MOV Metal Oxide Varistors

PN

The body of the varistor is a matrix structure composed of oxide particles. The grain boundary between the particles is similar to the electrical features of the bidirectional PN junction. When the voltage is low, these grain boundaries are in a high impedance state, when the voltage is high, they turn into the breakdown state. MOV is a nonlinear device.

Feature

- high surge absorption capability
- 18V 1800V Voltage range from 18V to 1800V
- 70KA Surge current up to 70kA

Application

- LED
  Suppression of inburst transient in consumer electronic and industrial electronic .Such as LED Lighting , Energy Meter , Switch , Power strip etc .
- Suppression of inburst transient in communication and cable network equipment .
- Suppression of internally generated spikes in electronics circuits .
- Photographic Apparatus and so on which used in voltage limiting switching .

SMT

Surface mountable MOV(Metal Oxide Varistors) devices facilitate customs in SMT assembly process and resolve the PCB space limitation issue

Feature

- Small size and SMD capability
- High transient current capability
- Low voltage available
- Exce clamping performance
- Fast response time
- ROHS and Halogen-Free Comply with ROHS and Halogen-Free

Genral characteristics

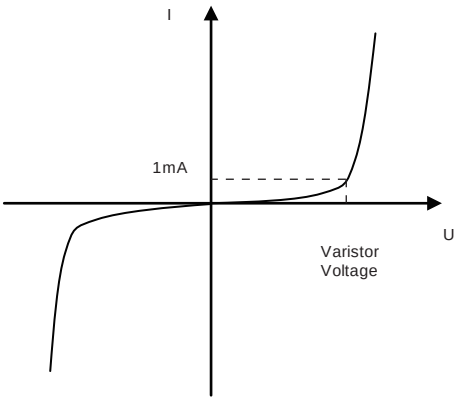
- -55 to+85 Operating ambient temprature range: -55 to+85
- -55 to+85 Storage temprature range: -55 to+85

Part Number	Working Voltage		Breakdown Voltage		peak current	Clamping Voltage	
	AC	DC	Ip200A		8/20uS	8/20uS	
	VRMS	VDC	VB		IPP(Max	VC	A
MVR0805-2R0	1.40	2.00	3.3	2.6~4.0	80A	9	1
MVR0805-3R3	2.40	3.30	5.0	4.0~6.0	80A	12	1
MVR0805-5R5	4.00	5.50	8.0	6.6~9.9	80A	14	1
MVR0805-9R0	7.00	9.00	12.0	10~15.5	80A	24	1
MVR0805-140	11.0	14.0	18.0	15~20.5	80A	30	1
MVR0805-160	12.0	16.0	21.0	17~24	80A	35	1
MVR0805-180	14.0	18.0	24.0	22~27	80A	38	1
MVR0805-220	17.0	22.0	27.0	24~30	80A	42	1
MVR0805-240	19.0	24.0	30.0	27~33	80A	47	1
MVR0805-260	20.0	26.0	33.0	29~36	80A	54	1
MVR0805-270	21.0	27.0	37.0	30~40.5	80A	60	1
MVR0805-300	24.0	30.0	39.0	35~42.0	80A	65	1
MVR0805-360	28.0	36.0	47.0	42~52.5	80A	77	1

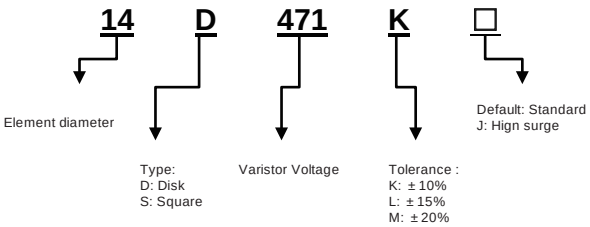
Part Number	Working Voltage		Breakdown Voltage	peak current	Clamping Voltage	
	AC	DC	Ip200A	8/20uS	8/20uS	
	VRMS	VDC	VB	IPP(Max	VC	A

Model	0402 (1005)	0603 (1608)	0805 (2012)	1206 (3216)	1210 (3225)	1812 (4532)	2220 (5650)	2225(5763)	3220(8050)

V-Icharacteristics



Part Numbering System



Product Dimension

Spec	D	T	L	B	d
	MAX	MAX	Min	±1	±0.1
5D	7.5	6.0	25.0	5.0	0.6
7D	9.0	6.0	25.0	5.0	0.6
10D	14.0	8.0	25.0	7.5	0.8
14D	17.0	12.0	25.0	7.0	0.8
20D	25.0	12.0	25.0	10.0	1.0
25D	30.0	12,0	25.0	12.5	1.0
32D	30.0	12.0	25.0	25.0	1.0

7D Series varistor Specification

10D Series varistor Specification

Model	Varistor Voltage	Max Allowable Voltage		Clamping Voltage	Max. peak current 8/20μs times		Max. Energy (Joule)		cap .Ref
	0.1mA	AC	DC	V 5A	1t	2t	10/1000	2ms	@1kz
	V	V	V	V	A	A	μs		pf
10D180K	18(15 - 21.6)	11	14	38	500	250	2.3	2.0	7.5K
10D220K	22(20~24)	14	18	43	500	250	2.5	2.0	4.5K
10D270K	27(24~30)	17	22	53	500	250	3.0	2.5	3.7K
10D330K	33(30~36)	20	26	65	500	250	4.0	3.0	3.K
10D390K	39(35~43)	25	31	77	500	250	4.6	3.5	2.4K
10D470K	47(42~52)	30	38	93	500	250	5.5	4.5	2.1K
10D560K	56(50~62)	35	45	110	500	250	7.0	5.5	1.8K
10D680K	68(61~75)	40	56	135	500	250	8.2	6.5	1.5K
10D820K	82(74~90)	50	65	135	2500	1250	12.0	8.0	1.2K
10D101K	100(90~100)	60	85	165	2500	1250	15.0	10.0	1.0K
10D121K	120(108~132)	75	100	200	2500	1250	18.0	12.0	830
10D151K	150(135~165)	95	125	250	2500	1250	22.0	16.0	670
10D181K	180(162~198)	115	150	300	2500	1250	27.0	18.5	560
10D201K	200(185~225)	130	170	340	2500	1250	30.0	20	500
10D221K	220(198~242)	140	180	360	2500	1250	32.0	23	450
10D241K	240(216~264)	150	200	395	2500	1250	35.0	25	420
10D271K	270(243~297)	175	225	455	2500	1250	40.0	30	370
10D301K	300(270~330)	195	250	500	2500	1250	40.0	32	330
	2500	1250	³ 0.0 ^	30					4

1250

14D Series varistor Specification

Model	Varistor Voltage	Max Allowable Voltage		Clamping Voltage	Max. peak current 8/20μs times		Max. Energy (Joule)		cap .Ref
	0.1mA	AC	DC	V 5A	1t	2t	10/1000	2ms	@1kz
	V	V	V	V	A	A	μs		pf
14D180L	18(16~21)	11	14	36	1000	500	4.0	3.5	11.1K
14D220K	22(20~24)	14	18	43	1000	500	5.0	4.0	9.1K
14D270K	27(24~30)	17	22	53	1000	500	6.0	5.0	7.4K
14D330K	33(30~36)	20	26	65	1000	500	7.5	6.0	6.1K
14D390K	39(35~43)	25	31	77	1000	500	8.6	7.0	5.5K
14D470K	47(42~52)	30	38	93	1000	500	10	8.5	4.3K
14D560K	56(50~62)	35	45	110	1000	500	11	10	3.6K
14D680K	68(61~75)	40	56	135	1000	500	14	12	2.9K
14D820K	82(74~90)	50	65	135	4500	2500	22	14	2.4K
14D101K	100(90~100)	60	85	165	4500	2500	28.0	18	2.0K
14D121K	120(108~132)	75	100	200	4500	2500	32.0	20	1.7K
14D151K	150(135~165)	95	125	250	4500	2500	40.0	25	1.3K
14D181K	180(162~198)	115	150	300	4500	2500	50.0	30.	1.1K
14D201K	200(185~225)	130	170	340	4500	2500	57.0	35	1.1K
14D221K	220(198~242)	140	180	360	4500	2500	60.0	40	900
14D241K	240(216~264)	150	200	395	4500	2500	63.0	40	830
14D271K	270(243~297)	175	225	455	4500	2500	70.0	50	740
14D301K	300(270~330)	190	250	500	4500	2500	77.0	52	670
14D331K	330(297~363)	210	275	550	4500	2500	85.0	64	610
14D361K	360(324~396)	230	300	595	4500	2500	93.0	65	560
14D391K	390(351~429)	250	320	650	4500	2500	100.0	70	510
14D431K	430(387~473)	275	350	710	4500	2500	115.0	75	460
14D471K	470(423~517)	300	385	775	4500	2500	125.0	80	430
14D511K	510(459~561)	320	415	845	4500	2500	125.0	80	390
14D561K	560(504~616)	350	460	925	4500	2500	125.0	85	360
14D621K	620(558~682)	385	505	1025	4500	2500	125.0	85	320
14D681K	680(612~748)	420	560	1120	4500	2500	130.0	90	290
14D751K	750(657-825)	460	615	1240	6500	5000	210	150	260
14D781K	780(702-858)	485	640	1290	6500	5000	225	160	230
14D821K	820(738-902)	510	670	1355	6500	5000	235	165	230
14D911K	910(819-1001)	550	745	1500	6500	5000	255	180	200
14D951K	951(855-1045)	575	765	1580	6500	5000	270	190	190
14D102K	1.0K(900-1100)	625	825	1650	6500	5000	280	200	180
14D112K	1.1K(990-1210)	680	895	1815	6500	5000	310	220	150
14D182K	1.8K(1620-1980)	1000	1465	2970	6500	5000	510	360	120

20D Series varistor Specification

Model	Varistor Voltage	Max Allowable Voltage		Clamping Voltage	Max. peak current 8/20μs times		Max. Energy (Joule)		cap .Ref
	0.1mA	AC	DC	V 5A	1t	2t	10/1000	2ms	@1kz
	V	V	V	V	A	A	μs		pf
20D180L	18(16~21)	11	14	36	2000	1000	11.0	10.0	28500
20D220K	22(20~24)	14	18	43	2000	1000	14.0	13	18.5K
20D270K	27(24~30)	17	22	53	2000	1000	18.0	15	13K
20D330K	33(30~36)	20	26	65	2000	1000	23.0	20	11.5K
20D390K	39(35~43)	25	31	77	2000	1000	26.0	24	8.5K
20D470K	47(42~52)	30	38	93	2000	1000	33.0	30	7.4K
20D560K	56(50~62)	35	45	110	2000	1000	41.0	35	6.5K
20D680K	68(61~75)	40	56	135	2000	1000	46.0	40	5.8K
20D820K	82(74~90)	50	65	135	3000	2000	38.0	27	4.9K
20D101K	100(90~100)	60	85	165	10000	7000	45.0	30	4.0K
20D121K	120(108~132)	75	100	200	10000	7000	55.0	40	3.3K
20D151K	150(135~165)	95	125	250	10000	7000	70.0	50	2.7K
20D181K	180(162~198)	115	150	300	10000	7000	85.0	60	2.2K
20D201K	200(185~225)	130	170	340	10000	7000	95.0	70	2.0K
20D221K	220(198~242)	140	180	360	10000	7000	100.0	75	1.8K
20D241K	240(216~264)	150	200	395	10000	7000	108.0	80	1.65K
20D271K	270(243~297)	175	225	455	10000	7000	127.0	90	1.5K
20D301K	300(270~330)	190	250	500	10000	7000	136.0	100	1.3K
20D331K	330(297~363)	210	275	550	10000	7000	150.0	110	1.2K
20D361K	360(324~396)	230	300	595	10000	7000	163.0	120	1.1K
20D391K	390(351~429)	250	320	650	10000	7000	180.0	130	1.0K
20D431K	430(387~473)	275	350	710	10000	7000	190.0	140	930
20D471K	470(423~517)	300	385	775	10000	7000	220.0	150	850
20D511K	510(459~561)	320	415	845	10000	7000	220.0	150	780
20D561K	560(504~616)	350	460	925	10000	7000	220.0	150	970
20D621K	620(558~682)	385	505	1025	10000	7000	220.0	150	950
20D681K	680(612~748)	420	560	1120	10000	7000	230.0	160	900
20D751K	750(657-825)	460	615	1240	10000	7000	420	300	850
20D781K	780(702-858)	485	640	1290	10000	7000	445	315	750
20D821K	820(738-902)	510	670	1355	10000	7000	460	325	700
20D911K	910(819-1001)	550	745	1500	10000	7000	510	360	600
20D951K	951(855-1045)	575	765	1580	10000	7000	535	380	550
20D102K	1.0K(900-1100)	625	825	1650	10000	7000	560	400	500
20D112K	1.1K(990-1210)	680	895	1815	10000	7000	620	440	450
20D122K	1.8K(1080-1320)	750	985	1990	10000	7000	675	580	400
20D152K	1.5K(1350-1650)	850	1185	2310	10000	7000	810	640	350
20D182K	1.8K(1620-1980)	1000	1465	2970	10000	7000	1020	720	220

25D Series varistor Specification

Model	Varistor Voltage	Max Allowable Voltage		Clamping Voltage	Max. peak current 8/20μs times		Max. Energy (Joule)		cap .Ref
	0.1mA	AC	DC	V 5A	1t	2t	10/1000	2ms	@1kz
	V	V	V	V	A	A	μs		pf
25D201K	200(185~225)	130	170	340	20000	15000	170	140	2.4K
25D221K	220(198~242)	140	180	360	20000	15000	180	150	2.2K
25D241K	240(216~264)	150	200	395	20000	15000	190	160	2.0K
25D271K	270(243~297)	175	225	455	20000	15000	200	180	1.7K
25D301K	300(270~330)	190	250	500	20000	15000	230	200	1.6K
25D331K	330(297~363)	210	275	550	20000	15000	250	220	1.5K
25D361K	360(324~396)	230	300	595	20000	15000	280	240	1.4K
25D391K	390(351~429)	250	320	650	20000	15000	315	260	1.2K
25D431K	430(387~473)	275	350	710	20000	15000	340	280	1.1K
25D471K	470(423~517)	300	385	775	20000	15000	360	300	1.05K
25D511K	510(459~561)	320	415	845	20000	15000	430	300	1.0K
25D561K	560(504~616)	350	460	925	20000	15000	440	300	0.95K
25D621K	620(558~682)	385	505	1025	20000	15000	460	300	0.90K
25D681K	680(612~748)	420	560	1120	20000	15000	480	320	0.85K
25D751K	750(657-825)	460	615	1240	20000	15000	500	340	0.80K
25D781K	780(702-858)	485	640	1290	20000	15000	510	350	0.75K
25D821K	820(738-902)	510	670	1355	20000	15000	525	360	0.70K
25D911K	910(819-1001)	550	745	1500	20000	15000	540	390	0.65K
25D951K	951(855-1045)	575	765	1580	20000	15000	560	400	0.62K
25D102K	1.0K(900-1100)	625	825	1650	20000	15000	600	420	0.60K
25D122K	1.2K(1080-1320)	750	980	1980	20000	15000	700	550	0.55K
25D142K	1.4K(1278~1540)	870	1160	2370	20000	15000	900	680	0.52K
25D162K	1.6K(1440~1584)	1000	1200	2700	20000	15000	1025	750	0.50K
25D182K	1.8K(1620-1980)	1200	1450	2970	20000	15000	1150	800	0.45K

32D Series varistor Specification

Model	Varistor Voltage	Max Allowable Voltage		Clamping Voltage	Max. peak current 8/20μs times		Max. Energy (Joule)		cap .Ref
	0.1mA	AC	DC	Ip200A	1t	2t	μs	J	@1kz
	V	V	V	V	A	A			pf
32D201K	200(185~225)	130	170	340	25000	20000	10/1000	250	4.2K
32D221K	220(198~242)	140	180	360	25000	20000	10/1000	270	3.8K
32D241K	240(216~264)	150	200	395	25000	20000	10/1000	290	3.5K
32D271K	270(243~297)	175	225	455	25000	20000	10/1000	300	3.2K
32D301K	300(270~330)	190	250	500	25000	20000	10/1000	330	2.9K
32D331K	330(297~363)	210	275	550	25000	20000	10/1000	360	2.7K
32D361K	360(324~396)	230	300	595	25000	20000	10/1000	380	2.5K
32D391K	390(351~429)	250	320	650	25000	20000	10/1000	400	2.3K
32D431K	430(387~473)	275	350	710	25000	20000	10/1000	430	2.1K
32D471K	470(423~517)	300	385	775	25000	20000	10/1000	460	1.8K
32D511K	510(459~561)	320	415	845	25000	20000	10/1000	510	1.7K
32D561K	560(504~616)	350	460	925	25000	20000	10/1000	56	35

34S Series varistor Specification

Model	Varistor Voltage	Max Allowable Voltage		Clamping Voltage	Max. peak current 8/20μs times		Max. Energy (Joule)		cap .Ref
	0.1mA	AC	DC	Ip200A	1t	2t	μs	J	@1kz
	V	V	V	V	A	A			pf
34S201K	200(185~225)	130	170	340	40K	30k	10/1000	310	5980
34S221K	220(198~242)	140	180	360	40K	30k	10/1000	330	5520
34S241K	240(216~264)	150	200	395	40K	30k	10/1000	360	5050
34S271K	270(243~297)	175	225	455	40K	30k	10/1000	390	4600
34S301K	300(270~330)	190	250	500	40K	30k	10/1000	410	4230
34S331K	330(297~363)	210	275	550	40K	30k	10/1000	430	3950
34S361K	360(324~396)	230	300	595	40K	30k	10/1000	460	3680
34S391K	390(351~429)	250	320	650	40K	30k	10/1000	490	3300
34S431K	430(387~473)	275	350	710	40K	30k	10/1000	550	2900
34S471K	470(423~517)	300	385	775	40K	30k	10/1000	600	2660
34S511K	510(459~561)	320	415	845	40K	30k	10/1000	640	2500
34S561K	560(504~616)	350	460	925	40K	30k	10/1000	700	2300
34S621K	620(558~682)	385	505	1025	40K	30k	10/1000	800	1840
34S681K	680(612~748)	420	560	1120	40K	30k	10/1000	910	1750
34S751K	750(657-825)	460	615	1240	40K	30k	10/1000	920	1650
34S781K	780(702-858)	485	640	1290	40K	30k	10/1000	930	1560
34S821K	820(738-902)	510	670	1355	40K	30k	10/1000	940	1500
34S911K	910(819-1001)	550	745	1500	40K	30k	10/1000	960	1380
34S951K	951(855-1045)	575	765	1580	40K	30k	10/1000	1000	1230
34S102K	1.0K(900-1100)	625	825	1650	40K	30k	10/1000	1050	1190
34S122K	1.2K(1080-1320)	750	980	1980	40K	30k	10/1000	1200	1100
34S142K	1.4K(1278~1540)	870	1160	2370	40K	30k	10/1000	1600	1000
34S162K	1.6K(1440~1584)	1000	1200	2700	40K	30k	10/1000	1830	900
34S182K	1.8K(1620-1980)	1200	1450	2970	40K	30k	10/1000	2050	800