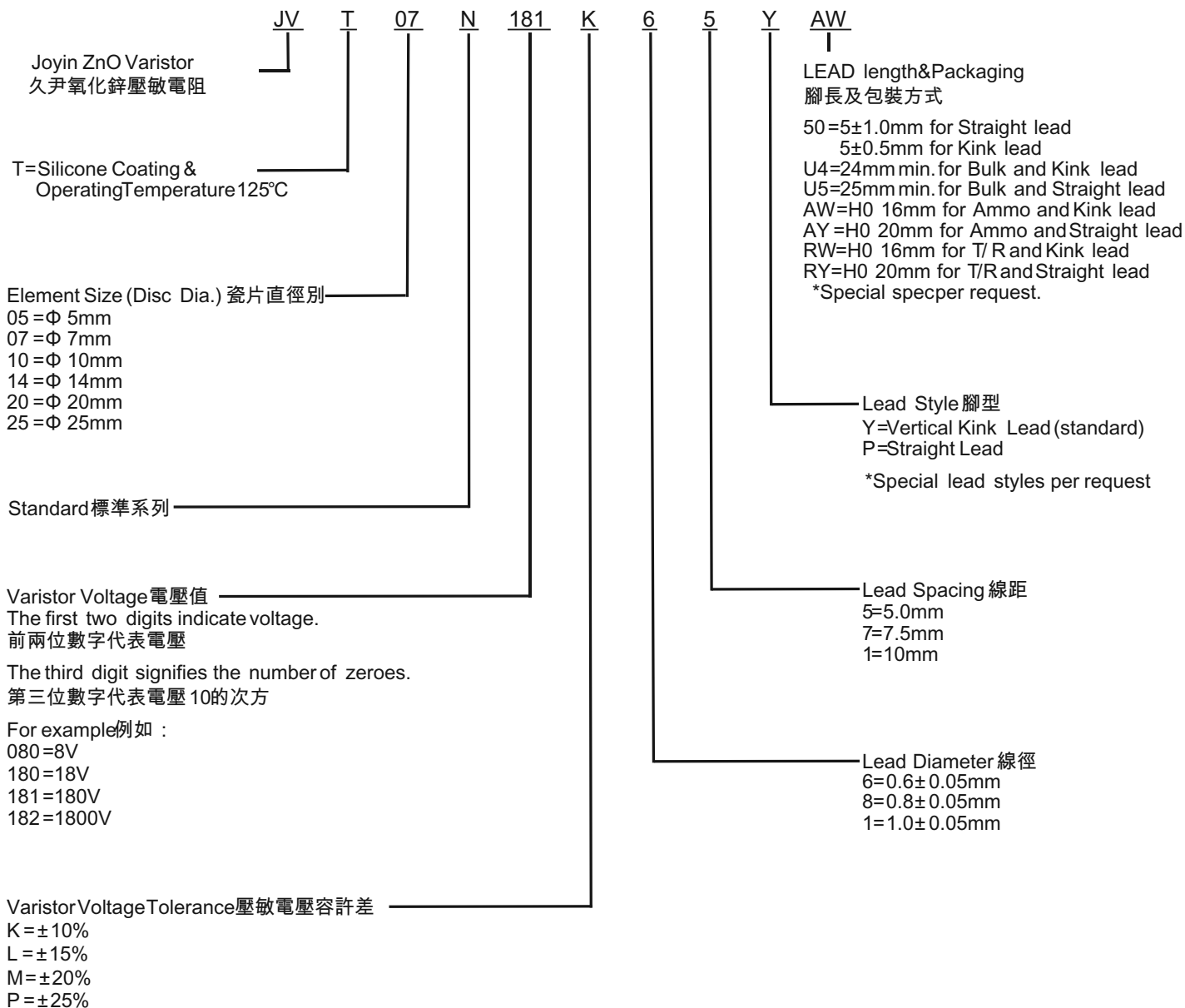




## ORDERING CODE



## RATING AND CHARACTERISTICS

### Standard Varistors-5mm

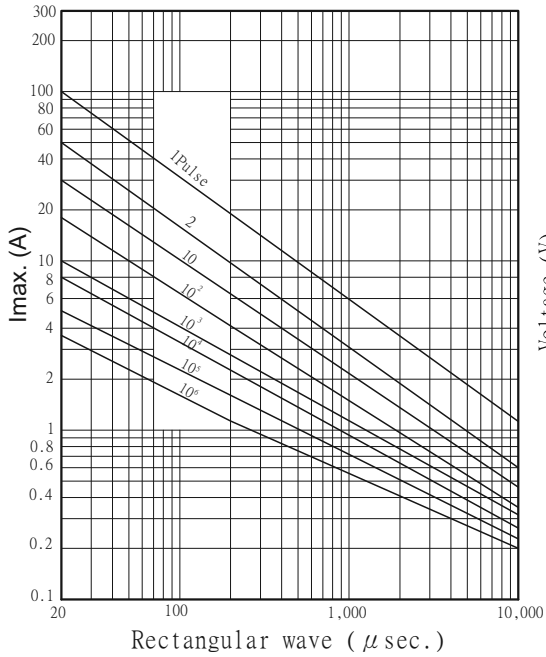
| Part No.     | Varistor Voltage at 0.1mA |           | Maximum Allowable Voltage |        | Maximum Clamping Voltage |        | Withstanding Surge Current (8/20us) | Nominal Discharge Current (8/20us) | Rated Wattage | Energy (10/1000us) | Certification                                                                                                                                                                                                                                               |
|--------------|---------------------------|-----------|---------------------------|--------|--------------------------|--------|-------------------------------------|------------------------------------|---------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              | DC (V)                    | Tolerance | AC rms (V)                | DC (V) | V@ ic (V)                | ic (A) | 1 Time (A)                          | In (KA)                            | (W)           | (J)                |    |
| JVT 05N 180M | 18                        | ±20%      | 11                        | 14     | 40                       | 1      | 100                                 | 0.1                                | 0.01          | 0.6                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 220L | 22                        | ±15%      | 14                        | 18     | 48                       | 1      | 100                                 | 0.1                                | 0.01          | 0.7                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 270K | 27                        | ±10%      | 17                        | 22     | 60                       | 1      | 100                                 | 0.1                                | 0.01          | 0.9                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 330K | 33                        | ±10%      | 20                        | 26     | 73                       | 1      | 100                                 | 0.1                                | 0.01          | 1.1                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 390K | 39                        | ±10%      | 25                        | 31     | 86                       | 1      | 100                                 | 0.1                                | 0.01          | 1.2                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 470K | 47                        | ±10%      | 30                        | 38     | 104                      | 1      | 100                                 | 0.1                                | 0.01          | 1.5                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 560K | 56                        | ±10%      | 35                        | 45     | 123                      | 1      | 100                                 | 0.1                                | 0.01          | 1.8                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 680K | 68                        | ±10%      | 40                        | 56     | 150                      | 1      | 100                                 | 0.1                                | 0.01          | 2.1                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 820K | 82                        | ±10%      | 50                        | 65     | 145                      | 5      | 400                                 | 0.1                                | 0.1           | 2.8                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 101K | 100                       | ±10%      | 60                        | 85     | 175                      | 5      | 400                                 | 0.1                                | 0.1           | 3.5                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 121K | 120                       | ±10%      | 75                        | 100    | 210                      | 5      | 400                                 | 0.1                                | 0.1           | 4.0                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 151K | 150                       | ±10%      | 95                        | 125    | 260                      | 5      | 400                                 | 0.1                                | 0.1           | 5.5                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 181K | 180                       | ±10%      | 115                       | 150    | 320                      | 5      | 400                                 | 0.1                                | 0.1           | 6.5                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 201K | 200                       | ±10%      | 130                       | 170    | 355                      | 5      | 400                                 | 0.1                                | 0.1           | 7.1                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 221K | 220                       | ±10%      | 140                       | 180    | 380                      | 5      | 400                                 | 0.1                                | 0.1           | 7.8                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 241K | 240                       | ±10%      | 150                       | 200    | 415                      | 5      | 400                                 | 0.1                                | 0.1           | 8.4                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 271K | 270                       | ±10%      | 175                       | 225    | 475                      | 5      | 400                                 | 0.1                                | 0.1           | 9.9                | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 301K | 300                       | ±10%      | 195                       | 250    | 525                      | 5      | 400                                 | 0.1                                | 0.1           | 10.5               | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 331K | 330                       | ±10%      | 210                       | 275    | 575                      | 5      | 400                                 | 0.1                                | 0.1           | 11.5               | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 361K | 360                       | ±10%      | 230                       | 300    | 620                      | 5      | 400                                 | 0.1                                | 0.1           | 13                 | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 391K | 390                       | ±10%      | 250                       | 320    | 675                      | 5      | 400                                 | 0.1                                | 0.1           | 15                 | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 431K | 430                       | ±10%      | 275                       | 350    | 745                      | 5      | 400                                 | 0.1                                | 0.1           | 16.5               | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 471K | 470                       | ±10%      | 300                       | 385    | 810                      | 5      | 400                                 | 0.1                                | 0.1           | 17.5               | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 511K | 510                       | ±10%      | 320                       | 418    | 880                      | 5      | 400                                 | 0.1                                | 0.1           | 18.5               | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 561K | 560                       | ±10%      | 350                       | 460    | 940                      | 5      | 400                                 | 0.1                                | 0.1           | 19.5               | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 621K | 620                       | ±10%      | 385                       | 505    | 1050                     | 5      | 400                                 | 0.1                                | 0.1           | 20.5               | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 681K | 680                       | ±10%      | 420                       | 560    | 1150                     | 5      | 400                                 | 0.1                                | 0.1           | 21.5               | ☆ ☆ ☆                                                                                                                                                                                                                                                       |
| JVT 05N 751K | 750                       | ±10%      | 460                       | 615    | 1290                     | 5      | 400                                 | 0.1                                | 0.1           | 22.5               | ☆ ☆ ☆                                                                                                                                                                                                                                                       |

Application notes for UL ,CSA ,VDE and CQC reconized related standards

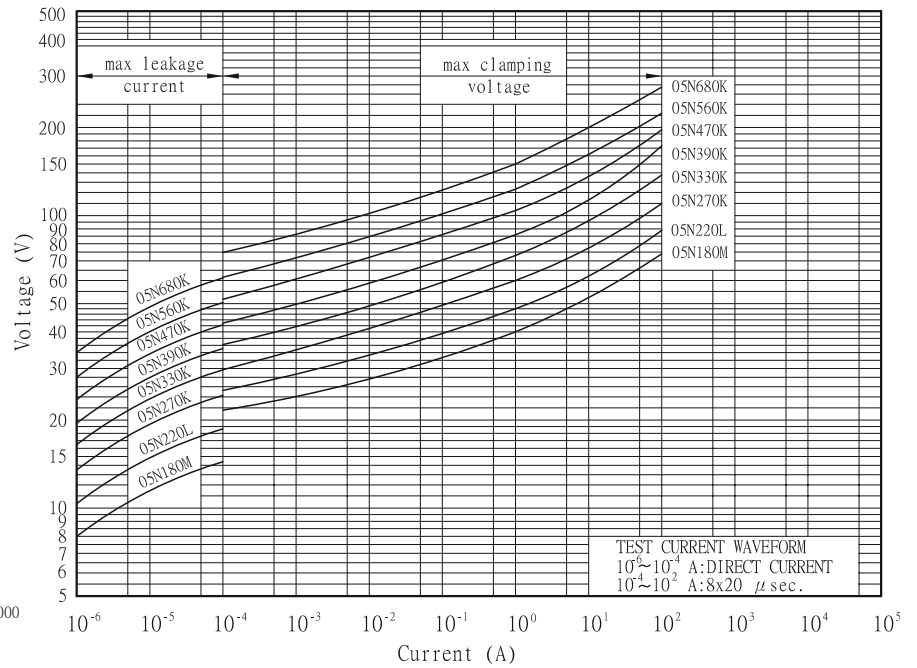
| Standard NO.    | UL                                  | CUL                                 | VDE                                       |                                                                                             | CQC                                        |                                                                  |
|-----------------|-------------------------------------|-------------------------------------|-------------------------------------------|---------------------------------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------|
|                 | UL 1449<br>4 <sup>TH</sup> Edition  | CSA22.2<br>No.269.5                 | IEC61051-1<br>IEC61051-2<br>IEC61051-2-2  | IEC61051-1<br>IEC61051-2<br>IEC61051-2-2<br>IEC60950-1:2013AnnexQ<br>IEC62368-1:2014/ G.8.2 | GB/T1093-1997<br>GB/T10194-1997            | GB4943.1-2011<br>GB/T1093-1997<br>GB/T10194-1997<br>GB8898 -2011 |
| Title           | Transient Voltage Surge Suppressors | Transient Voltage Surge Suppressors | Varistors for use in electronic equipment |                                                                                             | Engaged in Voluntary Product Certification |                                                                  |
| Certificate No. | VZCA2.E325508                       | VZCA8.E325508                       | 5937                                      |                                                                                             | CQC15001130702/0703/0700/1017/0699         |                                                                  |
| Symbols         | ☆                                   |                                     | ★                                         | ★                                                                                           | ★                                          | ⊗                                                                |



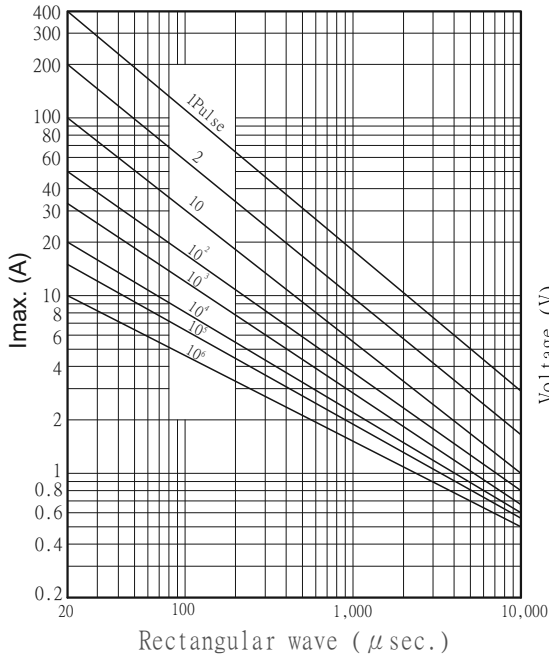
Pulse Life time Ratings-5mm  
05N 180M~05N 680K



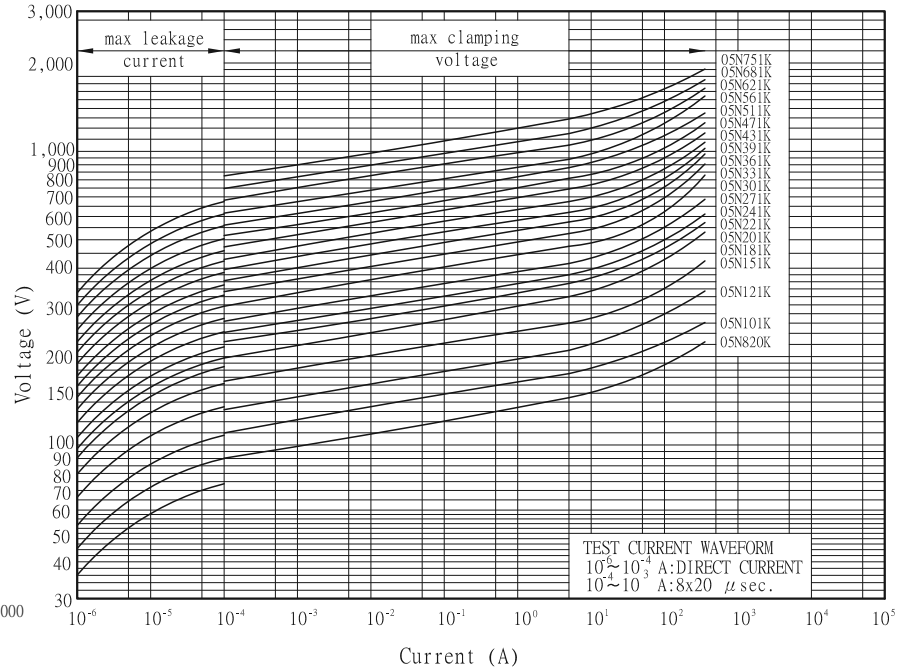
V-I Characteristic Curve-5mm  
05N 180M~05N 680K



05N 820K~05N 751K



05N 820K~05N 751K



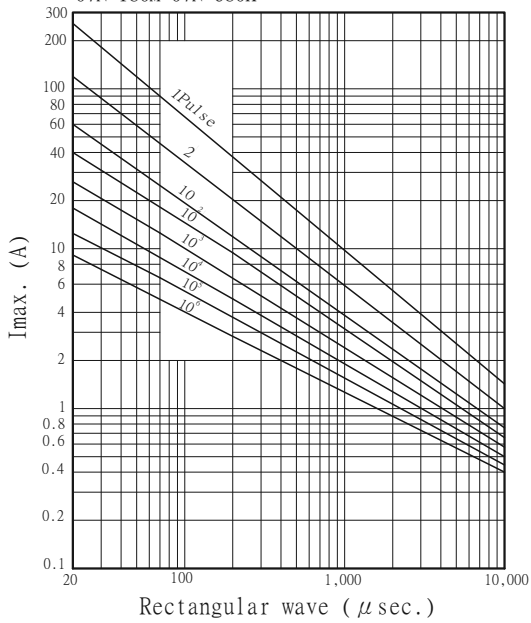
## RATING AND CHARACTERISTICS

### Standard Varistors-7mm

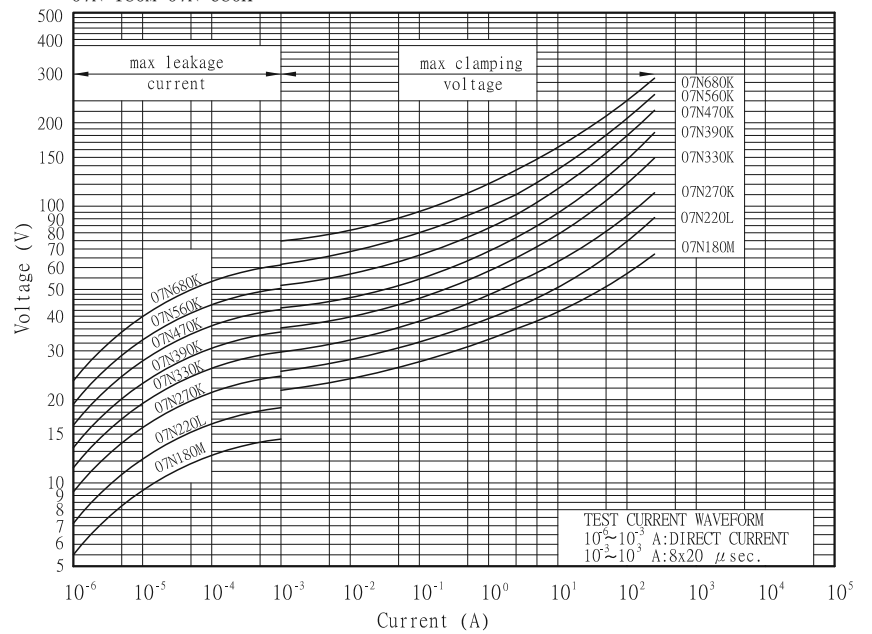
| Part No.     | Varistor Voltage at 1mA |           | Maximum Allowable Voltage |        | Maximum Clamping Voltage |        | Withstanding Surge Current (8/20us) | Nominal Discharge Current (8/20us) | Rated Wattage | Energy (10/1000us) | Certification                                                                       |                                                                                     |                                                                                     |
|--------------|-------------------------|-----------|---------------------------|--------|--------------------------|--------|-------------------------------------|------------------------------------|---------------|--------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|              | DC (V)                  | Tolerance | AC rms (V)                | DC (V) | V@ ic (V)                | ic (A) | 1 Time (A)                          | In (KA)                            | (W)           | (J)                |  |  |  |
| JVT 07N 180M | 18                      | ±20%      | 11                        | 14     | 36                       | 2.5    | 250                                 | 0.2                                | 0.02          | 1.2                | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 220L | 22                      | ±15%      | 14                        | 18     | 43                       | 2.5    | 250                                 | 0.2                                | 0.02          | 1.4                | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 270K | 27                      | ±10%      | 17                        | 22     | 53                       | 2.5    | 250                                 | 0.2                                | 0.02          | 1.7                | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 330K | 33                      | ±10%      | 20                        | 26     | 65                       | 2.5    | 250                                 | 0.2                                | 0.02          | 2.2                | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 390K | 39                      | ±10%      | 25                        | 31     | 77                       | 2.5    | 250                                 | 0.2                                | 0.02          | 2.4                | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 470K | 47                      | ±10%      | 30                        | 38     | 93                       | 2.5    | 250                                 | 0.2                                | 0.02          | 3.0                | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 560K | 56                      | ±10%      | 35                        | 45     | 110                      | 2.5    | 250                                 | 0.2                                | 0.02          | 3.5                | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 680K | 68                      | ±10%      | 40                        | 56     | 135                      | 2.5    | 250                                 | 0.2                                | 0.02          | 4.3                | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 820K | 82                      | ±10%      | 50                        | 65     | 135                      | 10     | 1200                                | 0.5                                | 0.25          | 5.5                | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 101K | 100                     | ±10%      | 60                        | 85     | 165                      | 10     | 1200                                | 0.5                                | 0.25          | 7.0                | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 121K | 120                     | ±10%      | 75                        | 100    | 200                      | 10     | 1200                                | 0.5                                | 0.25          | 8.0                | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 151K | 150                     | ±10%      | 95                        | 125    | 250                      | 10     | 1200                                | 0.5                                | 0.25          | 11.0               | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 181K | 180                     | ±10%      | 115                       | 150    | 300                      | 10     | 1200                                | 0.5                                | 0.25          | 13.0               | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 201K | 200                     | ±10%      | 130                       | 170    | 340                      | 10     | 1200                                | 0.5                                | 0.25          | 14.3               | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 221K | 220                     | ±10%      | 140                       | 180    | 360                      | 10     | 1200                                | 0.5                                | 0.25          | 15.5               | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 241K | 240                     | ±10%      | 150                       | 200    | 395                      | 10     | 1200                                | 0.5                                | 0.25          | 16.8               | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 271K | 270                     | ±10%      | 175                       | 225    | 455                      | 10     | 1200                                | 0.5                                | 0.25          | 19.8               | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 301K | 300                     | ±10%      | 195                       | 250    | 505                      | 10     | 1200                                | 0.5                                | 0.25          | 21.0               | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 331K | 330                     | ±10%      | 210                       | 275    | 550                      | 10     | 1200                                | 0.5                                | 0.25          | 23                 | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 361K | 360                     | ±10%      | 230                       | 300    | 595                      | 10     | 1200                                | 0.5                                | 0.25          | 26                 | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 391K | 390                     | ±10%      | 250                       | 320    | 650                      | 10     | 1200                                | 0.5                                | 0.25          | 30                 | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 431K | 430                     | ±10%      | 275                       | 350    | 710                      | 10     | 1200                                | 0.5                                | 0.25          | 33                 | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 471K | 470                     | ±10%      | 300                       | 385    | 775                      | 10     | 1200                                | 0.5                                | 0.25          | 35                 | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 511K | 510                     | ±10%      | 320                       | 418    | 842                      | 10     | 1200                                | 0.5                                | 0.25          | 37                 | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 561K | 560                     | ±10%      | 350                       | 460    | 920                      | 10     | 1200                                | 0.5                                | 0.25          | 39                 | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 621K | 620                     | ±10%      | 385                       | 505    | 1025                     | 10     | 1200                                | 0.5                                | 0.25          | 41                 | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 681K | 680                     | ±10%      | 420                       | 560    | 1120                     | 10     | 1200                                | 0.5                                | 0.25          | 43                 | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 751K | 750                     | ±10%      | 460                       | 615    | 1240                     | 10     | 1200                                | 0.5                                | 0.25          | 45                 | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 781K | 780                     | ±10%      | 485                       | 640    | 1290                     | 10     | 1200                                | 0.5                                | 0.25          | 46                 | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |
| JVT 07N 821K | 820                     | ±10%      | 510                       | 670    | 1355                     | 10     | 1200                                | 0.5                                | 0.25          | 47                 | ☆                                                                                   | ☆                                                                                   | ☆                                                                                   |



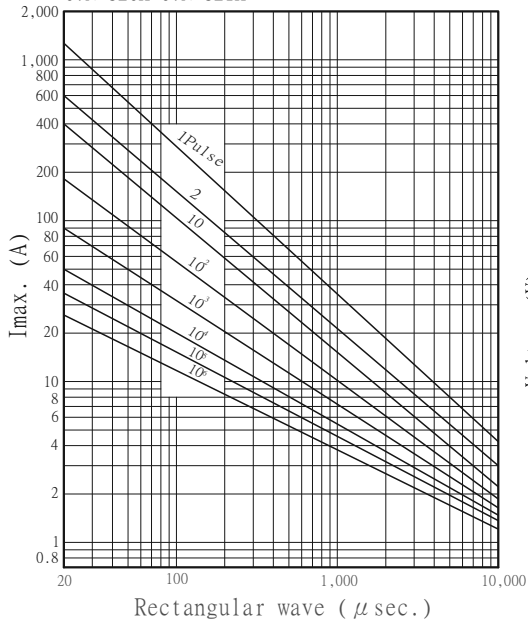
Pulse Life time Ratings-7mm  
07N 180M-07N 680K



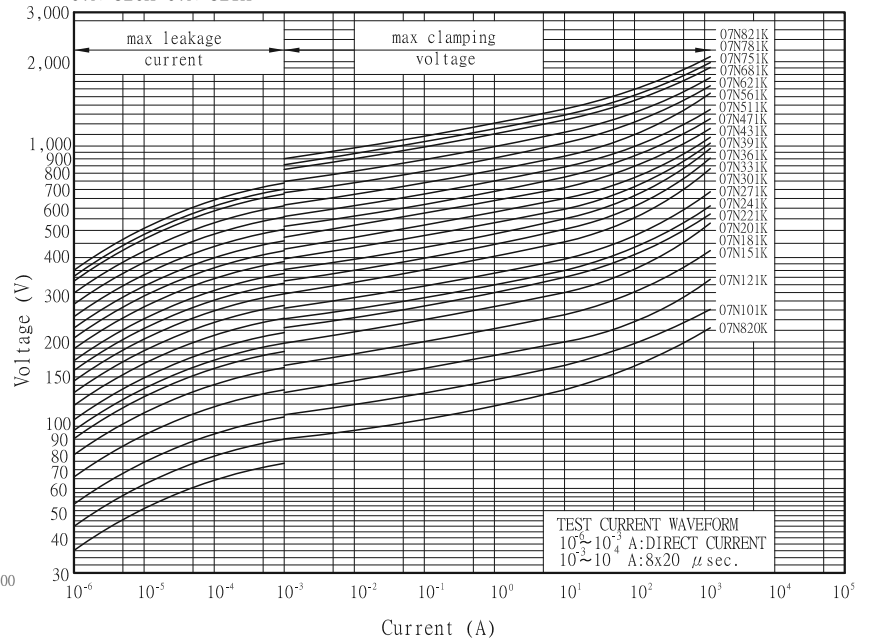
V-I Characteristic Curve-7mm  
07N 180M-07N 680K



07N 820K-07N 821K



07N 820K-07N 821K



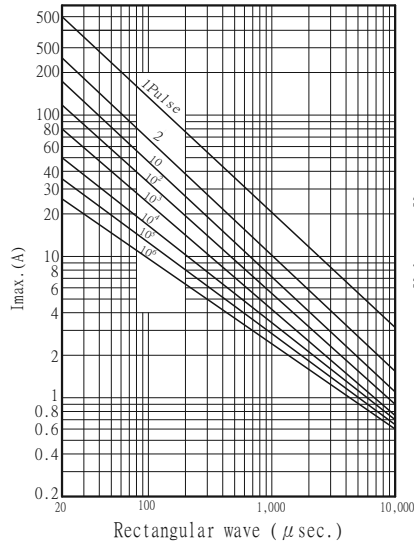
過電壓保護

## RATING AND CHARACTERISTICS

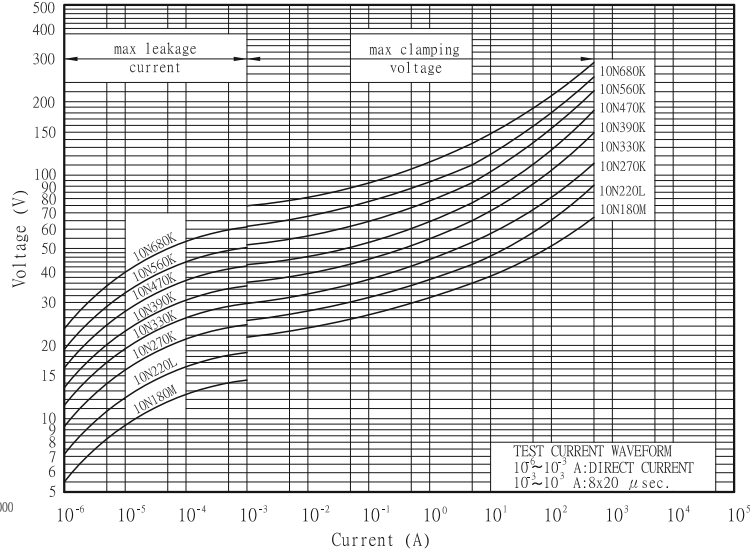
## Standard Varistors - 10mm

| Part No.     | Varistor Voltage at 1mA |           | Maximum Allowable Voltage |        | Maximum Clamping Voltage |        | Withstanding Surge Current (8/20us) | Nominal Discharge Current (8/20us) | Rated Wattage | Energy (10/1000us) | Certification |    |     |
|--------------|-------------------------|-----------|---------------------------|--------|--------------------------|--------|-------------------------------------|------------------------------------|---------------|--------------------|---------------|----|-----|
|              | DC (V)                  | Tolerance | AC rms (V)                | DC (V) | V@ ic (V)                | ic (A) | 1 Time (A)                          | In (KA)                            | (W)           | (J)                | UL            | CE | CQC |
| JVT 10N 180M | 18                      | ±20%      | 11                        | 14     | 36                       | 5      | 500                                 | 0.3                                | 0.05          | 2.4                | ☆             | ★  | ☆   |
| JVT 10N 220L | 22                      | ±15%      | 14                        | 18     | 43                       | 5      | 500                                 | 0.3                                | 0.05          | 2.7                | ☆             | ★  | ☆   |
| JVT 10N 270K | 27                      | ±10%      | 17                        | 22     | 53                       | 5      | 500                                 | 0.3                                | 0.05          | 3.5                | ☆             | ★  | ☆   |
| JVT 10N 330K | 33                      | ±10%      | 20                        | 26     | 65                       | 5      | 500                                 | 0.3                                | 0.05          | 4.4                | ☆             | ★  | ☆   |
| JVT 10N 390K | 39                      | ±10%      | 25                        | 31     | 77                       | 5      | 500                                 | 0.3                                | 0.05          | 4.7                | ☆             | ★  | ☆   |
| JVT 10N 470K | 47                      | ±10%      | 30                        | 38     | 93                       | 5      | 500                                 | 0.3                                | 0.05          | 6.0                | ☆             | ★  | ☆   |
| JVT 10N 560K | 56                      | ±10%      | 35                        | 45     | 110                      | 5      | 500                                 | 0.3                                | 0.05          | 7.0                | ☆             | ★  | ☆   |
| JVT 10N 680K | 68                      | ±10%      | 40                        | 56     | 135                      | 5      | 500                                 | 0.3                                | 0.05          | 8.5                | ☆             | ★  | ☆   |
| JVT 10N 820K | 82                      | ±10%      | 50                        | 65     | 135                      | 25     | 2500                                | 1.5                                | 0.4           | 11.0               | ☆             | ★  | ☆   |
| JVT 10N 101K | 100                     | ±10%      | 60                        | 85     | 165                      | 25     | 2500                                | 1.5                                | 0.4           | 14.0               | ☆             | ★  | ☆   |
| JVT 10N 121K | 120                     | ±10%      | 75                        | 100    | 200                      | 25     | 2500                                | 1.5                                | 0.4           | 16.0               | ☆             | ★  | ☆   |
| JVT 10N 151K | 150                     | ±10%      | 95                        | 125    | 250                      | 25     | 2500                                | 1.5                                | 0.4           | 22.0               | ☆             | ★  | ☆   |
| JVT 10N 181K | 180                     | ±10%      | 115                       | 150    | 300                      | 25     | 2500                                | 1.5                                | 0.4           | 26.0               | ☆             | ★  | ☆   |
| JVT 10N 201K | 200                     | ±10%      | 130                       | 170    | 340                      | 25     | 2500                                | 1.5                                | 0.4           | 28.5               | ☆             | ★  | ☆   |
| JVT 10N 221K | 220                     | ±10%      | 140                       | 180    | 360                      | 25     | 2500                                | 1.5                                | 0.4           | 31.0               | ☆             | ★  | ☆   |
| JVT 10N 241K | 240                     | ±10%      | 150                       | 200    | 395                      | 25     | 2500                                | 1.5                                | 0.4           | 33.5               | ☆             | ★  | ☆   |
| JVT 10N 271K | 270                     | ±10%      | 175                       | 225    | 455                      | 25     | 2500                                | 1.5                                | 0.4           | 39.5               | ☆             | ★  | ☆   |
| JVT 10N 301K | 300                     | ±10%      | 195                       | 250    | 505                      | 25     | 2500                                | 1.5                                | 0.4           | 42.0               | ☆             | ★  | ☆   |
| JVT 10N 331K | 330                     | ±10%      | 210                       | 275    | 550                      | 25     | 2500                                | 1.5                                | 0.4           | 46                 | ☆             | ★  | ☆   |
| JVT 10N 361K | 360                     | ±10%      | 230                       | 300    | 595                      | 25     | 2500                                | 1.5                                | 0.4           | 52                 | ☆             | ★  | ☆   |
| JVT 10N 391K | 390                     | ±10%      | 250                       | 320    | 650                      | 25     | 2500                                | 1.5                                | 0.4           | 60                 | ☆             | ★  | ☆   |
| JVT 10N 431K | 430                     | ±10%      | 275                       | 350    | 710                      | 25     | 2500                                | 1.5                                | 0.4           | 66                 | ☆             | ★  | ☆   |
| JVT 10N 471K | 470                     | ±10%      | 300                       | 385    | 775                      | 25     | 2500                                | 1.5                                | 0.4           | 70                 | ☆             | ★  | ☆   |
| JVT 10N 511K | 510                     | ±10%      | 320                       | 418    | 842                      | 25     | 2500                                | 1.5                                | 0.4           | 74                 | ☆             | ★  | ☆   |
| JVT 10N 561K | 560                     | ±10%      | 350                       | 460    | 920                      | 25     | 2500                                | 1.5                                | 0.4           | 78                 | ☆             | ★  | ☆   |
| JVT 10N 621K | 620                     | ±10%      | 385                       | 505    | 1025                     | 25     | 2500                                | 1.5                                | 0.4           | 82                 | ☆             | ★  | ☆   |
| JVT 10N 681K | 680                     | ±10%      | 420                       | 560    | 1120                     | 25     | 2500                                | 1.5                                | 0.4           | 86                 | ☆             | ★  | ☆   |
| JVT 10N 751K | 750                     | ±10%      | 460                       | 615    | 1240                     | 25     | 2500                                | 1.5                                | 0.4           | 90                 | ☆             | ★  | ☆   |
| JVT 10N 781K | 780                     | ±10%      | 485                       | 640    | 1290                     | 25     | 2500                                | 1.5                                | 0.4           | 92                 | ☆             | ★  | ☆   |
| JVT 10N 821K | 820                     | ±10%      | 510                       | 670    | 1355                     | 25     | 2500                                | 1.5                                | 0.4           | 94                 | ☆             | ★  | ☆   |
| JVT 10N 911K | 910                     | ±10%      | 550                       | 745    | 1500                     | 25     | 2500                                | 1.5                                | 0.4           | 102                | ☆             | ★  | ☆   |
| JVT 10N 102K | 1000                    | ±10%      | 625                       | 825    | 1650                     | 25     | 2500                                | 1.5                                | 0.4           | 112                | ☆             | ★  | ☆   |
| JVT 10N 112K | 1100                    | ±10%      | 680                       | 895    | 1815                     | 25     | 2500                                | 1.5                                | 0.4           | 124                | ☆             | ★  | ☆   |

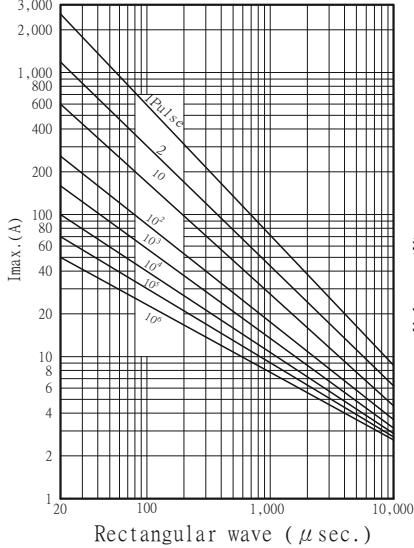
Pulse Life time Ratings-10mm  
10N 180M~10N 680K



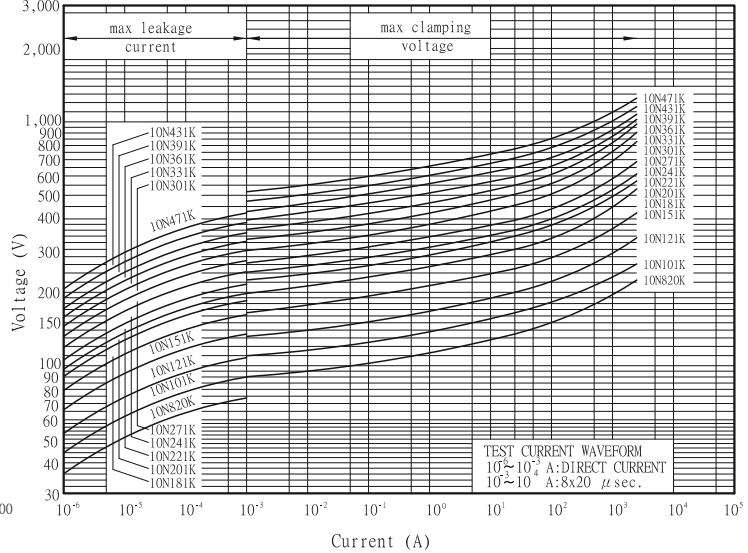
V-I Characteristic Curve-10mm  
10N 180M~10N 680K



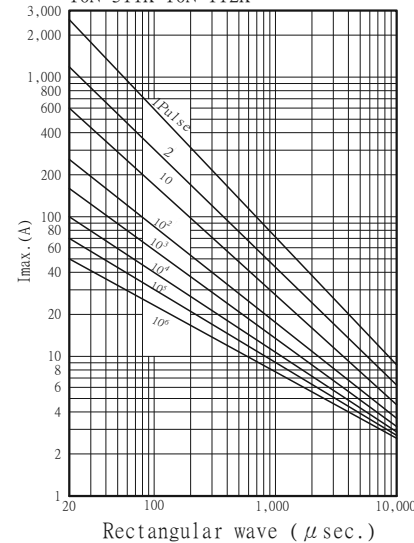
10N 820K~10N 471K



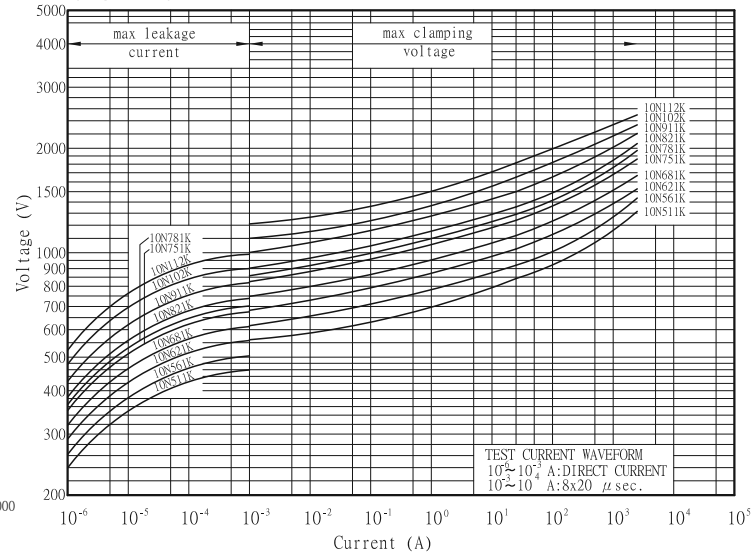
10N 820K~10N 471K



10N 511K~10N 112K



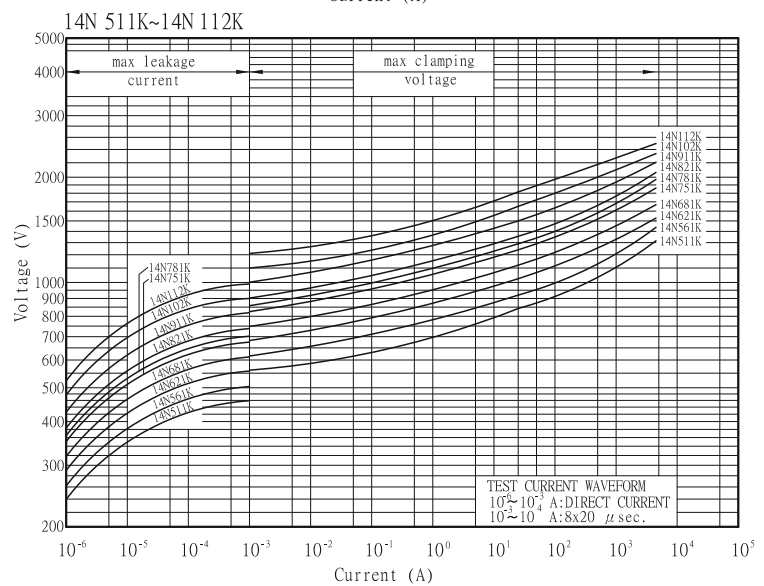
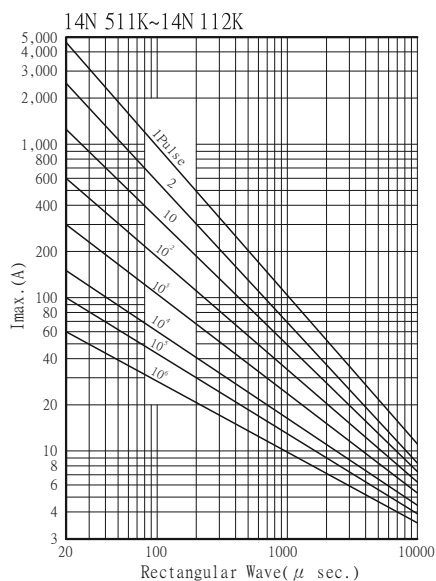
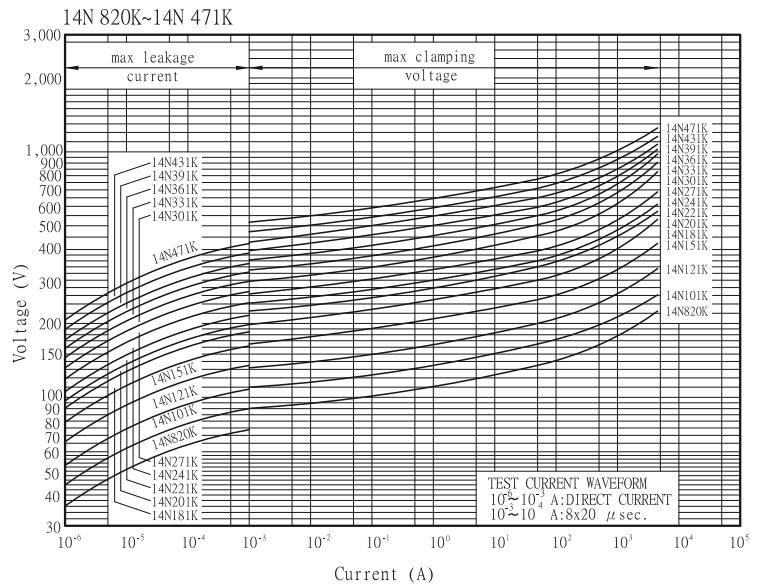
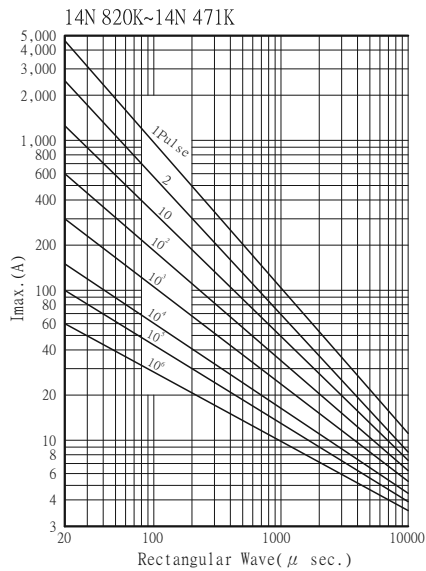
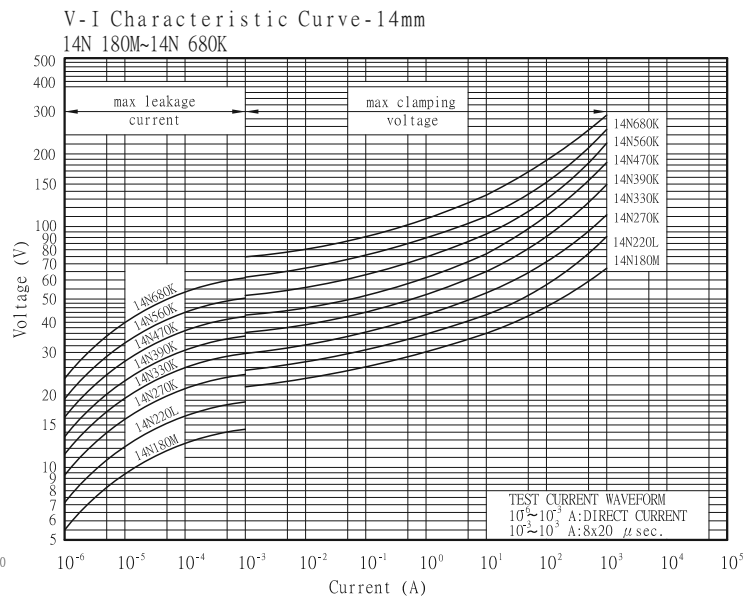
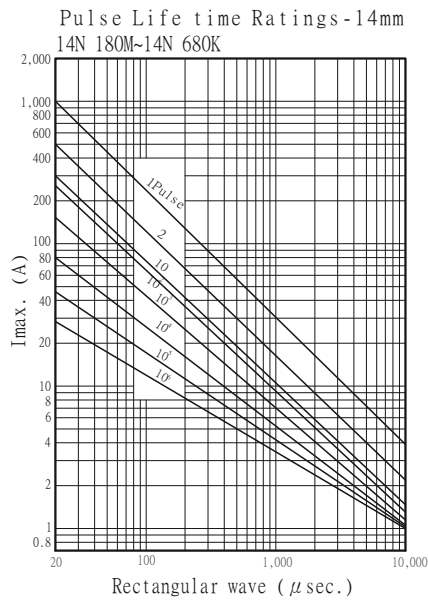
10N 511K~10N 112K



## RATING AND CHARACTERISTICS

## Standard Varistors- 14mm

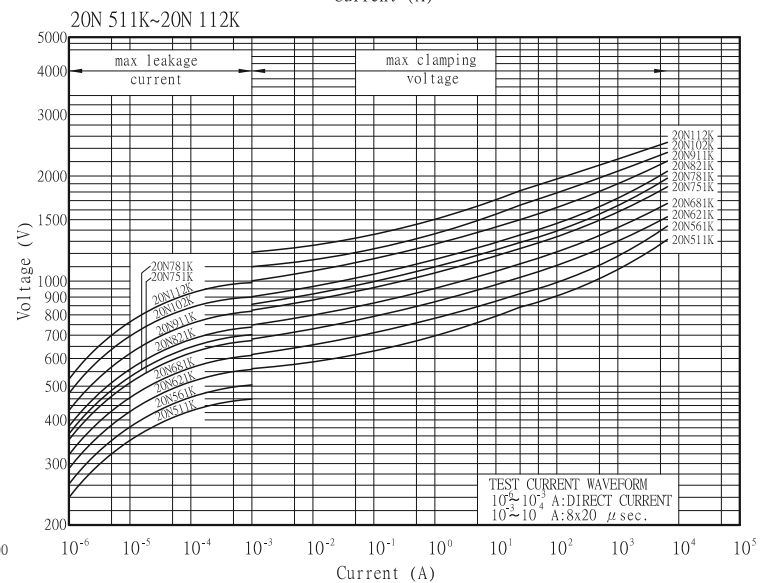
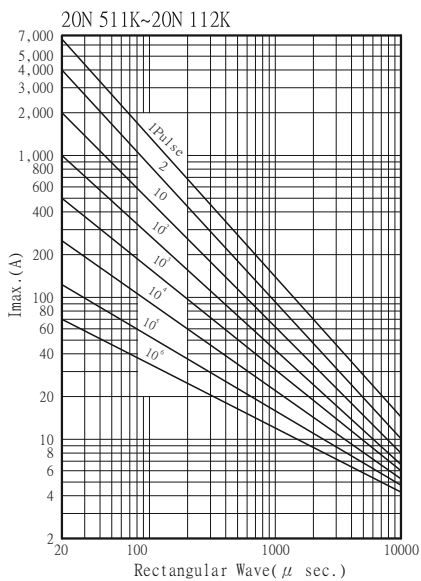
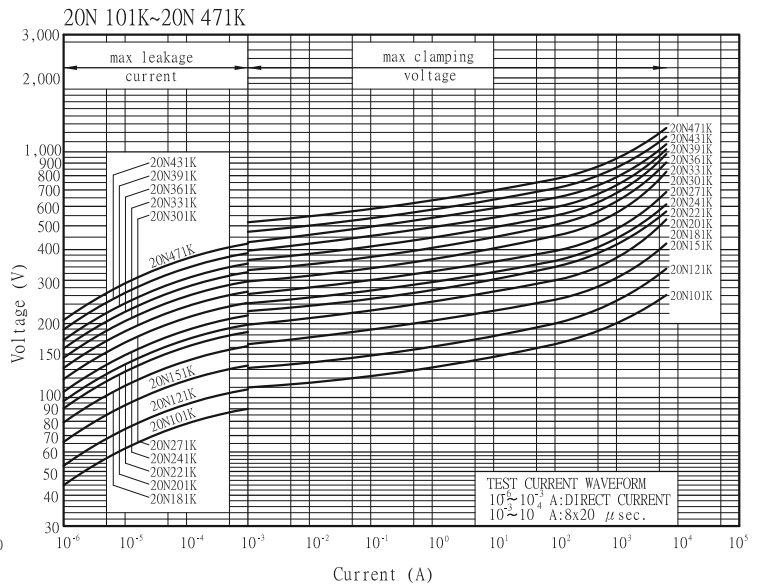
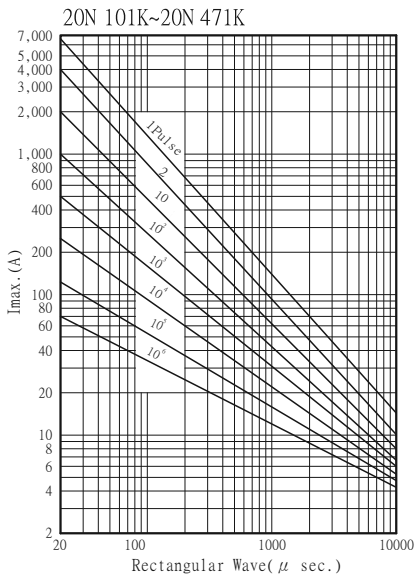
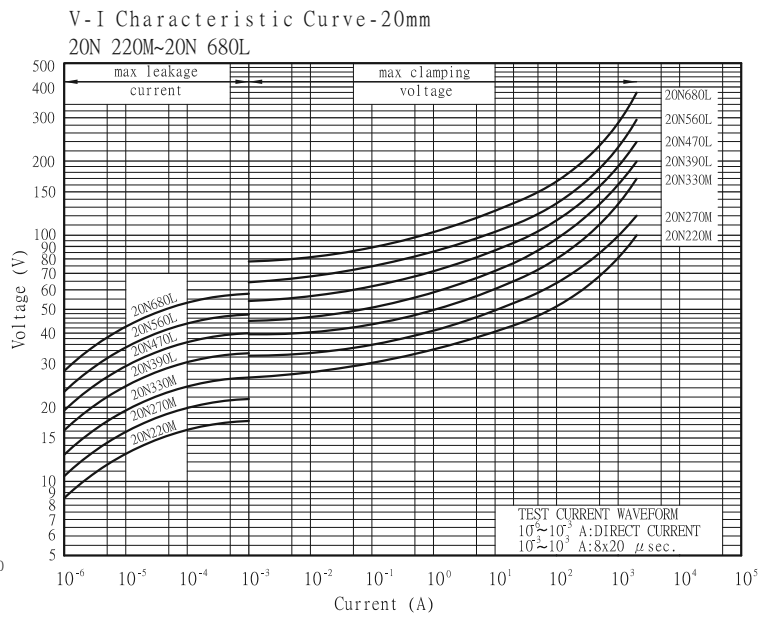
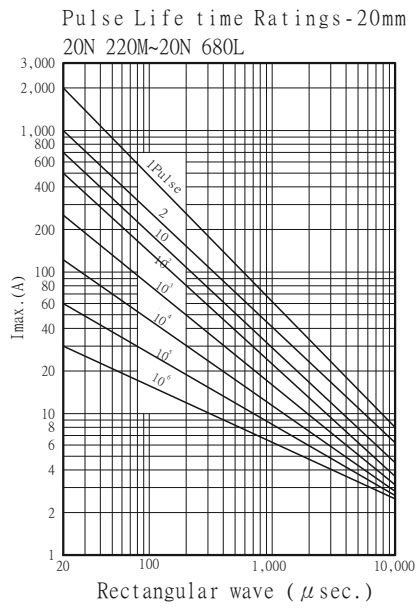
| Part No.     | Varistor Voltage at 1mA |           | Maximum Allowable Voltage |        | Maximum Clamping Voltage |        | Withstanding Surge Current (8/20us) | Nominal Discharge Current (8/20us) | Rated Wattage | Energy (10/1000us) | Certification |    |     |
|--------------|-------------------------|-----------|---------------------------|--------|--------------------------|--------|-------------------------------------|------------------------------------|---------------|--------------------|---------------|----|-----|
|              | DC (V)                  | Tolerance | AC rms (V)                | DC (V) | V@ ic (V)                | ic (A) | 1 Time (A)                          | In (KA)                            | (W)           | (J)                | UL            | UL | CQC |
| JVT 14N 180M | 18                      | ±20%      | 11                        | 14     | 36                       | 10     | 1000                                | 1                                  | 0.1           | 4.7                | ☆             | ☆  | ☆   |
| JVT 14N 220L | 22                      | ±15%      | 14                        | 18     | 43                       | 10     | 1000                                | 1                                  | 0.1           | 5.4                | ☆             | ☆  | ☆   |
| JVT 14N 270K | 27                      | ±10%      | 17                        | 22     | 53                       | 10     | 1000                                | 1                                  | 0.1           | 6.9                | ☆             | ☆  | ☆   |
| JVT 14N 330K | 33                      | ±10%      | 20                        | 26     | 65                       | 10     | 1000                                | 1                                  | 0.1           | 8.8                | ☆             | ☆  | ☆   |
| JVT 14N 390K | 39                      | ±10%      | 25                        | 31     | 77                       | 10     | 1000                                | 1                                  | 0.1           | 9.4                | ☆             | ☆  | ☆   |
| JVT 14N 470K | 47                      | ±10%      | 30                        | 38     | 93                       | 10     | 1000                                | 1                                  | 0.1           | 12.0               | ☆             | ☆  | ☆   |
| JVT 14N 560K | 56                      | ±10%      | 35                        | 45     | 110                      | 10     | 1000                                | 1                                  | 0.1           | 14.0               | ☆             | ☆  | ☆   |
| JVT 14N 680K | 68                      | ±10%      | 40                        | 56     | 135                      | 10     | 1000                                | 1                                  | 0.1           | 17.0               | ☆             | ☆  | ☆   |
| JVT 14N 820K | 82                      | ±10%      | 50                        | 65     | 135                      | 50     | 4500                                | 3.0                                | 0.6           | 22.0               | ☆             | ☆  | ☆   |
| JVT 14N 101K | 100                     | ±10%      | 60                        | 85     | 165                      | 50     | 4500                                | 3.0                                | 0.6           | 28.0               | ☆             | ☆  | ☆   |
| JVT 14N 121K | 120                     | ±10%      | 75                        | 100    | 200                      | 50     | 4500                                | 3.0                                | 0.6           | 32.0               | ☆             | ☆  | ☆   |
| JVT 14N 151K | 150                     | ±10%      | 95                        | 125    | 250                      | 50     | 4500                                | 3.0                                | 0.6           | 44.0               | ☆             | ☆  | ☆   |
| JVT 14N 181K | 180                     | ±10%      | 115                       | 150    | 300                      | 50     | 4500                                | 3.0                                | 0.6           | 52.0               | ☆             | ★  | ☆   |
| JVT 14N 201K | 200                     | ±10%      | 130                       | 170    | 340                      | 50     | 4500                                | 3.0                                | 0.6           | 57.0               | ☆             | ★  | ★   |
| JVT 14N 221K | 220                     | ±10%      | 140                       | 180    | 360                      | 50     | 4500                                | 3.0                                | 0.6           | 62.0               | ☆             | ★  | ★   |
| JVT 14N 241K | 240                     | ±10%      | 150                       | 200    | 395                      | 50     | 4500                                | 3.0                                | 0.6           | 67.0               | ☆             | ★  | ★   |
| JVT 14N 271K | 270                     | ±10%      | 175                       | 225    | 455                      | 50     | 4500                                | 3.0                                | 0.6           | 79                 | ☆             | ★  | ★   |
| JVT 14N 301K | 300                     | ±10%      | 195                       | 250    | 505                      | 50     | 4500                                | 3.0                                | 0.6           | 84.0               | ☆             | ★  | ★   |
| JVT 14N 331K | 330                     | ±10%      | 210                       | 275    | 550                      | 50     | 4500                                | 3.0                                | 0.6           | 92                 | ☆             | ★  | ★   |
| JVT 14N 361K | 360                     | ±10%      | 230                       | 300    | 595                      | 50     | 4500                                | 3.0                                | 0.6           | 104                | ☆             | ★  | ★   |
| JVT 14N 391K | 390                     | ±10%      | 250                       | 320    | 650                      | 50     | 4500                                | 3.0                                | 0.6           | 120                | ☆             | ★  | ★   |
| JVT 14N 431K | 430                     | ±10%      | 275                       | 350    | 710                      | 50     | 4500                                | 3.0                                | 0.6           | 132                | ☆             | ★  | ★   |
| JVT 14N 471K | 470                     | ±10%      | 300                       | 385    | 775                      | 50     | 4500                                | 3.0                                | 0.6           | 140                | ☆             | ★  | ★   |
| JVT 14N 511K | 510                     | ±10%      | 320                       | 418    | 842                      | 50     | 4500                                | 3.0                                | 0.6           | 148                | ☆             | ★  | ★   |
| JVT 14N 561K | 560                     | ±10%      | 350                       | 460    | 920                      | 50     | 4500                                | 3.0                                | 0.6           | 156                | ☆             | ★  | ★   |
| JVT 14N 621K | 620                     | ±10%      | 385                       | 505    | 1025                     | 50     | 4500                                | 3.0                                | 0.6           | 164                | ☆             | ★  | ★   |
| JVT 14N 681K | 680                     | ±10%      | 420                       | 560    | 1120                     | 50     | 4500                                | 3.0                                | 0.6           | 172                | ☆             | ★  | ★   |
| JVT 14N 751K | 750                     | ±10%      | 460                       | 615    | 1240                     | 50     | 4500                                | 3.0                                | 0.6           | 180                | ☆             | ★  | ★   |
| JVT 14N 781K | 780                     | ±10%      | 485                       | 640    | 1290                     | 50     | 4500                                | 3.0                                | 0.6           | 184                | ☆             | ★  | ★   |
| JVT 14N 821K | 820                     | ±10%      | 510                       | 670    | 1355                     | 50     | 4500                                | 3.0                                | 0.6           | 188                | ☆             | ★  | ★   |
| JVT 14N 911K | 910                     | ±10%      | 550                       | 745    | 1500                     | 50     | 4500                                | 3.0                                | 0.6           | 204                | ☆             | ★  | ★   |
| JVT 14N 102K | 1000                    | ±10%      | 625                       | 825    | 1650                     | 50     | 4500                                | 3.0                                | 0.6           | 224                | ☆             | ★  | ★   |
| JVT 14N 112K | 1100                    | ±10%      | 680                       | 895    | 1815                     | 50     | 4500                                | 3.0                                | 0.6           | 248                | ☆             | ★  | ★   |



## RATING AND CHARACTERISTICS

### Standard Varistors - 20mm

| Part No.     | Varistor Voltage at 1mA |           | Maximum Allowable Voltage |        | Maximum Clamping Voltage |        | Withstanding Surge Current (8/20us) | Nominal Discharge Current (8/20us) | Rated Wattage | Energy (10/1000us) | Certification                                                                       |                                                                                     |                                                                                     |
|--------------|-------------------------|-----------|---------------------------|--------|--------------------------|--------|-------------------------------------|------------------------------------|---------------|--------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|              | DC (V)                  | Tolerance | AC rms (V)                | DC (V) | V@ ic (V)                | ic (A) | 1 Time (A)                          | In (A)                             | (W)           | (J)                |  |  |  |
| JVT 20N 220M | 22                      | ±20%      | 14                        | 18     | 43                       | 20     | 2000                                | 2                                  | 0.2           | 8.0                | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 270M | 27                      | ±20%      | 17                        | 22     | 53                       | 20     | 2000                                | 2                                  | 0.2           | 10.0               | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 330M | 33                      | ±20%      | 20                        | 26     | 65                       | 20     | 2000                                | 2                                  | 0.2           | 12.0               | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 390L | 39                      | ±15%      | 25                        | 31     | 77                       | 20     | 2000                                | 2                                  | 0.2           | 14.0               | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 470L | 47                      | ±15%      | 30                        | 38     | 93                       | 20     | 2000                                | 2                                  | 0.2           | 17.0               | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 560L | 56                      | ±15%      | 35                        | 45     | 110                      | 20     | 2000                                | 2                                  | 0.2           | 20.0               | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 680L | 68                      | ±15%      | 40                        | 56     | 135                      | 20     | 2000                                | 2                                  | 0.2           | 24.0               | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 820L | 82                      | ±15%      | 50                        | 65     | 135                      | 100    | 6500                                | 4                                  | 1             | 44.0               | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 101K | 100                     | ±10%      | 60                        | 85     | 165                      | 100    | 6500                                | 4.0                                | 1             | 56.0               | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 121K | 120                     | ±10%      | 75                        | 100    | 200                      | 100    | 6500                                | 4.0                                | 1             | 64.0               | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 151K | 150                     | ±10%      | 95                        | 125    | 250                      | 100    | 6500                                | 4.0                                | 1             | 88.0               | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 181K | 180                     | ±10%      | 115                       | 150    | 300                      | 100    | 6500                                | 4.0                                | 1             | 104.0              | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 201K | 200                     | ±10%      | 130                       | 170    | 340                      | 100    | 6500                                | 4.0                                | 1             | 114.0              | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 221K | 220                     | ±10%      | 140                       | 180    | 360                      | 100    | 6500                                | 4.0                                | 1             | 124.0              | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 241K | 240                     | ±10%      | 150                       | 200    | 395                      | 100    | 6500                                | 4.0                                | 1             | 134.0              | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 271K | 270                     | ±10%      | 175                       | 225    | 455                      | 100    | 6500                                | 4.0                                | 1             | 158.0              | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 301K | 300                     | ±10%      | 195                       | 250    | 505                      | 100    | 6500                                | 4.0                                | 1             | 168                | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 331K | 330                     | ±10%      | 210                       | 275    | 550                      | 100    | 6500                                | 4.0                                | 1             | 184.0              | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 361K | 360                     | ±10%      | 230                       | 300    | 595                      | 100    | 6500                                | 4.0                                | 1             | 208                | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 391K | 390                     | ±10%      | 250                       | 320    | 650                      | 100    | 6500                                | 4.0                                | 1             | 240                | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 431K | 430                     | ±10%      | 275                       | 350    | 710                      | 100    | 6500                                | 4.0                                | 1             | 264                | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 471K | 470                     | ±10%      | 300                       | 385    | 775                      | 100    | 6500                                | 4.0                                | 1             | 280                | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 511K | 510                     | ±10%      | 320                       | 418    | 842                      | 100    | 6500                                | 4.0                                | 1             | 296                | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 561K | 560                     | ±10%      | 350                       | 460    | 920                      | 100    | 6500                                | 4.0                                | 1             | 312                | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 621K | 620                     | ±10%      | 385                       | 505    | 1025                     | 100    | 6500                                | 4.0                                | 1             | 328                | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 681K | 680                     | ±10%      | 420                       | 560    | 1120                     | 100    | 6500                                | 4.0                                | 1             | 344                | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 751K | 750                     | ±10%      | 460                       | 615    | 1240                     | 100    | 6500                                | 4.0                                | 1             | 360                | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 781K | 780                     | ±10%      | 485                       | 640    | 1290                     | 100    | 6500                                | 4.0                                | 1             | 368                | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 821K | 820                     | ±10%      | 510                       | 670    | 1355                     | 100    | 6500                                | 4.0                                | 1             | 376                | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 911K | 910                     | ±10%      | 550                       | 745    | 1500                     | 100    | 6500                                | 4.0                                | 1             | 408                | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 102K | 1000                    | ±10%      | 625                       | 825    | 1650                     | 100    | 6500                                | 4.0                                | 1             | 448                | ☆                                                                                   | ★                                                                                   | ★                                                                                   |
| JVT 20N 112K | 1100                    | ±10%      | 680                       | 895    | 1815                     | 100    | 6500                                | 4.0                                | 1             | 496                | ☆                                                                                   | ★                                                                                   | ★                                                                                   |



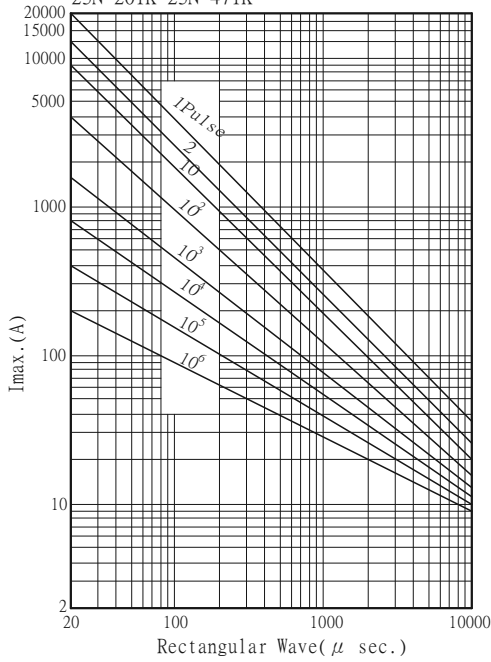
## RATING AND CHARACTERISTICS

### Standard Varistors - 25mm

| Part No.     | Varistor Voltage at 1mA |           | Maximum Allowable Voltage |        | Maximum Clamping Voltage |        | Withstanding Surge Current (8/20us) | Nominal Discharge Current (8/20us) | Rated Wattage | Energy (10/1000us) | Certification |     |
|--------------|-------------------------|-----------|---------------------------|--------|--------------------------|--------|-------------------------------------|------------------------------------|---------------|--------------------|---------------|-----|
|              | DC (V)                  | Tolerance | AC rms (V)                | DC (V) | V@ ic (V)                | ic (A) | 1 Time (A)                          | In (KA)                            | (W)           | (J)                | UL            | CEC |
| JVT 25N 201K | 200                     | ±10%      | 130                       | 170    | 355                      | 150    | 20000                               | 5                                  | 1.2           | 190.0              | ☆             | ★   |
| JVT 25N 221K | 220                     | ±10%      | 140                       | 180    | 380                      | 150    | 20000                               | 5                                  | 1.2           | 205.0              | ☆             | ★   |
| JVT 25N 241K | 240                     | ±10%      | 150                       | 200    | 415                      | 150    | 20000                               | 5                                  | 1.2           | 225.0              | ☆             | ★   |
| JVT 25N 271K | 270                     | ±10%      | 175                       | 225    | 445                      | 150    | 20000                               | 5                                  | 1.2           | 255.0              | ☆             | ★   |
| JVT 25N 301K | 300                     | ±10%      | 195                       | 250    | 495                      | 150    | 20000                               | 5                                  | 1.2           | 280.0              | ☆             | ★   |
| JVT 25N 331K | 330                     | ±10%      | 210                       | 275    | 545                      | 150    | 20000                               | 5                                  | 1.2           | 305.0              | ☆             | ★   |
| JVT 25N 361K | 360                     | ±10%      | 230                       | 300    | 595                      | 150    | 20000                               | 5                                  | 1.2           | 330.0              | ☆             | ★   |
| JVT 25N 391K | 390                     | ±10%      | 250                       | 320    | 645                      | 150    | 20000                               | 5                                  | 1.2           | 360.0              | ☆             | ★   |
| JVT 25N 431K | 430                     | ±10%      | 275                       | 350    | 710                      | 150    | 20000                               | 5.0                                | 1.2           | 380.0              | ☆             | ★   |
| JVT 25N 471K | 470                     | ±10%      | 300                       | 385    | 775                      | 150    | 20000                               | 5.0                                | 1.2           | 400.0              | ☆             | ★   |
| JVT 25N 511K | 510                     | ±10%      | 320                       | 418    | 840                      | 150    | 20000                               | 5.0                                | 1.2           | 420.0              | ☆             | ★   |
| JVT 25N 561K | 560                     | ±10%      | 350                       | 460    | 925                      | 150    | 20000                               | 5.0                                | 1.2           | 440.0              | ☆             | ★   |
| JVT 25N 621K | 620                     | ±10%      | 385                       | 505    | 1025                     | 150    | 20000                               | 5.0                                | 1.2           | 460.0              | ☆             | ★   |
| JVT 25N 681K | 680                     | ±10%      | 420                       | 560    | 1125                     | 150    | 20000                               | 5.0                                | 1.2           | 480.0              | ☆             | ★   |
| JVT 25N 751K | 750                     | ±10%      | 460                       | 615    | 1240                     | 150    | 20000                               | 5.0                                | 1.2           | 520.0              | ☆             | ★   |
| JVT 25N 781K | 780                     | ±10%      | 485                       | 640    | 1290                     | 150    | 20000                               | 5.0                                | 1.2           | 540.0              | ☆             | ★   |
| JVT 25N 821K | 820                     | ±10%      | 510                       | 670    | 1360                     | 150    | 20000                               | 5.0                                | 1.2           | 570                | ☆             | ★   |
| JVT 25N 911K | 910                     | ±10%      | 550                       | 745    | 1500                     | 150    | 20000                               | 5.0                                | 1.2           | 620.0              | ☆             | ★   |

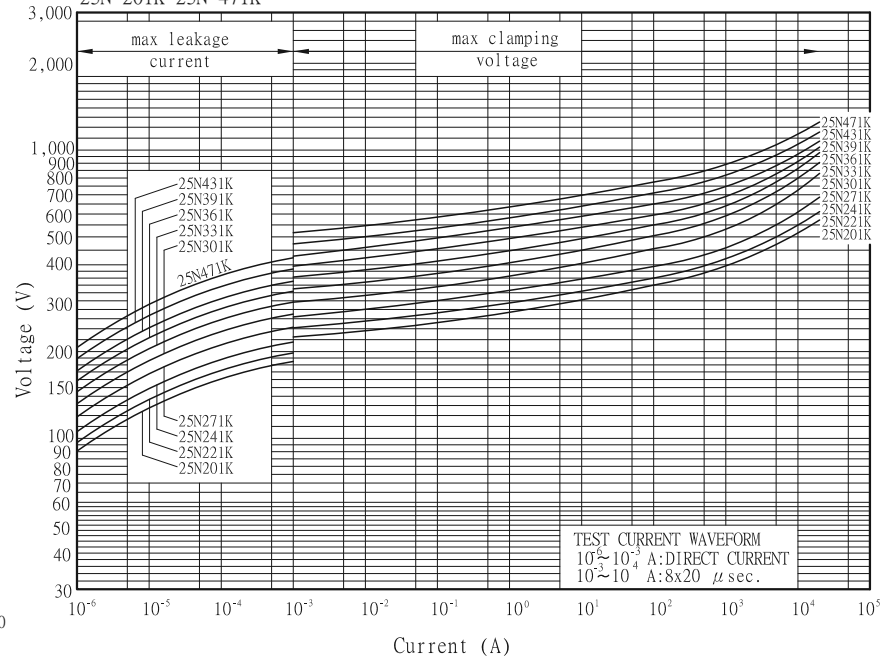
Pulse Life time Ratings-25mm

25N 201K~25N 471K

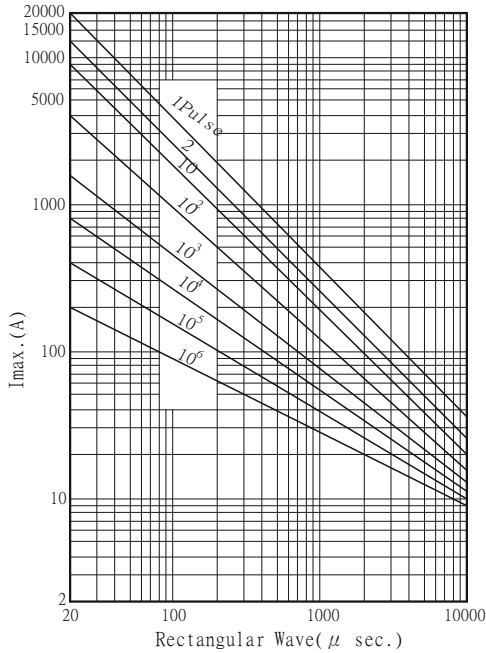


V-I Characteristic Curve-25mm

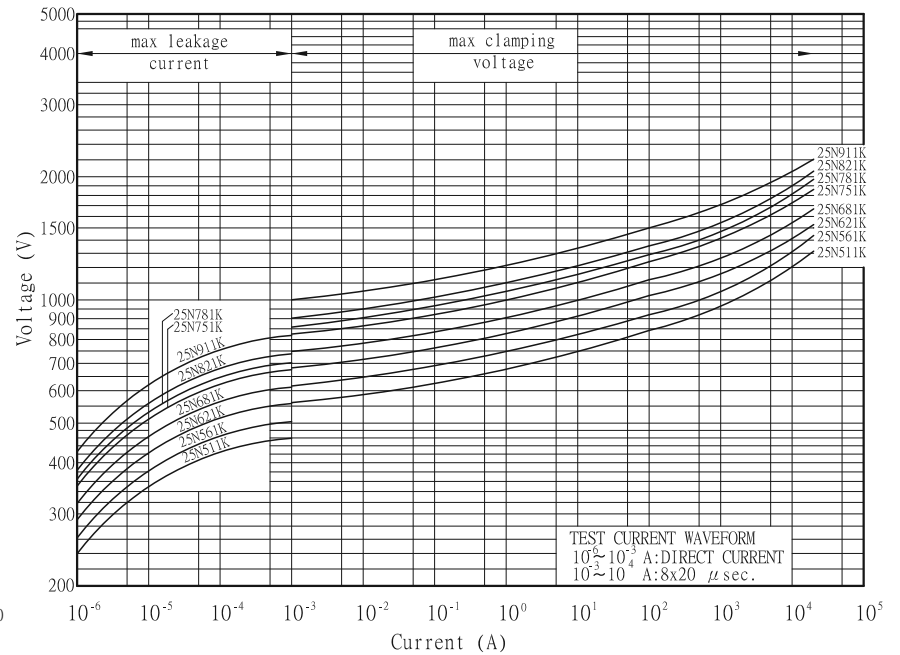
25N 201K~25N 471K



25N 511K~25N 911K



25N 511K~25N 911K



## JOYIN CO., LTD

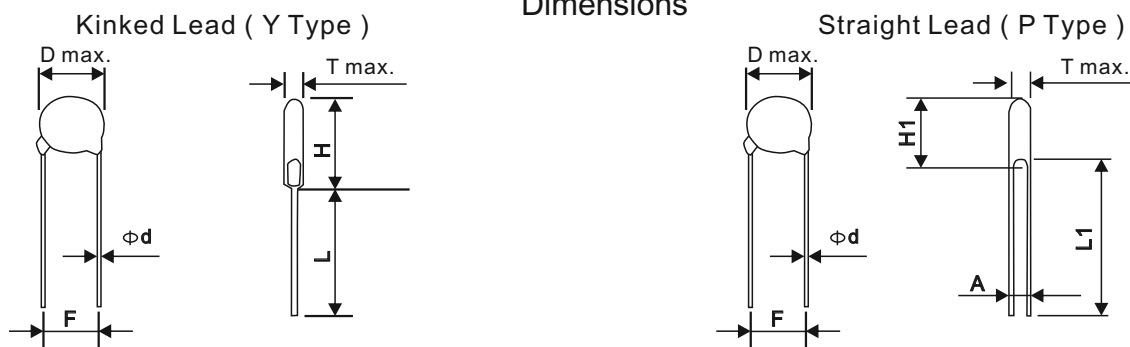
## Metal Oxide Varistor

## ■ Reliability-JVT

| Reliability                       |                        |                                                                                                                                                                                                                                       |                                                             |                  |
|-----------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|------------------|
| Test description                  | Standard               | Test condition                                                                                                                                                                                                                        | Test requirement                                            |                  |
| Tensile Strength of Terminals     | IEC60068-2-21          | After gradually applying the load specified below and keeping the unit fixed for 10±1 seconds.                                                                                                                                        | No visible damage<br>△Vb%≤±5%                               |                  |
|                                   |                        | Terminal diameter (mm)                                                                                                                                                                                                                |                                                             | Force (Kg)       |
|                                   |                        | 0.5<d≤0.8                                                                                                                                                                                                                             |                                                             | 1.0              |
|                                   |                        | 0.8<d≤1.25                                                                                                                                                                                                                            |                                                             | 2.0              |
| Bending Strength of Terminals     | IEC60068-2-21          | Hold specimen and apply the force specified below to each lead. Bend the specimen to 90°,then return to the original position. Repeat the procedure in the opposite direction.                                                        | No visible damage<br>△Vb%≤±5%                               |                  |
|                                   |                        | Terminal diameter (mm)                                                                                                                                                                                                                |                                                             | Force (Kg)       |
|                                   |                        | 0.5<d≤0.8                                                                                                                                                                                                                             |                                                             | 0.5              |
|                                   |                        | 0.8<d≤1.25                                                                                                                                                                                                                            |                                                             | 1.0              |
| Vibration                         | IEC60068-2-6           | Frequency range : 10Hz~55Hz<br>Amplitude : 0.75mm or 98 m/s <sup>2</sup><br>Direction : 3 mutually perpendicular directions,2hrs each.                                                                                                | No visible damage<br>△Vb%≤±5%                               |                  |
| Solderability                     | IEC60068-2-20          | Bath temperature : 245±3℃<br>Immersion time : 3±0.3 sec                                                                                                                                                                               | At least 95% of terminal electrode is covered by new solder |                  |
| Resistance to soldering heat      | IEC60068-2-20          | Bath temperature : 260±3℃<br>Immersion time : 10±1 sec (5N series 5±0.5s)                                                                                                                                                             | No visible damage<br>△Vb(1mA)≤±5%                           |                  |
| Voltage Proof                     | IEC61051-1             | The specified voltage is applied between both terminals of the component connected together for 1 minute .                                                                                                                            | No visible damage                                           |                  |
|                                   |                        | 1000Vrms(AC)                                                                                                                                                                                                                          |                                                             | Test Voltage(AC) |
| Rapid change of temperature       | IEC60068-2-14          | Temperature cycle shall be repeated 5 cycles<br>1.-40±3℃                      keeping 30±3min<br>2.Room temperature        keeping 5±3min<br>3.125±2℃                     keeping 30±3min<br>4.Room temperature        keeping 5±3min | No visible damage<br>△Vb%≤±5%                               |                  |
| Damp Heat, Steady State           | IEC60068-2-78          | Temperature 40±2℃ R.H.90~95% and the maximum Allowable voltage for 1000±24 hours                                                                                                                                                      | No visible damage<br>△Vb%≤±5%                               |                  |
|                                   |                        | Temperature 40±2℃ R.H.90~95% for 1000±24 hours                                                                                                                                                                                        | No visible damage<br>△Vb%≤±5%                               |                  |
| High temperature load             | MIL-STD-202 Method 108 | After being continuously applied the max allowable voltage at 125±5℃ for 1000±24 hours                                                                                                                                                | No visible damage<br>△Vb%≤±5%                               |                  |
| High temperature storage          | IEC60068-2-2           | 125±3℃ for 1000±24 hours                                                                                                                                                                                                              | No visible damage<br>△Vb%≤±5%                               |                  |
| Low temperature storage           | IEC60068-2-1           | -40±2℃ for 1000±24 hours                                                                                                                                                                                                              | No visible damage<br>△Vb%≤±5%                               |                  |
| Varistor Voltage Temp.Coefficient | Specification Standard | Measure V1mA at -40℃ 、25℃ 、125℃                                                                                                                                                                                                       | -0.05≤TC≤0.05(%/℃)                                          |                  |
| 8/20μs Surge Life                 | IEC61051-1             | 8/20μs waveform,10 surge current,unipolar,interval 30 secs, amplitude corresponding to max. surge current derating curves for 20μs.                                                                                                   | No visible damage<br>△Vb%≤±10%                              |                  |
| 10/1000μs Surge Life              | IEC61051-1             | 10/1000μs waveform,10 surge current,unipolar,interval 2 mins, amplitude corresponding to max. surge current derating curves for 1000μs.                                                                                               | No visible damage<br>△Vb%≤±10%                              |                  |



## Dimensions



Dimensions Table

unit : mm

| Diameter | 5mm  | 7mm  | 10mm   | 14mm   | 20mm   | 25mm |
|----------|------|------|--------|--------|--------|------|
| D max.   | 7.5  | 9.0  | 12.5   | 16.5   | 23     | 29   |
| d ± 0.05 | 0.6  | 0.6  | 0.8    | 0.8    | 1.0    | 1.0  |
| F ± 1.0  | 5.0  | 5.0  | 7.5    | 7.5    | 10.0   | 10.0 |
| H max.   | 11.0 | 13.0 | 18/*19 | 22/*23 | 28/*29 | 36   |
| L1 min.  | 25.0 | 25.0 | 25.0   | 25.0   | 25.0   | 25.0 |
| L min.   | 24.0 | 24.0 | 24.0   | 24.0   | 24.0   | 20.0 |

\*Just for 182K

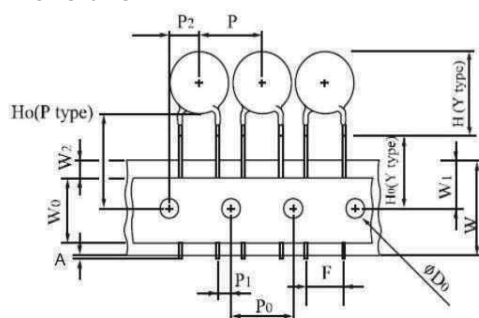
Table of T max., A &amp; H1 max.

unit : mm

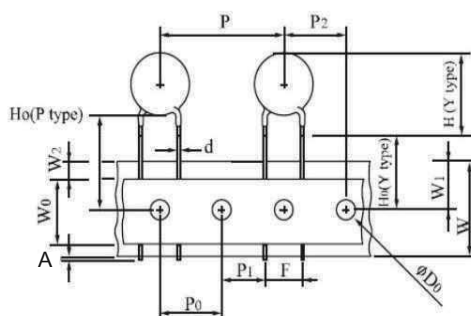
| Diameter | 5mm    |         |         | 7mm    |         |         | 10mm   |         |         | 14mm   |         |         | 20mm   |         |         | 25mm   |         |         |
|----------|--------|---------|---------|--------|---------|---------|--------|---------|---------|--------|---------|---------|--------|---------|---------|--------|---------|---------|
| TypeNo.  | T max. | A ± 0.8 | H1 max. | T max. | A ± 0.8 | H1 max. | T max. | A ± 0.8 | H1 max. | T max. | A ± 0.8 | H1 max. | T max. | A ± 0.8 | H1 max. | T max. | A ± 0.8 | H1 max. |
| 180M     | 4.5    | 0.8     | 10.5    | 4.5    | 0.8     | 12.0    | 4.9    | 0.8     | 15.5    | 5.0    | 0.9     | 19.5    | /      | /       | /       | /      | /       | /       |
| 220M/L   | 4.5    | 0.9     | 10.5    | 4.5    | 0.9     | 12.0    | 4.9    | 0.9     | 15.5    | 5.0    | 1.0     | 19.5    | 5.3    | 1.0     | 26.5    | /      | /       | /       |
| 270M/K   | 4.7    | 0.9     | 10.5    | 4.7    | 0.9     | 12.0    | 5.1    | 0.9     | 15.5    | 5.2    | 1.1     | 19.5    | 5.4    | 1.1     | 26.5    | /      | /       | /       |
| 330M/K   | 4.7    | 1.0     | 10.5    | 4.7    | 1.0     | 12.0    | 5.1    | 1.0     | 15.5    | 5.2    | 1.2     | 19.5    | 5.4    | 1.2     | 26.5    | /      | /       | /       |
| 390L/K   | 4.7    | 1.2     | 10.5    | 4.7    | 1.2     | 12.0    | 5.1    | 1.2     | 15.5    | 5.2    | 1.4     | 19.5    | 5.4    | 1.4     | 26.5    | /      | /       | /       |
| 470L/K   | 5.0    | 1.2     | 10.5    | 5.0    | 1.2     | 12.0    | 5.5    | 1.2     | 15.5    | 5.6    | 1.4     | 19.5    | 5.6    | 1.4     | 26.5    | /      | /       | /       |
| 560L/K   | 5.0    | 1.4     | 10.5    | 5.0    | 1.4     | 12.0    | 5.5    | 1.4     | 15.5    | 5.6    | 1.6     | 19.5    | 5.6    | 1.6     | 26.5    | /      | /       | /       |
| 680L/K   | 5.5    | 1.7     | 10.5    | 5.5    | 1.7     | 12.0    | 6.0    | 1.7     | 15.5    | 6.1    | 1.9     | 19.5    | 6.1    | 1.9     | 26.5    | /      | /       | /       |
| 820K     | 3.8    | 0.8     | 10.5    | 3.8    | 0.8     | 12.0    | 4.3    | 0.8     | 15.5    | 4.4    | 1.0     | 19.5    | 5.0    | 1.1     | 26.5    | /      | /       | /       |
| 101K     | 3.9    | 0.8     | 10.5    | 3.9    | 0.8     | 12.0    | 4.4    | 0.8     | 15.5    | 4.5    | 1.0     | 19.5    | 5.1    | 1.2     | 26.5    | /      | /       | /       |
| 121K     | 4.1    | 0.9     | 10.5    | 4.1    | 0.9     | 12.0    | 4.5    | 0.9     | 15.5    | 4.6    | 1.1     | 19.5    | 5.3    | 1.3     | 26.5    | /      | /       | /       |
| 151K     | 4.5    | 1.2     | 10.5    | 4.5    | 1.2     | 12.0    | 4.9    | 1.2     | 15.5    | 5.1    | 1.4     | 19.5    | 5.6    | 1.6     | 26.5    | /      | /       | /       |
| 181K     | 4.1    | 1.0     | 10.5    | 4.1    | 1.0     | 12.0    | 4.5    | 1.0     | 15.5    | 4.7    | 1.2     | 19.5    | 5.2    | 1.4     | 26.5    | /      | /       | /       |
| 201K     | 4.2    | 1.0     | 10.5    | 4.2    | 1.0     | 12.0    | 4.6    | 1.0     | 15.5    | 4.8    | 1.2     | 19.5    | 5.3    | 1.4     | 26.5    | 5.6    | 2.5     | 35      |
| 221K     | 4.3    | 1.1     | 10.5    | 4.3    | 1.1     | 12.0    | 4.7    | 1.1     | 15.5    | 4.9    | 1.3     | 19.5    | 5.4    | 1.5     | 26.5    | 5.8    | 2.6     | 35      |
| 241K     | 4.4    | 1.1     | 10.5    | 4.4    | 1.3     | 12.0    | 4.8    | 1.3     | 15.5    | 5.0    | 1.5     | 19.5    | 5.5    | 1.7     | 26.5    | 6.0    | 2.8     | 35      |
| 271K     | 4.6    | 1.3     | 10.5    | 4.6    | 1.4     | 12.0    | 5.0    | 1.4     | 15.5    | 5.2    | 1.5     | 19.5    | 5.7    | 1.9     | 26.5    | 6.2    | 3.0     | 35      |
| 301K     | 4.8    | 1.3     | 10.5    | 4.8    | 1.5     | 12.0    | 5.2    | 1.6     | 15.5    | 5.4    | 1.7     | 19.5    | 5.9    | 2.1     | 26.5    | 6.6    | 3.2     | 35      |
| 331K     | 4.9    | 1.3     | 10.5    | 4.9    | 1.5     | 12.0    | 5.3    | 1.6     | 15.5    | 5.5    | 1.7     | 19.5    | 6.0    | 2.1     | 26.5    | 6.8    | 3.4     | 35      |
| 361K     | 5.1    | 1.8     | 10.5    | 5.1    | 1.9     | 12.0    | 5.5    | 1.9     | 15.5    | 5.7    | 2.1     | 19.5    | 6.2    | 2.3     | 26.5    | 7.0    | 3.6     | 35      |
| 391K     | 5.3    | 2.0     | 11.0    | 5.3    | 2.0     | 12.5    | 5.7    | 2.2     | 16.0    | 5.9    | 2.2     | 20.0    | 6.4    | 2.4     | 26.5    | 7.3    | 3.9     | 35      |
| 431K     | 6.1    | 2.1     | 11.0    | 6.1    | 2.0     | 12.5    | 6.5    | 2.5     | 16.0    | 6.7    | 2.5     | 20.0    | 7.2    | 2.7     | 26.5    | 7.5    | 3.3     | 35      |
| 471K     | 6.4    | 2.2     | 11.0    | 6.4    | 2.3     | 12.5    | 6.8    | 2.6     | 16.0    | 7.0    | 2.7     | 20.0    | 7.5    | 2.9     | 27.0    | 8.1    | 3.5     | 35      |
| 511K     | 6.6    | 2.5     | 11.5    | 6.6    | 2.5     | 13.0    | 7.0    | 3.1     | 16.5    | 7.2    | 3.1     | 20.5    | 7.7    | 3.3     | 27.0    | 8.3    | 3.8     | 35      |
| 561K     | 6.9    | 2.8     | 11.5    | 6.9    | 2.8     | 13.0    | 7.3    | 3.4     | 16.5    | 7.5    | 3.4     | 20.5    | 8.0    | 3.6     | 27.0    | 8.6    | 4.0     | 35      |
| 621K     | 7.2    | 3.1     | 11.5    | 7.2    | 3.1     | 13.0    | 7.6    | 4.0     | 16.5    | 7.8    | 3.8     | 20.5    | 8.3    | 4.1     | 27.0    | 8.9    | 4.4     | 35      |
| 681K     | 7.5    | 3.4     | 11.5    | 7.5    | 3.4     | 13.0    | 8.0    | 4.4     | 16.5    | 8.2    | 4.1     | 20.5    | 8.7    | 4.4     | 27.0    | 9.3    | 4.7     | 35      |
| 751K     | 7.9    | 3.7     | 11.5    | 7.9    | 3.7     | 13.0    | 8.4    | 4.4     | 16.5    | 8.6    | 4.3     | 20.5    | 9.1    | 4.5     | 27.0    | 9.7    | 5.0     | 35      |
| 781K     | /      | /       | /       | 8.1    | 3.9     | 13.0    | 8.6    | 4.6     | 16.5    | 8.8    | 4.6     | 20.5    | 9.3    | 4.8     | 27.0    | 9.9    | 5.2     | 35      |
| 821K     | /      | /       | /       | 8.3    | 4.1     | 13.0    | 8.8    | 4.6     | 16.5    | 9.0    | 4.6     | 20.5    | 9.5    | 4.8     | 27.0    | 10.3   | 5.4     | 35      |
| 911K     | /      | /       | /       | /      | /       | /       | 9.4    | 5.4     | 16.5    | 9.6    | 5.4     | 20.5    | 10.1   | 5.7     | 27.0    | 11.2   | 5.9     | 35      |
| 102K     | /      | /       | /       | /      | /       | /       | 9.9    | 5.4     | 16.5    | 10.1   | 5.6     | 20.5    | 10.7   | 5.8     | 27.0    | /      | /       | /       |
| 112K     | /      | /       | /       | /      | /       | /       | 10.5   | 5.7     | 16.5    | 10.7   | 6.1     | 20.5    | 11.2   | 6.3     | 27.0    | /      | /       | /       |
| 122K     | /      | /       | /       | /      | /       | /       | 10.9   | 6.3     | 17.0    | 10.9   | 6.7     | 21.0    | 11.3   | 6.9     | 27.5    | /      | /       | /       |
| 142K     | /      | /       | /       | /      | /       | /       | 11.9   | 7.4     | 17.5    | 11.9   | 7.8     | 21.5    | 12.8   | 8.0     | 28.0    | /      | /       | /       |
| 162K     | /      | /       | /       | /      | /       | /       | 13.1   | 8.6     | 18.0    | 13.1   | 9.0     | 22.0    | 13.7   | 9.2     | 28.5    | /      | /       | /       |
| 182K     | /      | /       | /       | /      | /       | /       | 14.3   | 9.8     | 18.5    | 14.3   | 10.2    | 22.5    | 14.7   | 10.4    | 29.0    | /      | /       | /       |

## Tape and Reel Dimensions

1/2" pitch



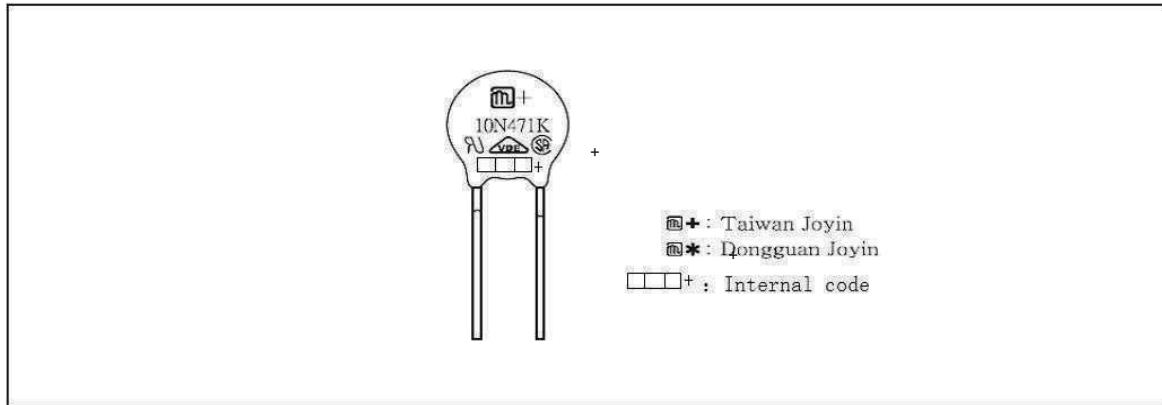
1.0" pitch



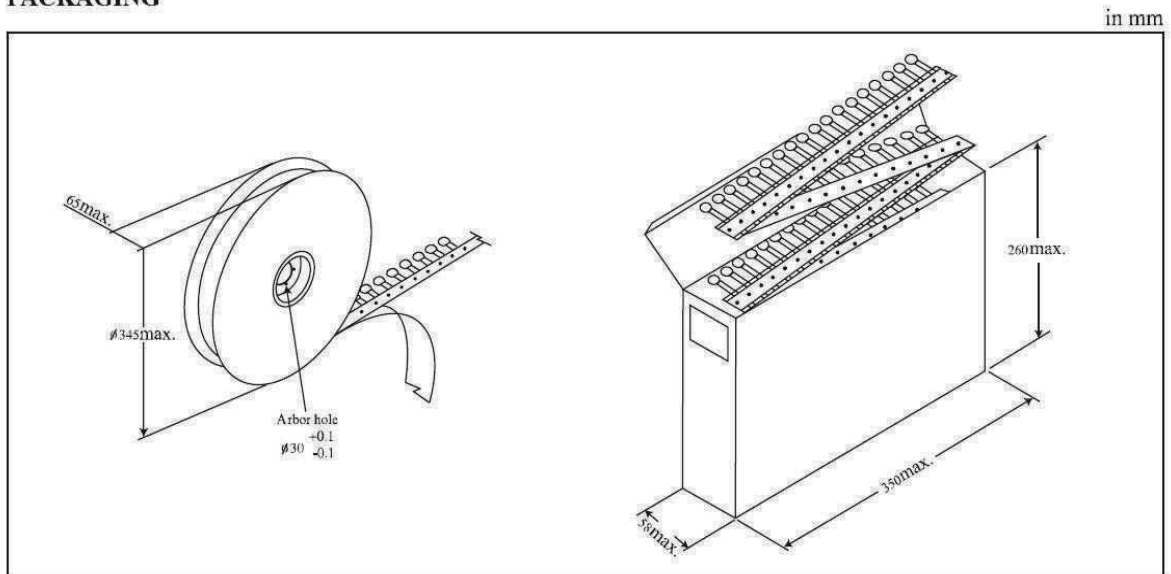
| Symbols    | Item                                   | 5/ 7 mm                                   | 10/ 14 mm                                 | 20 mm         |
|------------|----------------------------------------|-------------------------------------------|-------------------------------------------|---------------|
| A          | Cut out length                         | 1.1 mm max.                               | 1.1 mm max.                               |               |
| H (Y type) | Height of Top                          | See H max. table                          |                                           |               |
| H0(Y type) | Height to seating plane                | 16.0± 0.5 mm (* ±1.0 mm)                  | 16.0± 0.5mm(* ±1.0 mm)                    |               |
| H0(P type) | Height of component from hole center   | 16.0 ~ 21.0 mm                            | 16.0~ 21.0 mm                             |               |
| △h         | Front to back deviation                | 0 ± 2.0 mm                                | 0 ± 2.0 mm                                |               |
| W          | Carrier tape width                     | 18 <sup>+1.0</sup> <sub>- 0.5</sub> mm    | 18 <sup>+1.0</sup> <sub>- 0.5</sub> mm    |               |
| W0         | Hold down tape width                   | 10.0 mm                                   | 12.0 mm                                   |               |
| W1         | Sprocket hole position                 | 9.0 <sup>+ 0.75</sup> <sub>- 0.5</sub> mm | 9.0 <sup>+ 0.75</sup> <sub>- 0.5</sub> mm |               |
| W2         | Adhesive tape position                 | 3.0 mm max.                               | 3.0 mm max.                               |               |
| F          | Component lead spacing                 | 5.0±1.0 mm                                | 7.5 ± 1.0 mm                              | 10.0 ± 1.0 mm |
| P          | Pitch of component                     | 12.7 ± 1.0 mm                             | 25.4 ± 1.0 mm                             |               |
| P0         | Sprocket hole pitch                    | 12.7 ± 0.3 mm                             | 12.7 ± 0.3 mm                             |               |
| P1         | Lead length from hole center to lead   | 3.85 ± 0.7 mm                             | 8.95 ± 0.7 mm                             | 7.7± 0.7 mm   |
| P2         | Length from hole center to disk center | 6.35 ± 1.3 mm                             | 12.7 ± 1.3 mm                             |               |
| D0         | Sprocket hole diameter                 | 4.0 ± 0.2 mm                              | 4.0 ± 0.2 mm                              |               |
| d          | Lead wire diameter                     | 0.6 ± 0.05 mm                             | 0.8 ± 0.05 mm                             | 1.0 ± 0.05 mm |
| T          | Disk thickness                         | See Tmax. table                           | See T max. table                          |               |
| t1         | Total thickness tape                   | 0.7 ± 0.05 mm                             | 0.7 ± 0.05 mm                             |               |
| t2         | Total thickness                        | 1.6 mm max.                               | 1.8 mm max.                               |               |

## Marking & packaging

### MARKING



### PACKAGING



### Quantity per Packing Unit

in Pcs

| Series<br>Part No. | 5 mm       |      |      | 7 mm       |      |      | 10 mm      |      |      | 14 mm      |      |      | 20 mm      |      |      | 25mm       |
|--------------------|------------|------|------|------------|------|------|------------|------|------|------------|------|------|------------|------|------|------------|
|                    | Bulk (Box) | Reel | Ammo | Bulk (Box) | Reel | Ammo | Bulk (Box) | Reel | Ammo | Bulk (Box) | Reel | Ammo | Bulk (Box) | Reel | Ammo | Bulk (Box) |
| 180M ~ 470K        | 5000       | 1500 | 1500 | 5000       | 1500 | 1500 | 2500       | 1000 | 500  | 1500       | 750  | 500  | 750        | 500  | 500  | -          |
| 560K ~ 680K        | 5000       | 1500 | 1000 | 5000       | 1500 | 1000 | 2500       | 1000 | 500  | 1500       | 750  | 500  | 750        | 500  | 500  | -          |
| 820K ~ 391K        | 5000       | 1500 | 1500 | 5000       | 1500 | 1500 | 2500       | 1000 | 500  | 1500       | 750  | 500  | 750        | 500  | 500  | 750        |
| 431K ~ 471K        | 5000       | 1500 | 1000 | 5000       | 1000 | 1000 | 2000       | 750  | 500  | 1500       | 750  | 500  | 750        | 500  | 500  | 750        |
| 511K ~ 821K        | 4000       | 1000 | 1000 | 4000       | 1000 | 1000 | 1500       | 500  | 500  | 750        | 500  | 500  | 450        | 500  | 500  | 450        |
| 911K ~ 122K        | -          | -    | -    | -          | -    | -    | 1500       | 500  | 350  | 750        | 500  | 350  | 450        | -    | -    | 450        |
| 142K ~ 182K        | -          | -    | -    | -          | -    | -    | 750        | -    | -    | 450        | -    | -    | 300        | -    | -    | -          |

| Packaging        | Bulk (Box)  | Reel               | Reel (14 mm, 20mm) | Ammo (5 mm, 7mm) | Ammo (10 mm, 14 mm) | Ammo (20 mm) |
|------------------|-------------|--------------------|--------------------|------------------|---------------------|--------------|
| Box size (mm)    | 290×155×110 | 350×350×105        | 346×346×72         | 335×245×43       | 347×246×50          | 348×255×60   |
| Carton size (mm) | 328×310×250 | 370×370×590        | 370×370×468        | 515×354×258      | 515×364×246         | 535×365×275  |
| One carton with  | 4 Boxes     | 5 Boxes (10 reels) | 6 Boxes (6 reels)  | 10 Boxes         | 8 Boxes             | 8 Boxes      |

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[VZ20E511KBSX](#) [VZ10D471KBS-N](#) [20A9FN241K](#) [B72205S350K211](#) [B72650M151K93](#) [B72650M350K72](#) [TVZ25DN271KBS](#)  
[TVZ25D301KBS](#) [TVZ20EC911KBS](#) [TVZ20EBN911KBS](#) [TVZ18EC471KBS](#) [B72220S350K101](#) [VZ20D391KBS-N](#) [VZ10D241KBS-N](#)  
[VZ07D390KBS-N](#) [B72540E170K62](#) [TNR9G431KT31](#) [Z62000Z2310Z14](#) [Z62000Z2310Z18](#) [Z62000Z2310Z11](#) [Z62000Z2310Z16](#)  
[Z62000Z2310Z12](#) [Z62000Z2310Z13](#) [Z62000Z2310Z17](#) [3225D561KJ](#) [FNR05K820TFTN1NN](#) [SR390K07DS20C5DEN](#) [102KD20-\(YWT\)8](#)  
[681KD10-C3.5Z2](#) [271KD05-C3Z2](#) [561KD10-P7.5Z2C3.5Z2](#) [561KD14J-ZC3.5Z2HJ](#) [751KD20-P7.5](#) [511KD14J-\(KS\)](#) [621KD20-\(YWT\)6](#)