

Metal Oxide Varistors

Surface Mount

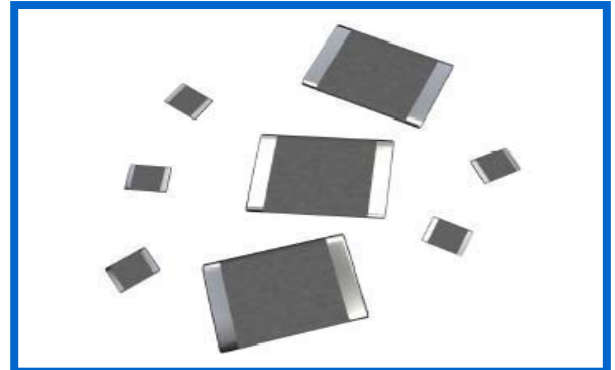


MVS Series

MERITEK

FEATURES

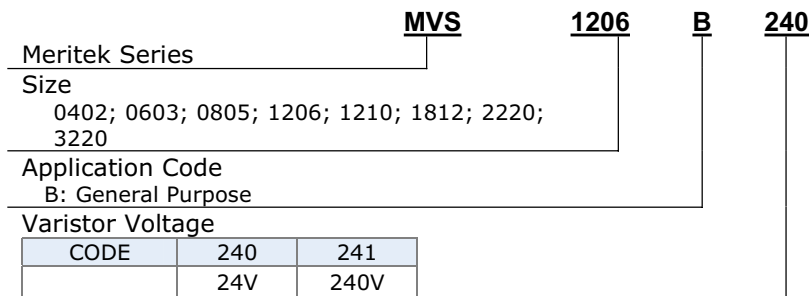
- EIA size 0402 ~ 2220
- Working voltage: 5.5 ~ 85 Vdc
- -40 ~ +125°C operating temperature range
- Bidirectional and symmetrical V/I characteristics
- Multilayer ceramic construction technology
- Cost effective



RECOMMENDED APPLICATIONS

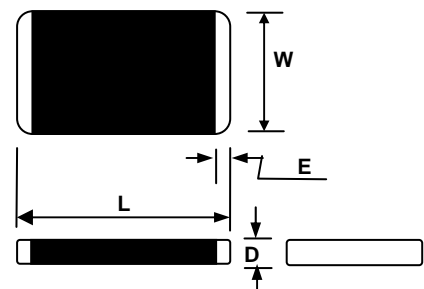
- Cellular phones
- Mother board / notebook
- Scanner
- Handheld devices
- Digital video
- Set-top box

PART NUMBERING SYSTEMS



DIMENSIONS

Type MVS	L	W	D	E
	mm	mm	mm	mm
0402	1.0 ± 0.10	0.5 ± 0.10	0.5 ± 0.10	0.25+0.1/-0.1
0603	1.6 ± 0.15	0.8 ± 0.15	0.9 max	0.3+0.1/-0.1
0805	2.0 ± 0.20	1.25 ± 0.15	1.0 max	0.3+0.1/-0.1
1206	3.2 ± 0.20	1.6 ± 0.15	1.2 max.	0.5 +0.2/-0.2
1210	3.2 ± 0.20	2.5 ± 0.20	1.5 max.	0.5 +0.2/-0.2
1812	4.5 ± 0.20	3.2 ± 0.20	2.0 max.	0.5 +0.3/-0.1
2220	5.7 ± 0.20	5.0 ± 0.20	2.5 max.	0.5 +0.3/-0.1
3220	8.1 ± 0.30	5.0 ± 0.30	2.5 max.	0.8 +0.3/-0.1



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SPECIFICATIONS (SIZE: 0402; 0603; 0805; 1206; 1210; 1812; 2220)

Part No.	Working Voltage (MAX)		Breakdown Voltage	Peak Current (MAX)	Clamping Voltage (MAX)		Energy Absorption (MAX)	Typical Capacitance (ref.)
	AC (V _{RMS})	DC (V)			(A)	(V)		
Unit Condition			1mA (V)	8/20μs (A)			10/1000μs (J)	1KHz (pF)
MVS0402B120	6	9	12(10.2~13.8)	20	1	23	0.05	135
MVS0402B150	8	11	15(12.75~17.25)	20	1	23	0.05	75
MVS0402B180	11	14	18(15.3~20.7)	20	1	25	0.05	50
MVS0402B240	14	18	24(21.6~26.4)	20	1	30	0.05	45
MVS0603B080	4	5.5	8(7.5~10.5)	30	1	20	0.1	360
MVS0603B120	6	9	12(10.2~13.8)	30	1	23	0.1	300
MVS0603B180	11	14	18(15.3~20.7)	30	1	30	0.1	210
MVS0603B240	14	18	24(21.6~26.4)	30	1	39	0.1	160
MVS0603B270	17	22	27(24.3~29.7)	30	1	44	0.1	145
MVS0603B390	25	30	39(35.1~42.9)	30	1	65	0.1	110
MVS0603B470	30	38	47(42.3~51.7)	30	1	77	0.1	90
MVS0805B080	4	5.5	8(7.5~10.5)	80	1	20	0.1	1400
MVS0805B120	6	9	12(10.2~13.8)	80	1	23	0.1	650
MVS0805B150	8	11	15(12.75~17.25)	100	1	25	0.2	410
MVS0805B180	11	14	18(15.3~20.7)	100	1	30	0.2	350
MVS0805B240	14	18	24(21.6~26.4)	100	1	39	0.2	300
MVS0805B270	17	22	27(24.3~29.7)	100	1	44	0.2	250
MVS0805B330	20	26	33(29.7~36.3)	100	1	54	0.3	220
MVS0805B390	25	30	39(35.1~42.9)	100	1	65	0.3	200
MVS0805B470	30	38	47(42.3~51.7)	100	1	77	0.3	150
MVS0805B560	35	45	56(50.4~61.6)	80	1	90	0.3	110
MVS1206B080	4	5.5	8(7.5~10.5)	100	1	20	0.2	3100
MVS1206B180	11	14	18(15.3~20.7)	100	1	30	0.3	800
MVS1206B240	14	18	24(21.6~26.4)	100	1	38	0.3	620
MVS1206B270	17	22	27(24.3~29.7)	100	1	44	0.4	700
MVS1206B330	20	26	33(29.7~36.3)	100	1	54	0.5	480
MVS1206B390	25	30	39(35.1~42.9)	100	1	65	0.6	400
MVS1206B470	30	38	47(42.3~51.7)	100	1	77	0.7	260
MVS1206B560	35	45	56(50.4~61.6)	100	1	90	0.8	230
MVS1206B680	40	56	68(61.2~74.8)	100	1	110	1	200
MVS1206B820	50	65	82(73.8~90.2)	100	1	135	0.5	175
MVS1206B101	60	85	100(90~110)	100	1	165	0.6	150

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Part No.	Working Voltage (MAX)		Breakdown Voltage	Peak Current (MAX)	Clamping Voltage (MAX)		Energy Absorption (MAX)	Typical Capacitance (ref.)
	AC (V _{RMS})	DC (V)			(A)	(V)		
Unit Condition			1mA (V)	8/20μs (A)			10/1000μs (J)	1KHz (pF)
MVS1210B080	4.5	5.5	8(7.5~10.5)	250	2.5	20	0.5	5200
MVS1210B240	14	18	24(21.6~26.4)	250	2.5	38	0.8	1150
MVS1210B270	17	22	27(24.3~29.7)	250	2.5	44	1	1720
				250	2.5	54	1.2	610
MVS1210B390	25	30	39(35.1~42.9)	250	2.5	65	1.4	920
MVS1210B470	30	38	47(42.3~51.7)	250	2.5	77	1.6	780
MVS1210B560	35	45	56(50.4~61.6)	250	2.5	90	2	400
MVS1210B680	40	56	68(61.2~74.8)	250	2.5	110	2.3	300
MVS1210B101	60	85	100(90~110)	200	2.5	165	1.4	210
MVS1812B240	14	18	24(21.6~26.4)	500	5	38	1.7	2000
MVS1812B390	25	30	39(35.1~42.9)	500	5	65	2.9	2500
MVS1812B470	30	38	47(42.3~51.7)	500	5	77	3.5	2200
MVS1812B560	35	45	56(50.4~61.6)	500	5	90	4.2	1000
MVS2220B240	14	18	24(21.6~26.4)	1000	10	38	3.1	8500
MVS2220B390	25	30	39(35.1~42.9)	1000	10	65	5.5	3900
MVS2220B470	30	38	47(42.3~51.7)	1000	10	77	6.3	4600

SPECIFICATIONS (SIZE: 3220)

Part Number	Working Voltage		Breakdown Voltage _([*]1)	Peak Current	Clamping Voltage	Energy	Capacitance	Thickness _{Max}
Symbol	AC	DC	V (1mA)	A _([*]3)	V _([*]2)	J	PF _([*]1) (kHz)	(mm)
MVS3220B560	35	45	56(50.4~61.6)	> 500	<106	> 2.50	1250	1.8
MVS3220B680	40	56	68(61.2~74.8)	> 500	< 124	> 3.20	1050	1.8
MVS3220B121	75	102	120(108~132)	> 500	< 198	> 6.00	600	1.8
MVS3220B151	95	127	150(135~165)	> 500	< 248	> 7.50	470	1.8
MVS3220B241	150	200	240(216~264)	>500	< 390	> 14.5	380	2
MVS3220B271	175	225	270(243~297)	>500	< 450	> 16.0	340	2
MVS3220B391	250	330	390(351~429)	> 500	< 647	> 20.0	125	2.3
MVS3220B431	275	369	430(387~473)	> 450	< 705	> 21.0	120	2.3
MVS3220B471	300	385	470(423~ 517)	> 400	< 775	> 21.6	115	2.3

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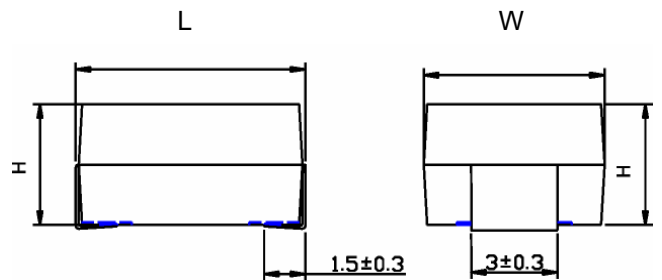
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FEATURES

1. RoHS compliant
2. Available for SMT flow/reflow soldering
3. Low profile and space saving
4. Large capability to withstand high surge current
5. Low inductance construction with excellent response
6. Encapsulation material according to UL94-V0
7. Operating temperature range : -40 ~ +85°C
8. Agency recognition: UL E326004

RECOMMENDED APPLICATIONS

1. Power supply
2. Home appliance
3. Industrial equipment
4. Telecommunication or telephone system
5. Automobile

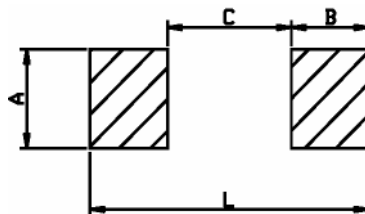


STRUCTURE AND DIMENSIONS

(Unit: mm)

Size (EIA)	Varistor Voltage Range	L	W	H
3225	$V_{1mA}=180 \sim 271$	8.0±/ - 0.3	6.3±/ - 0.3	3.2±/ - 0.3
	$V_{1mA}=361 \sim 561$			4.5±/ - 0.3
4032	$V_{1mA}=180 \sim 271$	10.2±/ - 0.3	8.0±/ - 0.3	3.2±/ - 0.3
	$V_{1mA}=361 \sim 751$			4.5±/ - 0.3

SOLDERING PADS



(Unit: mm)

Item		A	B	C	L
Size (EIA)	3225	3.5	2.8	4.5	10.1
	4032	3.5	2.8	6.5	12.1

Specifications are subject to change without notice.

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ELECTRICAL CHARACTERISTICS (SIZE: 3225)

Part No.	Varistor Voltage (@ 1mA DC)	Max. Operating Voltage		Max. Clamping voltage (8/20 μ s)		Max. Surge Current (8/20 μ s)	Max. Energy (10/1000 μ S)	Rated Power	Reference Capacitance @1KHz
	V _{1mA} (V)	V _{AC(rms)} (V)	V _{DC} (V)	V _P (V)	I _P (A)	I _{max} (A)	W _{max} (J)	P (W)	C (pF)
MVS3225P180	18	11	14	36	1.0	150	0.6	0.01	1750
MVS3225P220	22	14	18	43	1.0	150	0.7	0.01	1450
MVS3225P270	27	17	22	53	1.0	150	0.9	0.01	1200
MVS3225P330	33	20	26	65	1.0	150	1.1	0.01	980
MVS3225P390	39	25	31	77	1.0	150	1.2	0.01	850
MVS3225P470	47	30	38	93	1.0	150	1.5	0.01	720
MVS3225P560	56	35	45	110	1.0	150	1.8	0.01	620
MVS3225P680	68	40	56	135	1.0	150	2.2	0.01	520
MVS3225P820	82	50	65	135	5.0	400	2.5	0.1	300
MVS3225P101	100	60	85	165	5.0	400	3.0	0.1	250
MVS3225P121	120	75	100	200	5.0	400	4.0	0.1	210
MVS3225P151	150	95	125	250	5.0	400	6.0	0.1	135
MVS3225P181	180	115	150	300	5.0	400	6.5	0.1	110
MVS3225P201	205	130	170	340	5.0	400	7.0	0.1	100
MVS3225P221	220	140	180	360	5.0	400	7.5	0.1	95
MVS3225P241	240	150	200	395	5.0	400	9.0	0.1	90
MVS3225P271	270	175	225	455	5.0	400	9.5	0.1	75
MVS3225P361	360	230	300	595	5.0	400	10.0	0.1	60
MVS3225P391	390	250	320	650	5.0	400	11.0	0.1	55
MVS3225P431	430	275	350	710	5.0	400	13.0	0.1	50
MVS3225P471	470	300	385	775	5.0	400	15.0	0.1	45
MVS3225P511	510	320	410	845	5	400	16.5	0.1	40
MVS3225P561	560	350	450	930	5	400	18.0	0.1	35

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ELECTRICAL CHARACTERISTICS (SIZE: 4032)

Part No.	Varistor Voltage (@ 1mA DC)	Max. Operating Voltage		Max. Clamping Voltage (8/20μs)		Max. Surge Current (8/20μs)	Max. Energy (10/1000μS)	Rated Power	Reference Capacitance @1KHz
	V _{1mA} (V)	V _{AC(rms)} (V)	V _{DC} (V)	V _P (V)	I _P (A)	I _{max} (A)	W _{max} (J)	P (W)	C (pF)
MVS4032P180	18	11	14	36	2.5	300	1.1	0.02	2750
MVS4032P220	22	14	18	43	2.5	300	1.3	0.02	2300
MVS4032P270	27	17	22	53	2.5	300	1.6	0.02	1900
MVS4032P330	33	20	26	65	2.5	300	2.0	0.02	1600
MVS4032P390	39	25	31	77	2.5	300	2.4	0.02	1400
MVS4032P470	47	30	38	93	2.5	300	2.8	0.02	1200
MVS4032P560	56	35	45	110	2.5	300	3.4	0.02	1050
MVS4032P680	68	40	56	135	2.5	300	4.1	0.02	900
MVS4032P820	82	50	65	135	10	1200	6.5	0.25	530
MVS4032P101	100	60	85	165	10	1200	7.0	0.25	480
MVS4032P121	120	75	100	200	10	1200	9.0	0.25	430
MVS4032P151	150	95	125	250	10	1200	11.0	0.25	260
MVS4032P181	180	115	150	300	10	1200	13.0	0.25	220
MVS4032P201	205	130	170	340	10	1200	15.0	0.25	200
MVS4032P221	220	140	180	360	10	1200	18.0	0.25	180
MVS4032P241	240	150	200	395	10	1200	18.5	0.25	170
MVS4032P271	270	175	225	455	10	1200	21.0	0.25	150
MVS4032P361	360	230	300	595	10	1200	23.0	0.25	115
MVS4032P391	390	250	320	650	10	1200	25.0	0.25	105
MVS4032P431	430	275	350	710	10	1200	29.0	0.25	95
MVS4032P471	470	300	385	775	10	1200	30.0	0.25	90
MVS4032P511	510	320	410	845	10	1200	33.0	0.25	85
MVS4032P561	560	350	450	930	10	1200	33.0	0.25	80
MVS4032P751	750	460	615	1235	10	1200	50.5	0.25	55