



Features

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

Applications

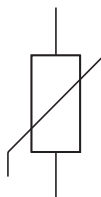
- Power supplies
- Power systems
- Line voltage
- Telecom systems
- White goods / appliances

MOV-07DxxxK Series - Metal Oxide Varistor

General Information

The MOV-07DxxxK Series of 7 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 |

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

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|--|-----------|------|------|------|----------------------|
| Operating Temperature | T_{OPR} | -40 | 25 | +105 | $^\circ\text{C}$ |
| Storage Temperature | T_{STG} | -40 | 25 | +125 | $^\circ\text{C}$ |
| Rated Wattage | P_w | | | 0.25 | Watt |
| Varistor Voltage Temperature Coefficient | V_{TC} | 0 | 0.1 | 0.05 | % / $^\circ\text{C}$ |
| Response Time | T_r | | 10 | 25 | ns |
| Varistor Voltage Tolerance | V_{tol} | -10 | 0 | 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) | Typ. 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-07D180K | 11 | 14 | 16 | 18 | 20 | 2.5 | 36 | 250 | 0.9 | 3840 |
| MOV-07D220K | 14 | 18 | 20 | 22 | 24 | 2.5 | 43 | 250 | 1.1 | 3360 |
| MOV-07D270K | 17 | 22 | 24 | 27 | 30 | 2.5 | 53 | 250 | 1.4 | 3120 |
| MOV-07D330K | 20 | 26 | 30 | 33 | 36 | 2.5 | 65 | 250 | 1.7 | 2640 |
| MOV-07D390K | 25 | 31 | 35 | 39 | 43 | 2.5 | 77 | 250 | 2.1 | 2400 |
| MOV-07D470K | 30 | 38 | 42 | 47 | 52 | 2.5 | 93 | 250 | 2.5 | 1680 |
| MOV-07D560K | 35 | 45 | 50 | 56 | 62 | 2.5 | 110 | 250 | 3.1 | 1440 |
| MOV-07D680K | 40 | 56 | 61 | 68 | 75 | 2.5 | 135 | 250 | 3.6 | 1200 |
| MOV-07D820K | 50 | 65 | 74 | 82 | 90 | 10 | 135 | 1200 | 5.5 | 720 |
| MOV-07D101K | 60 | 85 | 90 | 100 | 110 | 10 | 165 | 1200 | 6.5 | 600 |
| MOV-07D121K | 75 | 100 | 108 | 120 | 132 | 10 | 200 | 1200 | 7.8 | 504 |
| MOV-07D151K | 95 | 125 | 135 | 150 | 165 | 10 | 250 | 1200 | 9.7 | 396 |
| MOV-07D181K | 115 | 150 | 162 | 180 | 198 | 10 | 300 | 1200 | 11.7 | 336 |
| MOV-07D201K | 130 | 170 | 185 | 200 | 225 | 10 | 340 | 1200 | 13 | 300 |
| MOV-07D221K | 140 | 180 | 198 | 220 | 242 | 10 | 360 | 1200 | 14 | 276 |
| MOV-07D241K | 150 | 200 | 216 | 240 | 264 | 10 | 395 | 1200 | 15 | 252 |
| MOV-07D271K | 175 | 225 | 243 | 270 | 297 | 10 | 455 | 1200 | 18 | 222 |
| MOV-07D301K | 190 | 250 | 270 | 300 | 330 | 10 | 500 | 1200 | 20 | 198 |
| MOV-07D331K | 210 | 275 | 297 | 330 | 363 | 10 | 550 | 1200 | 23 | 180 |
| MOV-07D361K | 230 | 300 | 324 | 360 | 396 | 10 | 595 | 1200 | 25 | 168 |
| MOV-07D391K | 250 | 320 | 351 | 390 | 429 | 10 | 650 | 1200 | 25 | 156 |
| MOV-07D431K | 275 | 350 | 387 | 430 | 473 | 10 | 710 | 1200 | 28 | 138 |
| MOV-07D471K | 300 | 385 | 423 | 470 | 517 | 10 | 775 | 1200 | 30 | 126 |
| MOV-07D511K | 320 | 415 | 459 | 510 | 561 | 10 | 845 | 1200 | 30 | 120 |
| MOV-07D561K | 350 | 460 | 504 | 560 | 616 | 10 | 925 | 1200 | 30 | 108 |
| MOV-07D621K | 385 | 505 | 558 | 620 | 682 | 10 | 1025 | 1200 | 33 | 96 |
| MOV-07D681K | 420 | 560 | 612 | 680 | 748 | 10 | 1120 | 1200 | 33 | 90 |
| MOV-07D751K | 460 | 620 | 675 | 750 | 825 | 10 | 1240 | 1200 | 38 | 84 |
| MOV-07D781K | 480 | 640 | 702 | 780 | 858 | 10 | 1290 | 1200 | 38 | 84 |
| MOV-07D821K | 510 | 675 | 738 | 820 | 902 | 10 | 1355 | 1200 | 40 | 72 |

*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.

Users should verify actual device performance in their specific applications.

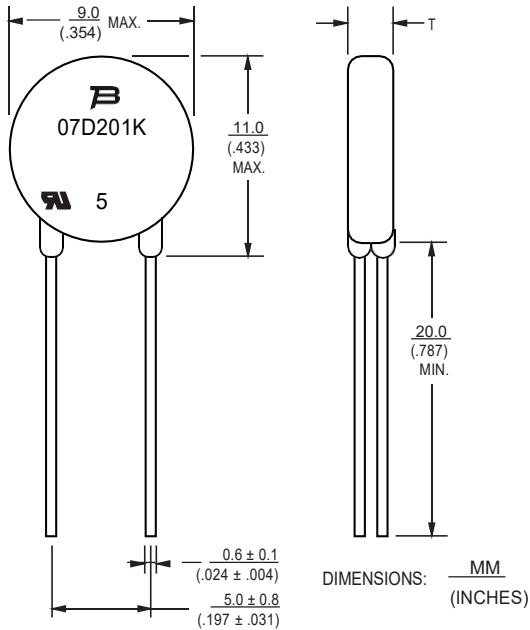
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MOV-07DxxxK Series - Metal Oxide Varistor



Product Dimensions

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



Typical Part Marking

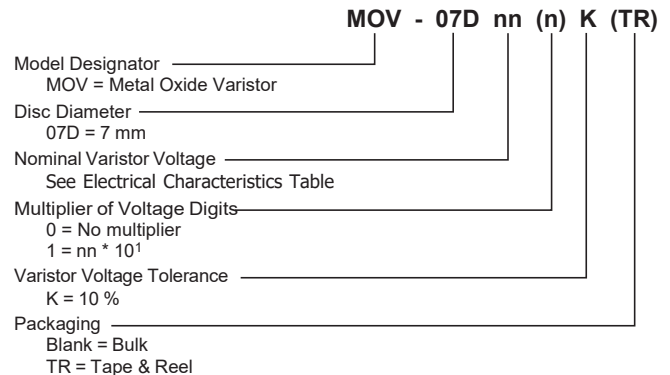
| Bourns Part Number | Bourns Part Marking |
|--------------------|---------------------|
| MOV-07D180K | 07D180K |
| MOV-07D220K | 07D220K |
| MOV-07D270K | 07D270K |
| MOV-07D330K | 07D330K |
| MOV-07D390K | 07D390K |
| MOV-07D470K | 07D470K |
| MOV-07D560K | 07D560K |
| MOV-07D680K | 07D680K |
| MOV-07D820K | 07D820K |
| MOV-07D101K | 07D101K |
| MOV-07D121K | 07D121K |
| MOV-07D151K | 07D151K |
| MOV-07D181K | 07D181K |
| MOV-07D201K | 07D201K |
| MOV-07D221K | 07D221K |
| MOV-07D241K | 07D241K |
| MOV-07D271K | 07D271K |
| MOV-07D301K | 07D301K |
| MOV-07D331K | 07D331K |
| MOV-07D361K | 07D361K |
| MOV-07D391K | 07D391K |
| MOV-07D431K | 07D431K |
| MOV-07D471K | 07D471K |
| MOV-07D511K | 07D511K |
| MOV-07D561K | 07D561K |
| MOV-07D621K | 07D621K |
| MOV-07D681K | 07D681K |
| MOV-07D751K | 07D751K |
| MOV-07D781K | 07D781K |
| MOV-07D821K | 07D821K |

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

| Bourns Part Number | Dim. T (Max.) |
|--------------------|---------------|
| MOV-07D180K | 3.4 (.134) |
| MOV-07D220K | 3.5 (.138) |
| MOV-07D270K | 3.8 (.150) |
| MOV-07D330K | 3.4 (.134) |
| MOV-07D390K | 3.6 (.142) |
| MOV-07D470K | 3.8 (.150) |
| MOV-07D560K | 3.9 (.154) |
| MOV-07D680K | 4.0 (.157) |
| MOV-07D820K | 3.4 (.134) |
| MOV-07D101K | 3.6 (.142) |
| MOV-07D121K | 3.8 (.150) |
| MOV-07D151K | 4.0 (.157) |
| MOV-07D181K | 3.2 (.126) |
| MOV-07D201K | 3.4 (.134) |
| MOV-07D221K | 3.5 (.138) |

| Bourns Part Number | Dim. T (Max.) |
|--------------------|---------------|
| MOV-07D241K | 3.6 (.142) |
| MOV-07D271K | 3.8 (.150) |
| MOV-07D301K | 4.0 (.157) |
| MOV-07D331K | 4.2 (.165) |
| MOV-07D361K | 4.4 (.173) |
| MOV-07D391K | 4.6 (.181) |
| MOV-07D431K | 4.8 (.189) |
| MOV-07D471K | 5.0 (.197) |
| MOV-07D511K | 5.1 (.201) |
| MOV-07D561K | 5.4 (.213) |
| MOV-07D621K | 5.8 (.228) |
| MOV-07D681K | 6.0 (.236) |
| MOV-07D751K | 6.2 (.244) |
| MOV-07D781K | 6.4 (.252) |
| MOV-07D821K | 6.8 (.268) |

How to Order



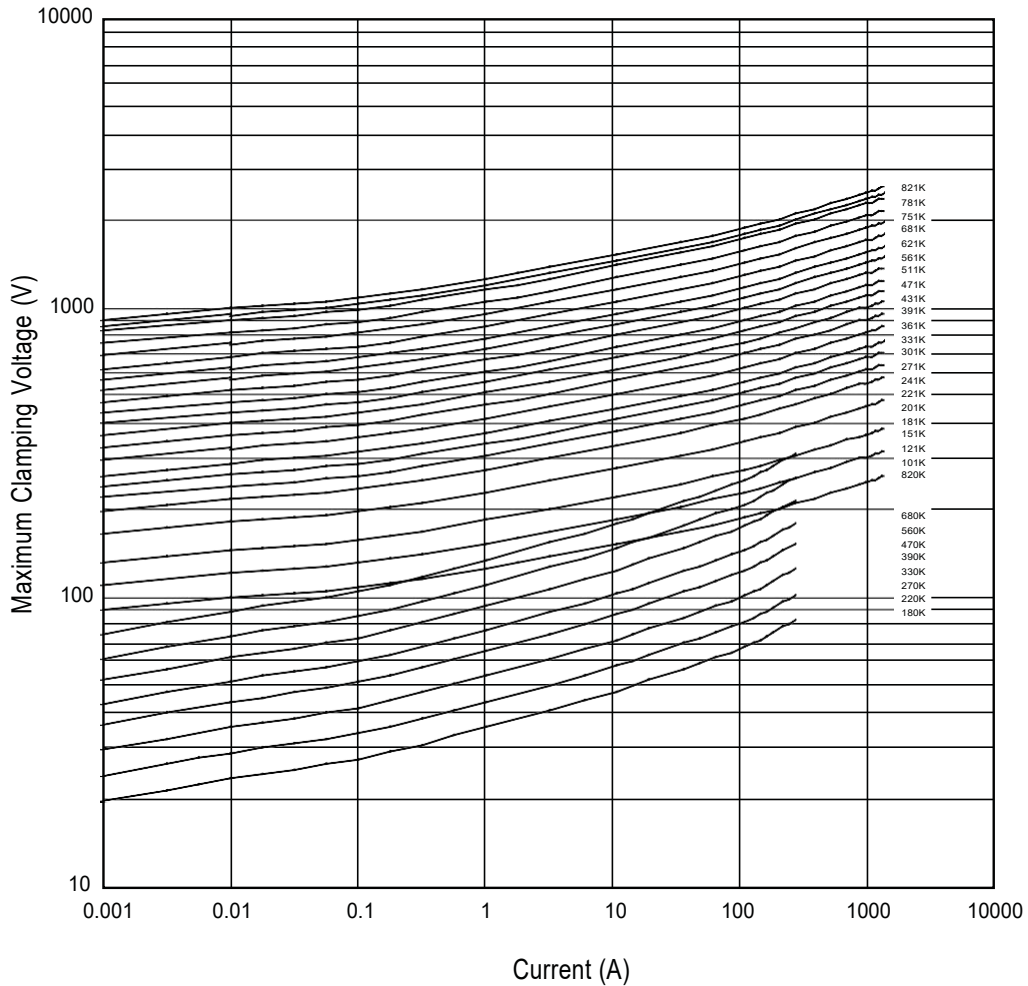
Examples: MOV-07D270K = 27 V, Bulk Pack
 MOV-07D331KTR = 330 V, Tape & Reel

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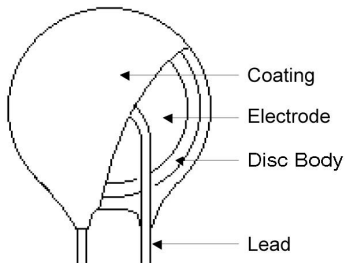
MOV-07DxxxK Series - Metal Oxide Varistor



Performance Graphs



Internal Construction



Environmental Specifications

| | |
|---------------------------------|---|
| Moisture Sensitivity Level..... | 1 |
| ESD Classification (HBM)..... | 6 |

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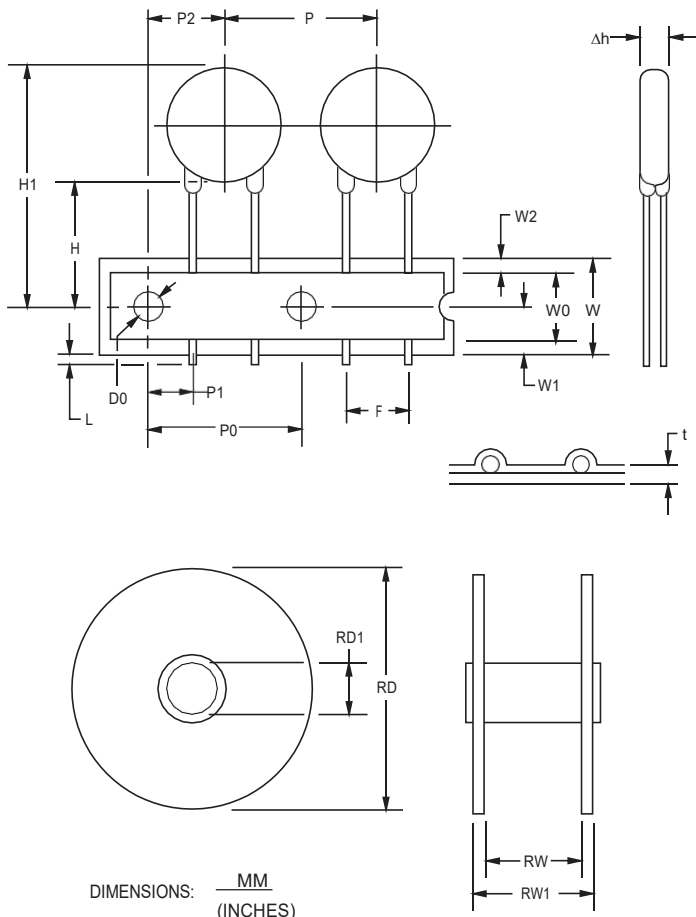
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MOV-07DxxxK Series - Metal Oxide Varistor

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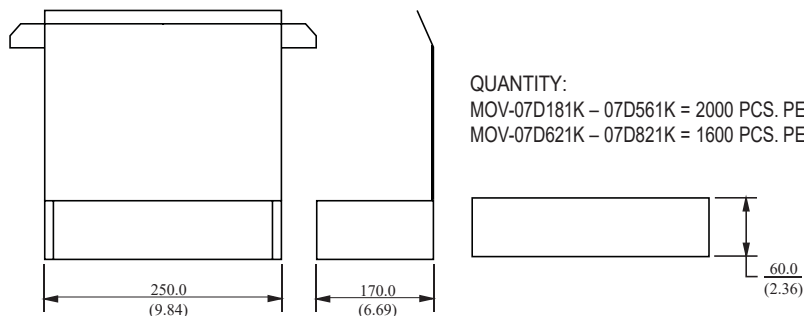
Packaging Information

TAPE & REEL



| Item | Symbol | 7 mm Disc |
|---------------------------------------|--------|--|
| Reel Outside Diameter | RD | $\frac{355}{(13.98)}$ |
| Reel Inner Diameter | RD1 | $\frac{30}{(1.181)}$ |
| Tape Width | RW | $\frac{47}{(18.50)}$ |
| Reel Width | RW1 | $\frac{53}{(20.87)}$ |
| Pitch of Component | P | $\frac{12.7 \pm 1.0}{(0.50 \pm 0.04)}$ |
| Feed Hole Pitch | P0 | $\frac{12.7 \pm 1.0}{(0.50 \pm 0.04)}$ |
| Feed Hole Center to Pitch | P1 | $\frac{3.85 \pm 0.7}{(0.15 \pm 0.03)}$ |
| Feed Hole Center to Component Center | P2 | $\frac{6.35 \pm 1.0}{(0.25 \pm 0.04)}$ |
| Lead to Lead Distance | F | $\frac{5.00 \pm 0.8}{(0.20 \pm 0.03)}$ |
| Component Alignment | Δh | $\frac{2.0}{(0.79)}$ max. |
| 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 | $\frac{16.0 \pm 0.5}{(0.63 \pm 0.02)}$ |
| Component Height | H1 | $\frac{32.0}{(1.26)}$ 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 (07D180K – 07D391K) | - | 2000 |
| Quantity per Reel (07D431K – 07D561K) | - | 1500 |
| Quantity per Reel (07D621K – 07D821K) | - | 1000 |

BULK



REV. 08/17

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