



Metal Oxide Varistors

Varistor>40D201~162K Series



Applications

- Transistor, diode, IC, thyristor or triac semiconductor protection.
- Surge protection in consumer electronics.
- Surge protection in industrial electronics.
- Surge protection in electronic home appliances, gas and petroleum appliances.
- Relay and electromagnetic valve surge absorption.

Features

- Wide operating voltage (V1mA) range from 8V to 1800V.
- Fast responding to transient over-voltage.
- Large absorbing transient energy capability.
- Low clamping ratio and no following-on current.

General Information

The MOV-40DxxxK Series of 40 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 200 V to 1600 V and Vrms voltages from 130 V to 1000 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.

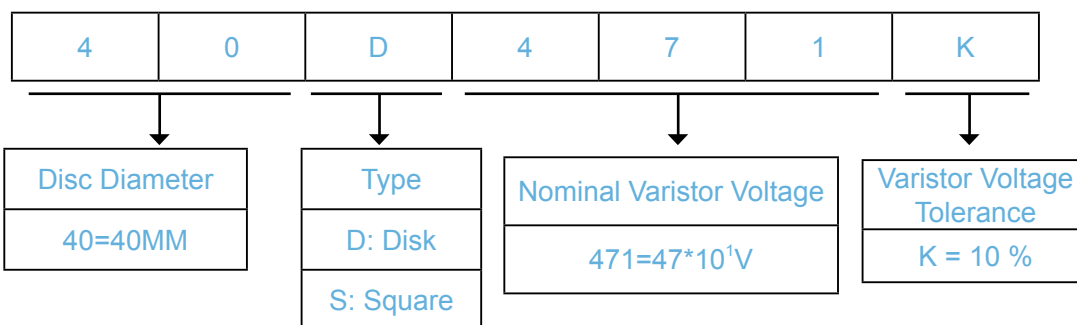
General Characteristics

No Radioactive Material
 Storage Temperature: -55°C to +125°C
 Operating Temperature: -55°C to +85°C
 Body: Nickel Plated
 Leads: Surface-mount, Axial Devices: Tin Plated
 Devices with No Leads: Nickel Plated

Packaging Information

Part Number	Component package	Quantity	Packaging Option	Packaging Specification
40D	40.0	100	BOX	200PCS

Product Name



Electrical Characteristics (@ TA = 25 °C Unless Otherwise Noted)

Type Number	Maximum Allowable Voltage		Varistor Voltage $V_{1mA}(V)$	Maximum Clamping Voltage		Withstanding Surge Current $I(A)$	Maximum Energy (10/1000 μ s) (J)	Typical Capacitance (Reference) @1KHz(pf)
	$V_{AC}(V)$	$V_{DC}(V)$		$I_P(A)$	$V_C(V)$			
40D201K	130	170	200(180~220)	300	340	40000	370	8400
40D221K	140	180	220(198~242)	300	360	40000	400	8200
40D241K	150	200	240(216~264)	300	395	40000	430	8000
40D271K	175	225	270(243~297)	300	455	40000	470	7600
40D301K	190	250	300(270~330)	300	500	40000	510	7300
40D331K	210	275	330(297~363)	300	550	40000	550	6700
40D361K	230	300	360(324~396)	300	595	40000	570	6200
40D391K	250	320	390(351~429)	300	650	40000	590	5100
40D431K	275	350	430(387~473)	300	710	40000	660	4900
40D471K	300	385	470(423~517)	300	775	40000	720	4300
40D511K	320	415	510(459~561)	300	845	40000	770	4200
40D561K	350	460	560(504~616)	300	925	40000	810	4000
40D621K	385	505	620(558~682)	300	1025	40000	860	3800
40D681K	420	560	680(612~748)	300	1120	40000	900	3500
40D751K	460	615	750(675~825)	300	1240	40000	940	3200
40D781K	485	640	780(702~858)	300	1290	40000	980	3000
40D821K	510	670	820(738~902)	300	1355	40000	1080	2900
40D911K	550	745	910(819~1001)	300	1500	40000	1150	2200
40D951K	575	765	950(855~1045)	300	1570	40000	1200	2000
40D102K	625	825	1000(900~1100)	300	1650	40000	1260	1800
40D112K	680	895	1100(990~1210)	300	1815	40000	1380	1600
40D122K	750	990	1200(1080~1320)	300	1980	40000	1380	1500
40D142K	880	1140	1400(1260~1540)	300	2310	40000	1550	1300
40D162K	1000	1280	1600(1440~1760)	300	2640	40000	1700	1150

Current Energy and Power Dissipation Ratings

Should transients occur in rapid succession, the average power dissipation is the energy (watt-seconds) per pulse times the number of pulses per second. The power so developed must be within the specifications shown on the Device Ratings and Specifications Table for the specific

device. The operating values of a MOV need to be derated at high temperatures as shown above. Because varistors only dissipate a relatively small amount of average power they are not suitable for repetitive applications that involve substantial amounts of average power dissipation.

Figure 1A - Power Derating for Epoxy Coated

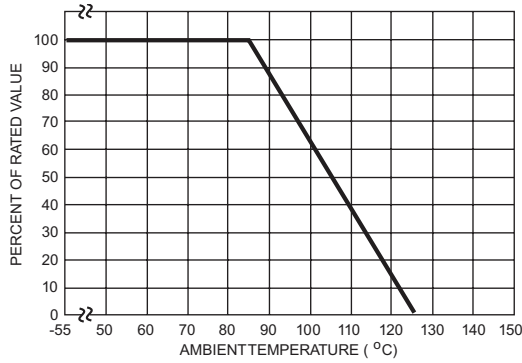
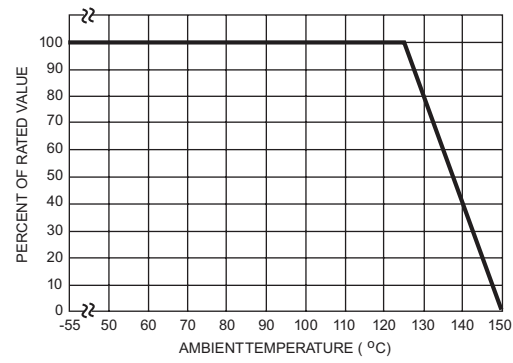


Figure 1B - Power Derating for Pholenic Coated



Peak Pulse Current Test Waveform

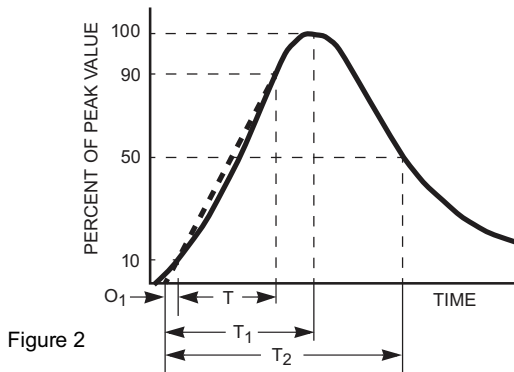


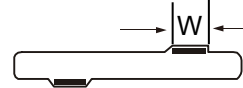
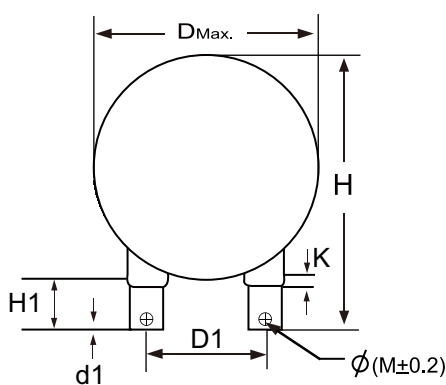
Figure 2

- O_1 = Virtual Origin of Wave
- T = Time from 10% to 90% of Peak
- T_1 = Rise Time = $1.25 \times T$
- T_2 = Decay Time

Example - For an 8/20 μ s Current Waveform:

- $8\mu\text{s} = T_1$ = Rise Time
- $20\mu\text{s} = T_2$ = Decay Time

Package Dimensions



Unit:mm

TABLE 1

Symbol	Dimensions
H(max.)	60.2
H1(max.)	16.5
D(max.)	45
D1(+1.0)	25.4
T(max.)	TABLE 2
d(+0.1)	0.5
d1(+0.3)	3.4
K(max.)	3.18
W(+0.5)	7.0
(M+0.2)	3.8

TABLE 2

Model	T(max.)	Model	T(max.)
201K	6.2	911K	10.4
221K	6.3	951K	10.6
241K	6.4	102K	11.2
271K	6.6	112K	11.8
301K	6.8	122K	12.3
331K	6.9	142K	13.3
361K	7.1	162K	14.3

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