

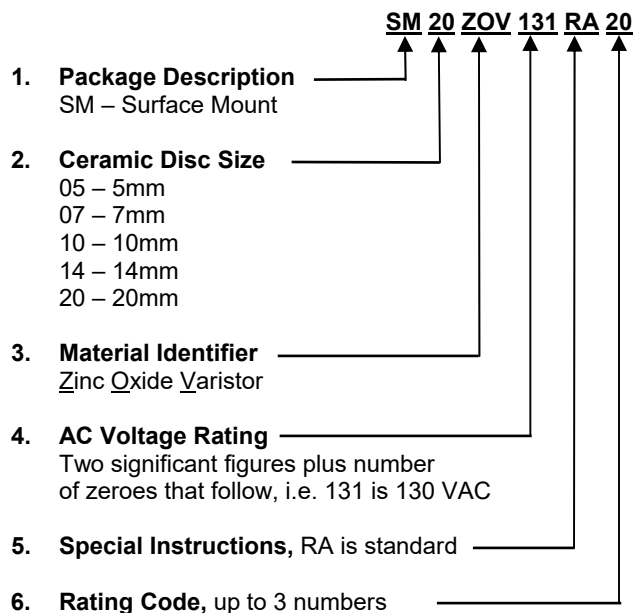
INTRODUCTION

The SMD Series is ideal for SMT processing and Pick and Place assembly. Its low profile package offers space savings compared to leaded devices. The SMD Series utilizes the same ceramic elements used in the leaded Standard Series, only in a surface mount package. These are a direct replacement to their comparable Standard Series counterparts with all the same electrical characteristics. Available in 5mm, 7mm, 10mm, 14mm, and 20mm disc sizes. The construction is RoHS compliant and the coating is UL94-V0 rated. They are available with maximum continuous operating voltages (MCOV) ranging from 11VAC to 550VAC.

STYLE DESIGNATION

The Maida Style Number is the typical means to identify our components when ordered. The style number identifies several parameters that are important for the characteristics of the device. An alternative ordering method, if known, is by our Item Number.

The following example is the standard part numbering system when ordering our SMD Series components by the Maida Style Number:



STANDARD MARKING

Minimum marking shall consist of an abbreviated style designation and, when space is available, the manufacturer's initials or company logo.

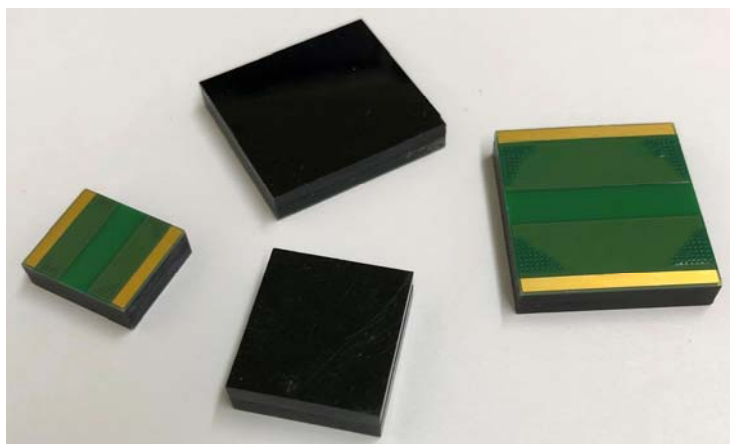
Example
MDC
SM20131

Where:

MDC - Company Initials
SM - SM Series
20 - Ceramic Disc Size
131 - AC Voltage rating (130VAC)

A manufacturing date code and/or special markings may be available upon request.

Other safety agency designations are included where applicable.



11VAC thru 75VAC VARISTORS

Maida Style Number	Recognitions To Safety Agency Standards						Nominal Ceramic Disc Size (mm)	Minimum Marking	Maximum Ratings						Electrical Characteristics				
									Continuous		Transient				Varistor Voltage @1 mA DC		Max Clamping Voltage (@Test Current)		Typical Cap. 1 V rms @1kHz (pF)
									Applied Voltage		Energy		Peak Current						
											10 x 1000 μ /sec (J)	8 x 20 μ /sec (J)	8 x 20 μ /sec # Pulses	1 (A)	2 (A)	Vmin (V)	Vmax (V)		
									(AC)	(DC)	(J)	(J)	(A)	(A)	(V)	(V)	(V)	(A)	
SM05ZOV110RA00	X	X					5	SM05110	11	14	0.6	0.6	250	125	16	20	40	1	2200
SM07ZOV110RA01	X	X					7	SM07110	11	14	1.1	1.1	500	250	16	20	36	2.5	3500
SM10ZOV110RA02	X	X					10	SM10110	11	14	2.6	2.6	1000	500	16	20	36	5	7500
SM14ZOV110RA04	X	X					14	SM14110	11	14	5.2	5.2	2000	1000	16	20	36	10	18000
SM20ZOV110RA10	X	X					20	SM20110	11	14	13	13	3000	2000	16	20	36	20	37000
SM05ZOV140RA00	X	X					5	SM05140	14	18	0.7	0.7	250	125	20	24	48	1	2000
SM07ZOV140RA01	X	X					7	SM07140	14	18	1.3	1.3	500	250	20	24	43	2.5	2800
SM10ZOV140RA02	X	X					10	SM10140	14	18	3.2	3.2	1000	500	20	24	43	5	6000
SM14ZOV140RA04	X	X					14	SM14140	14	18	6.3	6.3	2000	1000	20	24	43	10	15000
SM20ZOV140RA10	X	X					20	SM20140	14	18	16	16	3000	2000	20	24	43	20	30000
SM05ZOV170RA00	X	X					5	SM05170	17	22	0.9	0.9	250	125	24	30	60	1	1600
SM07ZOV170RA01	X	X					7	SM07170	17	22	1.6	1.6	500	250	24	30	53	2.5	2000
SM10ZOV170RA03	X	X					10	SM10170	17	22	3.9	3.9	1000	500	24	30	53	5	4000
SM14ZOV170RA05	X	X					14	SM14170	17	22	7.8	7.8	2000	1000	24	30	53	10	10000
SM20ZOV170RA15	X	X					20	SM20170	17	22	19	19	3000	2000	24	30	53	20	22000
SM05ZOV200RA00	X	X					5	SM05200	20	26	1.1	1.1	250	125	30	36	73	1	1675
SM07ZOV200RA01	X	X					7	SM07200	20	26	2	2	500	250	30	36	65	2.5	3614
SM10ZOV200RA03	X	X					10	SM10200	20	26	4.8	4.8	1000	500	30	36	65	5	6655
SM14ZOV200RA06	X	X					14	SM14200	20	26	9.5	9.5	2000	1000	30	36	65	10	14447
SM20ZOV200RA20	X	X					20	SM20200	20	26	24	24	3000	2000	30	36	65	20	33064
SM05ZOV250RA01	X	X					5	SM05250	25	31	1.2	1.2	250	125	35	43	86	1	1417
SM07ZOV250RA02	X	X					7	SM07250	25	31	2.4	2.4	500	250	35	43	77	2.5	3058
SM10ZOV250RA04	X	X					10	SM10250	25	31	5.6	5.6	1000	500	35	43	77	5	5632
SM14ZOV250RA07	X	X					14	SM14250	25	31	11	11	2000	1000	35	43	77	10	12225
SM20ZOV250RA24	X	X					20	SM20250	25	31	28	28	3000	2000	35	43	77	20	27977
SM05ZOV300RA01	X	X					5	SM05300	30	38	1.5	1.5	250	125	42	52	99	1	1176
SM07ZOV300RA02	X	X					7	SM07300	30	38	2.8	2.8	500	250	42	52	93	2.5	2537
SM10ZOV300RA05	X	X					10	SM10300	30	38	6.8	6.8	1000	500	42	52	93	5	4673
SM14ZOV300RA09	X	X					14	SM14300	30	38	14	14	2000	1000	42	52	93	10	10144
SM20ZOV300RA30	X	X					20	SM20300	30	38	34	34	3000	2000	42	52	93	20	23215
SM05ZOV350RA01	X	X					5	SM05350	35	45	1.8	1.8	250	125	50	62	117	1	987
SM07ZOV350RA02	X	X					7	SM07350	35	45	3.4	3.4	500	250	50	62	110	2.5	2130
SM10ZOV350RA06	X	X					10	SM10350	35	45	8.1	8.1	1000	500	50	62	110	5	3922
SM14ZOV350RA10	X	X					14	SM14350	35	45	16	16	2000	1000	50	62	110	10	8514
SM20ZOV350RA35	X	X					20	SM20350	35	45	41	41	3000	2000	50	62	110	20	19484
SM05ZOV400RA01	X	X					5	SM05400	40	56	2.2	2.2	250	125	61	75	138	1	438
SM07ZOV400RA03	X	X					7	SM07400	40	56	5.2	5.2	500	250	61	75	135	2.5	945
SM10ZOV400RA07	X	X					10	SM10400	40	56	13	13	1000	500	61	75	135	5	1627
SM14ZOV400RA12	X	X					14	SM14400	40	56	20	20	2000	1000	61	75	135	10	3285
SM20ZOV400RA40	X	X					20	SM20400	40	56	49	49	3000	2000	61	75	135	20	7517
SM05ZOV500RA01	X	X					5	SM05500	50	66	3.5	3.5	800	600	74	90	163	5	364
SM07ZOV500RA02	X	X					7	SM07500	50	66	7	7	1750	1250	74	90	157	10	767
SM10ZOV500RA03	X	X					10	SM10500	50	66	14	14	3500	2500	74	90	147	25	1375
SM14ZOV500RA06	X	X					14	SM14500	50	66	28	28	6000	5000	74	90	147	50	2829
SM20ZOV500RA42	X	X					20	SM20500	50	66	56	56	10000	7000	74	90	147	100	5041
SM05ZOV600RA01	X	X					5	SM05600	60	81	4.5	4.5	800	600	90	110	190	5	299
SM07ZOV600RA02	X	X					7	SM07600	60	81	9	9	1750	1250	90	110	180	10	629
SM10ZOV600RA03	X	X					10	SM10600	60	81	18	18	3500	2500	90	110	175	25	1128
SM14ZOV600RA06	X	X					14	SM14600	60	81	36	36	6000	5000	90	110	175	50	2319
SM20ZOV600RA45	X	X					20	SM20600	60	81	72	72	10000	7000	90	110	175	100	5264
SM05ZOV750RA01	X	X					5	SM05750	75	102	5.5	5.5	800	600	108	132	220	5	249
SM07ZOV750RA02	X	X					7	SM07750	75	102	11	11	1750	1250	108	132	220	10	524
SM10ZOV750RA03	X	X					10	SM10750	75	102	22	22	3500	2500	108	132	210	25	940
SM14ZOV750RA06	X	X					14	SM14750	75	102	44	44	6000	5000	108	132	210	50	1933
SM20ZOV750RA55	X	X					20	SM20750	75	102	88	88	10000	7000	108	132	210	100	4387

NOTES:

Appendix A lists the single-pulse peak current and energy ratings on file with the Safety Agencies.

Maximum transient rating specified in this table are valid. They may differ from those shown in Appendix A.

- A = UL1449
- B = cUL
- C = CSA
- D = VDE
- E = DEMKO
- F =

95VAC thru 300VAC VARISTORS

Maida Style Number	Recognitions To Safety Agency Standards						Nominal Ceramic Disc Size (mm)	Minimum Marking	Maximum Ratings						Electrical Characteristics				
									Continuous		Transient				Varistor Voltage @1 mA DC		Max Clamping Voltage (@Test Current)		Typical Cap. 1 V rms @1kHz
									Applied Voltage		Energy		Peak Current						
											10 x 1000 μ sec	8 x 20 μ sec	# Pulses						
									(AC)	(DC)	(J)	(J)	(A)	(A)	Vmin	Vmax	(V)	(A)	
SM05ZOV950RA01	X	X					5	SM05950	95	127	6.6	6.6	800	600	135	165	240	5	118
SM07ZOV950RA02	X	X					7	SM07950	95	127	13	13	1750	1250	135	165	255	10	255
SM10ZOV950RA03	X	X					10	SM10950	95	127	25	25	3500	2500	135	165	255	25	469
SM14ZOV950RA06	X	X					14	SM14950	95	127	53	53	6000	5000	135	165	255	50	1019
SM20ZOV950RA65	X	X					20	SM20950	95	127	106	106	10000	7000	135	165	255	100	2331
SM05ZOV121RA02	X	X					5	SM05121	120	160	8	8	800	600	170	207	310	5	118
SM07ZOV121RA03	X	X					7	SM07121	120	160	16	16	1750	1250	170	207	320	10	255
SM10ZOV121RA04	X	X					10	SM10121	120	160	33	33	3500	2500	170	207	320	25	469
SM14ZOV121RA09	X	X					14	SM14121	120	160	52	52	6000	5000	170	207	320	50	1019
SM20ZOV121RA20	X	X					20	SM20121	120	160	130	130	10000	7000	170	207	320	100	2331
SM05ZOV131RA02	X	X					5	SM05131	130	175	8.5	8.5	800	600	184	224	350	5	116
SM07ZOV131RA03	X	X					7	SM07131	130	175	17.5	17.5	1750	1250	184	224	340	10	250
SM10ZOV131RA04	X	X					10	SM10131	130	175	45	45	3500	2500	184	224	340	25	438
SM14ZOV131RA09	X	X					14	SM14131	130	175	70	70	6500	5000	184	224	340	50	890
SM20ZOV131RA20	X	X					20	SM20131	130	175	150	150	12000	9000	184	224	340	100	2001
SM05ZOV141RA02	X	X					5	SM05141	140	180	9	9	800	600	198	242	380	5	111
SM07ZOV141RA03	X	X					7	SM07141	140	180	20	20	1750	1250	198	242	360	10	232
SM10ZOV141RA04	X	X					10	SM10141	140	180	50	50	3500	2500	198	242	360	25	407
SM14ZOV141RA09	X	X					14	SM14141	140	180	78	78	6500	5000	198	242	360	50	825
SM20ZOV141RA20	X	X					20	SM20141	140	180	160	160	12000	9000	198	242	360	100	1855
SM05ZOV151RA02	X	X					5	SM05151	150	200	10.5	10.5	800	600	212	259	430	5	101
SM07ZOV151RA03	X	X					7	SM07151	150	200	21	21	1750	1250	212	259	395	10	212
SM10ZOV151RA04	X	X					10	SM10151	150	200	55	55	3500	2500	212	259	395	25	373
SM14ZOV151RA09	X	X					14	SM14151	150	200	84	84	6500	5000	212	259	395	50	756
SM20ZOV151RA20	X	X					20	SM20151	150	200	170	170	12000	9000	212	259	395	100	1701
SM05ZOV181RA02	X	X					5	SM05181	180	230	11	11	800	600	255	311	510	5	87
SM07ZOV181RA03	X	X					7	SM07181	180	230	24	24	1750	1250	255	311	445	10	182
SM10ZOV181RA04	X	X					10	SM10181	180	230	60	60	3500	2500	255	311	465	25	319
SM14ZOV181RA09	X	X					14	SM14181	180	230	100	100	6000	5000	255	311	465	50	648
SM20ZOV181RA20	X	X					20	SM20181	180	230	190	190	10000	7000	255	311	465	100	1458
SM05ZOV211RA07	X	X					5	SM05211	210	270	13	13	800	600	297	363	545	5	74
SM07ZOV211RA18	X	X					7	SM07211	210	270	28	28	1750	1250	297	363	545	10	154
SM10ZOV211RA30	X	X					10	SM10211	210	270	58	58	3500	2500	297	363	545	25	271
SM14ZOV211RA65	X	X					14	SM14211	210	270	120	120	6000	4500	297	363	545	50	550
SM20ZOV211RA110	X	X					20	SM20211	210	270	230	230	10000	6500	297	363	545	100	1237
SM05ZOV231RA08	X	X					5	SM05231	230	300	16	16	800	600	326	397	595	5	68
SM07ZOV231RA20	X	X					7	SM07231	230	300	32	32	1750	1250	326	397	595	10	141
SM10ZOV231RA35	X	X					10	SM10231	230	300	65	65	3500	2500	326	397	595	25	248
SM14ZOV231RA70	X	X					14	SM14231	230	300	135	135	6000	4500	326	397	595	50	504
SM20ZOV231RA115	X	X					20	SM20231	230	300	270	270	10000	6500	326	397	595	100	1134
SM05ZOV251RA08	X	X					5	SM05251	250	330	17	17	800	600	354	432	675	5	62
SM07ZOV251RA21	X	X					7	SM07251	250	330	35	35	1750	1250	354	432	650	10	131
SM10ZOV251RA40	X	X					10	SM10251	250	330	70	70	3500	2500	354	432	650	25	229
SM14ZOV251RA72	X	X					14	SM14251	250	330	145	145	6000	4500	354	432	650	50	465
SM20ZOV251RA130	X	X					20	SM20251	250	330	300	300	10000	6500	354	432	650	100	1047
SM05ZOV271RA09	X	X					5	SM05271	270	360	20	20	800	600	382	466	740	5	58
SM07ZOV271RA23	X	X					7	SM07271	270	360	40	40	1750	1250	382	466	710	10	121
SM10ZOV271RA43	X	X					10	SM10271	270	360	80	80	3500	2500	382	466	710	25	213
SM14ZOV271RA75	X	X					14	SM14271	270	360	160	160	6000	4500	382	466	710	50	432
SM20ZOV271RA140	X	X					20	SM20271	270	360	325	325	10000	6500	382	466	710	100	972
SM05ZOV301RA10	X	X					5	SM05301	300	390	21	21	800	600	425	518	810	5	52
SM07ZOV301RA25	X	X					7	SM07301	300	390	42	42	1750	1250	425	518	790	10	108
SM10ZOV301RA45	X	X					10	SM10301	300	390	85	85	3500	2500	425	518	790	25	190
SM14ZOV301RA80	X	X					14	SM14301	300	390	175	175	6000	4500	425	518	790	50	386
SM20ZOV301RA150	X	X					20	SM20301	300	390	350	350	10000	6500	425	518	790	100	869

NOTES:

Appendix A lists the single-pulse peak current and energy ratings on file with the Safety Agencies. Maximum transient rating specified in this table are valid. They may differ from those shown in Appendix A.

- A = UL1449
- B = cUL
- C = CSA
- D = VDE
- E = DEMKO
- F =

SMD SERIES

SPECIFICATIONS

320VAC thru 550VAC VARISTORS

Maida Style Number	Recognitions To Safety Agency Standards						Nominal Ceramic Disc Size (mm)	Minimum Marking	Maximum Ratings						Electrical Characteristics				
									Continuous		Transient				Varistor Voltage @1 mA DC		Max Clamping Voltage (@ Test Current)		Typical Cap. 1 V rms @1kHz
									Applied Voltage		Energy		Peak Current 8 x 20 μ sec # Pulses						
											10 x 1000 μ sec	8 x 20 μ sec	1	2					
									(AC)	(DC)	(J)	(J)	(A)	(A)	Vmin	Vmax	(V)	(A)	(pF)
SM05ZOV321RA11	X	X					5	SM05321	320	420	21	21	800	600	453	553	850	5	49
SM07ZOV321RA27	X	X					7	SM07321	320	420	46	46	1750	1250	453	553	850	10	102
SM10ZOV321RA45	X	X					10	SM10321	320	420	92	92	3500	2500	453	553	850	25	179
SM14ZOV321RA90	X	X					14	SM14321	320	420	190	190	6000	4500	453	553	850	50	363
SM20ZOV321RA160	X	X					20	SM20231	320	420	385	385	10000	6500	453	553	850	100	816
SM05ZOV361RA12	X	X					5	SM05361	360	470	22	22	800	600	522	638	960	5	42
SM07ZOV361RA28	X	X					7	SM07361	360	470	47	47	1750	1250	522	638	960	10	88
SM10ZOV361RA45	X	X					10	SM10361	360	470	97	97	3500	2500	522	638	960	25	154
SM14ZOV361RA85	X	X					14	SM14361	360	470	205	205	6000	4500	522	638	960	50	313
SM20ZOV361RA160	X	X					20	SM20361	360	470	410	410	10000	6500	522	638	960	100	704
SM05ZOV391RA13	X	X					5	SM05391	390	500	25	25	800	600	552	674	1040	5	40
SM07ZOV391RA29	X	X					7	SM07391	390	500	51	51	1750	1250	552	674	1040	10	83
SM10ZOV391RA45	X	X					10	SM10391	390	500	107	107	3500	2500	552	674	1025	25	146
SM14ZOV391RA85	X	X					14	SM14391	390	500	215	215	6000	4500	552	674	1025	50	297
SM20ZOV391RA150	X	X					20	SM20391	390	500	420	420	10000	6500	552	674	1025	100	667
SM05ZOV421RA14	X	X					5	SM05421	420	560	26	26	800	600	594	725	1130	5	37
SM07ZOV421RA30	X	X					7	SM07421	420	560	57	57	1750	1250	594	725	1120	10	77
SM10ZOV421RA45	X	X					10	SM10421	420	560	110	110	3500	2500	594	725	1120	25	136
SM14ZOV421RA90	X	X					14	SM14421	420	560	225	225	6000	4500	594	725	1120	50	275
SM20ZOV421RA160	X	X					20	SM20421	420	560	430	430	10000	6500	594	725	1120	100	618
SM10ZOV461RA50	X	X					10	SM10461	460	615	115	115	3500	2500	651	795	1240	25	124
SM14ZOV461RA100	X	X					14	SM14461	460	615	230	230	6000	4500	651	795	1240	50	251
SM20ZOV461RA175	X	X					20	SM20461	460	615	450	450	10000	6500	651	795	1240	100	565
SM10ZOV481RA50	X	X					10	SM10481	480	640	120	120	3500	2500	679	829	1300	25	119
SM14ZOV481RA105	X	X					14	SM14481	480	640	235	235	6000	4500	679	829	1300	50	242
SM20ZOV481RA180	X	X					20	SM20481	480	640	460	460	10000	6500	679	829	1300	100	544
SM10ZOV511RA55	X	X					10	SM10511	510	675	125	125	3500	2500	722	881	1350	25	112
SM14ZOV511RA110	X	X					14	SM14511	510	675	240	240	6000	4500	722	881	1350	50	227
SM20ZOV511RA190	X	X					20	SM20511	510	675	470	470	10000	6500	722	881	1350	100	510
SM10ZOV551RA60	X	X					10	SM10551	550	700	130	130	3500	2500	778	950	1400	25	104
SM14ZOV551RA115	X	X					14	SM14551	550	700	255	255	6000	4500	778	950	1400	50	211
SM20ZOV551RA200	X	X					20	SM20551	550	700	510	510	10000	6500	778	950	1400	100	475

NOTES:

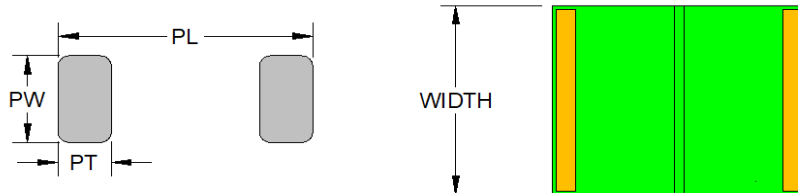
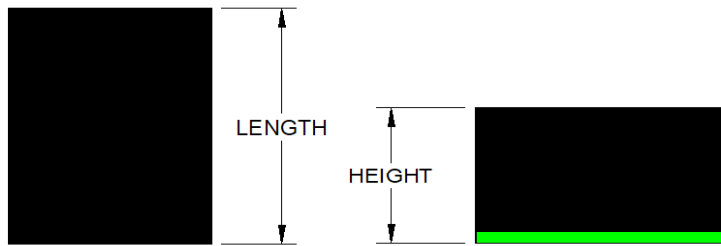
Appendix A lists the single-pulse peak current and energy ratings on file with the Safety Agencies.
Maximum transient rating specified in this table are valid. They may differ from those shown in Appendix A.

A = UL1449 D = VDE
B = cUL E = DEMKO
C = CSA F =

SMD SERIES

DIMENSIONAL SPECIFICATIONS

Maida Style Number	Length (L) (in)	Length Tol. (in)	Width (W) (in)	Width Tol. (in)	MAX. Height (H) (in)	Recommended Land Pad Length (PL) (in)	Recommended Land Pad Width (PW) (in)	Recommended Land Pad Thickness (PT) (in)
SM05	0.280	0.012	0.248	0.012	0.228	0.330	0.267	0.080
SM07	0.402	0.012	0.315	0.012	0.228	0.452	0.365	0.100
SM10	0.563	0.012	0.484	0.012	0.181	0.613	0.534	0.120
SM14	0.709	0.012	0.638	0.012	0.232	0.759	0.688	0.140
SM20	0.945	0.012	0.874	0.012	0.181	0.995	0.924	0.140



Recommended Reflow Profile

