



## Features

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

## Applications

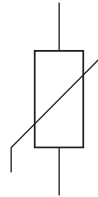
- Power supplies
- Power systems
- Line voltage
- Telecom systems
- White goods / appliances

# 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		Max. Peak Current	Max. Energy	Max. Cap.
	r.m.s.	d.c.	Min.	Max.	(8/20 $\mu\text{s}$ )		(8/20 $\mu\text{s}$ )	8/20 $\mu\text{s}$	1 kHz
					Class Current (A)	Max. Clamping Voltage (V)	One Time		
MOV-10D180K	11	14	16	20	5	36	500	2.1	5600
MOV-10D220K	14	18	20	24	5	43	500	2.5	4250
MOV-10D270K	17	18	24	30	5	53	500	3.0	3700
MOV-10D330K	20	26	30	36	5	65	500	4.0	3000
MOV-10D390K	25	31	35	43	5	77	500	4.6	2400
MOV-10D470K	30	38	42	52	5	93	500	5.5	2100
MOV-10D560K	35	45	50	62	5	110	500	7.0	1800
MOV-10D680K	40	56	61	75	5	135	500	8.2	1500
MOV-10D820K	50	65	74	90	25	135	2500	12	1200
MOV-10D101K	60	85	90	110	25	165	2500	15	1000
MOV-10D121K	75	100	108	132	25	200	2500	18	830
MOV-10D151K	95	125	135	165	25	250	2500	22	670
MOV-10D181K	115	150	162	198	25	300	2500	27	560
MOV-10D201K	130	170	185	225	25	340	2500	30	500
MOV-10D221K	140	180	198	242	25	360	2500	32	450
MOV-10D241K	150	200	216	264	25	395	2500	35	420
MOV-10D271K	175	225	243	297	25	455	2500	40	370
MOV-10D301K	190	250	270	330	25	500	2500	40	330
MOV-10D331K	210	275	297	363	25	550	2500	43	300
MOV-10D361K	230	300	324	396	25	595	2500	47	280
MOV-10D391K	250	320	351	429	25	650	2500	60	260
MOV-10D431K	275	350	387	473	25	710	2500	65	230
MOV-10D471K	300	385	423	517	25	775	2500	70	210
MOV-10D511K	320	415	459	561	25	845	2500	70	200
MOV-10D561K	350	460	504	616	25	925	2500	70	180
MOV-10D621K	385	505	558	682	25	1025	2500	70	160
MOV-10D681K	420	560	612	748	25	1120	2500	70	150
MOV-10D751K	460	620	675	825	25	1240	2500	75	130
MOV-10D781K	480	640	702	858	25	1290	2500	80	130
MOV-10D821K	510	675	738	902	25	1355	2500	85	110

\*RoHS Directive 2002/95/EC Jan 27, 2003 including Annex.

Specifications are subject to change without notice.

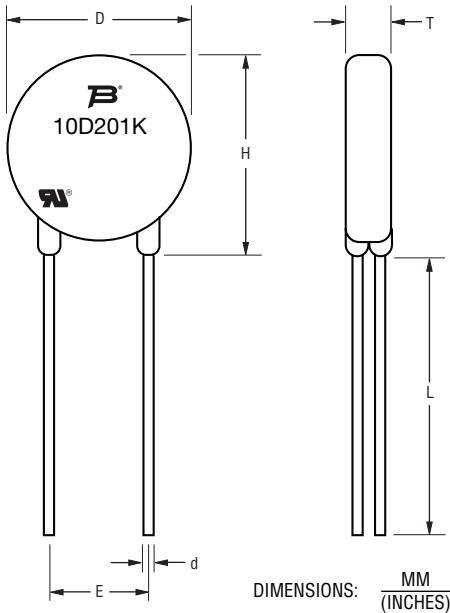
Customers should verify actual device performance in their specific applications.

# MOV-10DxxxK Series - Metal Oxide Varistor

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## Product Dimensions

This is a molded radial package with lead free 100 % Sn plating on the terminations.

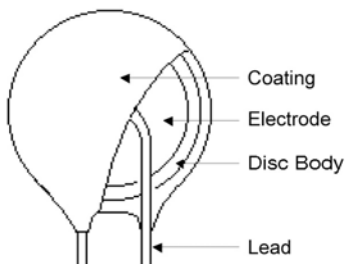


Dimension	MOV-10D Series
D (Max.)	$\frac{12.5}{(.492)}$
H (Max.)	$\frac{15.5}{(.610)}$
T (Max.)	$\frac{7.2}{(.281)}$
d	$\frac{0.8 \pm 0.1}{(.031 \pm .004)}$
E	$\frac{7.5 \pm 0.8}{(.295 \pm .031)}$
L (Min.)	$\frac{20.0}{(.787)}$

## 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

## Internal Construction



## How to Order

**MOV - 10D 201 K TR**

Series \_\_\_\_\_  
 MOV = Metal Oxide Varistor

Package \_\_\_\_\_  
 10D = 10 mm Disc

Varistor Voltage \_\_\_\_\_  
 201 = 200 V

Varistor Voltage Tolerance \_\_\_\_\_  
 K = 10 %

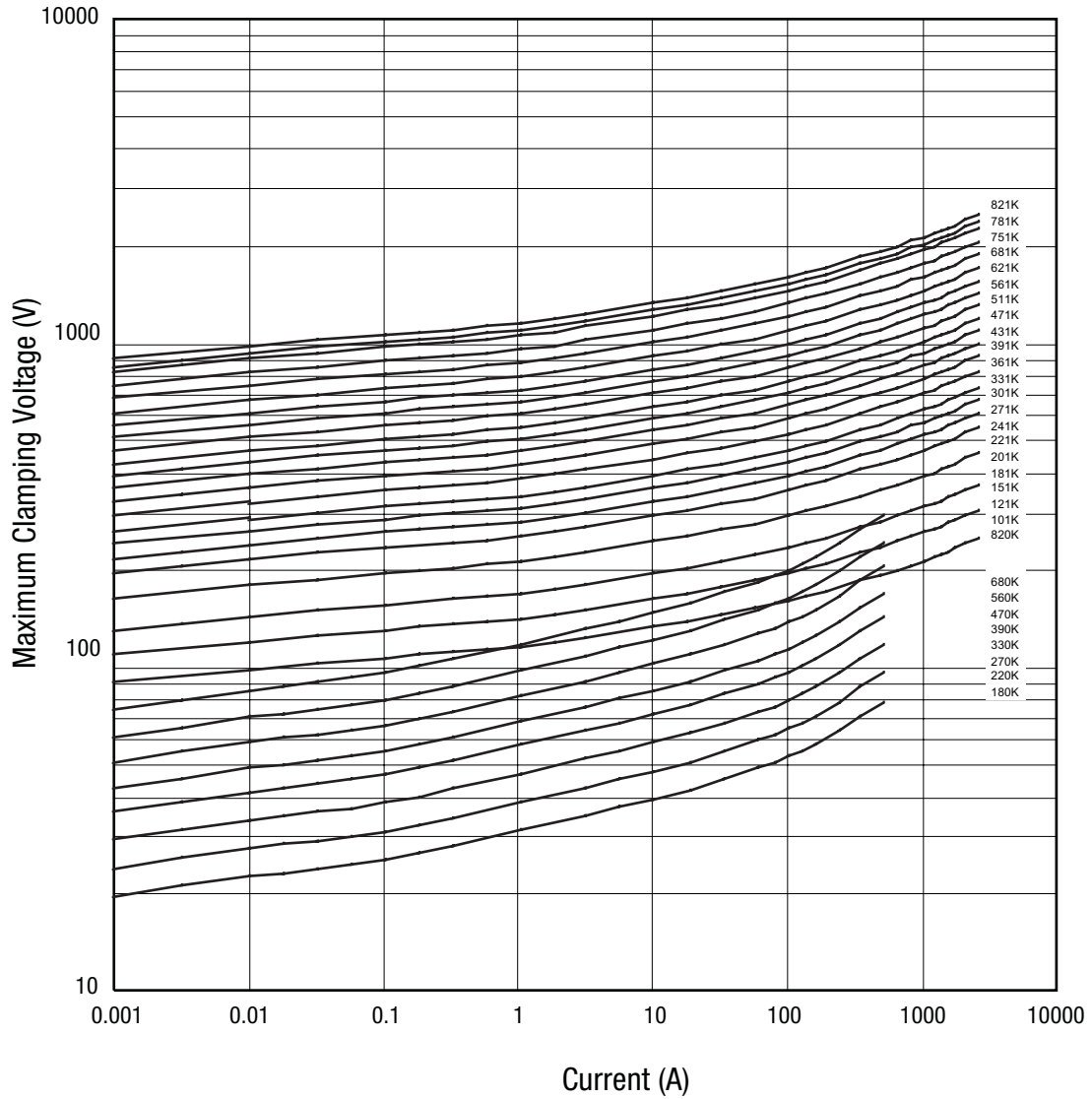
Packaging \_\_\_\_\_  
 Blank = Bulk (1000 pcs. per box)  
 TR = Tape & Reel (1000 pcs. per reel)

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 Customers should verify actual device performance in their specific applications.

# MOV-10DxxxK Series - Metal Oxide Varistor

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## Performance Graphs



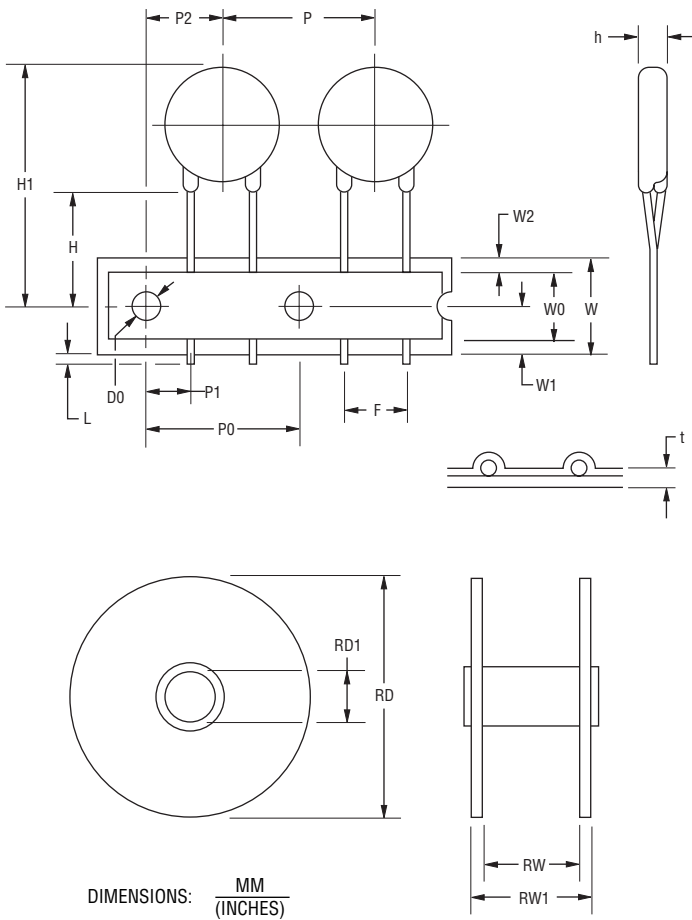
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# MOV-10DxxxK Series - Metal Oxide Varistor

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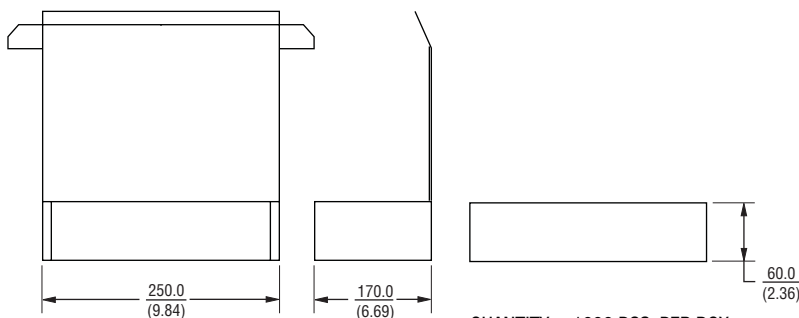
## Packaging Information

### TAPE & REEL



Item	Symbol	10 mm Disc
Reel Outside Diameter	RD	$\frac{355}{(13.98)}$
Reel Inner Diameter	RD1	$\frac{30}{(11.81)}$
Tape Width	RW	$\frac{47}{(18.50)}$
Reel Width	RW1	$\frac{53}{(20.87)}$
Pitch of Component	P	$\frac{25.4 \pm 1.0}{(1.00 \pm 0.04)}$
Feed Hole Pitch	P0	$\frac{12.7 \pm 1.0}{(0.50 \pm 0.04)}$
Feed Hole Center to Pitch	P1	$\frac{2.60 \pm 0.7}{(0.10 \pm 0.03)}$
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	Dh	$\frac{2.0}{(0.79)}$ 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	$\frac{36.0}{(1.42)}$ max.
Crimp Length	C	$\frac{2.60}{(0.10)}$ typ.
Feed Hole Diameter	DD	$\frac{4.0 \pm 0.2}{(0.16 \pm 0.08)}$
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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