Features

- High voltage and current rating
- Straight and kinked lead styles available
- Bidirectional
- Surge protection
- Fast response time
- RoHS compliant*
- Agency listing: c UL us

Additional Information

Click these links for more information:

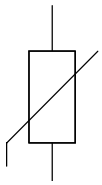
PRODUCT SELECTOR | TECHNICAL LIBRARY | INVENTORY | SAMPLES | CONTACT

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 °C Unless Otherwise Noted)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating Temperature	T_{OPR}	-40	25	+105	˚C
Storage Temperature	T_{STG}	-40	25	+125	˚C
Rated Wattage	P_w			0.25	Watt
Varistor Voltage Temperature Coefficient	V_{TC}	0		0.05	% / ˚C
Response Time	T_r		10	25	ns
Varistor Voltage Tolerance	V_{tol}	-10	0	10	%

Electrical Characteristics (@ T_A = 25 °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

WARNING
Cancer and Reproductive Harm
www.P65Warnings.ca.gov

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Applications

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

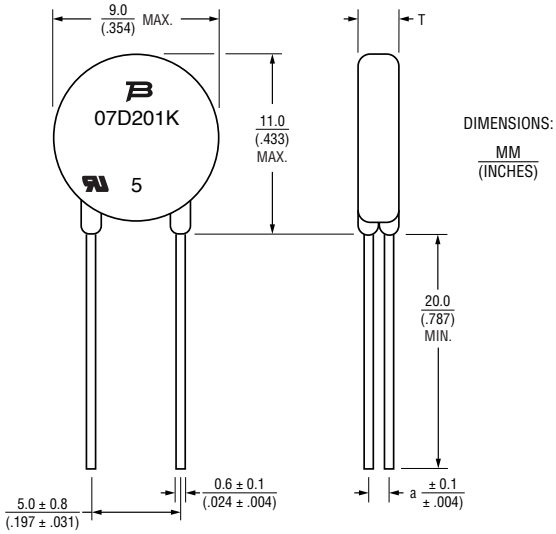
MOV-07DxxxK Series – Metal Oxide Varistor

BOURNS®

Product Dimensions

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

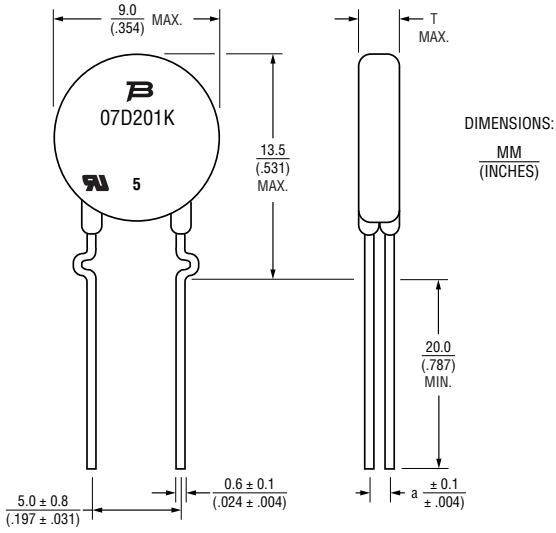
Straight Leads



Bourns Part Number	Dim T (Max.)	Dim a (Typ.)
MOV-07D180K	3.4 (.134)	1.4 (.055)
MOV-07D220K	3.5 (.138)	1.4 (.055)
MOV-07D270K	3.8 (.150)	1.5 (.059)
MOV-07D330K	3.4 (.134)	1.5 (.059)
MOV-07D390K	3.6 (.142)	1.7 (.067)
MOV-07D470K	3.8 (.150)	1.9 (.075)
MOV-07D560K	3.9 (.154)	2.1 (.083)
MOV-07D680K	4.0 (.157)	2.4 (.094)
MOV-07D820K	3.4 (.134)	1.4 (.055)
MOV-07D101K	3.6 (.142)	1.5 (.059)
MOV-07D121K	3.8 (.150)	1.5 (.059)
MOV-07D151K	4.0 (.157)	1.6 (.063)
MOV-07D181K	3.2 (.126)	1.7 (.067)
MOV-07D201K	3.4 (.134)	1.7 (.067)
MOV-07D221K	3.5 (.138)	1.8 (.071)

Bourns Part Number	Dim T (Max.)	Dim a (Typ.)
MOV-07D241K	3.6 (.142)	1.9 (.075)
MOV-07D271K	3.8 (.150)	2.0 (.079)
MOV-07D301K	4.0 (.157)	2.1 (.083)
MOV-07D331K	4.2 (.165)	2.2 (.087)
MOV-07D361K	4.4 (.173)	2.3 (.091)
MOV-07D391K	4.6 (.181)	2.5 (.098)
MOV-07D431K	4.8 (.189)	2.7 (.106)
MOV-07D471K	5.0 (.297)	2.9 (.114)
MOV-07D511K	5.1 (.201)	3.1 (.122)
MOV-07D561K	5.4 (.213)	3.3 (.130)
MOV-07D621K	5.8 (.228)	3.4 (.134)
MOV-07D681K	6.0 (.236)	3.6 (.142)
MOV-07D751K	6.2 (.244)	3.7 (.146)
MOV-07D781K	6.4 (.252)	3.8 (.150)
MOV-07D821K	6.8 (.268)	4.0 (.157)

Kinked Leads (Outward)



Bourns Part Number	Dim T (Max.)	Dim a (Typ.)
MOV-07D180KK	3.4 (.134)	1.4 (.055)
MOV-07D220KK	3.5 (.138)	1.4 (.055)
MOV-07D270KK	3.8 (.150)	1.5 (.059)
MOV-07D330KK	3.4 (.134)	1.5 (.059)
MOV-07D390KK	3.6 (.142)	1.7 (.067)
MOV-07D470KK	3.8 (.150)	1.9 (.075)
MOV-07D560KK	3.9 (.154)	2.1 (.083)
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MOV-07D820KK	3.4 (.134)	1.4 (.055)
MOV-07D101KK	3.6 (.142)	1.5 (.059)
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MOV-07D151KK	4.0 (.157)	1.6 (.063)
MOV-07D181KK	3.2 (.126)	1.7 (.067)
MOV-07D201KK	3.4 (.134)	1.7 (.067)
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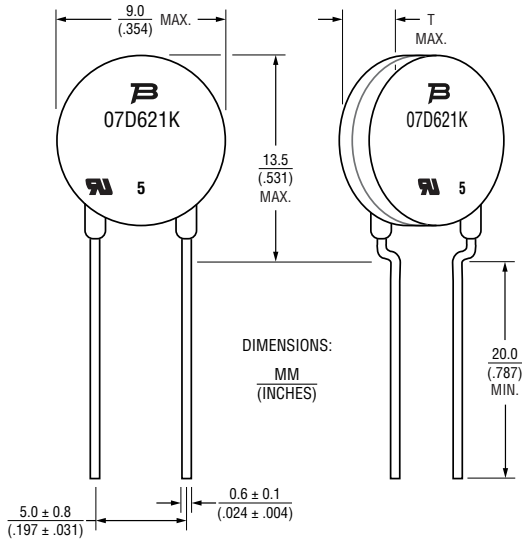
MOV-07D391KK	4.6 (.181)	2.5 (.098)
MOV-07D431KK	4.8 (.189)	2.7 (.106)
MOV-07D471KK	5.0 (.297)	2.9 (.114)
MOV-07D511KK	5.1 (.201)	3.1 (.122)
MOV-07D561KK	5.4 (.213)	3.3 (.130)
MOV-07D621KK	N/A See Kinked Leads (In-line) Configuration	
MOV-07D681KK		
MOV-07D751KK		
MOV-07D781KK		
MOV-07D821KK		

Specifications are subject to change without notice.
Users should verify actual device performance in their specific applications.
The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

Product Dimensions (Continued)

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

Kinked Leads (In-line)



Bourns Part Number	Dim T (Max.)
MOV-07D180KK	N/A See Kinked Leads (Outward) Configuration
MOV-07D220KK	
MOV-07D270KK	
MOV-07D330KK	
MOV-07D390KK	
MOV-07D470KK	
MOV-07D560KK	
MOV-07D680KK	
MOV-07D820KK	
MOV-07D101KK	
MOV-07D121KK	
MOV-07D151KK	
MOV-07D181KK	
MOV-07D201KK	
MOV-07D221KK	

Bourns Part Number	Dim T (Max.)
MOV-07D241KK	N/A See Kinked Leads (Outward) Configuration
MOV-07D271KK	
MOV-07D301KK	
MOV-07D331KK	
MOV-07D361KK	
MOV-07D391KK	
MOV-07D431KK	
MOV-07D471KK	
MOV-07D511KK	
MOV-07D561KK	
MOV-07D621KK	5.8 (.228)
MOV-07D681KK	6.0 (.236)
MOV-07D751KK	6.2 (.244)
MOV-07D781KK	6.4 (.252)
MOV-07D821KK	6.8 (.268)

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.

How to Order

MOV - 07D nn (n) K __ (TR)

Model Designator
MOV = Metal Oxide Varistor

Disc Diameter
07D = 7 mm

Nominal Varistor Voltage
See Electrical Characteristics Table

Multiplier of Voltage Digits
0 = No multiplier
1 = nn * 10^1

Varistor Voltage Tolerance
K = 10 %

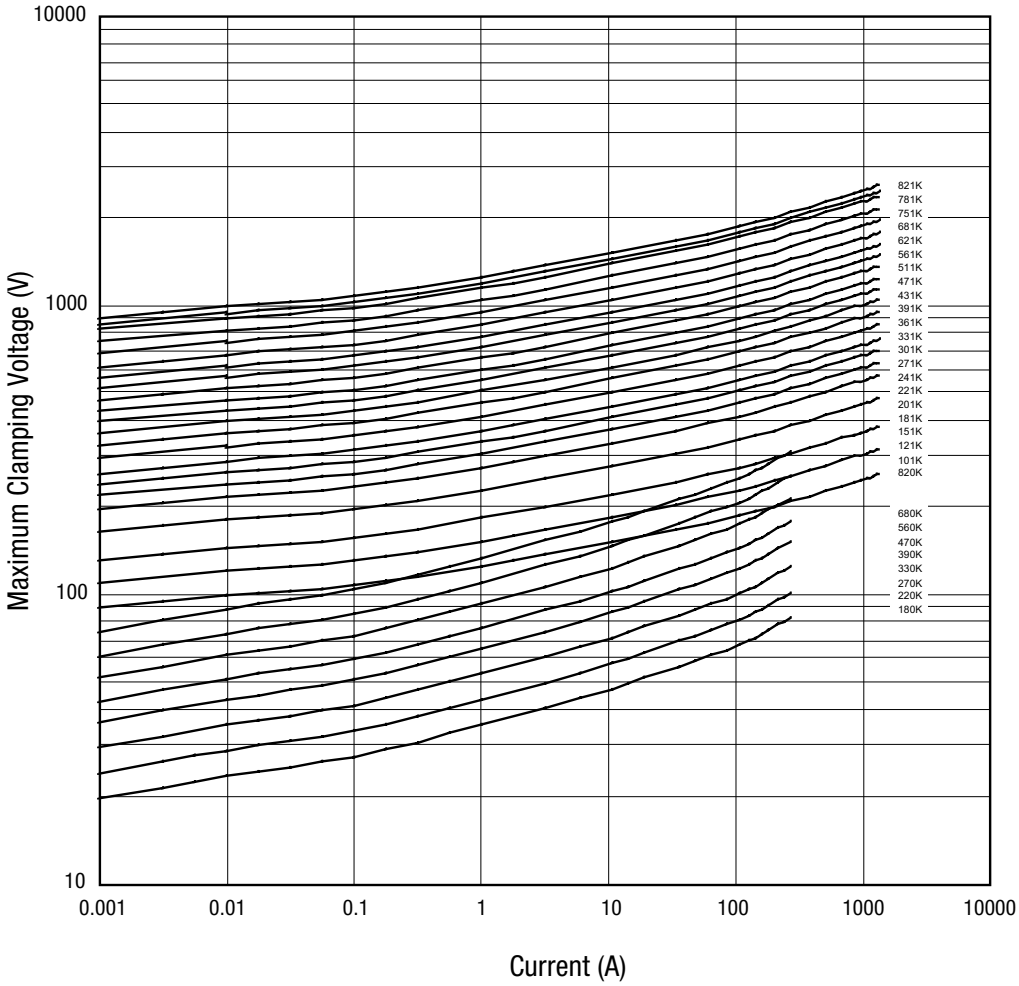
Lead Style
Blank = Straight Leads
K = Kinked Leads

Packaging
Blank = Bulk
TR = Tape & Reel

Examples:
MOV-07D270K = 27 V, Straight Leads, Bulk Pack
MOV-07D331KKTR = 330 V, Kinked Leads (Outward),Tape & Reel

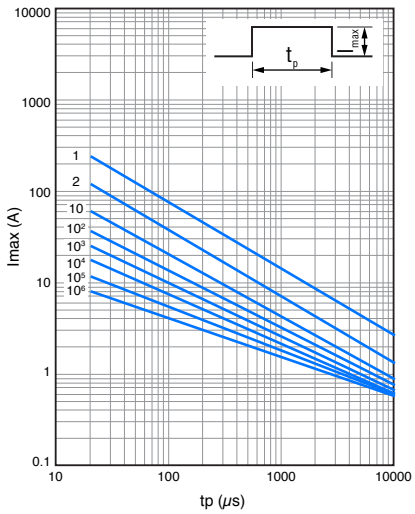
Performance Graphs

V-I Characteristics

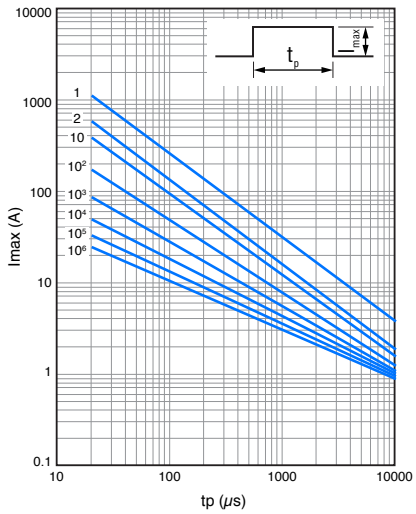


Pulse Rating Curves

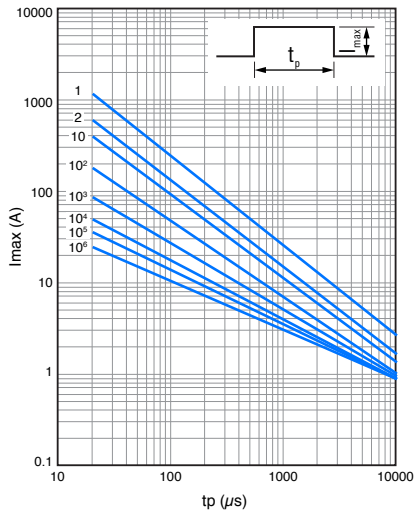
07D180K~680K



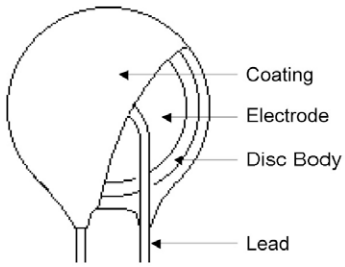
07D820K~471K



07D511K~821K



Internal Construction

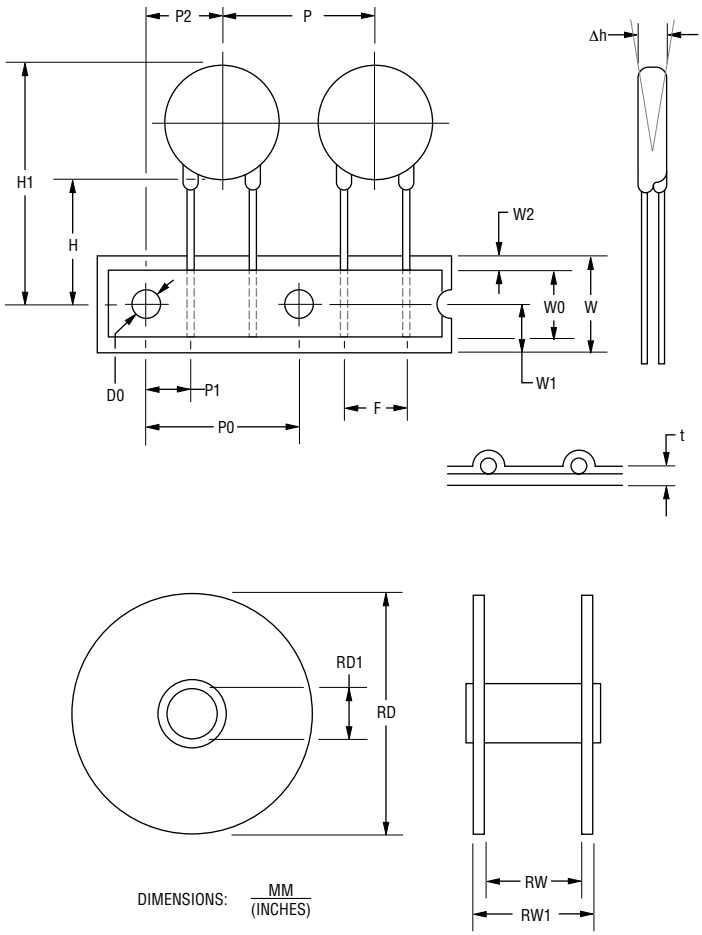


Environmental Specifications

Moisture Sensitivity Level 1
ESD Classification (HBM) ..... N/A

Packaging Information

TAPE & REEL - Straight Leads



Item	Symbol	7 mm Disc
Reel Outside Diameter	RD	355 (13.98)
Reel Inner Diameter	RD1	30 (1.181)
Tape Width	RW	47 (18.50)
Reel Width	RW1	53 (20.87)
Pitch of Component	P	12.7 ± 1.0 (0.50 ± 0.04)
Feed Hole Pitch	P0	12.7 ± 0.2 (0.50 ± 0.008)
Feed Hole Center to Pitch	P1	3.85 ± 0.7 (0.15 ± 0.03)
Feed Hole Center to Component Center	P2	6.35 ± 0.7 (0.25 ± 0.03)
Lead to Lead Distance	F	5.00 ± 0.8 (0.20 ± 0.03)
Component Alignment	Δh	2.0 (0.79) max.
Tape Width	W	18.0 ± 0.5 (0.71 ± 0.02)
Hole Down Tape Width	W0	12.0 ± 0.8 (0.47 ± 0.03)
Hole Position	W1	9.0 ± 0.5 (0.35 ± 0.02)
Hole Down Tape Position	W2	3.0 (0.12) max.
Height From Center to Component Base	H	19.0 ± 1.0 (0.75 ± 0.04)
Component Height	H1	32.0 (1.26) max.
Feed Hole Diameter	D0	4.0 ± 0.2 (0.16 ± 0.08)
Total Tape Thickness	t	0.6 ± 0.3 (0.02 ± 0.01)
Quantity per Reel (07D180K – 07D391K)	-	2000
Quantity per Reel (07D431K – 07D561K)	-	1500
Quantity per Reel (07D621K – 07D821K)	-	1000

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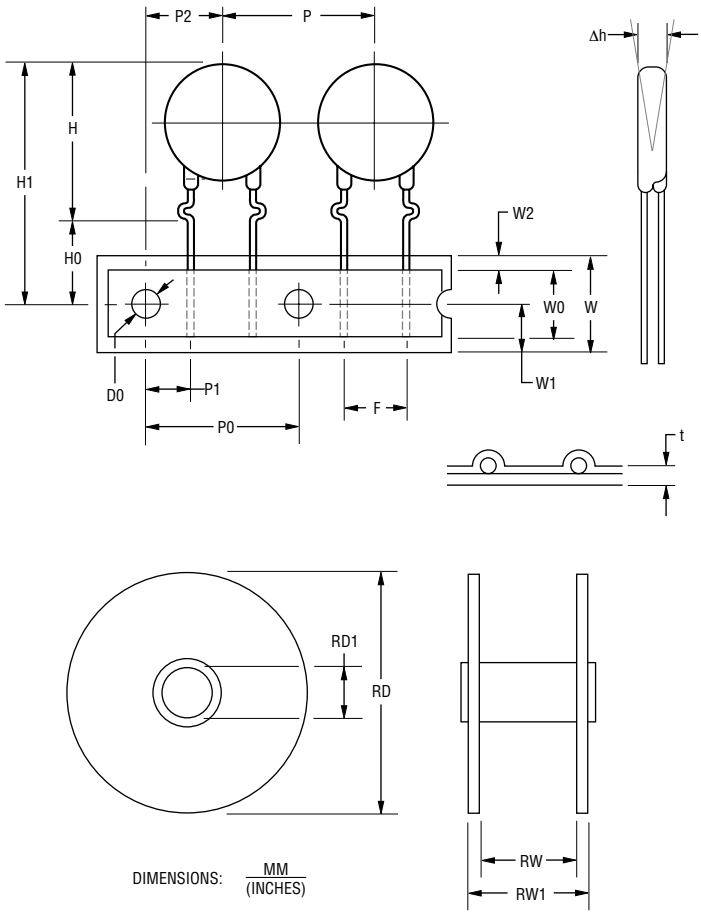
EMEA: Tel: +36 88 885 877 • Email: eurocus@bourns.com
www.bourns.com

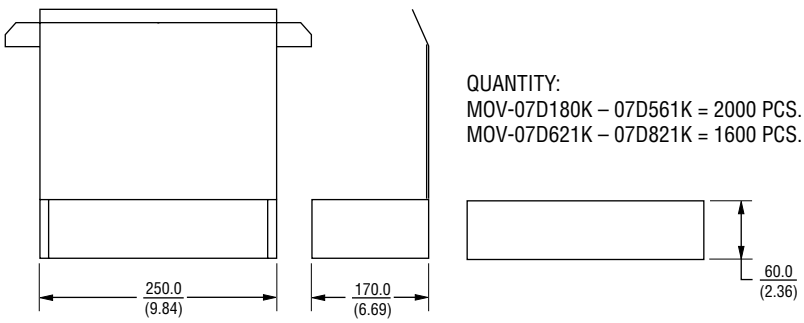
Packaging Information (Continued)

TAPE & REEL - Kinked Leads



Item	Symbol	7 mm Disc
Reel Outside Diameter	RD	355 (13.98)
Reel Inner Diameter	RD1	30 (1.181)
Tape Width	RW	47 (18.50)
Reel Width	RW1	53 (20.87)
Pitch of Component	P	12.7 ± 1.0 (0.50 ± 0.04)
Feed Hole Pitch	P0	12.7 ± 0.2 (0.50 ± 0.008)
Feed Hole Center to Pitch	P1	3.85 ± 0.7 (0.15 ± 0.03)
Feed Hole Center to Component Center	P2	6.35 ± 0.7 (0.25 ± 0.03)
Lead to Lead Distance	F	5.00 ± 0.8 (0.20 ± 0.03)
Component Alignment	Δh	2.0 (0.79) max.
Tape Width	W	18.0 ± 0.5 (0.71 ± 0.02)
Hole Down Tape Width	W0	12.0 ± 0.8 (0.47 ± 0.03)
Hole Position	W1	9.0 ± 0.5 (0.35 ± 0.02)
Hole Down Tape Position	W2	3.0 (0.12) max.
Height From Component Top to Kinked Base	H	13.5 (0.53) max.
Seating Plane Height	H0	16.0 ± 0.5 (0.63 ± 0.02)
Component Height	H1	32.0 (1.26) max.
Feed Hole Diameter	D0	4.0 ± 0.2 (0.16 ± 0.08)
Total Tape Thickness	t	0.6 ± 0.3 (0.02 ± 0.01)
Quantity per Reel (07D180KK – 07D391KK)	-	2000
Quantity per Reel (07D431KK – 07D561KK)	-	1500
Quantity per Reel (07D621KK – 07D821KK)	-	1000

BULK



QUANTITY:
MOV-07D180K – 07D561K = 2000 PCS. PER BOX
MOV-07D621K – 07D821K = 1600 PCS. PER BOX

REV. 07/25

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