E**  
**20mm Series**

DOCUMENT: SCD 25484  
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in mm

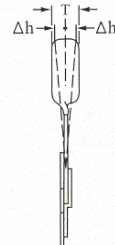
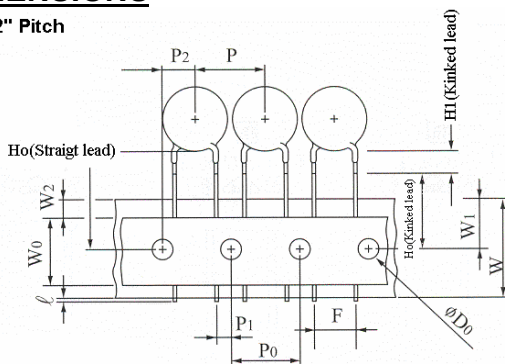


| Packaging        | Bulk (box)      | Reel              | Ammo            |
|------------------|-----------------|-------------------|-----------------|
| Box size (mm)    | 290 x 155 x 110 | 350 x 350 x 74    | 343 x 220 x 58  |
| Carton size (mm) | 310 x 328 x 250 | 370 x 370 x 468   | 363 x 460 x 250 |
| One carton with  | 4 Boxes         | 6 Boxes (6 reels) | 8 Boxes         |

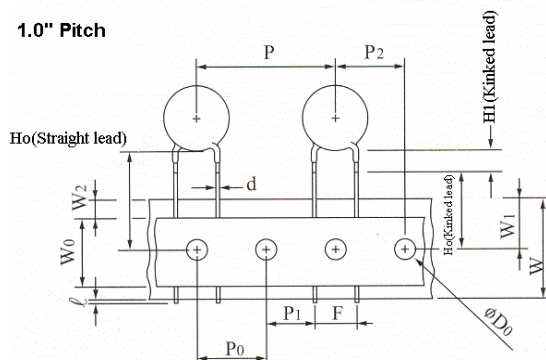
| Part Number                                           | Bulk (box) | Reel | Ammo |
|-------------------------------------------------------|------------|------|------|
| ROV20-220M to ROV20-470K<br>ROV20H220M to ROV20H470K  | 750        | 500  | 500  |
| ROV20-560K to ROV20-680K,<br>ROV20H560K to ROV20H680K | 750        | 500  | 500  |
| ROV20-101K to ROV20-331K,<br>ROV20H101K to ROV20H331K | 750        | 500  | 500  |
| ROV20-361K to ROV20-391K,<br>ROV20H361K to ROV20H391K | 750        | 500  | 500  |
| ROV20-431K to ROV20-471K,<br>ROV20H431K to ROV20H471K | 750        | 500  | 500  |
| ROV20-511K to ROV20-681K,<br>ROV20H511K to ROV20H681K | 450        | 500  | 500  |
| ROV20-751K to ROV20-182K,<br>ROV20H751K to ROV20H112K | 450        | ---  | 500  |

### TAPE AND REEL DIMENSIONS

1/2" Pitch



1.0" Pitch



| Symbols                        | Item                                   | Value                                   |
|--------------------------------|----------------------------------------|-----------------------------------------|
| I                              | Cut out length                         | 1.1mm max.                              |
| H <sub>1</sub> (Kinked type)   | Height of kink                         | 3.5mm max.                              |
| H <sub>0</sub> (Kinked type)   | Height to seating plane                | 16.0 ± 0.5mm                            |
| H <sub>0</sub> (Straight type) | Height of component from hole center   | 16.0-21.0mm                             |
| Δh                             | Front to back deviation                | 0.0 ± 2.0mm                             |
| W                              | Carrier tape width                     | 18.0 <sup>+1.0</sup> <sub>-0.5</sub> mm |
| W <sub>0</sub>                 | Hold down tape width                   | 12.0mm                                  |
| W <sub>1</sub>                 | Sprocket hole position                 | 9.0 <sup>+0.75</sup> <sub>-0.5</sub> mm |
| W <sub>2</sub>                 | Adhesive tape position                 | 3.0mm max.                              |
| F                              | Component lead spacing                 | 10.0 <sup>+0.8</sup> <sub>-0.2</sub> mm |
| P                              | Pitch of component                     | 25.4 ± 1.0mm                            |
| P <sub>0</sub>                 | Sprocket hole pitch                    | 12.7 ± 0.3mm                            |
| P <sub>1</sub>                 | Lead length from hole center to lead   | 7.7 ± 0.7mm, 8.95 ± 0.7mm               |
| P <sub>2</sub>                 | Length from hole center to disk center | 12.7 ± 1.3mm                            |
| D <sub>0</sub>                 | Sprocket hole diameter                 | 4.0 ± 0.2mm                             |
| d                              | Lead wire diameter                     | 0.8 ± 0.05mm, 1.0 ± 0.05mm              |
| T                              | Disk thickness                         | See C. max table                        |
| t <sub>1</sub>                 | Total thickness tape                   | 0.7 ± 0.05mm                            |
| t <sub>2</sub>                 | Total thickness                        | 1.8mm max.                              |

## **Metal Oxide Varistors**

### **Overvoltage Protection Device**

***Raychem Circuit Protection Products***

**PRODUCT: ROV20, ROV20, ROV20E  
20mm Series**

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PAGE NO.: 13 of 13

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