

## GENERAL DESCRIPTION

The ROV10-XXX (**R**adial-leaded Metal **O**xide **V**aristor) products are 10mm 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.

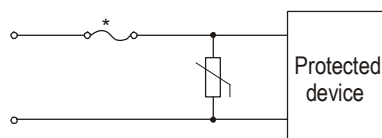
## FEATURES

- Radial leaded
- Broad Varistor voltage and  $V_{rms}$  range
  - Varistor voltage : 18V - 1800V
  - $V_{rms}$  voltage : 11V - 1000V
- Two surge capability series
  - Standard series, 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

ELV Compliant

Directive 2002/95/EC  
Compliant

Directive 2000/53/EC  
Compliant

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

# Metal Oxide Varistors

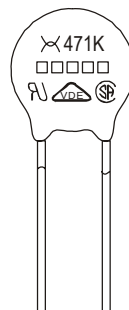
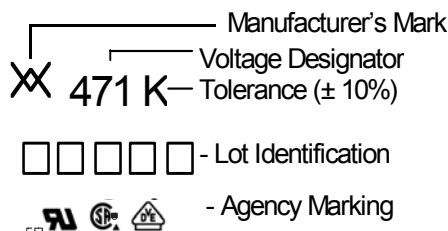
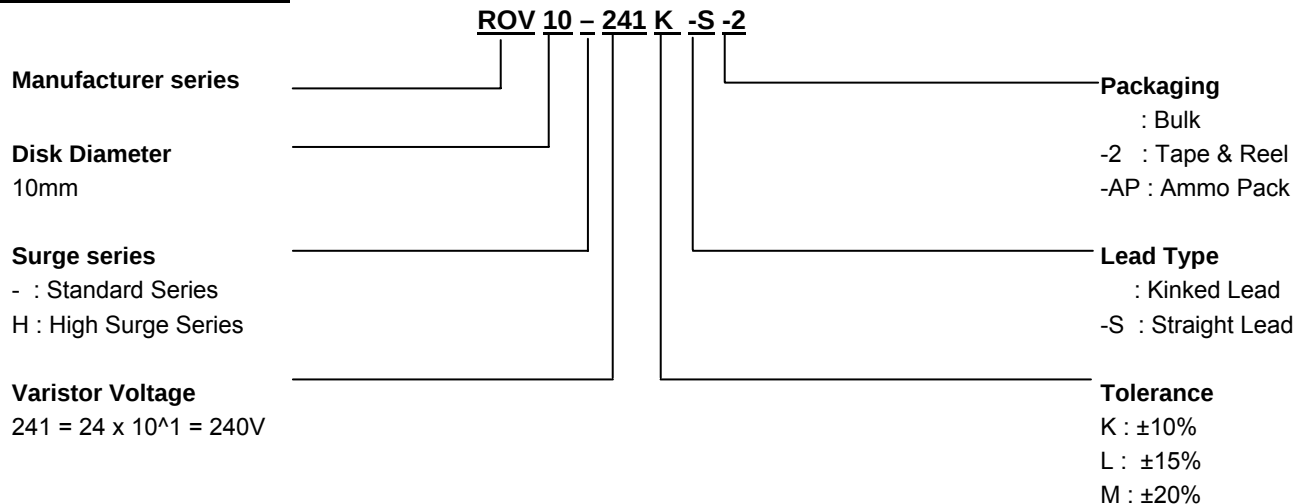
## Overvoltage Protection Device

Raychem Circuit Protection Products

**PRODUCT: ROV10, ROV10H**  
**10mm Series**

DOCUMENT: SCD 25482  
PCN:  
REV LETTER: D  
REV DATE: JULY 19, 2007  
PAGE NO.: 2 of 10

### 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 VDC): | Over 1000MΩ             |
| Maximum response time:                        | 25ns                    |
| Lead Material:                                | 22 AWG 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@25A | 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)            |  |
| ROV10-180M  | 18                          | ± 20%     | 11                                     | 14                 | 36 <sup>1)</sup>                  | 500                               | 250               | 0.05          | 2.4                   | 6500                     | ● ■                                                                                 |
| ROV10-220L  | 22                          | ± 15%     | 14                                     | 18                 | 43 <sup>1)</sup>                  |                                   |                   |               | 2.7                   | 5521                     | ● ■                                                                                 |
| ROV10-270K  | 27                          | ± 10%     | 17                                     | 22                 | 53 <sup>1)</sup>                  |                                   |                   |               | 3.5                   | 4742                     | ● ■                                                                                 |
| ROV10-330K  | 33                          |           | 20                                     | 26                 | 65 <sup>1)</sup>                  |                                   |                   |               | 4.4                   | 4247                     | ● ■                                                                                 |
| ROV10-390K  | 39                          |           | 25                                     | 31                 | 77 <sup>1)</sup>                  |                                   |                   |               | 4.7                   | 3658                     | ● ■                                                                                 |
| ROV10-470K  | 47                          |           | 30                                     | 38                 | 93 <sup>1)</sup>                  |                                   |                   |               | 6.0                   | 3137                     | ● ■                                                                                 |
| ROV10-560K  | 56                          |           | 35                                     | 45                 | 110 <sup>1)</sup>                 |                                   |                   |               | 7.0                   | 2900                     | ● ■                                                                                 |
| ROV10-680K  | 68                          |           | 40                                     | 56                 | 135 <sup>1)</sup>                 |                                   |                   |               | 8.5                   | 2230                     | ● ■                                                                                 |
| ROV10-820K  | 82                          |           | 50                                     | 65                 | 135                               | 2500                              | 1250              | 0.40          | 11.0                  | 1261                     | ● ■                                                                                 |
| ROV10-101K  | 100                         |           | 60                                     | 85                 | 165                               |                                   |                   |               | 14.0                  | 1021                     | ● ■                                                                                 |
| ROV10-121K  | 120                         |           | 75                                     | 100                | 200                               |                                   |                   |               | 16.0                  | 946                      | ● ■                                                                                 |
| ROV10-151K  | 150                         |           | 95                                     | 125                | 250                               |                                   |                   |               | 22.0                  | 733                      | ● ■                                                                                 |
| ROV10-181K  | 180                         |           | 115                                    | 150                | 300                               |                                   |                   |               | 26.0                  | 483                      | ● ■                                                                                 |
| ROV10-201K  | 200                         |           | 130                                    | 170                | 340                               |                                   |                   |               | 28.5                  | 400                      | ◆ ● ▲ ■                                                                             |
| ROV10-221K  | 220                         |           | 140                                    | 180                | 360                               |                                   |                   |               | 31.0                  | 393                      | ◆ ● ▲ ■                                                                             |
| ROV10-241K  | 240                         |           | 150                                    | 200                | 395                               |                                   |                   |               | 33.5                  | 325                      | ◆ ● ▲ ■                                                                             |
| ROV10-271K  | 270                         |           | 175                                    | 225                | 455                               |                                   |                   |               | 39.5                  | 334                      | ◆ ● ▲ ■                                                                             |
| ROV10-301K  | 300                         |           | 195                                    | 250                | 505                               |                                   |                   |               | 42.0                  | 278                      | ◆ ● ▲ ■                                                                             |
| ROV10-331K  | 330                         |           | 210                                    | 275                | 550                               |                                   |                   |               | 46.0                  | 275                      | ◆ ● ▲ ■                                                                             |
| ROV10-361K  | 360                         |           | 230                                    | 300                | 595                               |                                   |                   |               | 52.0                  | 231                      | ◆ ● ▲ ■                                                                             |
| ROV10-391K  | 390                         |           | 250                                    | 320                | 650                               |                                   |                   |               | 60.0                  | 247                      | ◆ ● ▲ ■                                                                             |
| ROV10-431K  | 430                         |           | 275                                    | 350                | 710                               |                                   |                   |               | 66.0                  | 216                      | ◆ ● ▲ ■                                                                             |
| ROV10-471K  | 470                         |           | 300                                    | 385                | 775                               |                                   |                   |               | 70.0                  | 210                      | ◆ ● ▲ ■                                                                             |
| ROV10-511K  | 510                         |           | 320                                    | 418                | 842                               |                                   |                   |               | 74.0                  | 187                      | ◆ ● ▲ ■                                                                             |
| ROV10-561K  | 560                         |           | 350                                    | 460                | 920                               |                                   |                   |               | 78.0                  | 186                      | ◆ ● ▲ ■                                                                             |
| ROV10-621K  | 620                         |           | 385                                    | 505                | 1025                              |                                   |                   |               | 82.0                  | 160                      | ◆ ● ▲ ■                                                                             |
| ROV10-681K  | 680                         |           | 420                                    | 560                | 1120                              |                                   |                   |               | 86.0                  | 156                      | ◆ ● ▲ ■                                                                             |
| ROV10-751K  | 750                         |           | 460                                    | 615                | 1240                              |                                   |                   |               | 90.0                  | 133                      | ◆ ● ▲ ■                                                                             |
| ROV10-781K  | 780                         |           | 485                                    | 640                | 1290                              |                                   |                   |               | 92.0                  | 117                      | ◆ ● ▲ ■                                                                             |
| ROV10-821K  | 820                         |           | 510                                    | 670                | 1355                              |                                   |                   |               | 94.0                  | 130                      | ◆ ● ▲ ■                                                                             |
| ROV10-911K  | 910                         |           | 550                                    | 745                | 1500                              |                                   |                   |               | 102.0                 | 111                      | ◆ ● ▲ ■                                                                             |
| ROV10-102K  | 1000                        |           | 625                                    | 825                | 1650                              |                                   |                   |               | 112.0                 | 96                       | ◆ ● ▲ ■                                                                             |
| ROV10-112K  | 1100                        |           | 680                                    | 895                | 1815                              |                                   |                   |               | 124.0                 | 88                       | ◆ ● ▲ ■                                                                             |
| ROV10-182K  | 1800                        |           | 1000                                   | 1465               | 2970                              |                                   |                   |               | 174.0                 | 65                       | ◆ ● ▲ ■ *                                                                           |

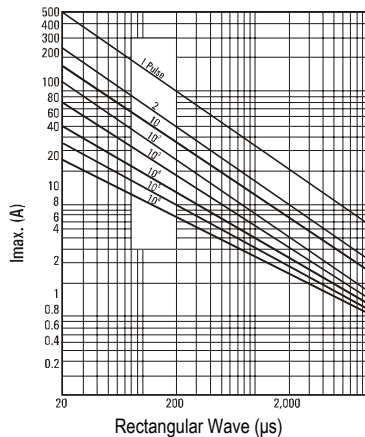
\* Pending VDE Recognition

1) The clamping voltage for devices ROV10-180M to ROV10-680K is tested with 5A current.

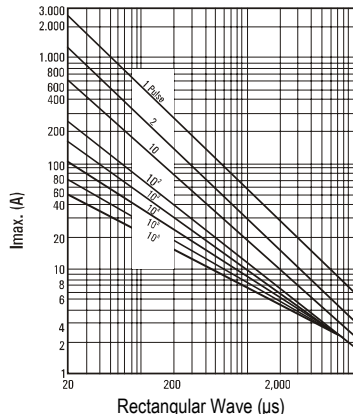
**PULSE LIFETIME RATING CURVES**

**STANDARD SERIES**

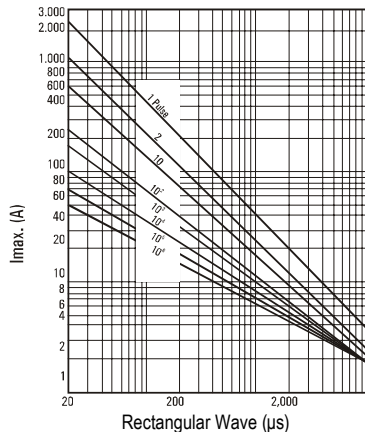
**ROV10-180M – ROV10-680K**



**ROV10-820K – ROV10-511K**



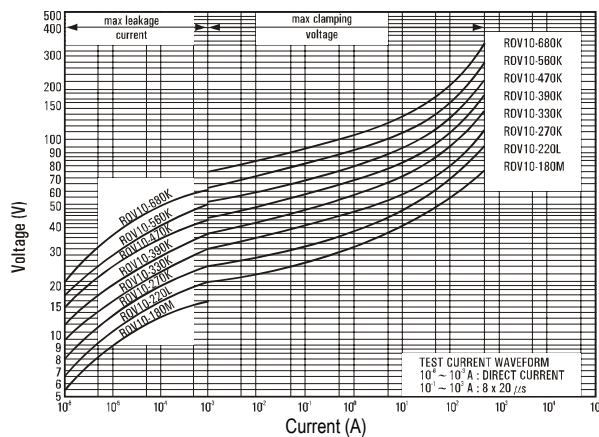
**ROV10-561K – ROV10-182K**



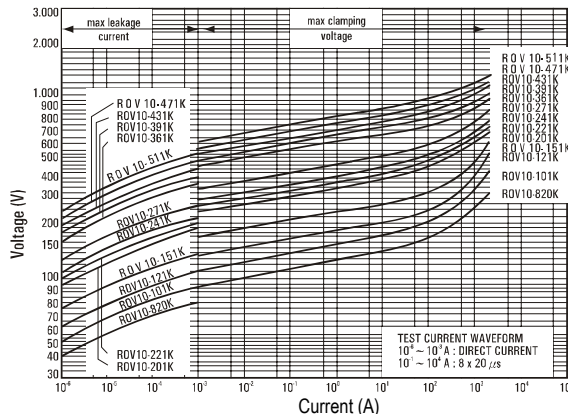
**V-I CHARACTERISTIC CURVES**

**STANDARD SERIES**

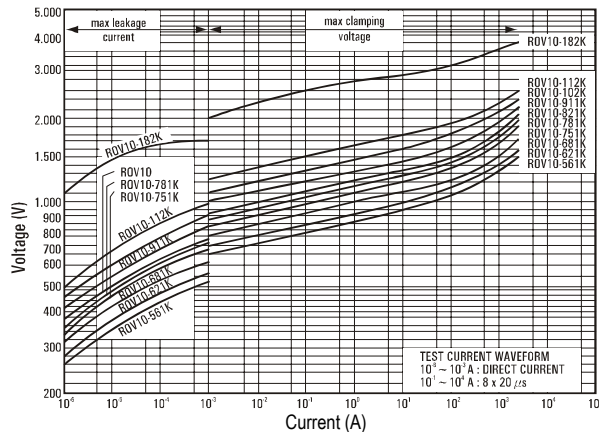
**ROV10-180M – ROV10-680K**



**ROV10-820K – ROV10-511K**



**ROV10-561K – ROV10-182K**



### DEVICE RATINGS AND CHARACTERISTICS

#### HIGH SURGE SERIES

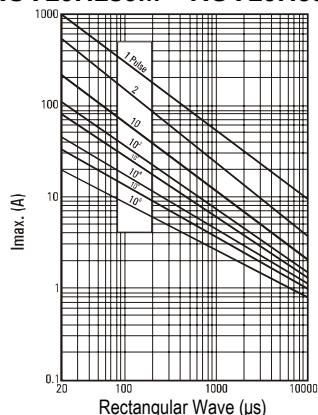
| Part Number | Varistor Voltage<br>V@1.0mA |           | Maximum Allowable Voltage              |                    | Maximum Clamping Voltage<br>V@25A | Maximum Surge Current<br>(8x20us) |                   | Rated Wattage | Energy<br>(10x1000us) | Capacitance<br>(Typical) | Certifications                                                                                                                                                                                                                                              |
|-------------|-----------------------------|-----------|----------------------------------------|--------------------|-----------------------------------|-----------------------------------|-------------------|---------------|-----------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | (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)            |    |
| ROV10H180M  | 18                          | ± 20%     | 11                                     | 14                 | 36 <sup>1)</sup>                  | 1000                              | 500               | 0.05          | 2.6                   | 6500                     | ● ■                                                                                                                                                                                                                                                         |
| ROV10H220L  | 22                          | ± 15%     | 14                                     | 18                 | 43 <sup>1)</sup>                  |                                   |                   |               | 3.2                   | 5520                     | ● ■                                                                                                                                                                                                                                                         |
| ROV10H270K  | 27                          |           | 17                                     | 22                 | 53 <sup>1)</sup>                  |                                   |                   |               | 3.9                   | 4740                     | ● ■                                                                                                                                                                                                                                                         |
| ROV10H330K  | 33                          |           | 20                                     | 26                 | 65 <sup>1)</sup>                  |                                   |                   |               | 4.8                   | 4250                     | ● ■                                                                                                                                                                                                                                                         |
| ROV10H390K  | 39                          |           | 25                                     | 31                 | 77 <sup>1)</sup>                  |                                   |                   |               | 5.6                   | 3660                     | ● ■                                                                                                                                                                                                                                                         |
| ROV10H470K  | 47                          |           | 30                                     | 38                 | 93 <sup>1)</sup>                  |                                   |                   |               | 6.8                   | 3140                     | ● ■                                                                                                                                                                                                                                                         |
| ROV10H560K  | 56                          |           | 35                                     | 45                 | 110 <sup>1)</sup>                 |                                   |                   |               | 8.1                   | 2900                     | ● ■                                                                                                                                                                                                                                                         |
| ROV10H680K  | 68                          |           | 40                                     | 56                 | 135 <sup>1)</sup>                 |                                   |                   |               | 9.8                   | 2230                     | ● ■                                                                                                                                                                                                                                                         |
| ROV10H820K  | 82                          | ± 10%     | 50                                     | 65                 | 135                               | 3500                              | 2500              | 0.40          | 14.0                  | 1260                     | ● ■                                                                                                                                                                                                                                                         |
| ROV10H101K  | 100                         |           | 60                                     | 85                 | 165                               |                                   |                   |               | 18.0                  | 1020                     | ● ■                                                                                                                                                                                                                                                         |
| ROV10H121K  | 120                         |           | 75                                     | 100                | 200                               |                                   |                   |               | 22.0                  | 950                      | ● ■                                                                                                                                                                                                                                                         |
| ROV10H151K  | 150                         |           | 95                                     | 125                | 250                               |                                   |                   |               | 25.0                  | 730                      | ● ■                                                                                                                                                                                                                                                         |
| ROV10H181K  | 180                         |           | 115                                    | 150                | 300                               |                                   |                   |               | 32.0                  | 480                      | ● ■                                                                                                                                                                                                                                                         |
| ROV10H201K  | 200                         |           | 130                                    | 170                | 340                               |                                   |                   |               | 35.0                  | 400                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H221K  | 220                         |           | 140                                    | 180                | 360                               |                                   |                   |               | 39.0                  | 390                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H241K  | 240                         |           | 150                                    | 200                | 395                               |                                   |                   |               | 42.0                  | 330                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H271K  | 270                         |           | 175                                    | 225                | 455                               |                                   |                   |               | 49.0                  | 330                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H301K  | 300                         |           | 195                                    | 250                | 505                               |                                   |                   |               | 52.0                  | 280                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H331K  | 330                         |           | 210                                    | 275                | 550                               |                                   |                   |               | 58.0                  | 280                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H361K  | 360                         |           | 230                                    | 300                | 595                               |                                   |                   |               | 65.0                  | 230                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H391K  | 390                         |           | 250                                    | 320                | 650                               |                                   |                   |               | 70.0                  | 250                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H431K  | 430                         |           | 275                                    | 350                | 710                               |                                   |                   |               | 80.0                  | 220                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H471K  | 470                         |           | 300                                    | 385                | 775                               |                                   |                   |               | 85.0                  | 210                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H511K  | 510                         |           | 320                                    | 418                | 842                               |                                   |                   |               | 92.0                  | 190                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H561K  | 560                         |           | 350                                    | 460                | 920                               |                                   |                   |               | 102.0                 | 190                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H621K  | 620                         |           | 385                                    | 505                | 1025                              |                                   |                   |               | 107.0                 | 160                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H681K  | 680                         |           | 420                                    | 560                | 1120                              |                                   |                   |               | 112.0                 | 160                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H751K  | 750                         |           | 460                                    | 615                | 1240                              |                                   |                   |               | 115.0                 | 130                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H781K  | 780                         |           | 485                                    | 640                | 1290                              |                                   |                   |               | 116.0                 | 120                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H821K  | 820                         |           | 510                                    | 670                | 1355                              |                                   |                   |               | 118.0                 | 130                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H911K  | 910                         |           | 550                                    | 745                | 1500                              |                                   |                   |               | 127.0                 | 110                      | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H102K  | 1000                        |           | 625                                    | 825                | 1650                              |                                   |                   |               | 140.0                 | 95                       | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |
| ROV10H112K  | 1100                        |           | 680                                    | 895                | 1815                              |                                   |                   |               | 155.0                 | 90                       | ◆ ● ▲ ■                                                                                                                                                                                                                                                     |

1) The clamping voltage for devices ROV10H180M to ROV10H680K is tested with 5A current.

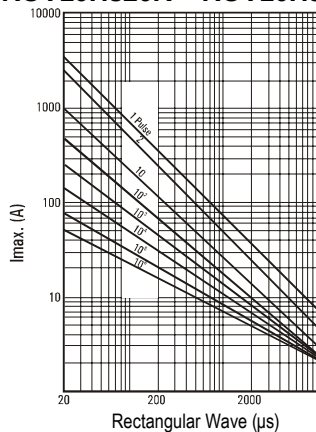
## PULSE LIFETIME RATING CURVES

### **HIGH SURGE SERIES**

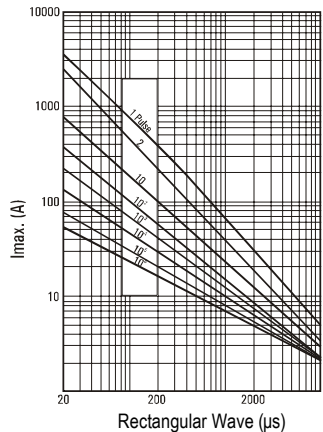
**ROV10H180M – ROV10H680K**



**ROV10H820K – ROV10H511K**



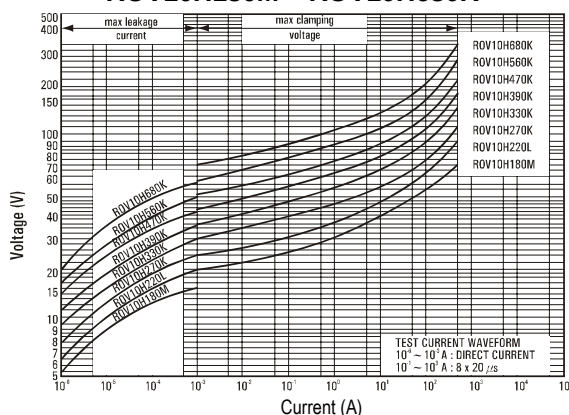
**ROV10H561K – ROV10H182K**



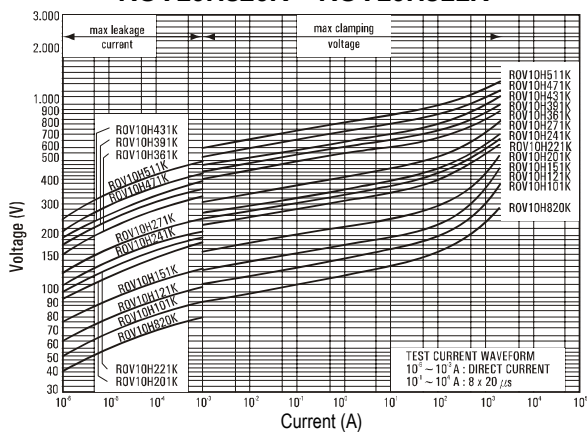
## V-I CHARACTERISTIC CURVES

### **HIGH SURGE SERIES**

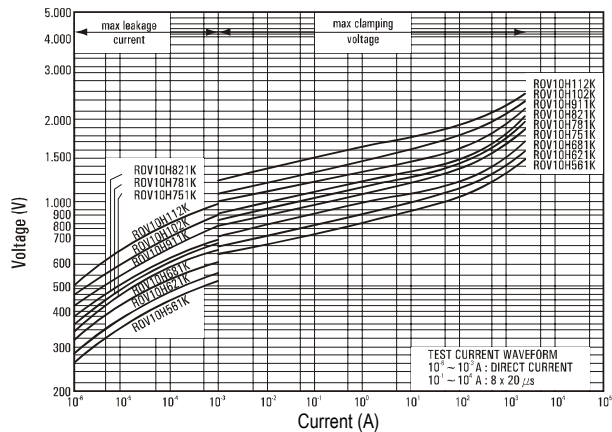
**ROV10H180M – ROV10H680K**



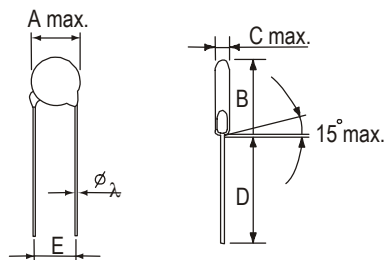
**ROV10H820K – ROV10H511K**



**ROV10H561K – ROV10H182K**



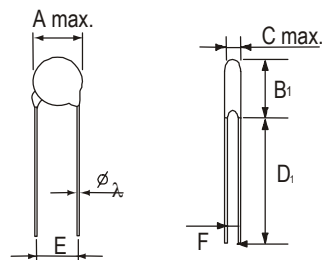
## DIMENSIONS



### KINKED LEAD TYPE

#### Dimension Table

|                     |      |
|---------------------|------|
| A max.              | 12.5 |
| $\lambda \pm 0.05$  | 0.8  |
| E $\pm 1.0$         | 7.5  |
| B max.              | 18.0 |
| D <sub>1</sub> min. | 25.0 |
| D min.              | 24.0 |



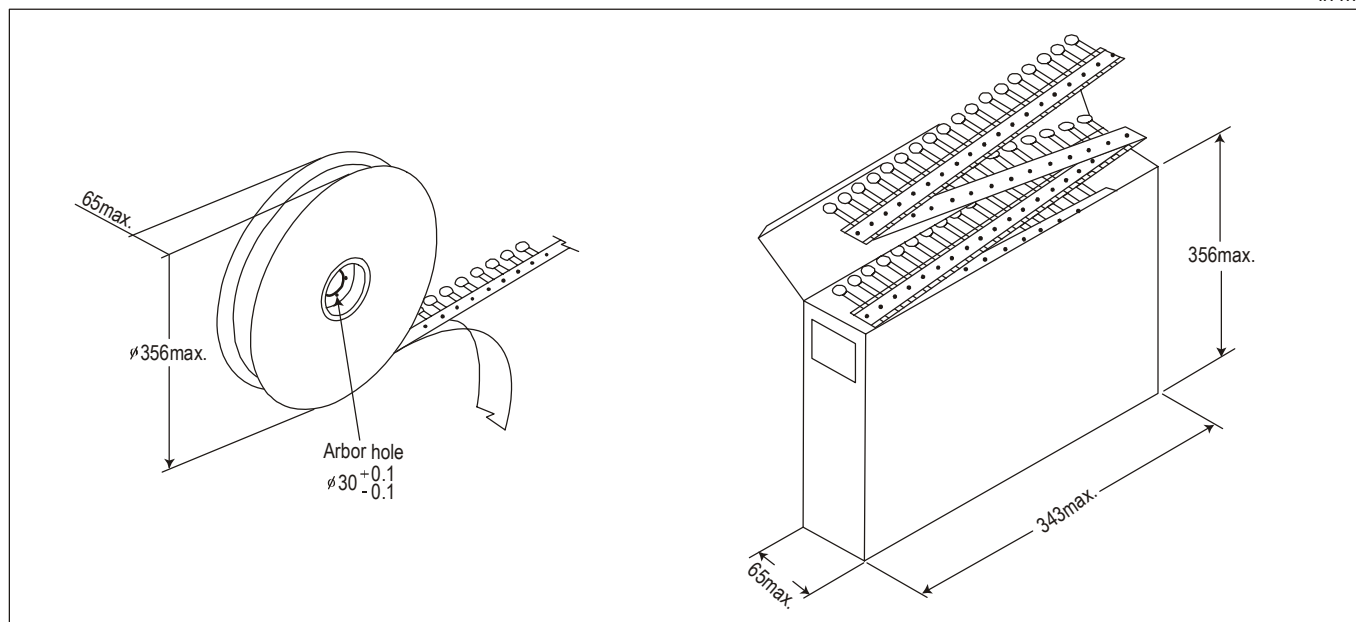
### STRAIGHT LEAD TYPE (-S)

#### Table of C max., F, and B<sub>1</sub> max.

| Type No. | C max. | F $\pm 0.8$ | B <sub>1</sub> max. |
|----------|--------|-------------|---------------------|
| 180M     | 4.9    | 0.8         | 15.5                |
| 220L     | 4.9    | 0.9         | 15.5                |
| 270K     | 5.1    | 0.9         | 15.5                |
| 330K     | 5.1    | 1.0         | 15.5                |
| 390K     | 5.1    | 1.2         | 15.5                |
| 470K     | 5.5    | 1.2         | 15.5                |
| 560K     | 5.5    | 1.4         | 15.5                |
| 680K     | 6.0    | 1.7         | 15.5                |
| 820K     | 4.3    | 0.8         | 15.5                |
| 101K     | 4.4    | 0.8         | 15.5                |
| 121K     | 4.5    | 0.9         | 15.5                |
| 151K     | 4.9    | 1.2         | 15.5                |
| 181K     | 4.5    | 1.0         | 15.5                |
| 201K     | 4.6    | 1.0         | 15.5                |
| 221K     | 4.7    | 1.1         | 15.5                |
| 241K     | 4.8    | 1.3         | 15.5                |
| 271K     | 5.0    | 1.4         | 15.5                |
| 301K     | 5.2    | 1.6         | 15.5                |
| 331K     | 5.3    | 1.6         | 15.5                |
| 361K     | 5.5    | 1.9         | 15.5                |
| 391K     | 5.7    | 2.2         | 16.0                |
| 431K     | 6.5    | 2.5         | 16.0                |
| 471K     | 6.8    | 2.6         | 16.0                |
| 511K     | 7.0    | 3.1         | 16.5                |
| 561K     | 7.3    | 3.4         | 16.5                |
| 621K     | 7.6    | 4.0         | 16.5                |
| 681K     | 8.0    | 4.4         | 16.5                |
| 751K     | 8.4    | 4.4         | 16.5                |
| 781K     | 8.6    | 4.6         | 16.5                |
| 821K     | 8.8    | 4.6         | 16.5                |
| 911K     | 9.4    | 5.4         | 16.5                |
| 102K     | 9.9    | 5.4         | 16.5                |
| 112K     | 10.5   | 5.7         | 16.5                |
| 182K     | 12.6   | 9.8         | 18.5                |

## PACKAGING

in mm

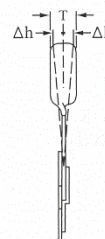
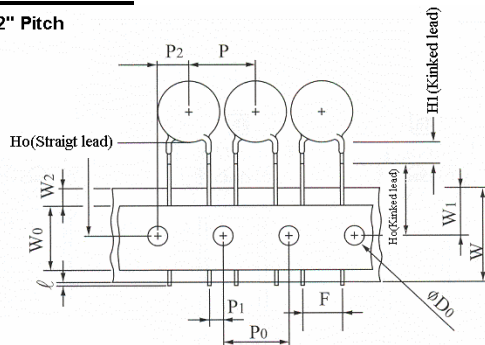


| Packaging        | Bulk (box)      | Reel               | Ammo            |
|------------------|-----------------|--------------------|-----------------|
| Box size (mm)    | 290 x 155 x 110 | 350 x 350 x 108    | 343 x 260 x 52  |
| Carton size (mm) | 310 x 328 x 250 | 371 x 371 x 590    | 363 x 540 x 250 |
| One carton with  | 4 Boxes         | 5 Boxes (10 reels) | 8 Boxes         |

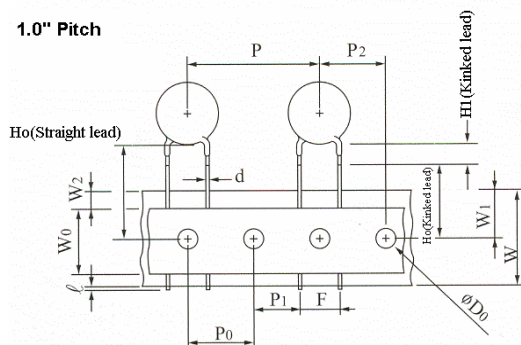
| Part Number                                             | Bulk (box) | Reel | Ammo  |       |
|---------------------------------------------------------|------------|------|-------|-------|
|                                                         |            |      | F=7.5 | F=5.0 |
| ROV10-180M to ROV10-470K,<br>ROV10H180M to ROV10H470K   | 2500       | 1000 | 500   | 1000  |
| ROV10-560K to ROV10-680K,<br>ROV10H 560K to ROV10H 680K | 2500       | 1000 | 500   | 1000  |
| ROV10-820K to ROV10-331K,<br>ROV10H820K to ROV10H331K   | 2500       | 1000 | 500   | 1000  |
| ROV10-361K to ROV10-391K,<br>ROV10H361K to ROV10H391K   | 2500       | 1000 | 500   | 1000  |
| ROV10-431K to ROV10-471K,<br>ROV10H431K to ROV10H471K   | 2500       | 750  | 500   | 750   |
| ROV10-511K to ROV10-751K,<br>ROV10H511K to ROV10H751K   | 1500       | 500  | 500   | 500   |
| ROV10-751K to ROV10-182K,<br>ROV10H751K to ROV10H112K   | 1500       | 500  | 500   | 500   |

## TAPE AND REEL DIMENSIONS

1/2" Pitch



1.0" Pitch



| Symbols               | Item                                   | Value                                            |
|-----------------------|----------------------------------------|--------------------------------------------------|
| $\lambda$             | Cut out length                         | 1.1mm max.                                       |
| $H_1$ (Kinked lead)   | Height of kink                         | 5.0mm max.                                       |
| $H_o$ (Kinked lead)   | Height to seating plane                | 16.0 $\pm$ 0.5mm                                 |
| $H_o$ (Straight lead) | Height of component from hole center   | 16.0-21.0mm                                      |
| $\Delta h$            | Front to back deviation                | 0.0 $\pm$ 2.0mm                                  |
| $W$                   | Carrier tape width                     | 18.0 $^{+1.0}_{-0.5}$ mm                         |
| $W_0$                 | Hold down tape width                   | 10.0mm, 12.0mm                                   |
| $W_1$                 | Sprocket hole position                 | 9.0 $^{+0.75}_{-0.5}$ mm                         |
| $W_2$                 | Adhesive tape position                 | 3.0mm max.                                       |
| $F$                   | Component lead spacing                 | 7.5 $^{+0.8}_{-0.2}$ mm, 5.0 $^{+0.8}_{-0.2}$ mm |
| $P$                   | Pitch of component                     | 12.7 $\pm$ 1.0mm, 25.4 $\pm$ 1.0mm               |
| $P_0$                 | Sprocket hole pitch                    | 12.7 $\pm$ 0.3mm                                 |
| $P_1$                 | Lead length from hole center to lead   | 3.85 $\pm$ 0.7mm, 8.95 $\pm$ 0.7mm               |
| $P_2$                 | Length from hole center to disk center | 6.35 $\pm$ 1.3mm, 12.7 $\pm$ 1.3mm               |
| $D_0$                 | Sprocket hole diameter                 | 4.0 $\pm$ 0.2mm                                  |
| $d$                   | Lead wire diameter                     | 0.6 $\pm$ 0.05mm, 0.8 $\pm$ 0.05mm               |
| $T$                   | Disk thickness                         | See C. max table                                 |
| $t_1$                 | Total thickness tape                   | 0.7 $\pm$ 0.05mm                                 |
| $t_2$                 | Total thickness                        | 1.6mm max. , 1.8mm max                           |

## Metal Oxide Varistors

Overvoltage Protection Device

*Raychem Circuit Protection Products*

**PRODUCT: ROV10, ROV10H  
10mm Series**

DOCUMENT: SCD 25482  
PCN:  
REV LETTER: D  
REV DATE: JULY 19, 2007  
PAGE NO.: 10 of 10

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