



Features

- High voltage rating
- High current rating
- Bidirectional
- Surge protection
- Fast response time
- RoHS compliant*
- Agency recognition: ®

Applications

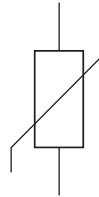
- Power supplies
- Power systems
- Line voltage
- Telecom systems
- White goods / appliances

MOV-10DxxxK Series - Metal Oxide Varistor

General Information

The MOV-10DxxxK Series of 10 mm radial leaded varistor devices protects against overvoltage transients such as lightning, power contact and power induction. The metal oxide varistors offer a choice of varistor voltages from 18 V to 820 V and V_{rms} voltages from 11 V to 510 V.

The devices have a high current handling, high energy absorption capability and fast response times to protect against transient faults up to rated limits.



Industry Standard Compliance

| Standard | UL 1449 |
|-------------|---------|
| File Number | E313168 |

| Standard | ITU-T K.20, K.21, K.45 |
|--|---|
| MOV-10D201K MOV-10D361K MOV-10D391K MOV-10D431K | Will pass 600 V rms, 600 ohm, 1 A, 0.2 s, 5 cycles, every 1 minute condition. |

Absolute Maximum Ratings (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|--|-----------|------|------|------|-----------------------|
| Operating Temperature | T_{OPR} | -40 | 25 | +85 | $^\circ\text{C}$ |
| Storage Temperature | T_{STG} | -40 | 25 | +125 | $^\circ\text{C}$ |
| Rated Wattage | P_w | | | 0.40 | Watt |
| Varistor Voltage Temperature Coefficient | V_{TC} | 0 | | 0.05 | $\% / ^\circ\text{C}$ |
| Response Time | T_r | | 10 | 25 | ns |
| Varistor Voltage Tolerance | V_{tol} | -10 | | 10 | $\%$ |

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

| Bourns Part No. | Max. Continuous Voltage (V) | | Voltage @ 1 mA DC (V) | | | Voltage @ Class Current (8/20 μs) | | Max. Peak Current (8/20 μs) | Max. Energy (J) | Max. Cap. (pF) |
|-----------------|-----------------------------|------|-----------------------|------|------|---|---------------------------|---|--------------------|----------------|
| | r.m.s. | d.c. | Min. | Nom. | Max. | Class Current (A) | Max. Clamping Voltage (V) | One Time | 8/20 μs | 1 kHz |
| | | | | | | | | | | |
| MOV-10D180K | 11 | 14 | 16 | 18 | 20 | 5 | 36 | 500 | 2.1 | 5600 |
| MOV-10D220K | 14 | 18 | 20 | 22 | 24 | 5 | 43 | 500 | 2.5 | 4250 |
| MOV-10D270K | 17 | 18 | 24 | 27 | 30 | 5 | 53 | 500 | 3.0 | 3700 |
| MOV-10D330K | 20 | 26 | 30 | 33 | 36 | 5 | 65 | 500 | 4.0 | 3000 |
| MOV-10D390K | 25 | 31 | 35 | 39 | 43 | 5 | 77 | 500 | 4.6 | 2400 |
| MOV-10D470K | 30 | 38 | 42 | 47 | 52 | 5 | 93 | 500 | 5.5 | 2100 |
| MOV-10D560K | 35 | 45 | 50 | 56 | 62 | 5 | 110 | 500 | 7.0 | 1800 |
| MOV-10D680K | 40 | 56 | 61 | 68 | 75 | 5 | 135 | 500 | 8.2 | 1500 |
| MOV-10D820K | 50 | 65 | 74 | 82 | 90 | 25 | 135 | 2500 | 12 | 1200 |
| MOV-10D101K | 60 | 85 | 90 | 100 | 110 | 25 | 165 | 2500 | 15 | 1000 |
| MOV-10D121K | 75 | 100 | 108 | 120 | 132 | 25 | 200 | 2500 | 18 | 830 |
| MOV-10D151K | 95 | 125 | 135 | 150 | 165 | 25 | 250 | 2500 | 22 | 670 |
| MOV-10D181K | 115 | 150 | 162 | 180 | 198 | 25 | 300 | 2500 | 27 | 560 |
| MOV-10D201K | 130 | 170 | 185 | 200 | 225 | 25 | 340 | 2500 | 30 | 500 |
| MOV-10D221K | 140 | 180 | 198 | 220 | 242 | 25 | 360 | 2500 | 32 | 450 |
| MOV-10D241K | 150 | 200 | 216 | 240 | 264 | 25 | 395 | 2500 | 35 | 420 |
| MOV-10D271K | 175 | 225 | 243 | 270 | 297 | 25 | 455 | 2500 | 40 | 370 |
| MOV-10D301K | 190 | 250 | 270 | 300 | 330 | 25 | 500 | 2500 | 40 | 330 |
| MOV-10D331K | 210 | 275 | 297 | 330 | 363 | 25 | 550 | 2500 | 43 | 300 |
| MOV-10D361K | 230 | 300 | 324 | 360 | 396 | 25 | 595 | 2500 | 47 | 280 |
| MOV-10D391K | 250 | 320 | 351 | 390 | 429 | 25 | 650 | 2500 | 60 | 260 |
| MOV-10D431K | 275 | 350 | 387 | 430 | 473 | 25 | 710 | 2500 | 65 | 230 |
| MOV-10D471K | 300 | 385 | 423 | 470 | 517 | 25 | 775 | 2500 | 70 | 210 |
| MOV-10D511K | 320 | 415 | 459 | 510 | 561 | 25 | 845 | 2500 | 70 | 200 |
| MOV-10D561K | 350 | 460 | 504 | 560 | 616 | 25 | 925 | 2500 | 70 | 180 |
| MOV-10D621K | 385 | 505 | 558 | 620 | 682 | 25 | 1025 | 2500 | 70 | 160 |
| MOV-10D681K | 420 | 560 | 612 | 680 | 748 | 25 | 1120 | 2500 | 70 | 150 |
| MOV-10D751K | 460 | 620 | 675 | 750 | 825 | 25 | 1240 | 2500 | 75 | 130 |
| MOV-10D781K | 480 | 640 | 702 | 780 | 858 | 25 | 1290 | 2500 | 80 | 130 |
| MOV-10D821K | 510 | 675 | 738 | 820 | 902 | 25 | 1355 | 2500 | 85 | 110 |

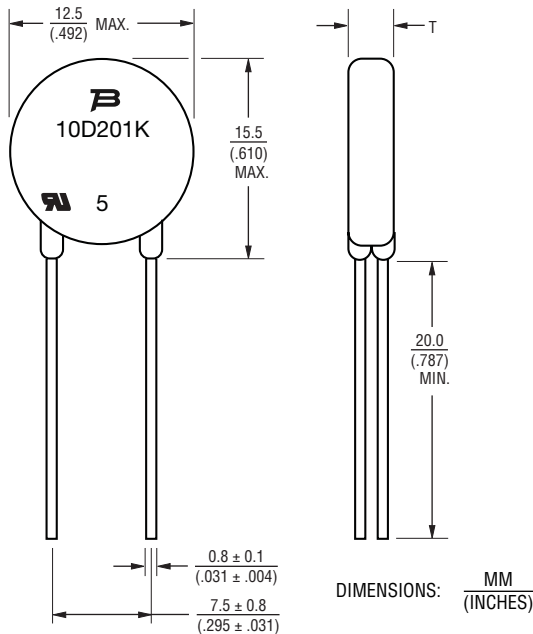
*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011. Specifications are subject to change without notice. Customers should verify actual device performance in their specific applications.

MOV-10DxxxK Series - Metal Oxide Varistor

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Product Dimensions

This is an RoHS compliant molded radial package with 100 % Sn plating on the terminations.



| Bourns Part Number | Dim. T (Max.) |
|--------------------|----------------------|
| MOV-10D180K | $\frac{3.8}{(.150)}$ |
| MOV-10D220K | $\frac{3.9}{(.154)}$ |
| MOV-10D270K | $\frac{4.2}{(.165)}$ |
| MOV-10D330K | $\frac{3.8}{(.150)}$ |
| MOV-10D390K | $\frac{4.0}{(.157)}$ |
| MOV-10D470K | $\frac{4.2}{(.165)}$ |
| MOV-10D560K | $\frac{4.3}{(.169)}$ |
| MOV-10D680K | $\frac{4.4}{(.173)}$ |
| MOV-10D820K | $\frac{3.8}{(.150)}$ |
| MOV-10D101K | $\frac{4.0}{(.157)}$ |
| MOV-10D121K | $\frac{4.2}{(.165)}$ |
| MOV-10D151K | $\frac{4.4}{(.173)}$ |
| MOV-10D181K | $\frac{3.6}{(.142)}$ |
| MOV-10D201K | $\frac{3.8}{(.150)}$ |
| MOV-10D221K | $\frac{3.9}{(.154)}$ |

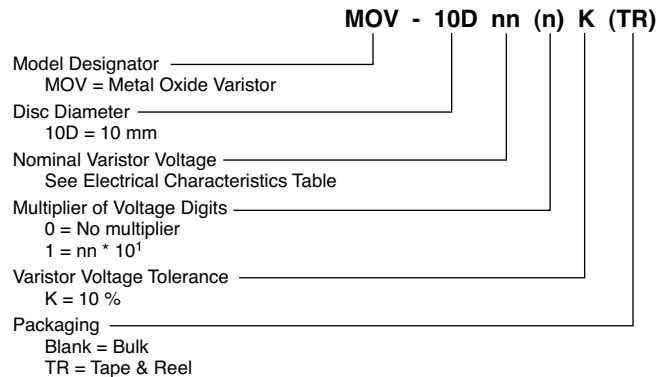
| Bourns Part Number | Dim. T (Max.) |
|--------------------|----------------------|
| MOV-10D241K | $\frac{4.0}{(.157)}$ |
| MOV-10D271K | $\frac{4.2}{(.165)}$ |
| MOV-10D301K | $\frac{4.4}{(.173)}$ |
| MOV-10D331K | $\frac{4.6}{(.181)}$ |
| MOV-10D361K | $\frac{4.8}{(.189)}$ |
| MOV-10D391K | $\frac{5.0}{(.197)}$ |
| MOV-10D431K | $\frac{5.2}{(.205)}$ |
| MOV-10D471K | $\frac{5.4}{(.213)}$ |
| MOV-10D511K | $\frac{5.5}{(.217)}$ |
| MOV-10D561K | $\frac{5.9}{(.232)}$ |
| MOV-10D621K | $\frac{6.2}{(.244)}$ |
| MOV-10D681K | $\frac{6.4}{(.252)}$ |
| MOV-10D751K | $\frac{6.6}{(.260)}$ |
| MOV-10D781K | $\frac{6.8}{(.268)}$ |
| MOV-10D821K | $\frac{7.2}{(.283)}$ |

Typical Part Marking

| Bourns Part Number | Bourns Part Marking |
|--------------------|---------------------|
| MOV-10D180K | 10D180K |
| MOV-10D220K | 10D220K |
| MOV-10D270K | 10D270K |
| MOV-10D330K | 10D330K |
| MOV-10D390K | 10D390K |
| MOV-10D470K | 10D470K |
| MOV-10D560K | 10D560K |
| MOV-10D680K | 10D680K |
| MOV-10D820K | 10D820K |
| MOV-10D101K | 10D101K |
| MOV-10D121K | 10D121K |
| MOV-10D151K | 10D151K |
| MOV-10D181K | 10D181K |
| MOV-10D201K | 10D201K |
| MOV-10D221K | 10D221K |
| MOV-10D241K | 10D241K |
| MOV-10D271K | 10D271K |
| MOV-10D301K | 10D301K |
| MOV-10D331K | 10D331K |
| MOV-10D361K | 10D361K |
| MOV-10D391K | 10D391K |
| MOV-10D431K | 10D431K |
| MOV-10D471K | 10D471K |
| MOV-10D511K | 10D511K |
| MOV-10D561K | 10D561K |
| MOV-10D621K | 10D621K |
| MOV-10D681K | 10D681K |
| MOV-10D751K | 10D751K |
| MOV-10D781K | 10D781K |
| MOV-10D821K | 10D821K |

NOTE: The "5" marking on MOV products is for traceability of production assembly for quality assurance compliance.

How to Order



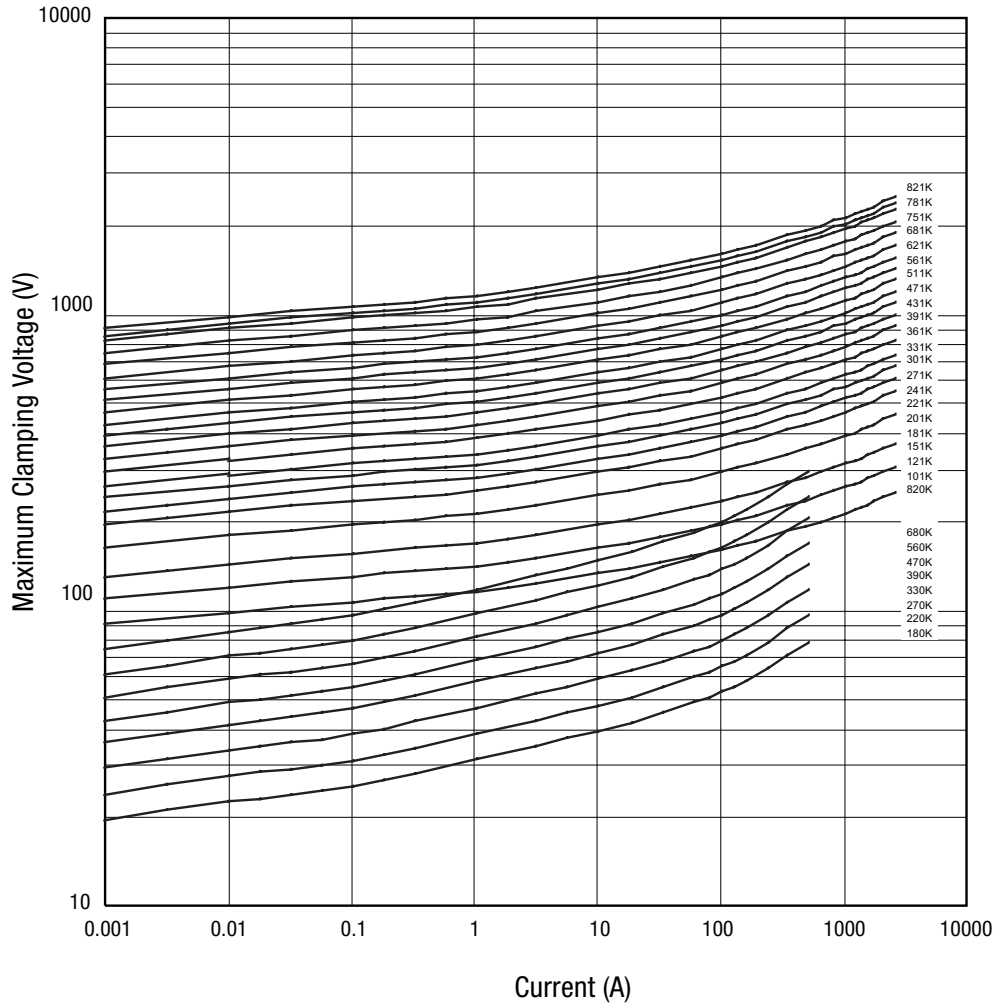
Examples: MOV-10D270K = 27 V, Bulk Pack
MOV-10D331KTR = 330 V, Tape & Reel

Specifications are subject to change without notice. Customers should verify actual device performance in their specific applications.

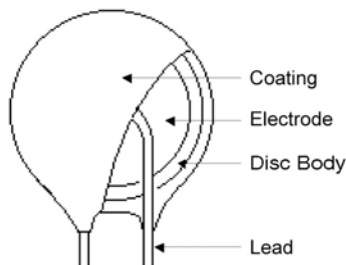
MOV-10DxxxK Series - Metal Oxide Varistor

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Performance Graphs



Internal Construction



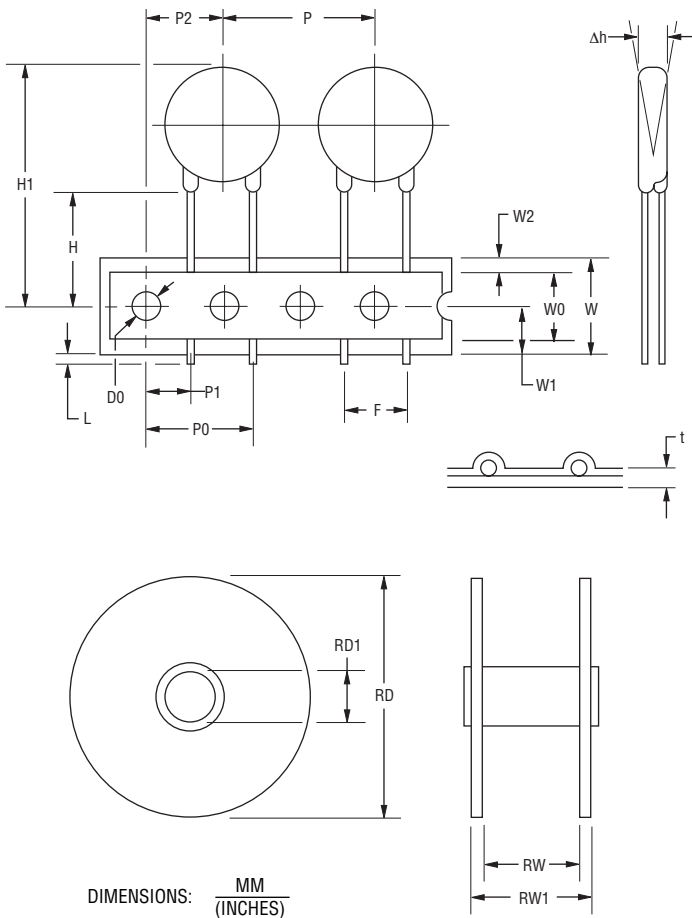
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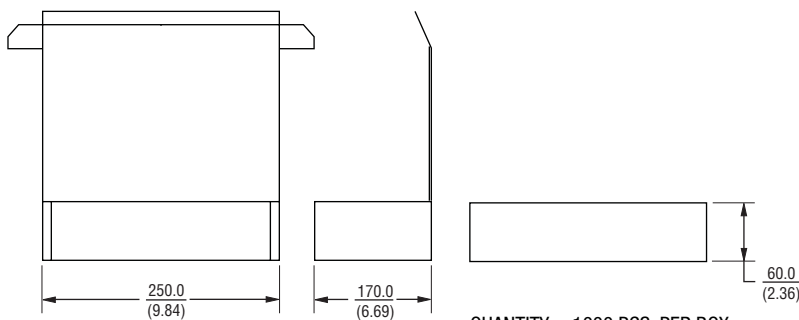
Packaging Information

TAPE & REEL



| Item | Symbol | 10 mm Disc |
|---------------------------------------|------------|---|
| Reel Outside Diameter | RD | $\frac{355}{(13.98)}$ |
| Reel Inner Diameter | RD1 | $\frac{30}{(1.181)}$ |
| Tape Width | RW | $\frac{55}{(2.16)}$ |
| Reel Width | RW1 | $\frac{63}{(2.48)}$ max. |
| Pitch of Component | P | $\frac{25.4 \pm 0.7}{(1.00 \pm 0.03)}$ |
| Feed Hole Pitch | P0 | $\frac{12.7 \pm 1.0}{(0.50 \pm 0.04)}$ |
| Feed Hole Center to Pitch | P1 | $\frac{8.95 \pm 0.7}{(0.352 \pm 0.03)}$ |
| Feed Hole Center to Component Center | P2 | $\frac{12.7 \pm 1.0}{(0.50 \pm 0.04)}$ |
| Lead to Lead Distance | F | $\frac{7.50 \pm 0.8}{(0.30 \pm 0.03)}$ |
| Component Alignment | Δh | $\frac{2.0}{(0.079)}$ |
| Tape Width | W | $\frac{18.0 \pm 0.5}{(0.71 \pm 0.02)}$ |
| Hole Down Tape Width | W0 | $\frac{12.0 \pm 0.8}{(0.47 \pm 0.03)}$ |
| Hole Position | W1 | $\frac{9.0 \pm 0.5}{(0.35 \pm 0.02)}$ |
| Hole Down Tape Position | W2 | $\frac{3.0}{(0.12)}$ max. |
| Height From Center to Component Base | H | $\frac{19.0 \pm 1.0}{(0.75 \pm 0.04)}$ |
| Seating Plane Height | H0 | $\frac{16.0 \pm 1.0}{(0.63 \pm 0.04)}$ |
| Component Height | H1 | $\frac{36.0}{(1.42)}$ max. |
| Crimp Length | C | $\frac{2.60}{(0.10)}$ typ. |
| Feed Hole Diameter | D0 | $\frac{4.0 \pm 0.2}{(0.16 \pm 0.08)}$ |
| Total Tape Thickness | t | $\frac{0.6 \pm 0.3}{(0.02 \pm 0.01)}$ |
| Length of Clipped Height | L | $\frac{1.0}{(0.04)}$ max. |
| Quantity per Reel (10D180K – 10D391K) | - | 1000 |
| Quantity per Reel (10D431K – 10D821K) | - | 500 |

BULK



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