



Features

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

Applications

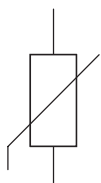
- Power supplies
- Power systems
- Line voltage
- Telecom systems
- White goods / appliances

Sustainability

- Eco-logistics-friendly packing
- Corrosion-resistant for longevity
- ISO 14001, low-impact energy
- Responsibly sourced and produced

Product Overview

The 20 mm radial leaded varistor MOV-20DxxxK Series protects against overvoltage transients such as lightning, power contact and power induction. The metal oxide varistors offer a choice of varistor voltages from 200 V to 1800 V and Vrms voltages from 130 V to 1100 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.

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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			1.00	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		Max. Peak Current	Max. Energy	Typ. Cap.
	r.m.s.	d.c.	Min.	Nom.	Max.	(8/20 μs)		(8/20 μs)	(J)	(pF)
						Class Current (A)	Max. Clamping Voltage (V)	One Time	8/20 μs	1 kHz
MOV-20D201KC	130	170	185	200	225	100	340	6500	95.0	2400
MOV-20D221KC	140	180	198	220	242	100	360	6500	100.0	2160
MOV-20D241KC	150	200	216	240	264	100	395	6500	108.0	1980
MOV-20D271KC	175	225	243	270	297	100	455	6500	127.0	1800
MOV-20D301KC	190	250	270	300	330	100	500	6500	136.0	1560
MOV-20D331KC	210	275	297	330	363	100	550	6500	150.0	1440
MOV-20D361KC	230	300	324	360	396	100	595	6500	163.0	1320
MOV-20D391KC	250	320	351	390	429	100	650	6500	180.0	1200
MOV-20D431KC	275	350	387	430	473	100	710	6500	190.0	1116
MOV-20D471KC	300	385	423	470	517	100	775	6500	220.0	1020
MOV-20D511KC	320	415	459	510	561	100	845	6500	220.0	936
MOV-20D561KC	350	460	504	560	616	100	925	6500	220.0	852
MOV-20D621KC	385	505	558	620	682	100	1025	6500	220.0	780
MOV-20D681KC	420	560	612	680	748	100	1120	6500	220.0	720
MOV-20D751KC	460	615	675	750	825	100	1240	6500	230.0	636
MOV-20D781KC	485	640	702	780	858	100	1290	6500	255.0	612
MOV-20D821KC	510	670	738	820	902	100	1355	6500	265.0	600
MOV-20D911KC	550	745	819	910	1001	100	1500	6500	282.0	528
MOV-20D102KC	625	825	900	1000	1100	100	1650	6500	310.0	480
MOV-20D112KC	680	895	990	1100	1210	100	1815	6500	342.0	432
MOV-20D152KC	940	1200	1350	1500	1650	100	2475	6500	383.0	384
MOV-20D182KC	1100	1465	1620	1800	1980	100	2970	6500	625.0	312

* RoHS Directive 2015/863, Mar 31, 2015 and Annex.
Specifications are subject to change without notice.
Users should verify actual device performance in their specific applications.

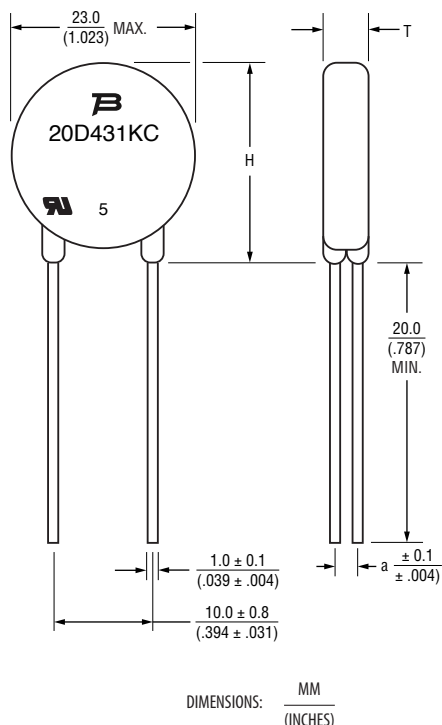
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Product Dimensions

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

Straight Leads



Bourns Part Number	Dim T (Max.)	Dim. H (Max.)	Dim a (Typ.)
MOV-20D201KC	$\frac{4.2}{(.165)}$	26.0 (1.024)	$\frac{2.2}{(.087)}$
MOV-20D221KC	$\frac{4.3}{(.169)}$		$\frac{2.3}{(.091)}$
MOV-20D241KC	$\frac{4.4}{(.173)}$		$\frac{2.4}{(.094)}$
MOV-20D271KC	$\frac{4.6}{(.181)}$		$\frac{2.5}{(.098)}$
MOV-20D301KC	$\frac{4.8}{(.189)}$		$\frac{2.7}{(.106)}$
MOV-20D331KC	$\frac{5.0}{(.197)}$		$\frac{2.8}{(.110)}$
MOV-20D361KC	$\frac{5.2}{(.205)}$		$\frac{2.9}{(.114)}$
MOV-20D391KC	$\frac{5.4}{(.213)}$		$\frac{3.1}{(.122)}$
MOV-20D431KC	$\frac{5.6}{(.220)}$		$\frac{3.3}{(.130)}$
MOV-20D471KC	$\frac{5.9}{(.232)}$		$\frac{3.4}{(.134)}$
MOV-20D511KC	$\frac{6.0}{(.236)}$		$\frac{3.7}{(.146)}$
MOV-20D561KC	$\frac{6.5}{(.256)}$	28.0 (1.102)	$\frac{3.9}{(.154)}$
MOV-20D621KC	$\frac{6.9}{(.272)}$		$\frac{4.1}{(.161)}$
MOV-20D681KC	$\frac{7.0}{(.276)}$		$\frac{4.2}{(.165)}$
MOV-20D751KC	$\frac{7.2}{(.283)}$		$\frac{4.4}{(.173)}$
MOV-20D781KC	$\frac{7.4}{(.291)}$		$\frac{4.4}{(.173)}$
MOV-20D821KC	$\frac{7.8}{(.307)}$		$\frac{4.6}{(.181)}$
MOV-20D911KC*	$\frac{8.2}{(.323)}$		$\frac{4.6}{(.181)}$
MOV-20D102KC*	$\frac{8.7}{(.343)}$		$\frac{4.8}{(.189)}$
MOV-20D112KC*	$\frac{9.2}{(.362)}$		$\frac{5.2}{(.205)}$
MOV-20D152KC**	N/A		
MOV-20D182KC**	N/A		

* Not available in Tape & Reel packaging.

**Not available in Straight Lead configuration; see Kinked Leads (In-line) configuration.

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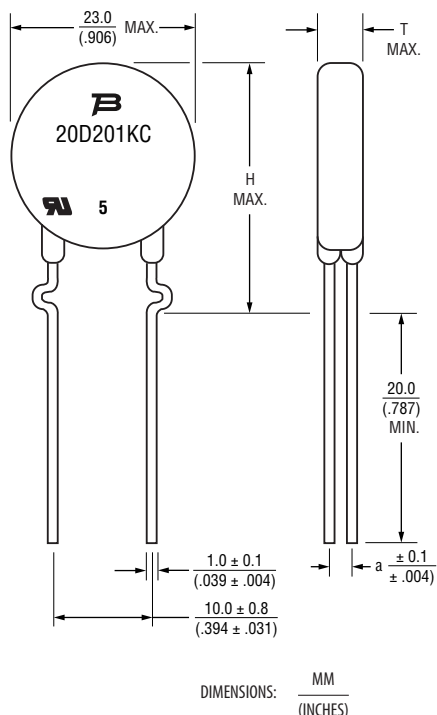
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Product Dimensions (Continued)

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

Kinked Leads (Outward)



(Kinked Lead Product Dimensions continue on page 4.)

Bourns Part Number	Dim T (Max.)	Dim. H (Max.)	Dim a (Typ.)
MOV-20D201KKC	$\frac{4.2}{(.165)}$	$\frac{28.0}{(1.102)}$	$\frac{2.1}{(.083)}$
MOV-20D221KKC	$\frac{4.3}{(.169)}$		$\frac{2.2}{(.087)}$
MOV-20D241KKC	$\frac{4.4}{(.173)}$		$\frac{2.3}{(.091)}$
MOV-20D271KKC	$\frac{4.6}{(.181)}$		$\frac{2.4}{(.094)}$
MOV-20D301KKC	$\frac{4.8}{(.189)}$		$\frac{2.5}{(.098)}$
MOV-20D331KKC	$\frac{5.0}{(.197)}$		$\frac{2.8}{(.110)}$
MOV-20D361KKC	$\frac{5.2}{(.205)}$		$\frac{2.9}{(.114)}$
MOV-20D391KKC	$\frac{5.4}{(.213)}$		$\frac{3.1}{(.122)}$
MOV-20D431KKC	$\frac{5.6}{(.220)}$		$\frac{3.3}{(.130)}$
MOV-20D471KKC	$\frac{5.9}{(.232)}$		$\frac{3.4}{(.134)}$
MOV-20D511KKC	$\frac{6.0}{(.236)}$		$\frac{3.7}{(.146)}$
MOV-20D561KKC	$\frac{6.5}{(.256)}$	$\frac{30.0}{(1.181)}$	$\frac{3.9}{(.154)}$
MOV-20D621KKC	$\frac{6.9}{(.272)}$		$\frac{4.1}{(.161)}$
MOV-20D681KKC	$\frac{7.0}{(.276)}$		$\frac{4.2}{(.165)}$
MOV-20D751KKC	$\frac{7.2}{(.283)}$		$\frac{4.4}{(.173)}$
MOV-20D781KKC	$\frac{7.4}{(.291)}$		$\frac{4.4}{(.173)}$
MOV-20D821KKC		N/A	
MOV-20D911KKC*			
MOV-20D102KKC*			
MOV-20D112KKC*			See Kinked Leads (In-line) Configuration
MOV-20D152KKC*			
MOV-20D182KKC*			

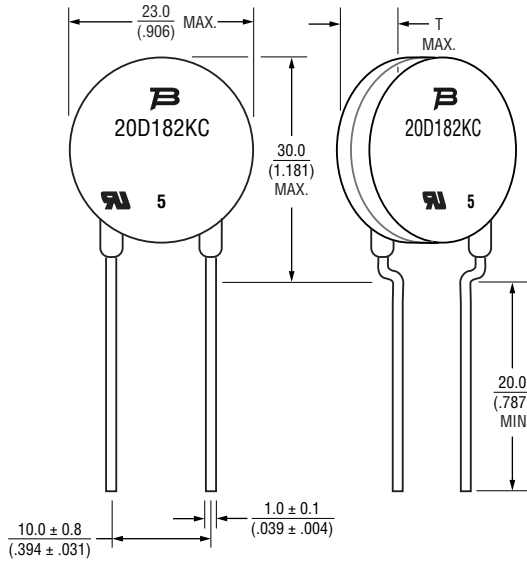
* Not available in Tape & Reel packaging.



Product Dimensions (Continued)

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

Kinked Leads (In-line)



DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

Bourns Part Number	Dim T (Max.)
MOV-20D201KKC	N/A See Kinked Leads (Outward) Configuration
MOV-20D221KKC	
MOV-20D241KKC	
MOV-20D271KKC	
MOV-20D301KKC	
MOV-20D331KKC	
MOV-20D361KKC	
MOV-20D391KKC	
MOV-20D431KKC	
MOV-20D471KKC	
MOV-20D511KKC	
MOV-20D561KKC	
MOV-20D621KKC	
MOV-20D681KKC	
MOV-20D751KKC	
MOV-20D781KKC	
MOV-20D821KKC	$\frac{7.8}{(.307)}$
MOV-20D911KKC*	$\frac{8.2}{(.323)}$
MOV-20D102KKC*	$\frac{8.7}{(.343)}$
MOV-20D112KKC*	$\frac{9.2}{(.362)}$
MOV-20D152KKC*	$\frac{11.4}{(.449)}$
MOV-20D182KKC*	$\frac{13.0}{(.512)}$

* Not available in Tape & Reel packaging.

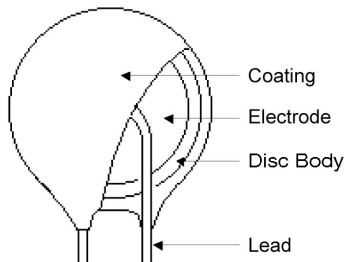


Typical Part Marking

Bourns Part Number	Bourns Part Marking
MOV-20D201KC	20D201KC
MOV-20D221KC	20D221KC
MOV-20D241KC	20D241KC
MOV-20D271KC	20D271KC
MOV-20D301KC	20D301KC
MOV-20D331KC	20D331KC
MOV-20D361KC	20D361KC
MOV-20D391KC	20D391KC
MOV-20D431KC	20D431KC
MOV-20D471KC	20D471KC
MOV-20D511KC	20D511KC
MOV-20D561KC	20D561KC
MOV-20D621KC	20D621KC
MOV-20D681KC	20D681KC
MOV-20D751KC	20D751KC
MOV-20D781KC	20D781KC
MOV-20D821KC	20D821KC
MOV-20D911KC	20D911KC
MOV-20D102KC	20D102KC
MOV-20D112KC	20D112KC
MOV-20D152KC	20D152KC
MOV-20D182KC	20D182KC

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

Internal Construction



How to Order

MOV - 20D nn (n) K _ C (TR)

Model Designator _____
MOV = Metal Oxide Varistor

Disc Diameter _____
20D = 20 mm

Nominal Varistor Voltage _____
See Electrical Characteristics Table

Multiplier of Voltage Digits _____
0 = No multiplier
1 = nn * 10¹
2 = nn * 10²

Varistor Voltage Tolerance _____
K = 10 %

Lead Style _____
Blank = Straight Leads
K = Kinked Leads

Electrode _____
C = Copper-based Electrode

Packaging _____
Blank = Bulk
TR = Tape & Reel

Examples:

MOV-20D201KC 200 V, Straight Leads, Bulk Pack
MOV-20D331KKCTR 330 V, Kinked (Outward) Leads, Tape & Reel
MOV-20D152KKC 1500 V, Kinked (In-line) Leads, Bulk Pack

** Models MOV-20D911KC, 102KC, 112KC, 152KC and 182KC are not available in Tape & Reel packaging.

Environmental Specifications

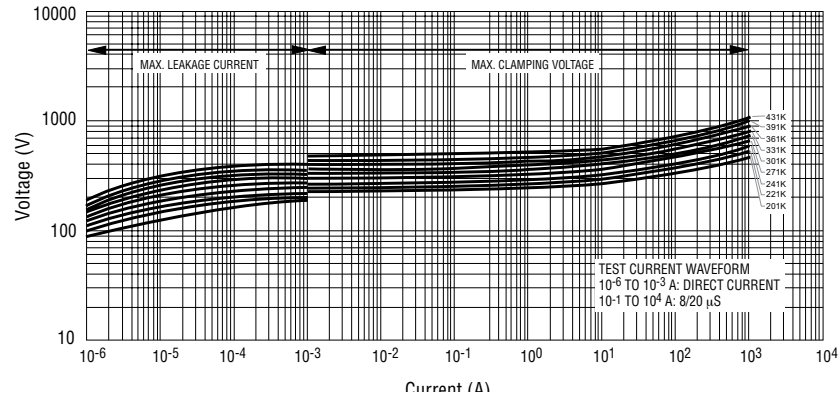
Moisture Sensitivity Level 1
ESD Classification (HBM) N/A



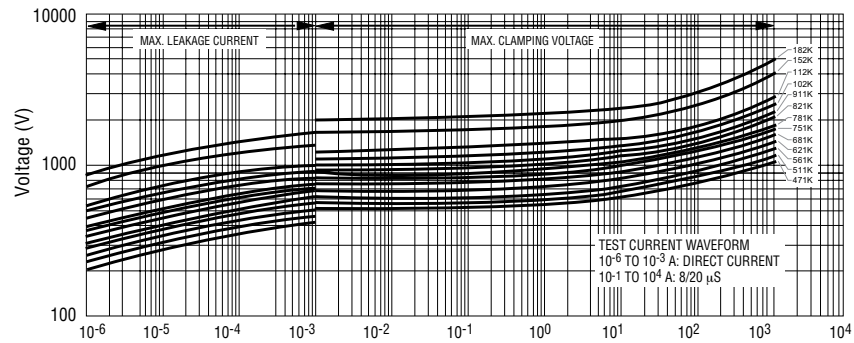
Performance Graphs

V-I Characteristics

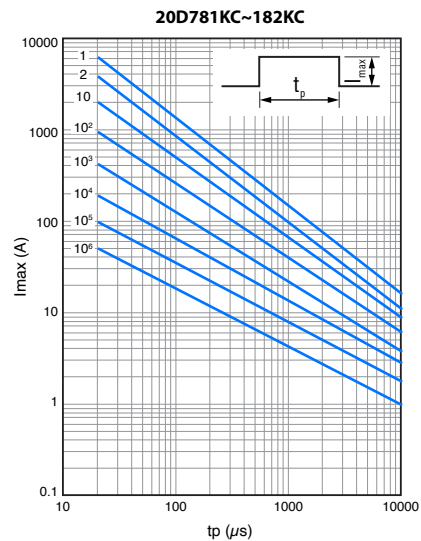
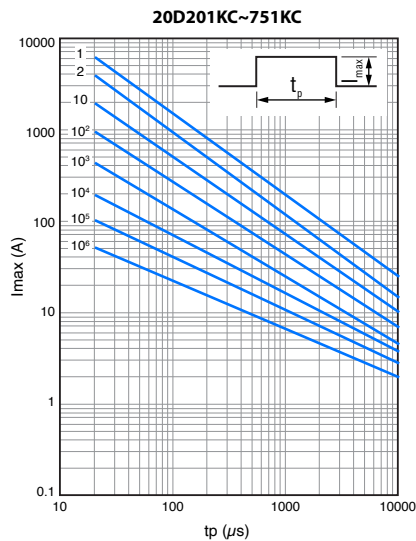
MOV-20D201KC to MOV-20D431KC



MOV-20D471KC to MOV-20D182KC



Pulse Rating Curves



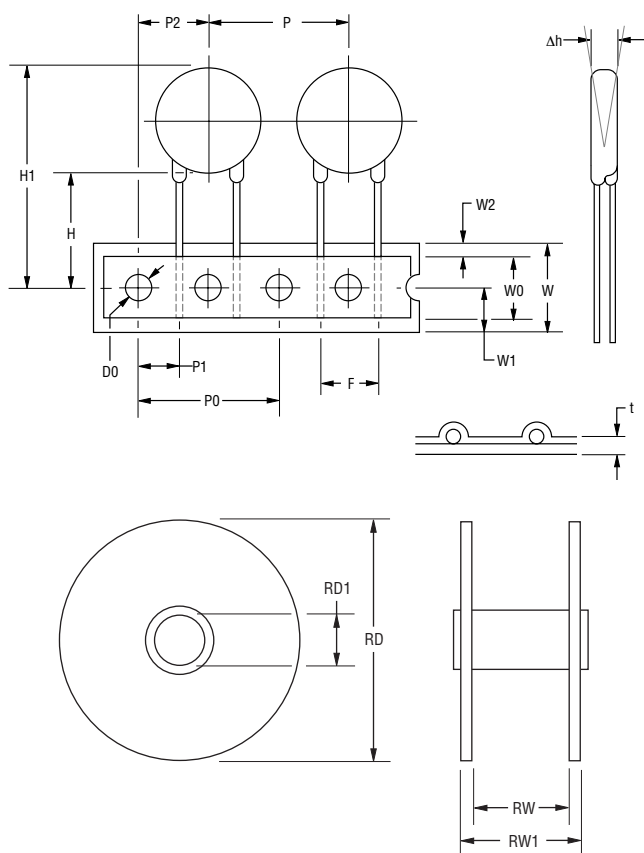
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Packaging Specifications

TAPE & REEL - Straight Leads



NOTE: Models MOV-20D911KC, 102KC, 112KC, 152KC and 182KC are not available in Tape & Reel packaging.

Item	Symbol	20 mm Disc
Reel Outside Diameter	RD	355 (13.98)
Reel Inner Diameter	RD1	30 (1.181)
Tape Width	RW	55 (2.16)
Reel Width	RW1	63 max. (2.48)
Pitch of Component	P	25.4 ± 1.0 (1.00 ± 0.04)
Feed Hole Pitch	P0	12.7 ± 0.2 (0.50 ± 0.008)
Feed Hole Center to Pitch	P1	7.77 ± 0.7 (0.31 ± 0.03)
Feed Hole Center to Component Center	P2	12.7 ± 0.7 (0.50 ± 0.03)
Lead to Lead Distance	F	10.0 ± 0.8 (0.39 ± 0.03)
Component Alignment	Dh	4.0 max. (0.16)
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 max. (0.12)
Height From Center to Component Base	H	19.0 ± 1.0 (0.75 ± 0.04)
Component Height	H1	47.0 max. (1.85)
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	-	250

DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

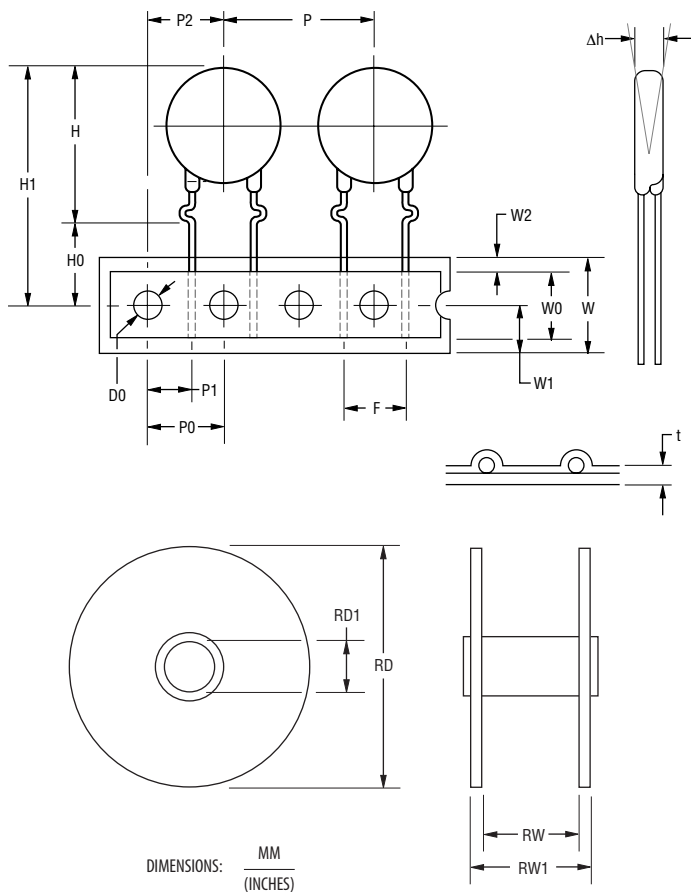
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Packaging Specifications (Continued)

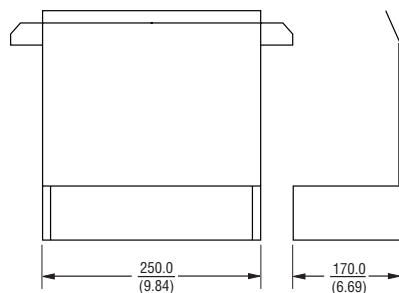
TAPE & REEL - Kinked Leads



NOTE: Models MOV-20D911KCC, 102KCC, 112KCC, 152KCC and 182KCC are not available in Tape & Reel packaging.

Item	Symbol	20 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	$\frac{63}{(2.48)} \text{ max.}$
Pitch of Component	P	$\frac{25.4 \pm 1.0}{(1.00 \pm 0.04)}$
Feed Hole Pitch	P0	$\frac{12.7 \pm 0.2}{(0.50 \pm 0.008)}$
Feed Hole Center to Pitch	P1	$\frac{7.77 \pm 0.7}{(0.31 \pm 0.03)}$
Feed Hole Center to Component Center	P2	$\frac{12.7 \pm 0.7}{(0.50 \pm 0.03)}$
Lead to Lead Distance	F	$\frac{10.0 \pm 0.8}{(0.39 \pm 0.03)}$
Component Alignment	Dh	$\frac{4.0}{(0.16)} \text{ max.}$
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	$\frac{3.0}{(0.12)} \text{ max.}$
Height From Component Top to Kinked Base (MOV-20D201KCC~511KCC)	H	$\frac{28.0}{(1.10)} \text{ max.}$
Height From Component Top to Kinked Base (MOV-20D561KCC~821KCC)	H	$\frac{30.0}{(1.18)} \text{ max.}$
Seating Plane Height	H0	$\frac{16.0 \pm 0.5}{(0.63 \pm 0.02)}$
Component Height	H1	$\frac{47.0}{(1.85)} \text{ max.}$
Feed Hole Diameter	D0	$\frac{4.0 \pm 0.2}{(0.16 \pm 0.08)}$
Total Tape Thickness	t	$\frac{0.6 \pm 0.3}{(0.02 \pm 0.01)}$
Quantity per Reel	-	250

BULK



QUANTITY:

MOV-20D201KC - MOV20D301KC = 500 PCS. PER BOX
 MOV-20D331KC - MOV20D431KC = 400 PCS. PER BOX
 MOV-20D471KC - MOV20D821KC = 300 PCS. PER BOX
 MOV-20D911KC - MOV20D182KC = 200 PCS. PER BOX



REV. 08/26

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