

## Metal Oxide Varistors (MOV) Data Sheet

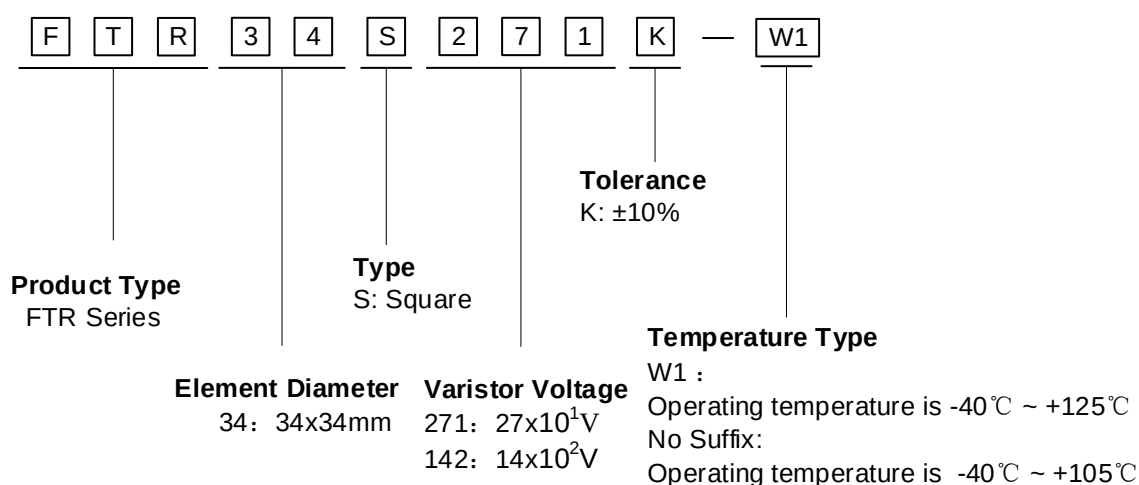
### Features

- Fast responding to transient over-voltage
- Large absorbing transient energy capability
- Low clamping ratio and no follow-on current
- Meets MSL level 1, per J-STD-020
- Operating Temperature:  $-40^{\circ}\text{C} \sim +105^{\circ}\text{C}$  &  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$
- Storage Temperature:  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$
- Agency recognition: UL 1449 4th /cUL/CQC

### Applications

- Power supply, Telecommunication, Smart meter, or PLC protection
- Surge protection in consumer electronics
- Surge protection in industrial electronics
- Surge protection in electronic home appliances, gas and petroleum appliances
- Relay and electromagnetic valve surge absorption

### Part Number Code

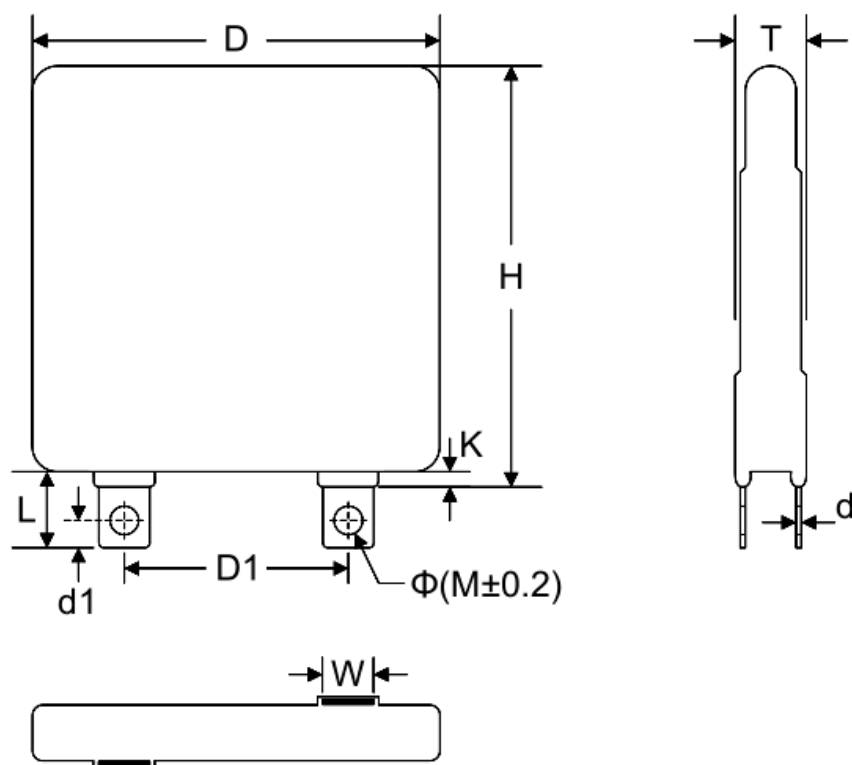


## Electrical Characteristics

| Part Number | Maximum Allowable Voltage |                     | Varistor Voltage     | Maximum Clamping Voltage |                    | Withstanding Surge current | Maximum Energy (10/1000 $\mu$ s) | Dimension Tmax |
|-------------|---------------------------|---------------------|----------------------|--------------------------|--------------------|----------------------------|----------------------------------|----------------|
|             | V <sub>AC</sub> (V)       | V <sub>DC</sub> (V) | V <sub>1mA</sub> (V) | I <sub>P</sub> (A)       | V <sub>C</sub> (V) | (A)                        | (J)                              | (mm)           |
| FTR34S181K  | 115                       | 150                 | 180(162~198)         | 300                      | 300                | 40000                      | 350                              | 6.3            |
| FTR34S201K  | 130                       | 170                 | 200(180~220)         | 300                      | 340                | 40000                      | 330                              | 6.2            |
| FTR34S221K  | 140                       | 180                 | 220(198~242)         | 300                      | 360                | 40000                      | 360                              | 6.3            |
| FTR34S241K  | 150                       | 200                 | 240(216~264)         | 300                      | 395                | 40000                      | 390                              | 6.4            |
| FTR34S271K  | 175                       | 225                 | 270(243~297)         | 300                      | 455                | 40000                      | 420                              | 6.6            |
| FTR34S301K  | 190                       | 250                 | 300(270~330)         | 300                      | 500                | 40000                      | 460                              | 6.8            |
| FTR34S331K  | 210                       | 275                 | 330(297~363)         | 300                      | 550                | 40000                      | 500                              | 6.9            |
| FTR34S361K  | 230                       | 300                 | 360(324~396)         | 300                      | 595                | 40000                      | 510                              | 7.1            |
| FTR34S391K  | 250                       | 320                 | 390(351~429)         | 300                      | 650                | 40000                      | 530                              | 7.3            |
| FTR34S431K  | 275                       | 350                 | 430(387~473)         | 300                      | 710                | 40000                      | 600                              | 7.5            |
| FTR34S471K  | 300                       | 385                 | 470(423~517)         | 300                      | 775                | 40000                      | 650                              | 7.8            |
| FTR34S511K  | 320                       | 415                 | 510(459~561)         | 300                      | 845                | 40000                      | 700                              | 8.0            |
| FTR34S561K  | 350                       | 460                 | 560(504~616)         | 300                      | 925                | 40000                      | 730                              | 8.3            |
| FTR34S621K  | 385                       | 505                 | 620(558~682)         | 300                      | 1025               | 40000                      | 780                              | 8.7            |
| FTR34S681K  | 420                       | 560                 | 680(612~718)         | 300                      | 1120               | 40000                      | 810                              | 9.0            |
| FTR34S751K  | 460                       | 615                 | 750(675~825)         | 300                      | 1240               | 40000                      | 850                              | 9.4            |
| FTR34S781K  | 485                       | 640                 | 780(702~858)         | 300                      | 1290               | 40000                      | 930                              | 9.6            |
| FTR34S821K  | 510                       | 670                 | 820(738~902)         | 300                      | 1355               | 40000                      | 970                              | 9.8            |
| FTR34S911K  | 550                       | 745                 | 910(819~1001)        | 300                      | 1500               | 40000                      | 1050                             | 10.4           |
| FTR34S102K  | 625                       | 825                 | 1000(900~1100)       | 300                      | 1650               | 40000                      | 1120                             | 11.2           |
| FTR34S112K  | 680                       | 895                 | 1100(990~1210)       | 300                      | 1815               | 40000                      | 1250                             | 11.8           |
| FTR34S122K  | 750                       | 990                 | 1200(1080~1320)      | 300                      | 1980               | 40000                      | 1340                             | 12.3           |
| FTR34S142K  | 880                       | 1140                | 1400(1260~1540)      | 300                      | 2310               | 40000                      | 1400                             | 13.3           |
| FTR34S162K  | 1000                      | 1280                | 1600(1440~1760)      | 300                      | 2640               | 40000                      | 1500                             | 14.3           |

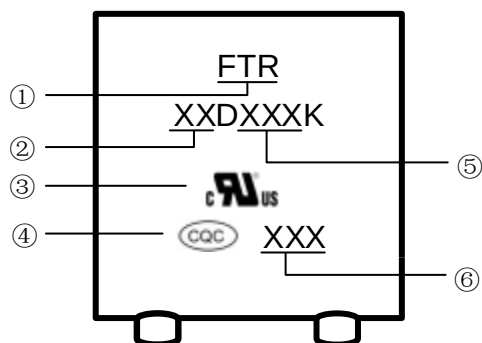
Notes: 1. Leakage Current (@83% of V<sub>1mA</sub>):  $I_R \leq 25\mu A$  (181K~162K)

### Dimensions



| Symbol            | H<br>(max.) | D<br>(max.) | D1<br>( $\pm 1$ ) | L<br>(min.) | K<br>(max.) | W<br>( $\pm 0.5$ ) | d<br>( $\pm 0.25$ ) | d1<br>( $\pm 0.25$ ) | $\Phi M$<br>( $\pm 0.2$ ) | Tmax                                                          |
|-------------------|-------------|-------------|-------------------|-------------|-------------|--------------------|---------------------|----------------------|---------------------------|---------------------------------------------------------------|
| Dimension<br>(mm) | 40          | 38          | 25.4              | 14.5        | 3.2         | 7                  | 0.5                 | 3.7                  | 3.2                       | Please refer to<br>the Electrical<br>Characteristics<br>Table |

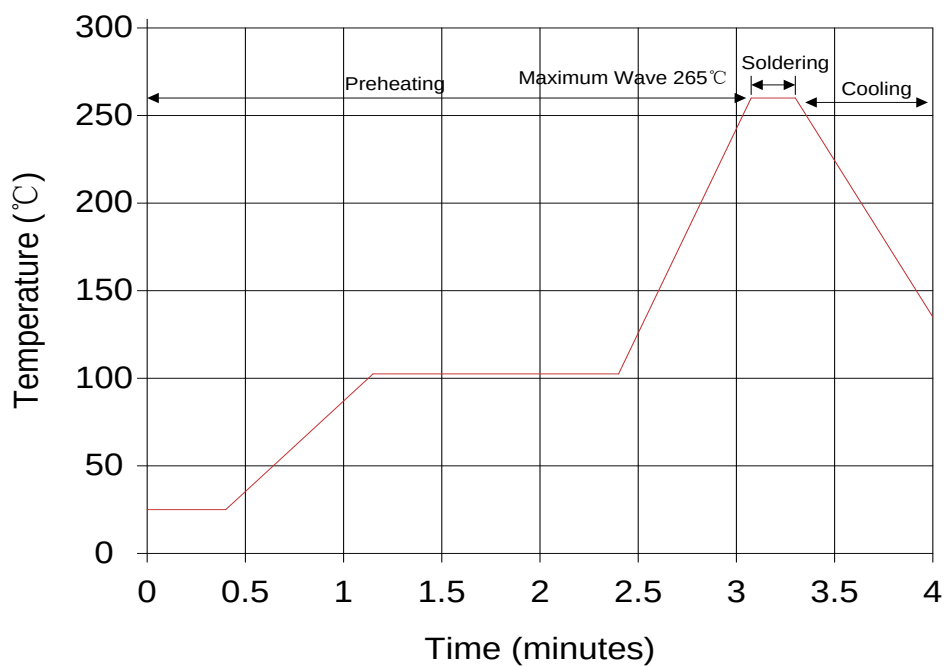
### Marking Code



- ① QG Logo
- ② Disk Size
- ③ UL Accreditation Logo
- ④ CQC Accreditation Logo
- ⑤ Varistor Voltage
- ⑥ Date Code

## Soldering Recommendation

## Wave Lead Free Soldering Recommendation



| Item             | Conditions       |
|------------------|------------------|
| Peak Temperature | 265°C            |
| Dipping Time     | 10 seconds(max.) |
| Soldering        | 1 time           |

## Recommendation Reworking Conditions with Soldering Iron

| Item                              | Conditions      |
|-----------------------------------|-----------------|
| Temperature of Soldering Iron-tip | 360°C (max.)    |
| Soldering Time                    | 3 seconds(max.) |
| Distance from Varistor            | 2mm (min.)      |

## Quantity

| Packaging Dimensions (Unit: mm) | Quantity                 |
|---------------------------------|--------------------------|
| bulk<br>                        | 60pcs/box<br>(181K~511K) |
|                                 | 32pcs/box<br>(561K~162K) |