

Metal Oxide Varistor High Surge Type, 5~20mm

MVR-S Series

MERITEK

FEATURE

- Operating / Storage Temperature: -40°C ~ +105°C / -40°C +125°C
- Varistor Voltage: 18V to 1800V
- Withstanding Surge Current Rating Up to 10KA
- Various Lead Form and Spacing Options
- UL/cUL Safety Approved: Certification No: E326004
- VDE Safety Approved: Certification No: 40013638



PART NUMBERING SYSTEM

MVR **14** **D** **911** **K** **O** - **S**
(1) (2) (3) (4) (5) (6) (7)

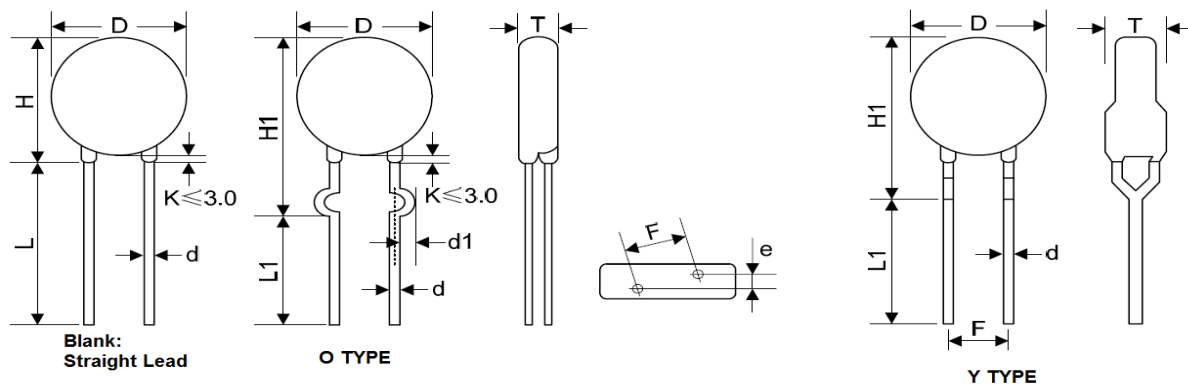


No	Item	Digit	Description	Series Reference
(1)	Meritek Series	MVR	Metal Oxide Varistor	Leaded Type
(2)	Diameter	14	14: $\phi 14\text{mm}$	5, 7, 10, 14, 20mm
(3)	Lead/Package Type	D	D: Round Disk or Dual Square Disk	S: Single Square, A: Bare
(4)	Voltage	911	911: 910VDC	18V~1800V
(5)	Tolerance	K	K: $\pm 10\%$	-10% ~ +10%
(6)	Lead Type	O	O: Out kink	Blank: Straight, Y: Y Kink,
(7)	Surge Type	S	-S: High Surge	Blank: Standard Surge type

ELECTRICAL CHARACTERISTICS AND DIMENSIONS REFERENCE TABLE

MVR-S Series	Varistor DC Voltage @1mA	Maximum Energy (10/1K μ s)	D	H	H1	L min	L1 min	d ± 0.05	d1 ± 0.4	F
MVR05D-S	18V~750V	0.6J~32J	5.0~7.5	5.5~10.0	8.0~13.0	20.0	15.0	0.6	1.2	5.0 ± 0.8
MVR07D-S	18V~820V	3.0J~70J	7.0~9.0	7.5~12.0	9.0~13.5	20.0	15.0	0.6	1.2	5.0 ± 0.8
MVR10D-S	18V~1.1KV	3.0J~155J	10.0~12.5	10.5~16.0	13.0~17.5	20.0	15.0	0.8	1.4	7.5 ± 0.8
MVR14D-S	18V~1.8KV	7.0J~335J	13.5~16.0	14.5~19.0	17.0~21.0	20.0	15.0	0.8	1.4	7.5 ± 0.8
MVR20D-S	18V~1.8KV	13J~990J	19.5~22.5	20.5~25.0	24.0~28.0	20.0	15.0	0.8	1.4	7.5 ± 0.8
								1.0	1.6	10.0 ± 1.0

(Unit: mm)



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ELECTRICAL CHARACTERISTICS – MOV05D-S SERIES

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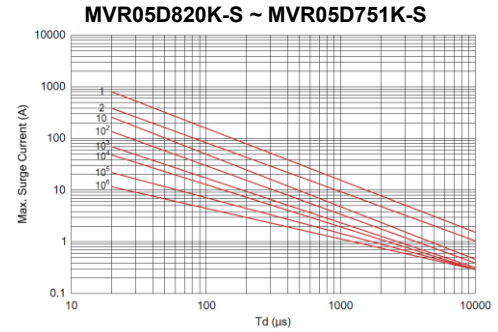
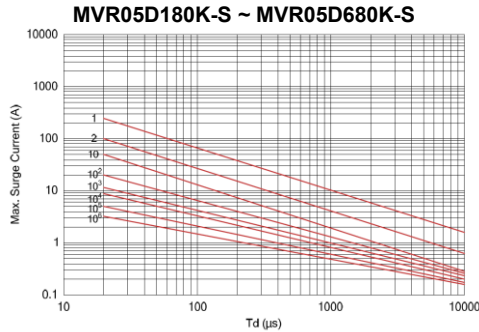
MVR05D-S Series	Varistor DC Voltage @1mA	Max. Allowable Voltage		Max. Clamping Voltage		Withstanding Surge Current	Max. Energy (10/1Kμs)	Rated Power	Typical Cap. @1KHz	Dimension	
	V _{DC}	V _{ACrms}	V _{DC}	V _c	I _P	(A)	(J)	(W)	(pF)	T _{max}	e ±0.8
	(V)	(V)	(V)	(V)	(A)						
MVR05D180K-S	18(15~21.6)	11	14	40	1	250	0.6	0.01	1,400	4.5	1.3
MVR05D220K-S	22(19.5~26)	14	18	48			0.7		1,150	4.6	1.4
MVR05D270K-S	27(24~31)	17	22	60			0.9		930	4.7	1.6
MVR05D330K-S	33(29.5~36.5)	20	26	73			1.1		760	4.9	1.5
MVR05D390K-S	39(35~43)	25	31	80			1.2		640	4.8	1.6
MVR05D470K-S	47(42~52)	30	38	104			1.5		530	4.9	1.7
MVR05D560K-S	56(50~62)	35	45	123			1.8		450	5.0	1.9
MVR05D680K-S	68(61~75)	40	56	145			2.2		370	5.2	2.2
MVR05D820K-S	82(74~90)	50	65	150	5	800	4.0	0.10	300	4.1	1.6
MVR05D101K-S	100(90~110)	60	85	177			4.1		250	4.3	1.8
MVR05D121K-S	120(108~132)	75	100	210			4.9		210	4.5	2.0
MVR05D151K-S	150(135~165)	95	125	260			6.5		165	4.8	1.6
MVR05D181K-S	180(162~198)	115	150	320			7.5		140	4.3	1.7
MVR05D201K-S	200(180~220)	130	170	355			8.5		125	4.4	1.8
MVR05D221K-S	220(198~242)	140	180	380			9.0		110	4.5	1.9
MVR05D241K-S	240(216~264)	150	200	415			10.5		100	4.6	2.0
MVR05D271K-S	270(243~297)	175	225	475			11.0		95	4.9	2.2
MVR05D301K-S	300(270~330)	190	250	520			12.0		85	5.0	2.3
MVR05D331K-S	330(297~363)	210	275	570			13.0		75	5.1	2.3
MVR05D361K-S	360(324~396)	230	300	620			16.0		70	5.2	2.5
MVR05D391K-S	390(351~429)	250	320	675			17.0		65	5.4	2.6
MVR05D431K-S	430(387~473)	275	350	745			20.0		60	5.7	2.8
MVR05D471K-S	470(423~517)	300	385	810			21.0		55	6.0	3.0
MVR05D511K-S	510(459~561)	320	415	845			22.5		50	6.2	4.0
MVR05D561K-S	560(504~616)	350	460	920			24.0		45	6.5	3.4
MVR05D621K-S	620(558~682)	385	505	1025			25.0		40	6.5	3.7
MVR05D681K-S	680(612~748)	420	560	1120			29.0		35	6.8	4.0
MVR05D751K-S	750(675~825)	460	615	1240			32.0		30	6.9	4.1

Notes:

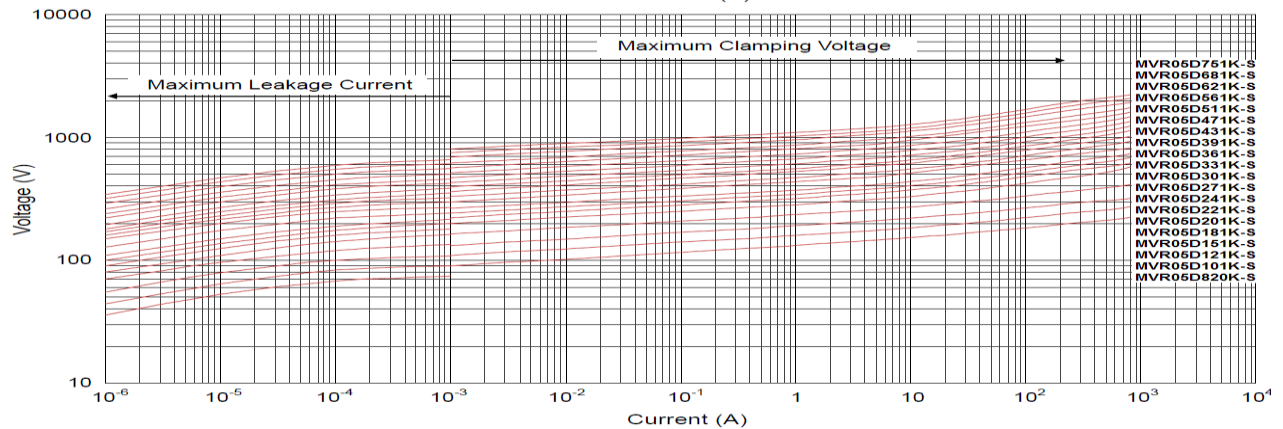
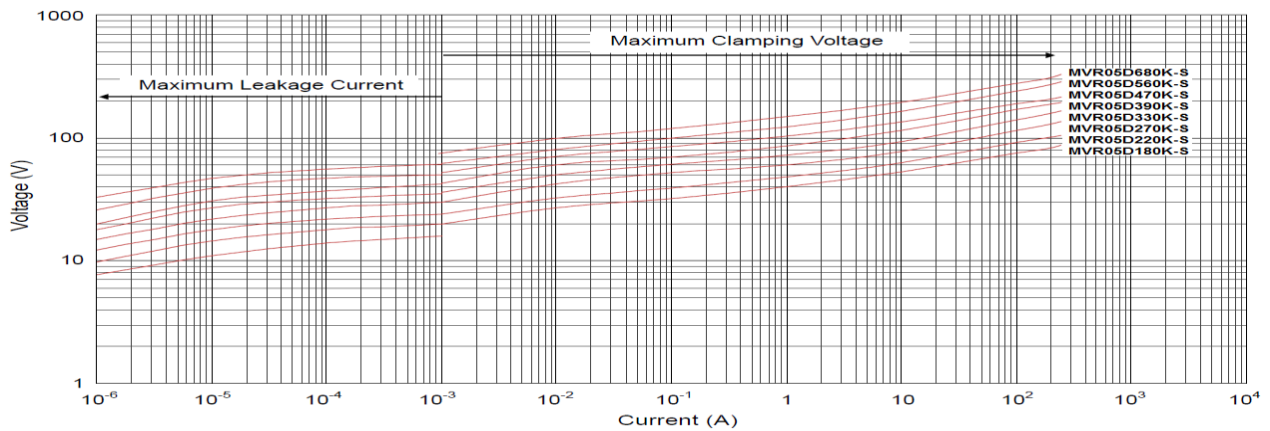
- The tolerance of varistor voltage between 18V and 27V is more than 10%.
- Leakage Current (@83% of V_{1mA}) : IR≤50μA (180K~680K) IR≤25μA (820K~751K)

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LEAKAGE CURRENT & CLAMPING VOLTAGE CURVES – MVR05D-S SERIES



Metal Oxide Varistor High Surge Type, 5~20mm

MVR-S Series

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ELECTRICAL CHARACTERISTICS - MVR07D-S SERIES

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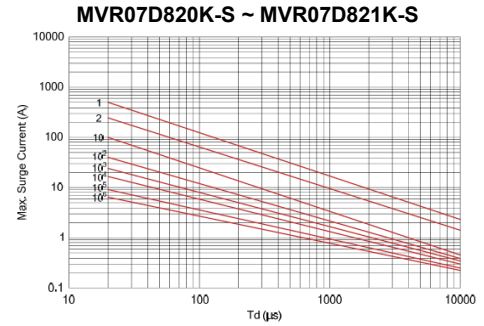
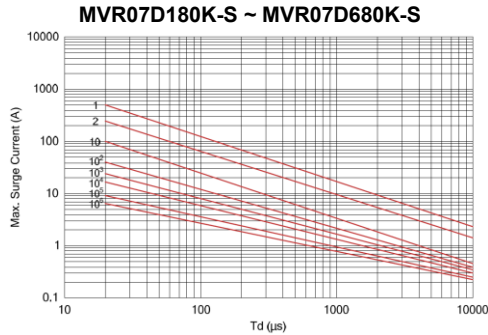
MVR07D-S Series	Varistor DC Voltage @1mA	Max. Allowable Voltage		Max. Clamping Voltage		Withstanding Surge Current	Max. Energy (10/1Kμs)	Rated Power	Typical Cap. @1KHz	Dimension	
	V _{DC}	V _{ACrms}	V _{DC}	V _c	I _P	(A)	(J)	(W)	(pF)	T _{max}	e _{±0.8}
	(V)	(V)	(V)	(V)	(A)						
MVR07D180K-S	18(15~21.6)	11	14	36	2.5	500	3.0	0.02	2800	4.5	1.3
MVR07D220K-S	22(19.5~26)	14	18	43			2.4		2300	4.6	1.4
MVR07D270K-S	27(24~31)	17	22	53			3.0		1800	4.7	1.6
MVR07D330K-S	33(29.5~36.5)	20	26	65			3.5		1500	4.9	1.5
MVR07D390K-S	39(35~43)	25	31	77			4.0		1300	4.8	1.6
MVR07D470K-S	47(42~52)	30	38	93			5.0		1100	4.9	1.7
MVR07D560K-S	56(50~62)	35	45	110			6.0		890	5.0	1.9
MVR07D680K-S	68(61~75)	40	56	135			7.0		740	5.2	2.2
MVR07D820K-S	82(74~90)	50	65	135	10	1,750	10.0	0.25	600	4.1	1.6
MVR07D101K-S	100(90~110)	60	85	165			12.0		500	4.3	1.8
MVR07D121K-S	120(108~132)	75	100	200			13.0		420	4.5	2.0
MVR07D151K-S	150(135~165)	95	125	250			13.0		330	4.8	1.6
MVR07D181K-S	180(162~198)	115	150	300			16.0		280	4.3	1.7
MVR07D201K-S	200(180~220)	130	170	340			17.0		250	4.4	1.8
MVR07D221K-S	220(198~242)	140	180	360			19.0		230	4.5	1.9
MVR07D241K-S	240(216~264)	150	200	395			21.0		210	4.6	2.0
MVR07D271K-S	270(243~297)	175	225	455			24.0		185	4.9	2.2
MVR07D301K-S	300(270~330)	190	250	500			26.0		165	5.0	2.3
MVR07D331K-S	330(297~363)	210	275	550			28.0		150	5.1	2.3
MVR07D361K-S	360(324~396)	230	300	595			32.0		140	5.2	2.5
MVR07D391K-S	390(351~429)	250	320	650			35.0		130	5.4	2.6
MVR07D431K-S	430(387~473)	275	350	710			40.0		115	5.7	2.8
MVR07D471K-S	470(423~517)	300	385	775			42.0		105	6.0	3.0
MVR07D511K-S	510(459~561)	320	415	845			45.0		100	6.2	3.2
MVR07D561K-S	560(504~616)	350	460	925			49.0		90	6.5	3.4
MVR07D621K-S	620(558~682)	385	505	1025			55.0		80	7.1	3.7
MVR07D681K-S	680(612~748)	420	560	1120			60.0		75	7.3	4.0
MVR07D751K-S	750(675~825)	460	615	1240			65.0		70	7.0	4.1
MVR07D781K-S	780(702~858)	485	640	1290			65.0		70	7.2	4.2
MVR07D821K-S	820(738~902)	510	670	1355			70.0		60	7.5	4.4

Notes:

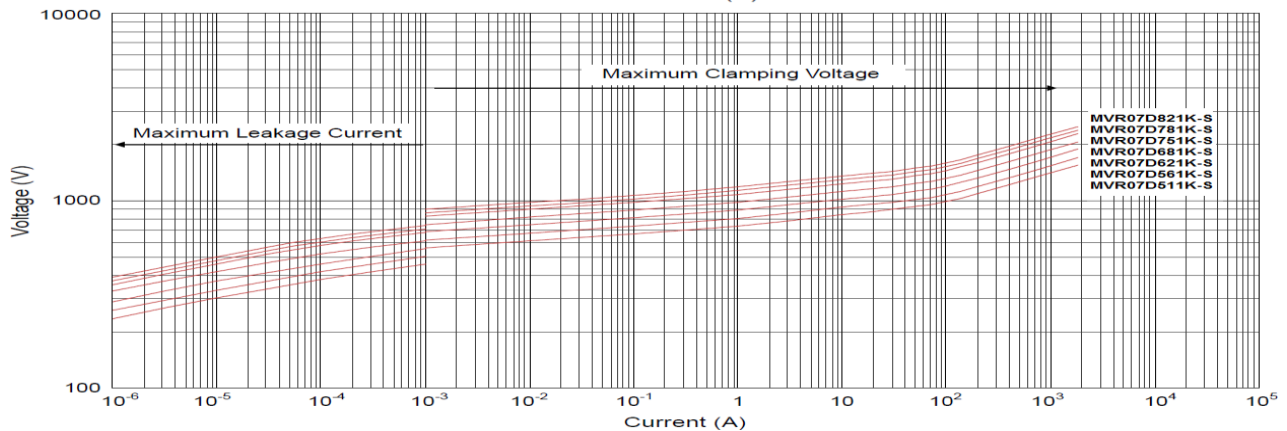
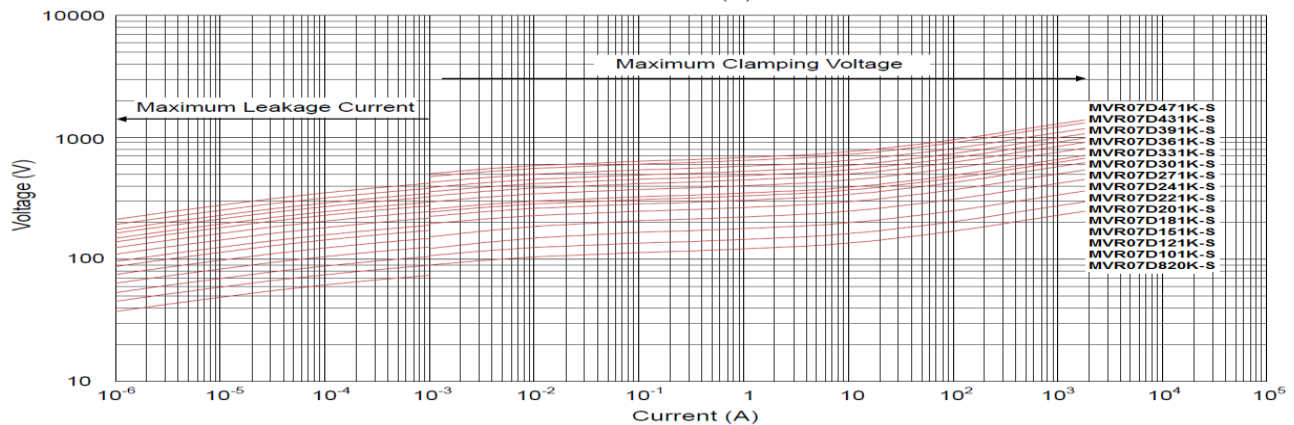
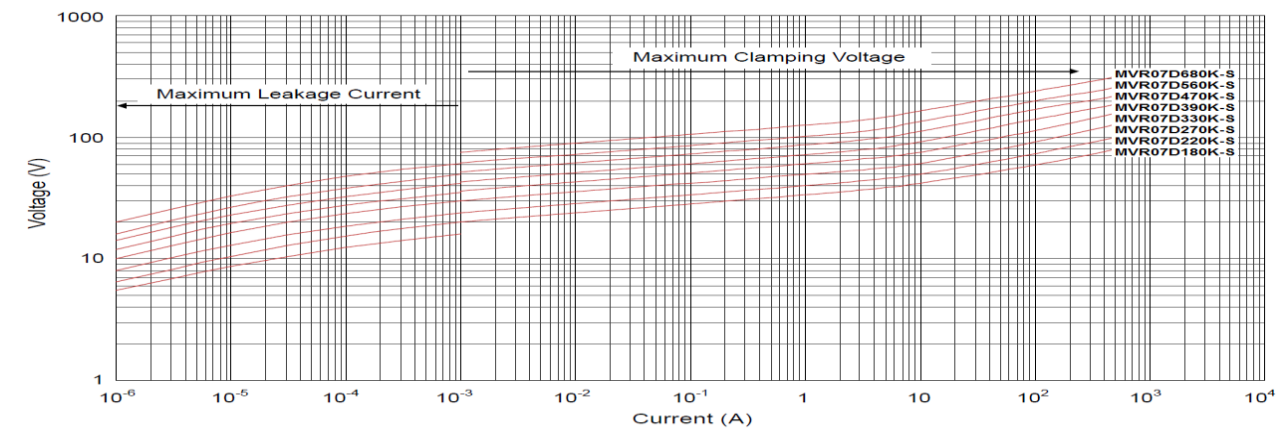
- The tolerance of varistor voltage between 18V and 27V is more than 10%.
- Leakage Current (@83% of V_{1mA}): IR≤50μA (180K~680K) IR≤25μA (820K~821K)

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LEAKAGE CURRENT & CLAMPING VOLTAGE CURVES – MVR07-S SERIES



Metal Oxide Varistor High Surge Type, 5~20mm

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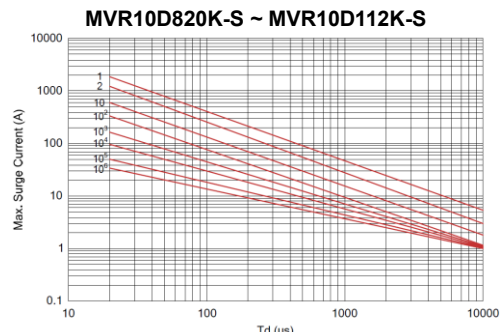
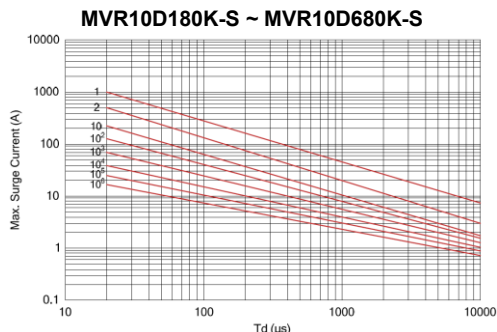
MVR10D-S Series	Varistor DC Voltage @1mA	Max. Allowable Voltage		Max. Clamping Voltage		Withstanding Surge Current	Max. Energy (10/1Kμs)	Rated Power	Typical Cap. @1KHz	Dimension	
	V _{DC}	V _{ACrms}	V _{DC}	V _c	I _p	(A)	(J)	(W)	(pF)	T _{max}	e ±0.8
	(V)	(V)	(V)	(V)	(A)						
MVR10D180K-S	18(15~21.6)	11	14	36	5	1,000	3.0	0.05	5600	4.6	1.5
MVR10D220K-S	22(19.5~26)	14	18	43			5.0		4500	4.7	1.6
MVR10D270K-S	27(24~31)	17	22	53			6.0		3700	4.8	1.8
MVR10D330K-S	33(29.5~36.5)	20	26	65			7.0		3000	5.0	1.7
MVR10D390K-S	39(35~43)	25	31	77			9.0		2400	5.3	1.8
MVR10D470K-S	47(42~52)	30	38	93			11.0		2100	5.4	1.9
MVR10D560K-S	56(50~62)	35	45	110			13.0		1800	5.5	2.1
MVR10D680K-S	68(61~75)	40	56	135			15.0		1500	5.6	2.4
MVR10D820K-S	82(74~90)	50	65	135	25	3,500	17.0	0.4	1200	4.7	1.8
MVR10D101K-S	100(90~110)	60	85	165			18.0		1000	4.9	2.0
MVR10D121K-S	120(108~132)	75	100	200			21.0		830	5.1	2.2
MVR10D151K-S	150(135~165)	95	125	250			25.0		670	5.4	1.8
MVR10D181K-S	180(162~198)	115	150	300			30.0		560	4.8	1.9
MVR10D201K-S	200(180~220)	130	170	340			35.0		500	5.0	2.0
MVR10D221K-S	220(198~242)	140	180	360			39.0		450	5.1	2.1
MVR10D241K-S	240(216~264)	150	200	395			42.0		420	5.2	2.2
MVR10D271K-S	270(243~297)	175	225	455			49.0		370	5.4	2.4
MVR10D301K-S	300(270~330)	190	250	500			54.0		330	5.5	2.5
MVR10D331K-S	330(297~363)	210	275	550			58.0		300	5.8	2.5
MVR10D361K-S	360(324~396)	230	300	595			65.0		280	6.0	2.7
MVR10D391K-S	390(351~429)	250	320	650			70.0		260	6.2	2.8
MVR10D431K-S	430(387~473)	275	350	710			80.0		230	6.5	3.0
MVR10D471K-S	470(423~517)	300	385	775			85.0		210	6.7	3.2
MVR10D511K-S	510(459~561)	320	415	845			90.0		200	6.8	3.4
MVR10D561K-S	560(504~616)	350	460	925			92.0		180	7.0	3.6
MVR10D621K-S	620(558~682)	385	505	1025			95.0		160	7.3	3.9
MVR10D681K-S	680(612~748)	420	560	1120			98.0		150	7.6	4.2
MVR10D751K-S	750(675~825)	460	615	1240			100.0		130	8.0	4.3
MVR10D781K-S	780(702~858)	485	640	1290			105.0		130	8.1	4.4
MVR10D821K-S	820(738~902)	510	670	1355			110.0		120	8.3	4.6
MVR10D911K-S	910(819~1001)	550	745	1500			130.0		110	8.8	5.0
MVR10D102K-S	1000(900~1100)	625	825	1650			140.0		100	9.3	5.0
MVR10D112K-S	1100(990~1210)	680	895	1815			155.0		90	9.9	5.4

Notes:

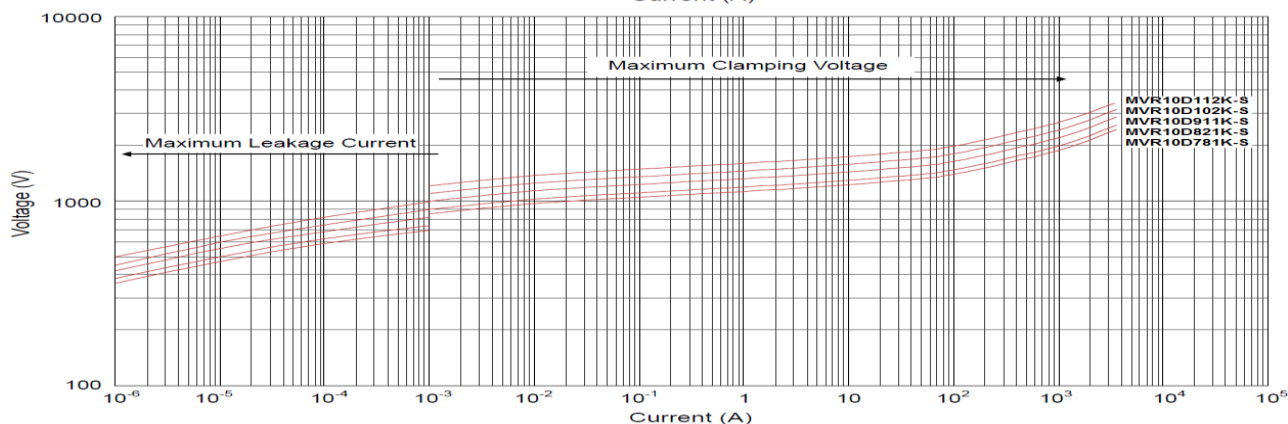
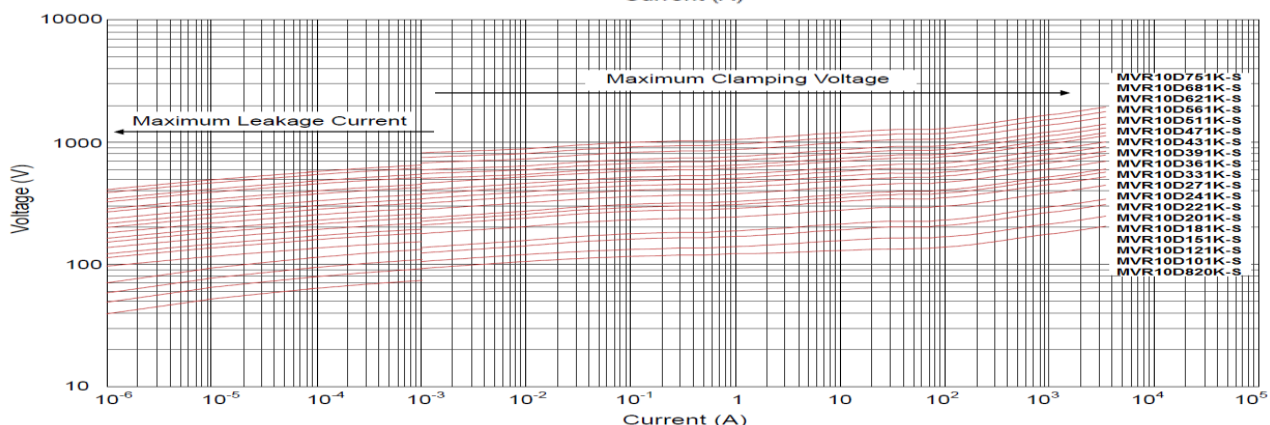
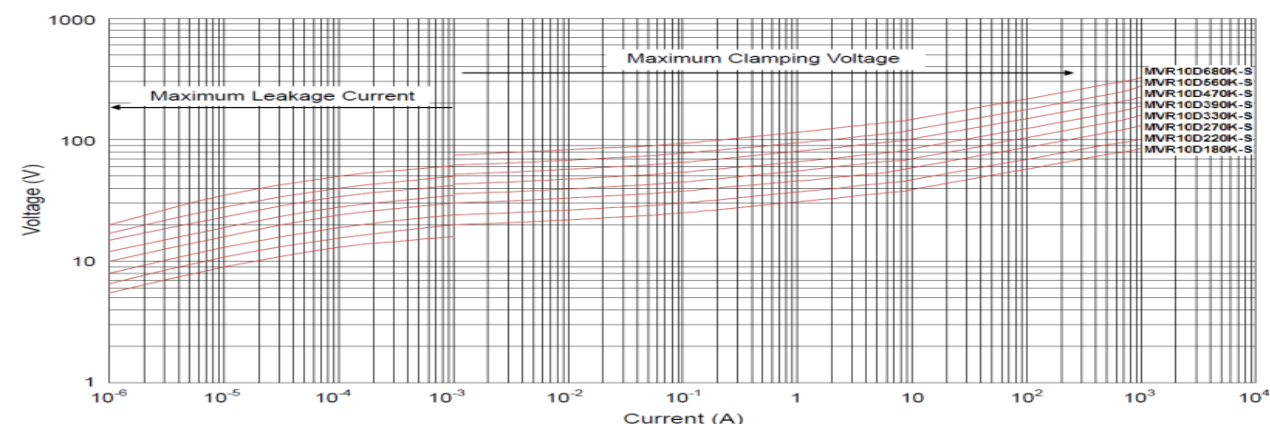
- The tolerance of varistor voltage between 18V and 27V is more than 10%.
- Leakage Current (@83% of V_{1mA}): I_R≤50μA (180K~680K) I_R≤25μA (820K~112K)

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LEAKAGE CURRENT & CLAMPING VOLTAGE CURVES – MVR10D-S SERIES



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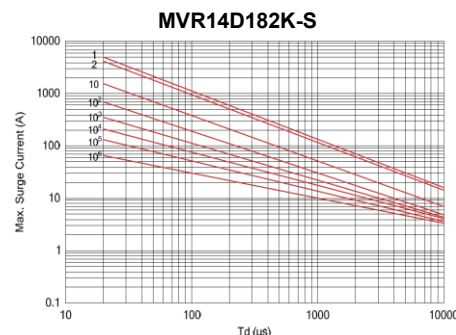
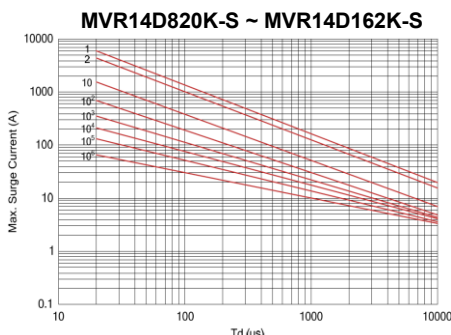
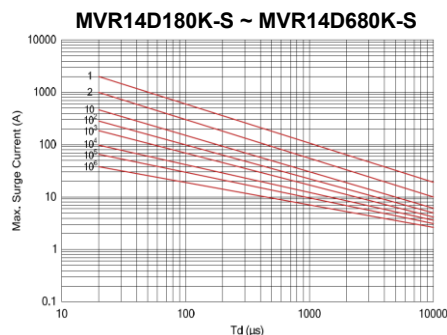
MVR14D-S Series	Varistor DC Voltage @1mA	Max. Allowable Voltage		Max. Clamping Voltage		Withstanding Surge Current	Max. Energy (10/1Kμs)	Rated Power	Typical Cap. @1KHz	Dimension	
	V _{DC}	V _{ACrms}	V _{DC}	V _C	I _P	(A)	(J)	(W)	(pF)	T _{max}	e _{±0.8}
	(V)	(V)	(V)	(V)	(A)						
MVR14D180K-S	18(15~21.6)	11	14	36	10	2,000	7.0	0.1	11100	3.9	1.5
MVR14D220K-S	22(19.5~26)	14	18	43			8.0		9100	4.0	1.6
MVR14D270K-S	27(24~30)	17	22	53			10.0		7400	4.1	1.8
MVR14D330K-S	33(29.5~36.5)	20	26	65			12.0		6100	4.3	1.7
MVR14D390K-S	39(35~43)	25	31	77			13.0		5100	4.1	1.8
MVR14D470K-S	47(42~52)	30	38	93			17.0		4300	4.3	1.9
MVR14D560K-S	56(50~62)	35	45	110			20.0		3600	4.6	2.1
MVR14D680K-S	68(61~75)	40	56	135			24.0		2900	4.8	2.4
MVR14D820K-S	82(74~90)	50	65	135	50	6,000	27.0	0.6	2400	4.1	1.8
MVR14D101K-S	100(90~110)	60	85	165			33.0		2000	4.2	2.0
MVR14D121K-S	120(108~132)	75	100	200			40.0		1700	4.4	2.2
MVR14D151K-S	150(135~165)	95	125	250			53.0		1300	4.1	1.8
MVR14D181K-S	180(162~198)	115	150	300			60.0		1100	4.2	1.9
MVR14D201K-S	200(180~220)	130	170	340			70.0		1000	4.3	2.0
MVR14D221K-S	220(198~242)	140	180	360			78.0		900	4.4	2.1
MVR14D241K-S	240(216~264)	150	200	395			84.0		830	4.5	2.2
MVR14D271K-S	270(243~297)	175	225	455			99.0		740	4.6	2.4
MVR14D301K-S	300(270~330)	190	250	500			108		670	4.6	2.5
MVR14D331K-S	330(297~363)	210	275	550			115		610	5.0	2.5
MVR14D361K-S	360(324~396)	230	300	595			130		560	5.2	2.7
MVR14D391K-S	390(351~429)	250	320	650			140		510	5.4	2.8
MVR14D431K-S	430(387~473)	275	350	710			155		460	5.6	3.0
MVR14D471K-S	470(423~517)	300	385	775			175		430	5.8	3.2
MVR14D511K-S	510(459~561)	320	415	845			180		390	6.1	3.4
MVR14D561K-S	560(504~616)	350	460	925			185		360	6.4	3.6
MVR14D621K-S	620(558~682)	385	505	1025			190		320	6.8	3.9
MVR14D681K-S	680(621~748)	420	560	1120			200		290	7.1	4.2
MVR14D751K-S	750(675~825)	460	615	1240			210		270	7.2	4.3
MVR14D781K-S	780(702~858)	485	640	1290			220		260	7.3	4.4
MVR14D821K-S	820(738~902)	510	670	1355			235		240	7.5	4.6
MVR14D911K-S	910(819~1001)	550	745	1500			255		220	7.5	5.0
MVR14D102K-S	1000(900~1100)	625	825	1650			280		200	8.0	5.0
MVR14D112K-S	1100(990~1210)	680	895	1815			310		180	8.5	5.4
MVR14D122K-S	1200(1080~1320)	750	990	1980			324		160	9.0	5.8
MVR14D142K-S	1400(1260~1540)	880	1140	2310			327		150	10.5	6.6
MVR14D162K-S	1600(1440~1760)	1000	1280	2640			331		140	11.0	7.4
MVR14D182K-S	1800(1620~1980)	1100	1465	2970			335		130	12.0	8.2

Notes:

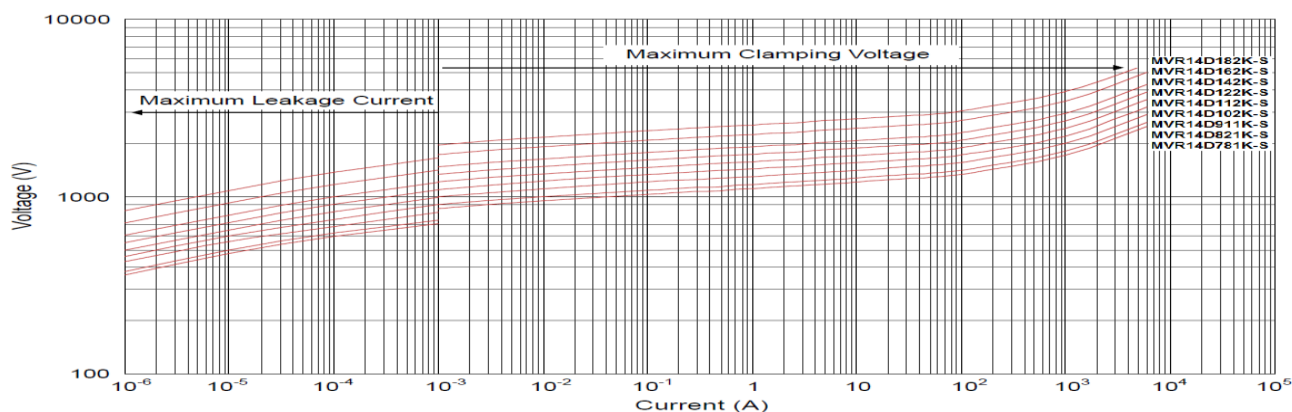
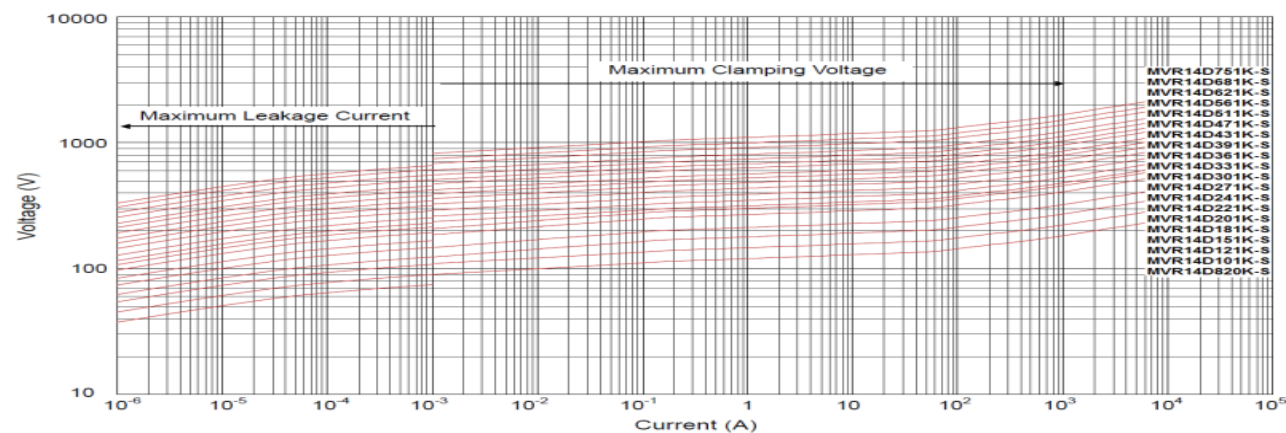
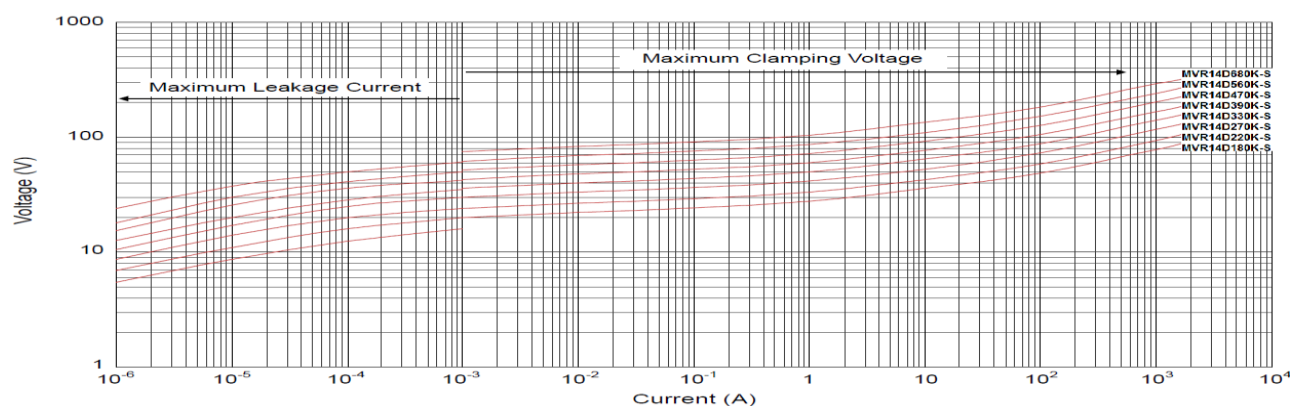
1. The tolerance of varistor voltage between 18V and 27V is more than 10%.
2. Varistor voltage ≥ 1200V, structure diagram is F type.
3. Leakage Current (@83% of V_{1mA}): IR ≤ 50μA (180K~680K); IR ≤ 25μA (820K~182K)

SURGE CURRENT DERATING CURVES – MVR14D-S SERIES

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LEAKAGE CURRENT & CLAMPING VOLTAGE CURVES – MVR14D-S SERIES



Metal Oxide Varistor High Surge Type, 5~20mm

MVR-S Series

MERITEK

ELECTRICAL CHARACTERISTICS – MVR20D-S SERIES

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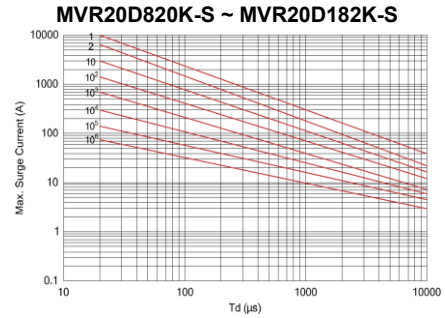
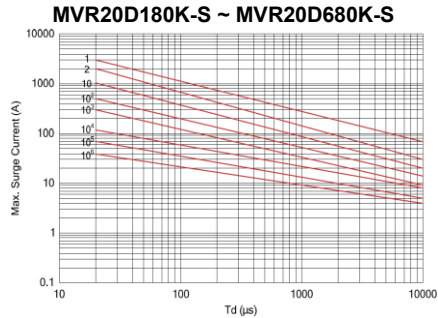
MVR20D-S Series	Varistor DC Voltage @1mA	Max. Allowable Voltage		Max. Clamping Voltage		Withstanding Surge Current	Max. Energy (10/1Kμs)	Rated Power	Typical Cap. @1KHz	Dimension	
	V _{DC}	V _{AC}	V _{DC}	V _C	I _P	(A)	(J)	(W)	(pF)	T _{max}	e ±0.8
	(V)	(V)	(V)	(V)	(A)						
MVR20D180K-S	18(16~20)	11	14	36	20	3,000	13	0.2	28500	4.3	1.7
MVR20D220K-S	22(20~24)	14	18	43			16		18500	4.4	1.8
MVR20D270K-S	27(24~30)	17	22	53			19		13000	4.6	2.0
MVR20D330K-S	33(30~36)	20	26	65			24		11500	4.8	1.9
MVR20D390K-S	39(35~43)	25	31	77			28		8500	4.5	2.0
MVR20D470K-S	47(42~52)	30	38	93			34		7400	4.7	2.1
MVR20D560K-S	56(50~62)	35	45	110			41		6800	5.0	2.3
MVR20D680K-S	68(61~75)	40	56	135			49		5800	5.3	2.6
MVR20D820K-S	82(74~90)	50	65	135	100	10,000	56	1.0	4900	4.5	2.0
MVR20D101K-S	100(90~110)	60	85	165			70		4000	4.6	2.2
MVR20D121K-S	120(108~132)	75	100	200			85		3300	4.8	2.4
MVR20D151K-S	150(135~165)	95	125	250			106		2700	4.5	2.0
MVR20D181K-S	180(162~198)	115	150	300			130		2200	4.6	2.1
MVR20D201K-S	200(185~225)	130	170	340			140		2000	4.7	2.2
MVR20D221K-S	220(198~242)	140	180	360			155		1800	4.8	2.3
MVR20D241K-S	240(216~264)	150	200	395			168		1650	4.9	2.4
MVR20D271K-S	270(243~297)	175	225	455			190		1500	5.0	2.6
MVR20D301K-S	300(270~330)	190	250	500			210		1300	5.0	2.7
MVR20D331K-S	330(297~363)	210	275	550			228		1200	5.2	2.7
MVR20D361K-S	360(324~396)	230	300	595			255		1100	5.4	2.9
MVR20D391K-S	390(351~429)	250	320	650			275		1000	5.5	3.0
MVR20D431K-S	430(387~473)	275	350	710			305		930	5.7	3.2
MVR20D471K-S	470(423~517)	300	385	775			350		850	6.0	3.4
MVR20D511K-S	510(459~561)	320	415	845			360		780	6.2	3.6
MVR20D561K-S	560(504~616)	350	460	925			380		710	6.5	3.8
MVR20D621K-S	620(558~682)	385	505	1025			390		650	6.8	4.1
MVR20D681K-S	680(621~748)	420	560	1120			400		600	7.1	4.4
MVR20D751K-S	750(675~825)	460	615	1240			420		530	7.5	4.5
MVR20D781K-S	780(702~858)	485	640	1290			440		510	7.7	4.6
MVR20D821K-S	820(738~902)	510	670	1355			460		500	7.9	4.8
MVR20D911K-S	910(819~1001)	550	745	1500			510		440	8.1	5.2
MVR20D102K-S	1000(900~1100)	625	825	1650			565		400	8.6	5.2
MVR20D112K-S	1100(990~1210)	680	895	1815			620		360	9.1	5.6
MVR20D122K-S	1200(1080~1320)	750	990	1980			660		350	9.7	6.0
MVR20D142K-S	1400(1260~1540)	880	1140	2310			784		340	11.2	6.8
MVR20D162K-S	1600(1440~1760)	1000	1280	2640			896		330	11.8	7.6
MVR20D182K-S	1800(1620~1980)	1100	1465	2970			990		320	12.8	8.4

Notes:

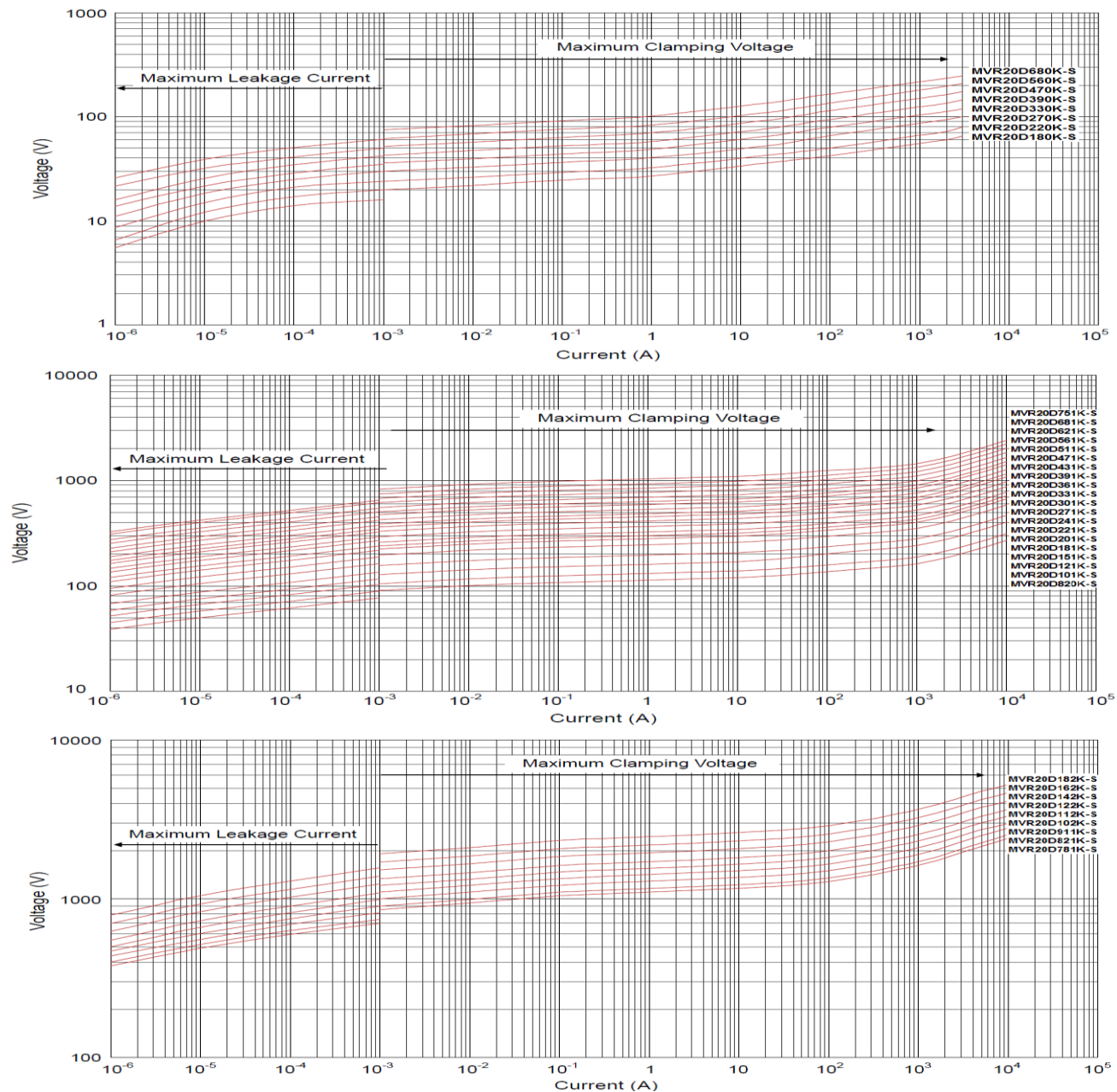
1. The tolerance of varistor voltage between 18V and 27V is more than 10%.
2. Varistor voltage ≥ 1200V, structure diagram is F type.
3. Leakage Current (@83% of V_{1mA}): IR ≤ 50μA (180K~680K); IR ≤ 25μA (820K~182K)

SURGE CURRENT DERATING CURVES – MVR20D-S SERIES

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LEAKAGE CURRENT & CLAMPING VOLTAGE CURVES – MVR20D-S SERIES



Metal Oxide Varistor High Surge Type, 5~20mm

MVR-S Series

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RELIABILITY TEST CONDITIONS AND REQUIREMENTS

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Item	Standard	Test Conditions / Method	Specifications															
Strength of Terminals Tensile	IEC 60068-2-21	Gradually apply the specified force and keep the unit fixed for 10±1s. <table><tr><th>Terminal diameter (mm)</th><th>Force (Kg)</th></tr><tr><td>0.5<d≤0.8</td><td>1.0</td></tr><tr><td>0.8<d≤1.25</td><td>2.0</td></tr><tr><td>1.25<d</td><td>4.0</td></tr></table>	Terminal diameter (mm)	Force (Kg)	0.5<d≤0.8	1.0	0.8<d≤1.25	2.0	1.25<d	4.0	$ \Delta V_{1mA} / V_{1mA} \leq 5\%$ No visible damage							
Terminal diameter (mm)	Force (Kg)																	
0.5<d≤0.8	1.0																	
0.8<d≤1.25	2.0																	
1.25<d	4.0																	
Strength of Terminals Bending	IEC 60068-2-21	Hold specimen and apply the force specified below to each lead. Bend the specimen to 90°, and then return to the original position. Repeat the procedure in the opposite direction. <table><tr><th>Terminal diameter (mm)</th><th>Force (Kg)</th></tr><tr><td>0.5<d≤0.8</td><td>0.5</td></tr><tr><td>0.8<d≤1.25</td><td>1.0</td></tr><tr><td>1.25<d</td><td>2.0</td></tr></table>	Terminal diameter (mm)	Force (Kg)	0.5<d≤0.8	0.5	0.8<d≤1.25	1.0	1.25<d	2.0	$ \Delta V_{1mA} / V_{1mA} \leq 5\%$ No visible damage							
Terminal diameter (mm)	Force (Kg)																	
0.5<d≤0.8	0.5																	
0.8<d≤1.25	1.0																	
1.25<d	2.0																	
Vibration	IEC 60068-2-6	Frequency range: 10 ~ 55 Hz, Amplitude: 0.75mm or 98 m/s ² Direction: 3 mutually perpendicular directions, 2 hrs. each.	$ \Delta V_{1mA} / V_{1mA} \leq 5\%$ No visible damage															
Solderability	IEC 60068-2-20	Temperature: 245±5°C, Duration: 2±0.5 sec	At least 95% of Coverage															
Resistance to Soldering Heat	IEC 60068-2-20	Temperature: 260±5°C, Duration: 10±1 sec	$ \Delta V_{1mA} / V_{1mA} \leq 5\%$ No visible damage															
High Temperature Storage	IEC 60068-2-2	Temperature: 125±2°C, Duration: 1000 hrs.																
Low Temperature Storage	IEC 60068-2-1	Temperature: -40±2°C, Duration: 1000 hrs.																
Damp Heat, Steady State	IEC 60068-2-78	Temperature: 40±2°C, 90~95%RH, Duration: 1000 hrs at max. allowable voltage	$ \Delta V_{1mA} / V_{1mA} \leq 10\%$ No visible damage															
Rapid Change of Temperature	IEC 60068-2-14	The conditions shown below shall be repeated 5 cycles. <table><tr><th>Step</th><th>Temperature (°C)</th><th>Period (minutes)</th></tr><tr><td>1</td><td>-40±3</td><td>30±3</td></tr><tr><td>2</td><td>Room temperature</td><td>5±3</td></tr><tr><td>3</td><td>125±3</td><td>30±3</td></tr><tr><td>4</td><td>Room temperature</td><td>5±3</td></tr></table>	Step	Temperature (°C)	Period (minutes)	1	-40±3	30±3	2	Room temperature	5±3	3	125±3	30±3	4	Room temperature	5±3	$ \Delta V_{1mA} / V_{1mA} \leq 5\%$ No visible damage
Step	Temperature (°C)	Period (minutes)																
1	-40±3	30±3																
2	Room temperature	5±3																
3	125±3	30±3																
4	Room temperature	5±3																
High Temperature Load Life	MIL-STD-202 Method 108	Temperature: 105±2°C Duration: 1000 hrs. at Max allowable AC Voltage	$ \Delta V_{1mA} / V_{1mA} \leq 10\%$ No visible damage															
Surge Life, 8/20μs	IEC 61051-1	8/20μS waveform, 10 surge currents, unipolar, interval 30secs, amplitude corresponding to max. surge current derating curves for 20μS	$ \Delta V_{1mA} / V_{1mA} \leq 10\%$ No visible damage															
Surge Life, 10/1000μs	IEC 61051-1	10/1000μS waveform, 10 surge currents, unipolar, interval 2mins, amplitude corresponding to max. surge current derating curves for 1000μS	$ \Delta V_{1mA} / V_{1mA} \leq 10\%$ No visible damage															
Voltage Proof	IEC 61051-1	Metal balls method, 2500 V _{AC} 1 min	No visible damage															
Varistor Voltage Temperature Coefficient	Specification Standard	$\frac{V_{1mA} \text{ at } 85^{\circ}\text{C} - V_{1mA} \text{ at } 25^{\circ}\text{C}}{V_{1mA} \text{ at } 25^{\circ}\text{C}} \times \frac{1}{80} \times 100 (\% / ^{\circ}\text{C})$ $\frac{V_{1mA} \text{ at } -40^{\circ}\text{C} - V_{1mA} \text{ at } 25^{\circ}\text{C}}{V_{1mA} \text{ at } 25^{\circ}\text{C}} \times \frac{1}{65} \times 100 (\% / ^{\circ}\text{C})$	-0.05≤ TC ≤0.05(%/°C)															

Metal Oxide Varistor High Surge Type, 5~20mm

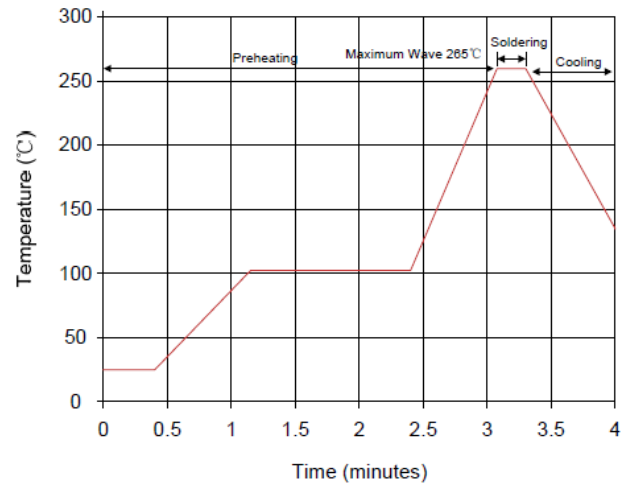
MVR-S Series

MERITEK

SOLDERING RECOMMENDATION

Wave Soldering Process	Condition
Peak Temperature	265°C (max.)
Dipping Time	10 sec. (max.)
Soldering	1 time

Soldering Iron Process	Condition
Temperature of Soldering Iron-tip	360°C (max.)
Soldering Time	3 sec. (max.)
Distance From Varistor	2 mm (min.)



*Specifications subject to change without notice.