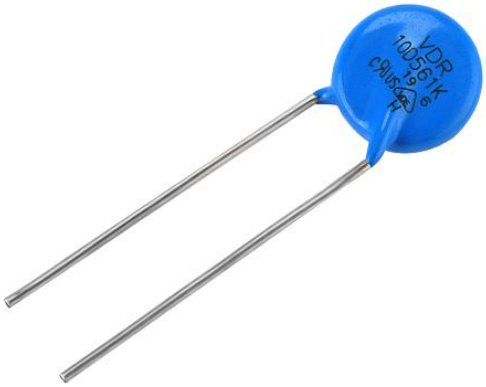
HUAAN 华兴安电子 HUAAN LIMITED

# VDR10D Straight Leads Series

## Metal Oxide Varistors (MOV)

## Features

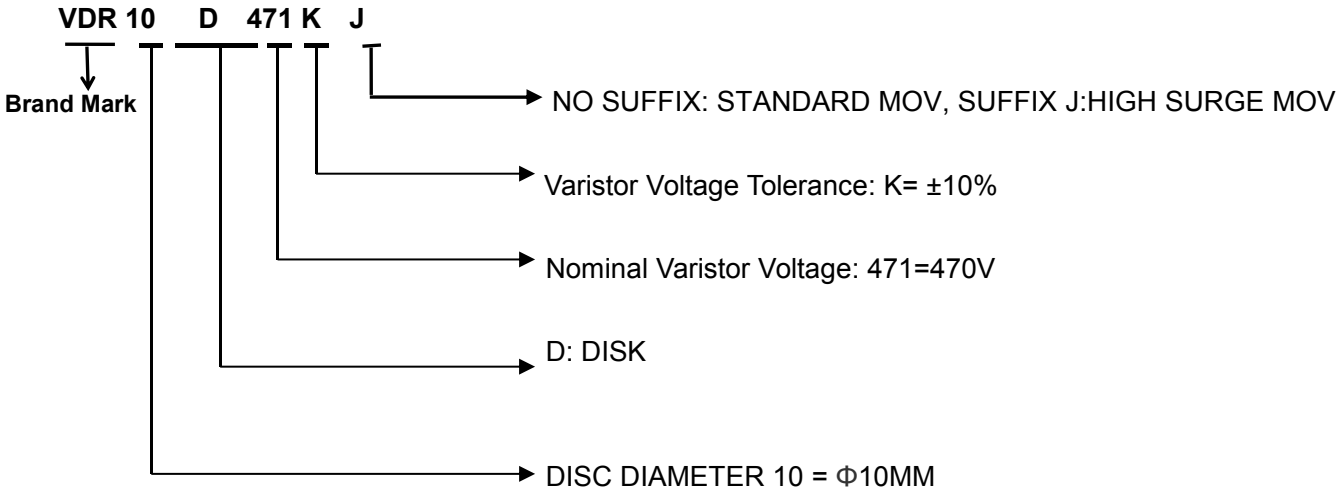
·Wide operating voltage (V1mA) range from 18V to 1100V
·Fast responding to transient over-voltage
·Large absorbing transient energy capability
·Low clamping ratio and no follow-on current
·Meets MSL level 1, per J-STD-020
·Operating Temperature：-40℃ ~ +85℃
·Storage Temperature：-40℃ ~ +125℃
·Safety certification:



## Applications

·Transistor, diode, IC, thyristor or triac semiconductor 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

## Description of Part Number




## Delivery Time

| Standard MOV | Delivery Time | High Surge MOV | Delivery Time |
|---|---|---|---|
| VDR10D180L ~ VDR10D112K | 13days | VDR10D180LJ ~ VDR10D112KJ | 14days |

HUAAN 华兴安电子 HUAAN LIMITED

VDR10D Standard MOV

## Electrical Characteristics

| Part Number | Maximum Allowable Voltage | | Varistor Voltage | Maximum Clamping Voltage | Max Surge Current 8/20μs | Maximum Energy (10/1000μs) | Typical Capacitance (Reference) | Safety Certification | |
|---|---|---|---|---|---|---|---|---|---|
| Standard MOV | $V_{AC}$(V) | $V_{DC}$(V) | $V_{1mA}$(V) | Vc(V) AT 25A | Imax Standard | (J) Standard | 1KHz(pf) | UL / CUL | VDE |
| VDR10D180L | 11 | 14 | 18(15~21.6) | 36 | 500A | 2.1 | 5600 | √ | √ |
| VDR10D220K | 14 | 18 | 22(19.5~26) | 43 | 500A | 2.5 | 4500 | √ | √ |
| VDR10D270K | 17 | 22 | 27(24~30) | 53 | 500A | 3 | 3700 | √ | √ |
| VDR10D330K | 20 | 26 | 33(29.5~36.5) | 66 | 500A | 4 | 3000 | √ | √ |
| VDR10D390K | 25 | 31 | 39(35~43) | 77 | 500A | 4.6 | 2400 | √ | √ |
| VDR10D470K | 30 | 38 | 47(42~54) | 93 | 500A | 5.5 | 2100 | √ | √ |
| VDR10D560K | 35 | 45 | 56(50~62) | 100 | 500A | 7 | 1800 | √ | √ |
| VDR10D680K | 40 | 56 | 68(61~75) | 135 | 500A | 8.2 | 1500 | √ | √ |
| VDR10D820K | 50 | 65 | 82(74~90) | 135 | 2500A | 12 | 1200 | √ | √ |
| VDR10D101K | 60 | 85 | 100(90~110) | 165 | 2500A | 15 | 1000 | √ | √ |
| VDR10D121K | 75 | 100 | 120(108~132) | 200 | 2500A | 18 | 830 | √ | √ |
| VDR10D151K | 95 | 125 | 150(135~165) | 250 | 2500A | 22 | 670 | √ | √ |
| VDR10D181K | 115 | 150 | 180(162~198) | 300 | 2500A | 27 | 560 | √ | √ |
| VDR10D201K | 130 | 170 | 200(180~220) | 340 | 2500A | 30 | 500 | √ | √ |
| VDR10D221K | 140 | 180 | 220(198~242) | 360 | 2500A | 32 | 450 | √ | √ |
| VDR10D241K | 150 | 200 | 240(216~264) | 395 | 2500A | 35 | 420 | √ | √ |
| VDR10D271K | 175 | 225 | 270(243~297) | 455 | 2500A | 40 | 370 | √ | √ |
| VDR10D301K | 190 | 250 | 300(270~330) | 500 | 2500A | 40 | 330 | √ | √ |
| VDR10D331K | 210 | 275 | 330(297~363) | 550 | 2500A | 40 | 300 | √ | √ |
| VDR10D361K | 230 | 300 | 360(324~396) | 595 | 2500A | 43 | 280 | √ | √ |
| VDR10D391K | 250 | 320 | 390(351~429) | 650 | 2500A | 47 | 260 | √ | √ |
| VDR10D431K | 275 | 350 | 430(387~473) | 710 | 2500A | 60 | 230 | √ | √ |
| VDR10D471K | 300 | 385 | 470(423~517) | 775 | 2500A | 65 | 210 | √ | √ |
| VDR10D511K | 320 | 415 | 510(459~561) | 845 | 2500A | 70 | 200 | √ | √ |
| VDR10D561K | 350 | 460 | 560(504~616) | 925 | 2500A | 70 | 180 | √ | √ |
| VDR10D621K | 385 | 505 | 620(558~682) | 1025 | 2500A | 70 | 160 | √ | √ |
| VDR10D681K | 420 | 560 | 680(612~748) | 1120 | 2500A | 70 | 150 | √ | √ |
| VDR10D751K | 460 | 615 | 750(675~825) | 1240 | 2500A | 70 | 130 | √ | √ |
| VDR10D781K | 485 | 640 | 780(702~858) | 1290 | 2500A | 80 | 130 | √ | √ |
| VDR10D821K | 510 | 670 | 820(738~902) | 1355 | 2500A | 85 | 120 | √ | √ |
| VDR10D911K | 550 | 745 | 910(819~1001) | 1500 | 2500A | 93 | 110 | √ | √ |
| VDR10D102K | 625 | 825 | 1000(900~1100) | 1650 | 2500A | 102 | 100 | √ | √ |
| VDR10D112K | 680 | 895 | 1100(990~1210) | 1815 | 2500A | 115 | 90 | √ | √ |

HUAAN 华兴安电子 HUAAN LIMITED

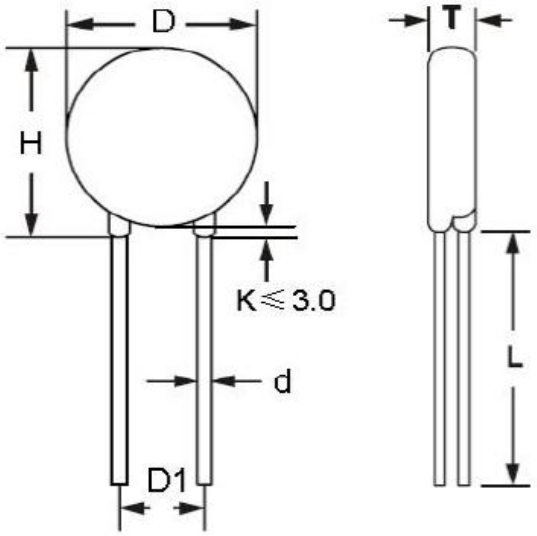
VDR10D High Surge MOV

## Electrical Characteristics

| Part Number | Maximum Allowable Voltage | | Varistor Voltage | Maximum Clamping Voltage | Max Surge Current 8/20μs | Maximum Energy (10/1000μs) | Typical Capacitance (Reference) | Safety Certification | |
|---|---|---|---|---|---|---|---|---|---|
| High Surge MOV | $V_{AC}$(V) | $V_{DC}$(V) | $V_{1mA}$(V) | Vc(V) AT 25A | Imax High Surge | (J) High Surge | 1KHz(pf) | UL / CUL | VDE |
| VDR10D180LJ | 11 | 14 | 18(15~21.6) | 36 | 1000A | 3.0 | 5600 | - | - |
| VDR10D220KJ | 14 | 18 | 22(19.5~26) | 43 | 1000A | 5.0 | 4500 | - | - |
| VDR10D270KJ | 17 | 22 | 27(24~30) | 53 | 1000A | 6.0 | 3700 | - | - |
| VDR10D330KJ | 20 | 26 | 33(29.5~36.5) | 66 | 1000A | 7.0 | 3000 | - | - |
| VDR10D390KJ | 25 | 31 | 39(35~43) | 77 | 1000A | 9.0 | 2400 | - | - |
| VDR10D470KJ | 30 | 38 | 47(42~54) | 93 | 1000A | 11.0 | 2100 | - | - |
| VDR10D560KJ | 35 | 45 | 56(50~62) | 100 | 1000A | 13.0 | 1800 | - | - |
| VDR10D680KJ | 40 | 56 | 68(61~75) | 135 | 1000A | 15.0 | 1500 | - | - |
| VDR10D820KJ | 50 | 65 | 82(74~90) | 135 | 3500A | 17.0 | 1200 | - | - |
| VDR10D101KJ | 60 | 85 | 100(90~110) | 165 | 3500A | 18.0 | 1000 | - | - |
| VDR10D121KJ | 75 | 100 | 120(108~132) | 200 | 3500A | 21.0 | 830 | - | - |
| VDR10D151KJ | 95 | 125 | 150(135~165) | 250 | 3500A | 25.0 | 670 | - | - |
| VDR10D181KJ | 115 | 150 | 180(162~198) | 300 | 3500A | 30.0 | 560 | - | - |
| VDR10D201KJ | 130 | 170 | 200(180~220) | 340 | 3500A | 35.0 | 500 | - | - |
| VDR10D221KJ | 140 | 180 | 220(198~242) | 360 | 3500A | 39.0 | 450 | - | - |
| VDR10D241KJ | 150 | 200 | 240(216~264) | 395 | 3500A | 42.0 | 420 | - | - |
| VDR10D271KJ | 175 | 225 | 270(243~297) | 455 | 3500A | 49.0 | 370 | - | - |
| VDR10D301KJ | 190 | 250 | 300(270~330) | 500 | 3500A | 54.0 | 330 | - | - |
| VDR10D331KJ | 210 | 275 | 330(297~363) | 550 | 3500A | 58.0 | 300 | - | - |
| VDR10D361KJ | 230 | 300 | 360(324~396) | 595 | 3500A | 65.0 | 280 | - | - |
| VDR10D391KJ | 250 | 320 | 390(351~429) | 650 | 3500A | 70.0 | 260 | - | - |
| VDR10D431KJ | 275 | 350 | 430(387~473) | 710 | 3500A | 80.0 | 230 | - | - |
| VDR10D471KJ | 300 | 385 | 470(423~517) | 775 | 3500A | 85.0 | 210 | √ | - |
| VDR10D511KJ | 320 | 415 | 510(459~561) | 845 | 3500A | 90.0 | 200 | √ | - |
| VDR10D561KJ | 350 | 460 | 560(504~616) | 925 | 3500A | 92.0 | 180 | √ | - |
| VDR10D621KJ | 385 | 505 | 620(558~682) | 1025 | 3500A | 95.0 | 160 | √ | - |
| VDR10D681KJ | 420 | 560 | 680(612~748) | 1120 | 3500A | 98.0 | 150 | √ | - |
| VDR10D751KJ | 460 | 615 | 750(675~825) | 1240 | 3500A | 100.0 | 130 | - | - |
| VDR10D781KJ | 485 | 640 | 780(702~858) | 1290 | 3500A | 105.0 | 130 | - | - |
| VDR10D821KJ | 510 | 670 | 820(738~902) | 1355 | 3500A | 110.0 | 120 | - | - |
| VDR10D911KJ | 550 | 745 | 910(819~1001) | 1500 | 3500A | 130.0 | 110 | - | - |
| VDR10D102KJ | 625 | 825 | 1000(900~1100) | 1650 | 3500A | 140.0 | 100 | - | - |
| VDR10D112KJ | 680 | 895 | 1100(990~1210) | 1815 | 3500A | 155.0 | 90 | - | - |

# VDR10D Straight Leads Series

## Dimension(mm)



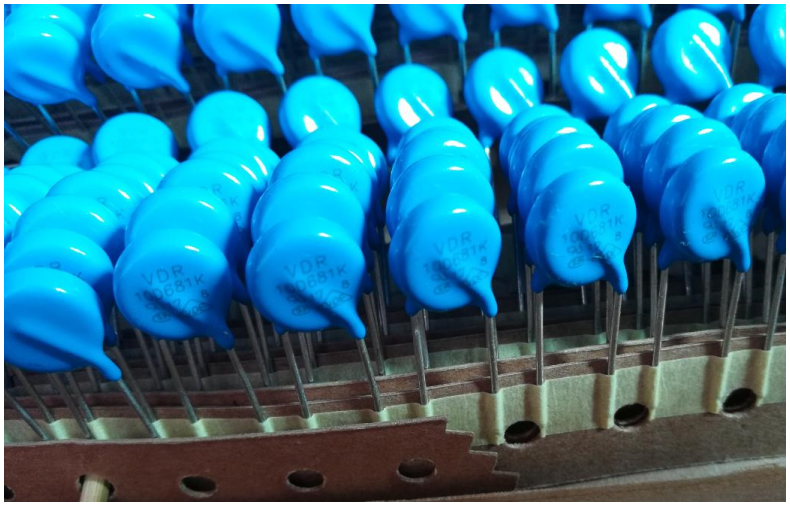

| TABLE1 | | TABLE2 | | | |
|---|---|---|---|---|---|
| Symbol | Dimensions | Part number | T(±1.0mm) | Part number | T(±1.0mm) |
| H(Max) | 16.5mm | VDR10D180L | 2.5mm | VDR10D301K | 3.4mm |
| L(Min) | 22.0mm | VDR10D220K | 2.6mm | VDR10D331K | 3.7mm |
| D(Max) | 12.5mm | VDR10D270K | 2.7mm | VDR10D361K | 3.9mm |
| D1(±0.8) | 7.5mm | VDR10D330K | 2.9mm | VDR10D391K | 4.4mm |
| T | TABLE2 | VDR10D390K | 3.2mm | VDR10D431K | 4.4mm |
| d(±0.05) | 0.8mm | VDR10D470K | 3.3mm | VDR10D471K | 4.6mm |
| | | VDR10D560K | 3.4mm | VDR10D511K | 4.7mm |
| | | VDR10D680K | 3.5mm | VDR10D561K | 4.9mm |
| | | VDR10D820K | 2.6mm | VDR10D621K | 5.2mm |
| | | VDR10D101K | 2.8mm | VDR10D681K | 5.5mm |
| | | VDR10D121K | 3.0mm | VDR10D751K | 5.9mm |
| | | VDR10D151K | 3.3mm | VDR10D781K | 6.0mm |
| | | VDR10D181K | 2.7mm | VDR10D821K | 6.2mm |
| | | VDR10D201K | 2.9mm | VDR10D911K | 6.7mm |
| | | VDR10D221K | 3.0mm | VDR10D102K | 7.2mm |
| | | VDR10D241K | 3.1mm | VDR10D112K | 7.8mm |
| | | VDR10D271K | 3.3mm | - | - |

## Packing Information

| Part Number | Quantity | Packaging Option | Packaging Specification |
|---|---|---|---|
| VDR10DxxxK | 500PCS | Plastic bag | Bulk Pack |

# Bulk Pack


# Ammo Pack



## Notice for use

To avoid damage to other equipment due to fire or deterioration caused by varistor, please refer to and observe the following principles:

1) When a high current or high voltage flows into the varistor, the varistor itself may be damaged, heated, smoke, catch fire and burst.

To avoid this, fuses or circuit breakers can be installed at both ends of the varistor or power supply;

The fuses of the following specifications are for reference only:

| Diameter | 05D | 07D | 10D | 14D | 20D |
|---|---|---|---|---|---|
| Rated current of fuse | 1-2A | 2-3A | 3-5A | 3-10A | 5-15A |

2) Do not allow the current and energy flowing into the varistor to exceed its rated value.

3) The marked VDR product brand names and marks are all patent applications of the company. Customers who use or sell VDR products that are not specifically designated for such applications are at their own risk.

4) All VDR products, product specifications and data are subject to change without notice, please improve. For any data sheet Or any other data sheet. Any errors included. Inaccurate or incomplete shall not be liable.

5) Regarding the suitability of products for specific applications. It is the customer's responsibility to confirm that products with the characteristics described in the product specifications application. The data provided in the parameter data sheets and / or specifications may vary for different applications and performance may vary over time Variety. All operating parameters, including typical parameters, must be provided by the customer ’s technical experts. Product specifications will not expand or Modify the VDR procurement terms and conditions in other ways, including but not limited to the guarantees described therein.

6) Do not place flammable substances near the varistor.

7) The varistor can only emit a small amount of heat energy, so it is not suitable for use in equipment that often generates sudden heat.

In addition, the higher the working environment of the varistor, the smaller the proportion of heat dissipated.

Varistors can only dissipate a small amount of heat energy, so they are not suitable for use in equipment that often generates sudden heat.

If a large amount of heat acts on the varistor in an instant, it is possible that the heat energy cannot be dissipated within the pulse time And the varistor is damaged.

8) When welding, please be careful not to melt the welding points of the varistor and the resin coating.

## Material category policy

All products of VDR hereby certify that RoHS-compliant products are in accordance with the definitions and Restrictions on June 8, 2011 regarding restrictions on the use of certain hazardous substances (Reach) in electrical and electronic equipment. We confirm All VDR products comply with the IEC 61249-2-21 JEDEC JS709A standard.