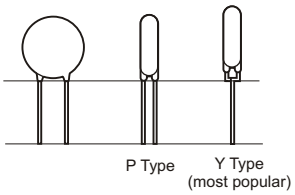
METAL OXIDE VARISTOR
MOV - 5mm Disc

HOW TO SELECT METAL OXIDE VARISTORS



- What is the range of ACrms or DC Voltage in the application?
- How will the varistor be connected in the circuit?
- Calculate the required varistor voltage at 10% to 25% above the system RMS or DC Voltage.
- Calculate the varistor energy rating needed based on energy in transient voltage.
- Calculate the surge current wave form from the surge voltage and surge impedance.
- Check to make sure the withstanding surge current of the varistor is sufficient.
- Check whether the maximum energy and surge life of the varistor is enough.
- Check the relation:

  Maximum withstanding voltage of the protected device > Maximum clamping voltage of the varistor > The real clamping voltage occurred > Breakdown voltage of the varistor >Operating voltage of the protected device.

5 ϕ JVR VARSITOR

Part Number	Maximum Allowable Voltage		Varistor Voltage V@0.1mA		Maximum Clamping Voltage	Withstanding Surge Current		Rated Wattage	Energy 10/1000 μs	UL	CSA	VDE
	ACrms (V)	DC (V)	(V)	Tolerance Range	V@ 5A (V)	1Time (A)	2 Times (A)	(W)	(J)			
JVR05N180M65□△△	11	14	18	± 20%	• 40	100	50	0.01	0.6	✓		
JVR05N220L 65□△△	14	18	22	± 15%	• 48				0.7	✓		
JVR05N270K65□△△	17	22	27		• 60				0.9	✓		
JVR05N330K65□△△	20	26	33		• 73				1.1	✓		
JVR05N390K65□△△	25	31	39		• 86				1.2	✓		
JVR05N470K65□△△	30	38	47		• 104				1.5	✓		
JVR05N560K65□△△	35	45	56		• 123				1.8	✓		
JVR05N680K65□△△	40	56	68		• 150				2.1	✓		
JVR05N820K65□△△	50	65	82		145	400	200	0.1	2.8	✓		✓
JVR05N101K65□△△	60	85	100		175				3.5	✓		✓
JVR05N121K65□△△	75	100	120		210				4.0	✓		✓
JVR05N151K65□△△	95	125	150		260				5.5	✓		✓
JVR05N181K65□△△	115	150	180		320				6.5	✓		✓
JVR05N201K65□△△	130	170	200		355				7.1	✓	✓	✓
JVR05N221K65□△△	140	180	220	±10%	380				7.8	✓	✓	✓
JVR05N241K65□△△	150	200	240		415				8.4	✓	✓	✓
JVR05N271K65□△△	175	225	270		475				9.9	✓	✓	✓
JVR05N301K65□△△	195	250	300		525				10.5	✓	✓	✓
JVR05N331K65□△△	210	275	330		575				11.5	✓	✓	✓
JVR05N361K65□△△	230	300	360		620				13.0	✓	✓	✓
JVR05N391K65□△△	250	320	390		675				15.0	✓	✓	✓
JVR05N431K65□△△	275	350	430		745				16.5	✓	✓	✓
JVR05N471K65□△△	300	385	470		810				17.5	✓	✓	✓
JVR05N511K65□△△	320	418	510		880				18.5	✓	✓	
JVR05N561K65□△△	350	460	560		940				19.5	✓	✓	
JVR05N621K65□△△	385	505	620		1050				20.5	✓	✓	
JVR05N681K65□△△	420	560	680		1150				21.5	✓	✓	
JVR05N751K65□△△	460	615	750		1290				22.5	✓	✓	

1) The clamping voltage from 180M to 680K are tested with current 1A.
For application required ratings not shown, contact RFE application engineering.

□ : Lead Style
Y: vertical kink (standard)
P: straight leads

△△ : Lead Length / Packing Method

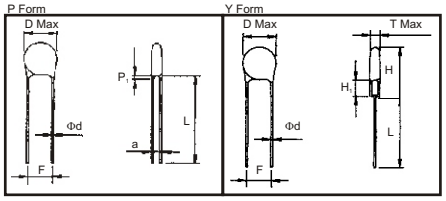
DIMENSION OF COMPONENT

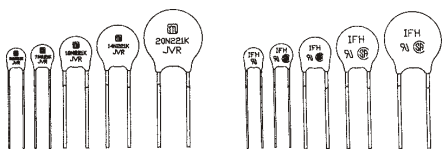
Dimension Table unit: mm

Diameter	5ϕ
D max	7.5
d (± 0.5)	0.6
F (± 1)	5.0
H Max	11.0
H_1 Max	3.5
L Min (Y Type)	24.0
L Min (P Type)	25.0

Table of T Max, & a

Diameter (Φ)	Dimension		Diameter (Φ)	Dimension	
Code	T Max	a ± 0.8	Code	T Max	a ± 0.8
180M	4.5	0.8	221K	4.3	1.1
220M/L	4.5	0.9	241K	4.4	1.1
270M/K	4.7	0.9	271K	4.6	1.3
330M/K	4.7	1.0	301K	4.8	1.3
390L/K	4.7	1.2	331K	4.9	1.3
470L/K	5.0	1.2	361K	5.1	1.8
560L/K	5.0	1.4	391K	5.3	2.0
680L/K	5.5	1.7	431K	6.1	2.1
820K	3.8	0.8	471K	6.4	2.2
101K	3.9	0.8	511K	6.6	2.5
121K	4.1	0.9	561K	6.9	2.8
151K	4.5	1.2	621K	7.2	3.1
181K	4.1	1.0	681K	7.5	3.4
201K	4.2	1.0	751K	7.9	3.7

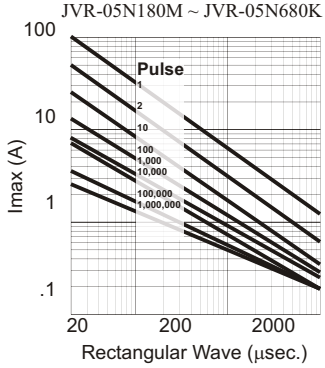




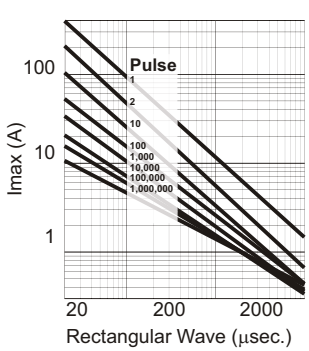
METAL OXIDE VARISTOR
MOV - 5mm Disc

PULSE RATING CURVES

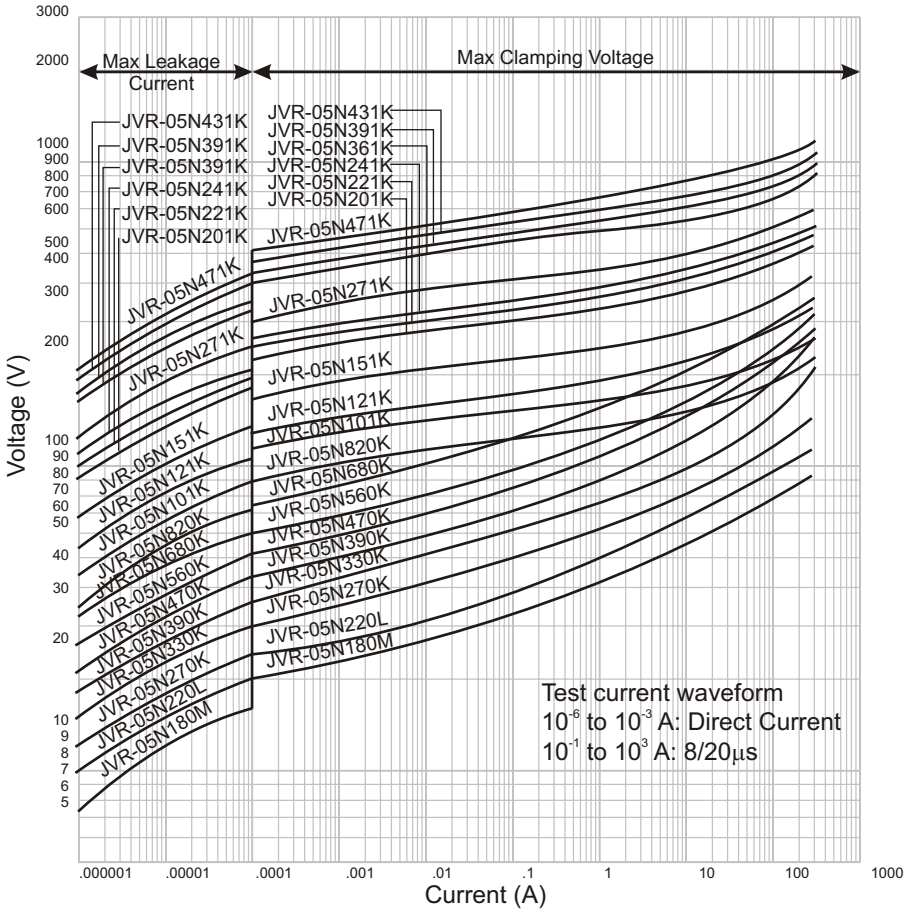
JVR-05N180M ~ JVR-05N680K



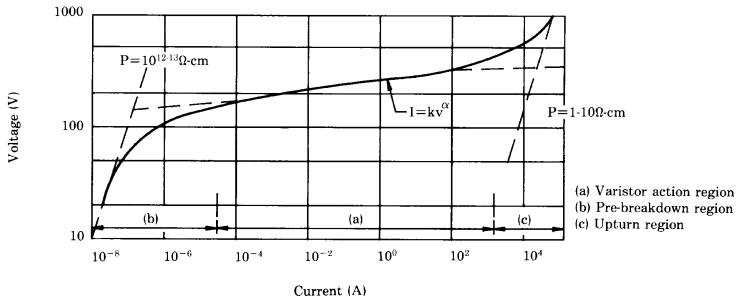
JVR-05N820K ~ JVR-05N751K



5mm V-I CHARACTERISTIC CURVE



CURENT - VOLTAGE CHARACTERISTICS

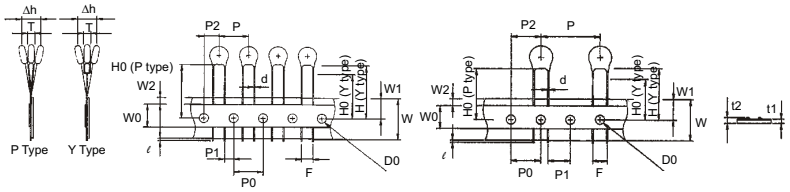


•Operating & Storage Temperature Range: -40 to +125°C
•Temp. Coefficient of voltage: 0 ~ 0.05% / °C max

METAL OXIDE VARISTOR
MOV - 5mm Disc

RoHS

TAPING SPECIFICATIONS

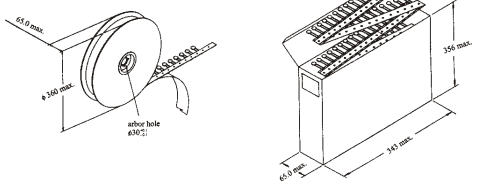


units: mm

Symbol	Item	Dimensions	Symbol	Item	Dimensions
ℓ	Cut out length	1.1 max	P	Pitch of component	12.7 ± 0.3
H (Y Type)	Height of Component from hole center	20.0 max	P0	Sprocket hole pitch	12.7 ± 0.3
H0 (Y Type)	Height to seating plane	16.0 ± 0.5	P1	Lead length from hold center lead	3.85 ± 0.7
H0 (P Type)	Height of component from hole center	16.0 ~ 21.0	P2	Length from hole center to disk center	6.35 ± 1.3
△h	Front to back deveation	0 ± 2.0	D0	Procket hole diameter	4.0 ± 0.2
W	Carrier tape width	18.0 ± 1-.05	d	Lead wire diameter	0.6 ± 0.05
W0	Hold down tape width	10	T	Disk Thickness	See T max table
W1	Sprocket hole position	9.0 + 0.75 - 0.5	t1	Total thickness tape	0.7 ± 0.05
W2	Adhesive tape position	3.0 max	t2	Total thickness tape with tape	1.6 max
F	Component lead spacing	5.0 + 0.8 - 0.2			

REEL & AMMO SPECIFICATIONS

Voltage Code	Bulk (box)	Reel	Ammo
180 ~ 331	5000	1500	1500
361	5000	1500	1500
391	5000	1500	1000
431 ~ 471	5000	1500	1000
511 ~ 751	4000	1000	1000



PART NUMBER EXAMPLE

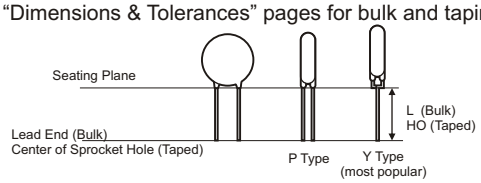
JVR - 05 N 180 K 6 5 Y RW

(1) (2) (3) (4) (5)(6)(7)(8) (9)

1- Series (JVR) Metal Oxide Varistor
2- Disc Diameter or size
3- N for standard
4- Varistor Voltage
5- Tolerance:
  K= ± 10%
  L = ± 15%
  M =± 20%
6- Lead Diameter
  6: 0.6±0.05mm
7- Lead Spacing
  5: 5.0mm
8 - Y or P Type Lead Configurations

STANDARD LEAD CONFIGURATIONS

See “Dimensions & Tolerances” pages for bulk and taping specifications



9 - Lead Length / Packaging

Lead Type	Code	Dimension*	Packaging
Y Type Leads	50	L= 5±0.5mm	Bulk
	U4	L= 24mm min.	Bulk
	AW	HO= 16mm	Ammo
	RW	HO= 16mm	Reel
	AX	HO= 18mm	Ammo
	RX	HO= 18mm	Reel
	AZ	HO= 20mm	Ammo
P Type Leads	50	L= 5±0.5mm	Bulk
	U5	L= 25mm min.	Bulk
	AY	HO= 20mm	Ammo
	RY	HO= 20mm	Reel

* See “Dimensions & Tolerances” pages, for dimension illustration.
L - From seating plane to end of lead.
HO - From seating plane to center of sprocket feed hole.