

SIOV Metal Oxide Varistors

Leaded Varistors (Standard Series)

Disk varistors

Standard series, dimensions

Construction

- Round varistor element, leaded
- Coating: epoxy resin, flame-retardant to UL 94 V-0
- Terminals: tinned copper wire

Features

- Wide operating voltage range 11 ... 1100 V_{RMS}
- No derating up to 85 °C ambient
- PSpice models

Approvals

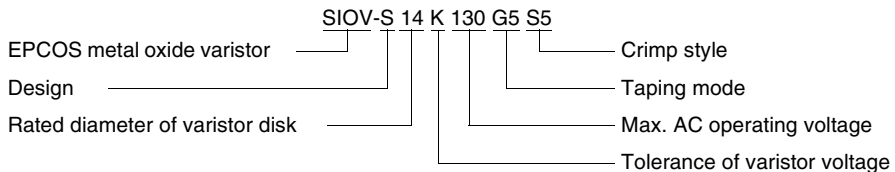
- UL
- CSA (all types ≥ K115)
- SEV
- VDE
- CECC

Taping

- For ordering information see page 206 ff

Type designation

Detailed description of coding system on page 39



General technical data

Climatic category	40/85/56	in accordance with IEC 60068-1
LCT	- 40 °C	
UCT	+ 85 °C	
Damp heat, steady state (93 % r.h., 40 °C)	56 days	in accordance with IEC 60068-2-3
Operating temperature	- 40 ... + 85 °C	in accordance with CECC 42 000
Storage temperature	- 40 ... + 125 °C	
Electric strength	≥ 2,5 kV _{RMS}	in accordance with CECC 42 000
Insulation resistance	≥ 1,0 GΩ	in accordance with CECC 42 000
Response time	< 25 ns	



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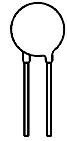
Standard Series

Maximum ratings ($T_A = 85\text{ °C}$)

Type (untaped) SIOV-	Ordering code NEW	V_{RMS} V	V_{DC} V	i_{max} 8/20 μ s A	W_{max} (2 ms) J	P_{max} W
S05K11	B72205-S110-K101	11	14	100	0,3	0,01
S07K11	B72207-S110-K101	11	14	250	0,8	0,02
S10K11	B72210-S110-K101	11	14	500	1,7	0,05
S14K11	B72214-S110-K101	11	14	1000	3,2	0,10
S20K11	B72220-S110-K101	11	14	2000	10,0	0,20
S05K14	B72205-S140-K101	14	18	100	0,4	0,01
S07K14	B72207-S140-K101	14	18 ¹⁾	250	0,9	0,02
S10K14	B72210-S140-K101	14	18 ¹⁾	500	2,0	0,05
S14K14	B72214-S140-K101	14	18 ¹⁾	1000	4,0	0,10
S20K14	B72220-S140-K101	14	18 ¹⁾	2000	12,0	0,20
S05K17	B72205-S170-K101	17	22	100	0,5	0,01
S07K17	B72207-S170-K101	17	22	250	1,1	0,02
S10K17	B72210-S170-K101	17	22	500	2,5	0,05
S14K17	B72214-S170-K101	17	22	1000	5,0	0,10
S20K17	B72220-S170-K101	17	22	2000	14,0	0,20
S05K20	B72205-S200-K101	20	26	100	0,6	0,01
S07K20	B72207-S200-K101	20	26	250	1,3	0,02
S10K20	B72210-S200-K101	20	26	500	3,1	0,05
S14K20	B72214-S200-K101	20	26	1000	6,0	0,10
S20K20	B72220-S200-K101	20	26	2000	18,0	0,20
S05K25	B72205-S250-K101	25	31	100	0,7	0,01
S07K25	B72207-S250-K101	25	31	250	1,6	0,02
S10K25	B72210-S250-K101	25	31	500	3,7	0,05
S14K25	B72214-S250-K101	25	31	1000	7,0	0,10
S20K25	B72220-S250-K101	25	31	2000	22,0	0,20
S05K30	B72205-S300-K101	30	38	100	0,9	0,01
S07K30	B72207-S300-K101	30	38	250	2,0	0,02
S10K30	B72210-S300-K101	30	38	500	4,4	0,05
S14K30	B72214-S300-K101	30	38	1000	9,0	0,10
S20K30	B72220-S300-K101	30	38	2000	26,0	0,20

Note: New ordering codes implemented (refer to chapter Varistor Type Cross-Reference List)

1) Jump-start strength (max. 24 V, 5 minutes)


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Type (untaped) SIOV-	V_V (1 mA) V	ΔV_V (1 mA) %	Max. clamping voltage		C_{typ} (1 kHz) pF	Derating curve Page	V/I char- acteristic Page
			v V	i A			
S05K11	18	± 10	36	1,0	1750	246	278
S07K11	18	± 10	36	2,5	2750	246	279
S10K11	18	± 10	36	5,0	6250	248	280
S14K11	18	± 10	36	10,0	12100	249	281
S20K11	18	± 10	36	20,0	23000	251	282
S05K14	22	± 10	43	1,0	1450	246	278
S07K14	22	± 10	43	2,5	2300	246	279
S10K14	22	± 10	43	5,0	5200	248	280
S14K14	22	± 10	43	10,0	9950	249	281
S20K14	22	± 10	43	20,0	19000	251	282
S05K17	27	± 10	53	1,0	1200	246	278
S07K17	27	± 10	53	2,5	1900	246	279
S10K17	27	± 10	53	5,0	4350	248	280
S14K17	27	± 10	53	10,0	8200	249	281
S20K17	27	± 10	53	20,0	15600	251	282
S05K20	33	± 10	65	1,0	980	246	278
S07K20	33	± 10	65	2,5	1600	246	279
S10K20	33	± 10	65	5,0	3650	248	280
S14K20	33	± 10	65	10,0	6800	249	281
S20K20	33	± 10	65	20,0	13000	251	282
S05K25	39	± 10	77	1,0	850	246	278
S07K25	39	± 10	77	2,5	1400	246	279
S10K25	39	± 10	77	5,0	3200	248	280
S14K25	39	± 10	77	10,0	5850	249	281
S20K25	39	± 10	77	20,0	11100	251	282
S05K30	47	± 10	93	1,0	720	246	278
S07K30	47	± 10	93	2,5	1200	246	279
S10K30	47	± 10	93	5,0	2750	248	280
S14K30	47	± 10	93	10,0	4950	249	281
S20K30	47	± 10	93	20,0	9350	251	282



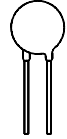
SIOV Metal Oxide Varistors

Standard Series

Maximum ratings ($T_A = 85\text{ °C}$)

Type (untaped) SIOV-	Ordering code NEW	V_{RMS} V	V_{DC} V	I_{max} 8/20 μ s A	W_{max} (2 ms) J	P_{max} W
S05K35	B72205-S350-K101	35	45	100	1,1	0,01
S07K35	B72207-S350-K101	35	45	250	2,5	0,02
S10K35	B72210-S350-K101	35	45	500	5,4	0,05
S14K35	B72214-S350-K101	35	45	1000	10,0	0,10
S20K35	B72220-S350-K101	35	45	2000	33,0	0,20
S05K40	B72205-S400-K101	40	56	100	1,3	0,01
S07K40	B72207-S400-K101	40	56	250	3,0	0,02
S10K40	B72210-S400-K101	40	56	500	6,4	0,05
S14K40	B72214-S400-K101	40	56	1000	13,0	0,10
S20K40	B72220-S400-K101	40	56	2000	37,0	0,20
S05K50	B72205-S500-K101	50	65	400	1,8	0,10
S07K50	B72207-S500-K101	50	65	1200	4,2	0,25
S10K50	B72210-S500-K101	50	65	2500	8,4	0,40
S14K50	B72214-S500-K101	50	65	4500	15,0	0,60
S20K50	B72220-S500-K101	50	65	6500	27,0	1,00
S05K60	B72205-S600-K101	60	85	400	2,2	0,10
S07K60	B72207-S600-K101	60	85	1200	4,8	0,25
S10K60	B72210-S600-K101	60	85	2500	10,0	0,40
S14K60	B72214-S600-K101	60	85	4500	17,0	0,60
S20K60	B72220-S600-K101	60	85	6500	33,0	1,00
S05K75	B72205-S750-K101	75	100	400	2,5	0,10
S07K75	B72207-S750-K101	75	100	1200	5,9	0,25
S10K75	B72210-S750-K101	75	100	2500	12,0	0,40
S14K75	B72214-S750-K101	75	100	4500	20,0	0,60
S20K75	B72220-S750-K101	75	100	6500	40,0	1,00
S05K95	B72205-S950-K101	95	125	400	3,4	0,10
S07K95	B72207-S950-K101	95	125	1200	7,6	0,25
S10K95	B72210-S950-K101	95	125	2500	15,0	0,40
S14K95	B72214-S950-K101	95	125	4500	25,0	0,60
S20K95	B72220-S950-K101	95	125	6500	50,0	1,00

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Type (untaped) SIOV-	V_V (1 mA) V	ΔV_V (1 mA) %	Max. clamping voltage		C_{typ} (1 kHz) pF	Derating curve Page	V/I char- acteristic Page
			v V	i A			
S05K35	56	± 10	110	1,0	620	246	278
S07K35	56	± 10	110	2,5	1050	246	279
S10K35	56	± 10	110	5,0	2400	248	280
S14K35	56	± 10	110	10,0	4200	249	281
S20K35	56	± 10	110	20,0	8000	251	282
S05K40	68	± 10	135	1,0	520	246	278
S07K40	68	± 10	135	2,5	900	246	279
S10K40	68	± 10	135	5,0	2100	248	280
S14K40	68	± 10	135	10,0	3550	249	281
S20K40	68	± 10	135	20,0	6750	251	282
S05K50	82	± 10	135	5,0	300	247	278
S07K50	82	± 10	135	10,0	530	247	279
S10K50	82	± 10	135	25,0	950	248	280
S14K50	82	± 10	135	50,0	1800	250	281
S20K50	82	± 10	135	100,0	3800	251	282
S05K60	100	± 10	165	5,0	250	247	278
S07K60	100	± 10	165	10,0	480	247	279
S10K60	100	± 10	165	25,0	870	248	280
S14K60	100	± 10	165	50,0	1650	250	281
S20K60	100	± 10	165	100,0	3600	251	282
S05K75	120	± 10	200	5,0	210	247	278
S07K75	120	± 10	200	10,0	430	247	279
S10K75	120	± 10	200	25,0	720	248	280
S14K75	120	± 10	200	50,0	1370	250	281
S20K75	120	± 10	200	100,0	2900	251	282
S05K95	150	± 10	250	5,0	135	247	278
S07K95	150	± 10	250	10,0	260	247	279
S10K95	150	± 10	250	25,0	530	248	280
S14K95	150	± 10	250	50,0	870	250	281
S20K95	150	± 10	250	100,0	1830	251	282



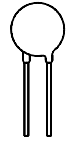
SIOV Metal Oxide Varistors

Standard Series

Maximum ratings ($T_A = 85\text{ °C}$)

Type (untaped) SIOV-	Ordering code NEW	V_{RMS} V	V_{DC} V	I_{max} 8/20 μ s A	W_{max} (2 ms) J	P_{max} W
S05K115	B72205-S111-K101	115	150	400	3,6	0,10
S07K115	B72207-S111-K101	115	150	1200	8,4	0,25
S10K115	B72210-S111-K101	115	150	2500	18,0	0,40
S14K115	B72214-S111-K101	115	150	4500	30,0	0,60
S20K115	B72220-S111-K101	115	150	6500	60,0	1,00
S05K130	B72205-S131-K101	130	170	400	4,2	0,10
S07K130	B72207-S131-K101	130	170	1200	9,5	0,25
S10K130	B72210-S131-K101	130	170	2500	19,0	0,40
S14K130	B72214-S131-K101	130	170	4500	34,0	0,60
S20K130	B72220-S131-K101	130	170	8000	74,0	1,00
S05K140	B72205-S141-K101	140	180	400	4,5	0,10
S07K140	B72207-S141-K101	140	180	1200	10,0	0,25
S10K140	B72210-S141-K101	140	180	2500	22,0	0,40
S14K140	B72214-S141-K101	140	180	4500	36,0	0,60
S20K140	B72220-S141-K101	140	180	8000	78,0	1,00
S05K150	B72205-S151-K101	150	200	400	4,9	0,10
S07K150	B72207-S151-K101	150	200	1200	11,0	0,25
S10K150	B72210-S151-K101	150	200	2500	24,0	0,40
S14K150	B72214-S151-K101	150	200	4500	40,0	0,60
S20K150	B72220-S151-K101	150	200	8000	85,0	1,00
S05K175	B72205-S171-K101	175	225	400	5,6	0,10
S07K175	B72207-S171-K101	175	225	1200	13,0	0,25
S10K175	B72210-S171-K101	175	225	2500	28,0	0,40
S14K175	B72214-S171-K101	175	225	4500	46,0	0,60
S20K175	B72220-S171-K101	175	225	8000	98,0	1,00
S05K230	B72205-S231-K101	230	300	400	7,2	0,10
S07K230	B72207-S231-K101	230	300	1200	17,0	0,25
S10K230	B72210-S231-K101	230	300	2500	36,0	0,40
S14K230	B72214-S231-K101	230	300	4500	60,0	0,60
S20K230	B72220-S231-K101	230	300	8000	130,0	1,00
S05K250	B72205-S251-K101	250	320	400	8,2	0,10
S07K250	B72207-S251-K101	250	320	1200	19,0	0,25
S10K250	B72210-S251-K101	250	320	2500	38,0	0,40
S14K250	B72214-S251-K101	250	320	4500	65,0	0,60
S20K250	B72220-S251-K101	250	320	8000	140,0	1,00

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Type (untaped) SIOV-	V_V (1 mA) V	ΔV_V (1 mA) %	Max. clamping voltage		C_{typ} (1 kHz) pF	Derating curve Page	V/I char- acteristic Page
			v V	i A			
S05K115	180	± 10	300	5,0	110	247	278
S07K115	180	± 10	300	10,0	220	247	279
S10K115	180	± 10	300	25,0	445	248	280
S14K115	180	± 10	300	50,0	730	250	281
S20K115	180	± 10	300	100,0	1520	251	282
S05K130	205	± 10	340	5,0	100	247	278
S07K130	205	± 10	340	10,0	200	247	279
S10K130	205	± 10	340	25,0	400	248	280
S14K130	205	± 10	340	50,0	650	250	281
S20K130	205	± 10	340	100,0	1340	252	282
S05K140	220	± 10	360	5,0	95	247	278
S07K140	220	± 10	360	10,0	180	247	279
S10K140	220	± 10	360	25,0	370	248	280
S14K140	220	± 10	360	50,0	610	250	281
S20K140	220	± 10	360	100,0	1240	252	282
S05K150	240	± 10	395	5,0	90	247	278
S07K150	240	± 10	395	10,0	170	247	279
S10K150	240	± 10	395	25,0	350	248	280
S14K150	240	± 10	395	50,0	570	250	281
S20K150	240	± 10	395	100,0	1160	252	282
S05K175	270	± 10	455	5,0	75	247	278
S07K175	270	± 10	455	10,0	150	247	279
S10K175	270	± 10	455	25,0	300	248	280
S14K175	270	± 10	455	50,0	490	250	281
S20K175	270	± 10	455	100,0	1000	252	282
S05K230	360	± 10	595	5,0	60	247	278
S07K230	360	± 10	595	10,0	115	247	279
S10K230	360	± 10	595	25,0	230	248	280
S14K230	360	± 10	595	50,0	380	250	281
S20K230	360	± 10	595	100,0	760	252	282
S05K250	390	± 10	650	5,0	55	247	278
S07K250	390	± 10	650	10,0	105	247	279
S10K250	390	± 10	650	25,0	215	248	280
S14K250	390	± 10	650	50,0	350	250	281
S20K250	390	± 10	650	100,0	700	252	282



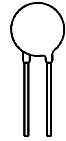
SIOV Metal Oxide Varistors

Standard Series

Maximum ratings ($T_A = 85\text{ °C}$)

Type (untaped) SIOV-	Ordering code NEW	V_{RMS} V	V_{DC} V	I_{max} 8/20 μ s A	W_{max} (2 ms) J	P_{max} W
S05K275	B72205-S271-K101	275	350	400	8,6	0,10
S07K275	B72207-S271-K101	275	350	1200	21,0	0,25
S10K275	B72210-S271-K101	275	350	2500	43,0	0,40
S14K275	B72214-S271-K101	275	350	4500	71,0	0,60
S20K275	B72220-S271-K101	275	350	8000	151,0	1,00
S05K300	B72205-S301-K101	300	385	400	9,6	0,10
S07K300	B72207-S301-K101	300	385	1200	23,0	0,25
S10K300	B72210-S301-K101	300	385	2500	47,0	0,40
S14K300	B72214-S301-K101	300	385	4500	76,0	0,60
S20K300	B72220-S301-K101	300	385	8000	173,0	1,00
S10K320	B72210-S321-K101	320	420	2500	50,0	0,40
S14K320	B72214-S321-K101	320	420	4500	84,0	0,60
S20K320	B72220-S321-K101	320	420	8000	184,0	1,00
S05K385	B72205-S381-K101	385	505	400	13,0	0,10
S07K385	B72207-S381-K101	385	505	1200	28,0	0,25
S10K385	B72210-S381-K101	385	505	2500	40,0	0,40
S14K385	B72214-S381-K101	385	505	4500	80,0	0,60
S20K385	B72220-S381-K101	385	505	8000	150,0	1,00
S05K420	B72205-S421-K101	420	560	400	14,0	0,10
S07K420	B72207-S421-K101	420	560	1200	32,0	0,25
S10K420	B72210-S421-K101	420	560	2500	45,0	0,40
S14K420	B72214-S421-K101	420	560	4500	90,0	0,60
S20K420	B72220-S421-K101	420	560	8000	175,0	1,00
S05K440	B72205-S441-K101	440	585	400	16,0	0,10
S07K440	B72207-S441-K101	440	585	1200	34,0	0,25
S10K440	B72210-S441-K101	440	585	2500	47,0	0,40
S14K440	B72214-S441-K101	440	585	4500	95,0	0,60
S20K440	B72220-S441-K101	440	585	8000	185,0	1,00
S05K460	B72205-S461-K101	460	615	400	18,0	0,10
S07K460	B72207-S461-K101	460	615	1200	36,0	0,25
S10K460	B72210-S461-K101	460	615	2500	50,0	0,40
S14K460	B72214-S461-K101	460	615	4500	100,0	0,60
S20K460	B72220-S461-K101	460	615	8000	195,0	1,00

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Type (untaped) SIOV-	V_V (1 mA) V	ΔV_V (1 mA) %	Max. clamping voltage		C_{typ} (1 kHz) pF	Derating curve Page	V/I char- acteristic Page
			v V	i A			
S05K275	430	± 10	710	5,0	50	247	278
S07K275	430	± 10	710	10,0	95	247	279
S10K275	430	± 10	710	25,0	195	248	280
S14K275	430	± 10	710	50,0	320	250	281
S20K275	430	± 10	710	100,0	630	252	282
S05K300	470	± 10	775	5,0	45	247	278
S07K300	470	± 10	775	10,0	90	247	279
S10K300	470	± 10	775	25,0	180	248	280
S14K300	470	± 10	775	50,0	300	250	281
S20K300	470	± 10	775	100,0	580	252	282
S10K320	510	± 10	845	25,0	170	248	280
S14K320	510	± 10	845	50,0	280	250	281
S20K320	510	± 10	845	100,0	540	252	282
S05K385	620	± 10	1025	5,0	40	247	278
S07K385	620	± 10	1025	10,0	75	247	279
S10K385	620	± 10	1025	25,0	150	249	280
S14K385	620	± 10	1025	50,0	240	250	281
S20K385	620	± 10	1025	100,0	450	252	282
S05K420	680	± 10	1120	5,0	35	247	278
S07K420	680	± 10	1120	10,0	65	247	279
S10K420	680	± 10	1120	25,0	135	249	280
S14K420	680	± 10	1120	50,0	220	250	281
S20K420	680	± 10	1120	100,0	420	252	282
S05K440	715	± 10	1180	5,0	32	247	278
S07K440	715	± 10	1180	10,0	60	247	279
S10K440	715	± 10	1180	25,0	125	249	280
S14K440	715	± 10	1180	50,0	210	250	281
S20K440	715	± 10	1180	100,0	400	252	282
S05K460	750	± 10	1240	5,0	30	247	278
S07K460	750	± 10	1240	10,0	55	247	279
S10K460	750	± 10	1240	25,0	120	249	280
S14K460	750	± 10	1240	50,0	200	250	281
S20K460	750	± 10	1240	100,0	380	252	282



SIOV Metal Oxide Varistors

Standard Series

Maximum ratings ($T_A = 85\text{ }^\circ\text{C}$)

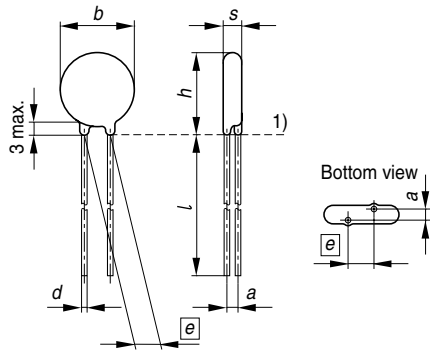
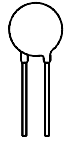
Type (untaped) SIOV-	Ordering code NEW	V_{RMS} V	V_{DC} V	i_{max} 8/20 μs A	W_{max} (2 ms) J	P_{max} W
S10K510	B72210-S511-K101	510	670	2500	55,0	0,40
S14K510	B72214-S511-K101	510	670	4500	110,0	0,60
S20K510	B72220-S511-K101	510	670	6500	190,0	1,00
S10K550	B72210-S551-K101	550	745	2500	60,0	0,40
S14K550	B72214-S551-K101	550	745	4500	120,0	0,60
S20K550	B72220-S551-K101	550	745	6500	210,0	1,00
S10K625	B72210-S621-K101	625	825	2500	68,0	0,40
S14K625	B72214-S621-K101	625	825	4500	130,0	0,60
S20K625	B72220-S621-K101	625	825	6500	230,0	1,00
S10K680	B72210-S681-K101	680	895	2500	72,0	0,40
S14K680	B72214-S681-K101	680	895	4500	140,0	0,60
S20K680	B72220-S681-K101	680	895	6500	250,0	1,00
S14K1000 ¹⁾	B72214-S102-K101	1100	1465	4500	230,0	0,60
S20K1000 ¹⁾	B72220-S102-K101	1100	1465	6500	410,0	1,00

Characteristics ($T_A = 25\text{ }^\circ\text{C}$)

Type (untaped) SIOV-	V_V (1 mA) V	ΔV_V (1 mA) %	Max. clamping voltage		C_{typ} (1 kHz) pF	Derating curve Page	V/I char- acteristic Page
			v V	i A			
S10K510	820	± 10	1355	25,0	110	249	280
S14K510	820	± 10	1355	50,0	180	250	281
S20K510	820	± 10	1355	100,0	340	253	282
S10K550	910	± 10	1500	25,0	105	249	280
S14K550	910	± 10	1500	50,0	170	250	281
S20K550	910	± 10	1500	100,0	320	253	282
S10K625	1000	± 10	1650	25,0	90	249	280
S14K625	1000	± 10	1650	50,0	150	250	281
S20K625	1000	± 10	1650	100,0	280	253	282
S10K680	1100	± 10	1815	25,0	85	249	280
S14K680	1100	± 10	1815	50,0	140	250	281
S20K680	1100	± 10	1815	100,0	250	253	282
S14K1000 ¹⁾	1800	± 10	2970	50,0	100	250	281
S20K1000 ¹⁾	1800	± 10	2970	100,0	170	253	282

Note: New ordering codes implemented (refer to chapter Varistor Type Cross-Reference List)

1) Operating voltage differs from type designation.



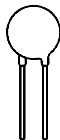
1) Seating plane according to IEC 60717

VAR0408-C

Dimensions

Type	$\bar{e} \pm 1$ mm	$a \pm 1$ mm	b_{\max} mm	s_{\max} mm	h_{\max} mm	l_{\min} mm	$d \pm 0,05$ mm
SIOV-S05K11	5,0	1,2	7,0	3,3	8,5	30,0	0,6
SIOV-S07K11	5,0	1,2	9,0	3,4	11,0	30,0	0,6
SIOV-S10K11	7,5 (5)	1,4 (1,2)	12,0	4,0 (3,6)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K11	7,5	1,4	15,5	4,0	18,5	30,0	0,8
SIOV-S20K11	10,0	1,5	21,5	4,5	25,5	30,0	1,0
SIOV-S05K14	5,0	1,3	7,0	3,4	8,5	30,0	0,6
SIOV-S07K14	5,0	1,3	9,0	3,5	11,0	30,0	0,6
SIOV-S10K14	7,5 (5)	1,5 (1,3)	12,0	4,2 (3,8)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K14	7,5	1,5	15,5	4,2	18,5	30,0	0,8
SIOV-S20K14	10,0	1,6	21,5	4,6	25,5	30,0	1,0
SIOV-S05K17	5,0	1,4	7,0	3,5	8,5	30,0	0,6
SIOV-S07K17	5,0	1,4	9,0	3,6	11,0	30,0	0,6
SIOV-S10K17	7,5 (5)	1,6 (1,4)	12,0	4,4 (4,0)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K17	7,5	1,7	15,5	4,4	18,5	30,0	0,8
SIOV-S20K17	10,0	1,8	21,5	4,8	25,5	30,0	1,0
SIOV-S05K20	5,0	1,2	7,0	3,5	8,5	30,0	0,6
SIOV-S07K20	5,0	1,2	9,0	3,6	11,0	30,0	0,6
SIOV-S10K20	7,5 (5)	1,8 (1,6)	12,0	4,5 (4,1)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K20	7,5	1,9	15,5	4,6	18,5	30,0	0,8
SIOV-S20K20	10,0	2,1	21,5	5,1	25,5	30,0	1,0

Dimensions in () apply to the taped version with 5 mm lead spacing. For (*) see "Taping", page 206 ff.



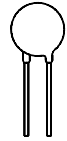
SIOV Metal Oxide Varistors

Standard Series

Dimensions

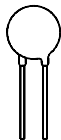
Type	$\bar{e} \pm 1$ mm	$a \pm 1$ mm	b_{\max} mm	s_{\max} mm	h_{\max} mm	l_{\min} mm	$d \pm 0,05$ mm
SIOV-S05K25	5,0	1,3	7,0	3,6	8,5	30,0	0,6
SIOV-S07K25	5,0	1,3	9,0	3,7	11,0	30,0	0,6
SIOV-S10K25	7,5 (5)	1,6 (1,4)	12,0	4,2 (3,8)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K25	7,5	1,7	15,5	4,2	18,5	30,0	0,8
SIOV-S20K25	10,0	1,8	21,5	4,7	25,5	30,0	1,0
SIOV-S05K30	5,0	1,5	7,0	3,6	8,5	30,0	0,6
SIOV-S07K30	5,0	1,5	9,0	3,7	11,0	30,0	0,6
SIOV-S10K30	7,5 (5)	1,7 (1,5)	12,0	4,4 (4,0)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K30	7,5	1,8	15,5	4,4	18,5	30,0	0,8
SIOV-S20K30	10,0	2,0	21,5	4,9	25,5	30,0	1,0
SIOV-S05K35	5,0	1,6	7,0	3,7	8,5	30,0	0,6
SIOV-S07K35	5,0	1,6	9,0	3,9	11,0	30,0	0,6
SIOV-S10K35	7,5 (5)	1,8 (1,6)	12,0	4,4 (4,0)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K35	7,5	2,0	15,5	4,5	18,5	30,0	0,8
SIOV-S20K35	10,0	2,2	21,5	5,1	25,5	30,0	1,0
SIOV-S05K40	5,0	1,8	7,0	3,9	8,5	30,0	0,6
SIOV-S07K40	5,0	1,8	9,0	4,1	11,0	30,0	0,6
SIOV-S10K40	7,5 (5)	2,1 (1,9)	12,0	4,8 (4,4)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K40	7,5	2,2	15,5	4,9	18,5	30,0	0,8
SIOV-S20K40	10,0	2,4	21,5	5,4	25,5	30,0	1,0
SIOV-S05K50	5,0	1,2	7,0	3,3	8,5	30,0	0,6
SIOV-S07K50	5,0	1,2	9,0	3,3	11,0	30,0	0,6
SIOV-S10K50	7,5 (5)	1,4 (1,2)	12,0	3,9 (3,5)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K50	7,5	1,4	15,5	3,9	18,5	30,0	0,8
SIOV-S20K50	10,0	1,5	21,5	4,3	25,5	30,0	1,0
SIOV-S05K60	5,0	1,2	7,0	3,3	8,5	30,0	0,6
SIOV-S07K60	5,0	1,2	9,0	3,3	11,0	30,0	0,6
SIOV-S10K60	7,5 (5)	1,4 (1,2)	12,0	4,0 (3,6)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K60	7,5	1,5	15,5	4,0	18,5	30,0	0,8
SIOV-S20K60	10,0	1,6	21,5	4,4	25,5	30,0	1,0
SIOV-S05K75	5,0	1,3	7,0	3,4	8,5	30,0	0,6
SIOV-S07K75	5,0	1,3	9,0	3,6	11,0	30,0	0,6
SIOV-S10K75	7,5 (5)	1,5 (1,3)	12,0	4,2 (3,8)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K75	7,5	1,5	15,5	4,2	18,5	30,0	0,8
SIOV-S20K75	10,0	1,6	21,5	4,6	25,5	30,0	1,0

Dimensions in () apply to the taped version with 5 mm lead spacing. For (*) see "Taping", page 206 ff.


SIOV Metal Oxide Varistors
Standard Series
Dimensions

Type	$\bar{e} \pm 1$ mm	$a \pm 1$ mm	b_{\max} mm	s_{\max} mm	h_{\max} mm	l_{\min} mm	$d \pm 0,05$ mm
SIOV-S05K95	5,0	1,3	7,0	3,4	8,5	30,0	0,6
SIOV-S07K95	5,0	1,3	9,0	3,4	11,0	30,0	0,6
SIOV-S10K95	7,5 (5)	1,5 (1,3)	12,0	4,0 (3,6)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K95	7,5	1,5	15,5	4,0	18,5	30,0	0,8
SIOV-S20K95	10,0	1,6	21,5	4,5	25,5	30,0	1,0
SIOV-S05K115	5,0	1,5	7,0	3,6	8,5	30,0	0,6
SIOV-S07K115	5,0	1,5	9,0	3,6	11,0	30,0	0,6
SIOV-S10K115	7,5 (5)	1,6 (1,4)	12,0	4,2 (3,8)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K115	7,5	1,7	15,5	4,2	18,5	30,0	0,8
SIOV-S20K115	10,0	1,8	21,5	4,6	25,5	30,0	1,0
SIOV-S05K130	5,0	1,6	7,0	3,6	8,5	30,0	0,6
SIOV-S07K130	5,0	1,6	9,0	3,6	11,0	30,0	0,6
SIOV-S10K130	7,5 (5)	1,8 (1,6)	12,0	4,2 (3,8)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K130	7,5	1,9	15,5	4,2	18,5	30,0	0,8
SIOV-S20K130	10,0	2,0	21,5	4,7	25,5	30,0	1,0
SIOV-S05K140	5,0	1,7	7,0	3,7	8,5	30,0	0,6
SIOV-S07K140	5,0	1,7	9,0	3,7	11,0	30,0	0,6
SIOV-S10K140	7,5 (5)	1,9 (1,7)	12,0	4,3 (3,9)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K140	7,5	2,0	15,5	4,3	18,5	30,0	0,8
SIOV-S20K140	10,0	2,1	21,5	4,8	25,5	30,0	1,0
SIOV-S05K150	5,0	1,8	7,0	3,8	8,5	30,0	0,6
SIOV-S07K150	5,0	1,8	9,0	3,8	11,0	30,0	0,6
SIOV-S10K150	7,5 (5)	2,0 (1,8)	12,0	4,4 (4,0)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K150	7,5	2,1	15,5	4,4	18,5	30,0	0,8
SIOV-S20K150	10,0	2,2	21,5	4,9	25,5	30,0	1,0
SIOV-S05K175	5,0	2,0	7,0	3,9	8,5	30,0	0,6
SIOV-S07K175	5,0	2,0	9,0	4,0	11,0	30,0	0,6
SIOV-S10K175	7,5 (5)	2,2 (2,0)	12,0	4,6 (4,2)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K175	7,5	2,2	15,5	4,6	18,5	30,0	0,8
SIOV-S20K175	10,0	2,3	21,5	5,0	25,5	30,0	1,0
SIOV-S05K230	5,0	1,8	7,0	4,0	8,5	30,0	0,6
SIOV-S07K230	5,0	1,8	9,0	4,0	11,0	30,0	0,6
SIOV-S10K230	7,5 (5)	2,0 (2,3)	12,0	4,7 (4,3)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K230	7,5	2,0	15,5	4,7	18,5	30,0	0,8
SIOV-S20K230	10,0	2,1	21,5	5,1	25,5	30,0	1,0

Dimensions in () apply to the taped version with 5 mm lead spacing. For (*) see "Taping", page 206 ff.



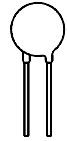
SIOV Metal Oxide Varistors

Standard Series

Dimensions

Type	$\bar{e} \pm 1$ mm	$a \pm 1$ mm	b_{\max} mm	s_{\max} mm	h_{\max} mm	l_{\min} mm	$d \pm 0,05$ mm
SIOV-S05K250	5,0	1,8	7,0	4,2	8,5	30,0	0,6
SIOV-S07K250	5,0	1,8	9,0	4,2	11,0	30,0	0,6
SIOV-S10K250	7,5 (5)	2,0 (1,8)	12,0	4,8 (4,4)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K250	7,5	2,0	15,5	4,8	18,5	30,0	0,8
SIOV-S20K250	10,0	2,2	21,5	5,3	25,5	30,0	1,0
SIOV-S05K275	5,0	2,0	7,0	4,3	8,5	30,0	0,6
SIOV-S07K275	5,0	2,0	9,0	4,4	11,0	30,0	0,6
SIOV-S10K275	7,5 (5)	2,2 (2,0)	12,0	5,0 (4,6)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K275	7,5	2,2	15,5	5,0	18,5	30,0	0,8
SIOV-S20K275	10,0	2,3	21,5	5,4	25,5	30,0	1,0
SIOV-S05K300	5,0	2,1	7,0	4,5	8,5	30,0	0,6
SIOV-S07K300	5,0	2,1	9,0	4,5	11,0	30,0	0,6
SIOV-S10K300	7,5 (5)	2,3 (2,1)	12,0	5,1 (4,7)	14,5	30,0 (*)	0,8 (0,6)
SIOV-S14K300	7,5	2,3	15,5	5,2	18,5	30,0	0,8
SIOV-S20K300	10,0	2,4	21,5	5,6	25,5	30,0	1,0
SIOV-S10K320	7,5	2,4	12,0	5,4	15,0	30,0	0,8
SIOV-S14K320	7,5	2,4	15,5	5,4	19,0	30,0	0,8
SIOV-S20K320	10,0	2,6	21,5	5,8	25,5	30,0	1,0
SIOV-S05K385	5,0	2,5	7,0	5,1	9,0	30,0	0,6
SIOV-S07K385	5,0	2,5	9,0	5,2	11,5	30,0	0,6
SIOV-S10K385	7,5	2,7	12,0	5,8	15,0	30,0	0,8
SIOV-S14K385	7,5	2,7	15,5	5,9	19,0	30,0	0,8
SIOV-S20K385	10,0	2,8	21,5	6,3	26,0	30,0	1,0
SIOV-S05K420	5,0	2,8	7,0	5,4	9,0	30,0	0,6
SIOV-S07K420	5,0	2,8	9,0	5,4	11,5	30,0	0,6
SIOV-S10K420	7,5	2,9	12,0	6,1	15,0	30,0	0,8
SIOV-S14K420	7,5	2,9	15,5	6,1	19,0	30,0	0,8
SIOV-S20K420	10,0	3,1	21,5	6,5	26,0	30,0	1,0
SIOV-S05K440	5,0	2,8	7,0	5,5	9,0	30,0	0,6
SIOV-S07K440	5,0	2,8	9,0	5,5	11,5	30,0	0,6
SIOV-S10K440	7,5	3,0	12,0	6,2	15,0	30,0	0,8
SIOV-S14K440	7,5	3,0	15,5	6,3	19,0	30,0	0,8
SIOV-S20K440	10,0	3,1	21,5	6,7	26,0	30,0	1,0

Dimensions in () apply to the taped version with 5 mm lead spacing. For (*) see "Taping", page 206 ff.


SIOV Metal Oxide Varistors
Standard Series
Dimensions

Type	$e \pm 1$ mm	$a \pm 1$ mm	b_{\max} mm	s_{\max} mm	h_{\max} mm	l_{\min} mm	$d \pm 0,05$ mm
SIOV-S05K460	5,0	3,0	7,0	5,7	9,0	30,0	0,6
SIOV-S07K460	5,0	3,0	9,0	5,7	11,5	30,0	0,6
SIOV-S10K460	7,5	3,1	12,0	6,3	15,0	30,0	0,8
SIOV-S14K460	7,5	3,1	15,5	6,4	19,0	30,0	0,8
SIOV-S20K460	10,0	3,3	21,5	6,8	26,0	30,0	1,0
SIOV-S10K510	7,5	3,4	12,0	6,7	15,0	30,0	0,8
SIOV-S14K510	7,5	3,4	15,5	6,8	19,0	30,0	0,8
SIOV-S20K510	10,0	3,5	21,5	7,1	26,0	30,0	1,0
SIOV-S10K550	7,5	3,7	12,0	7,1	15,0	30,0	0,8
SIOV-S14K550	7,5	3,7	15,5	7,2	19,0	30,0	0,8
SIOV-S20K550	10,0	3,9	21,5	7,5	26,0	30,0	1,0
SIOV-S10K625	7,5	4,0	12,0	7,5	15,0	30,0	0,8
SIOV-S14K625	7,5	4,0	15,5	7,5	19,0	30,0	0,8
SIOV-S20K625	10,0	4,2	21,5	7,9	26,0	30,0	1,0
SIOV-S10K680	7,5	4,4	12,0	7,9	15,0	30,0	0,8
SIOV-S14K680	7,5	4,4	15,5	8,0	19,0	30,0	0,8
SIOV-S20K680	10,0	4,5	21,5	8,4	26,0	30,0	1,0
SIOV-S14K1000	7,5	6,7	15,5	11,0	20,5	30,0	0,8
SIOV-S20K1000	10,0	6,9	21,5	11,4	28,5	30,0	1,0

Weight

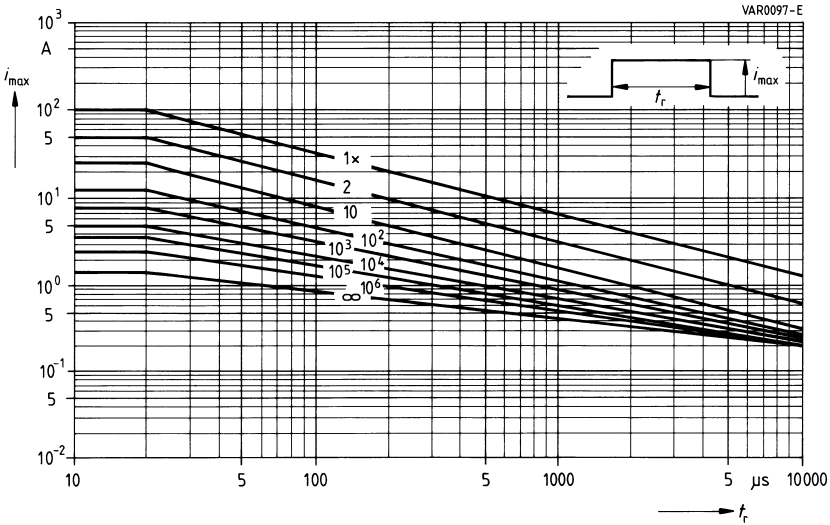
Size	approx.	
S05K11 ... 460	0,3 ... 0,7 g	The weight of varistors in between these voltage classes can be interpolated.
S07K11 ... 460	0,4 ... 1,1 g	
S10K11 ... 680	1,0 ... 3,0 g	
S14K11 ... 1000	1,4 ... 7,6 g	
S20K11 ... 1000	2,7 ... 15,7 g	

SIOV Metal Oxide Varistors

Derating Curves

Maximum surge current

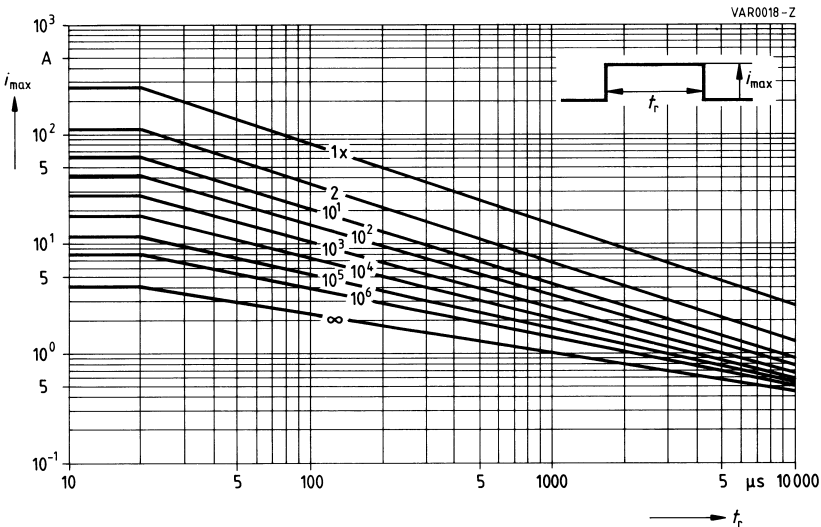
$i_{\max} = f(t_r, \text{pulse train})$ – for explanation of the derating curves refer to section 1.8.1)



SIOV-S05K11 ... K40

SIOV-CU3225K11G2 ... K40G2

SIOV-CU3225K14AUTOG2 ... K30AUTOG2



SIOV-S07K11 ... K40

SIOV-CU4032K11G2 ... K40G2

SIOV-S07K14AUTOS2D1

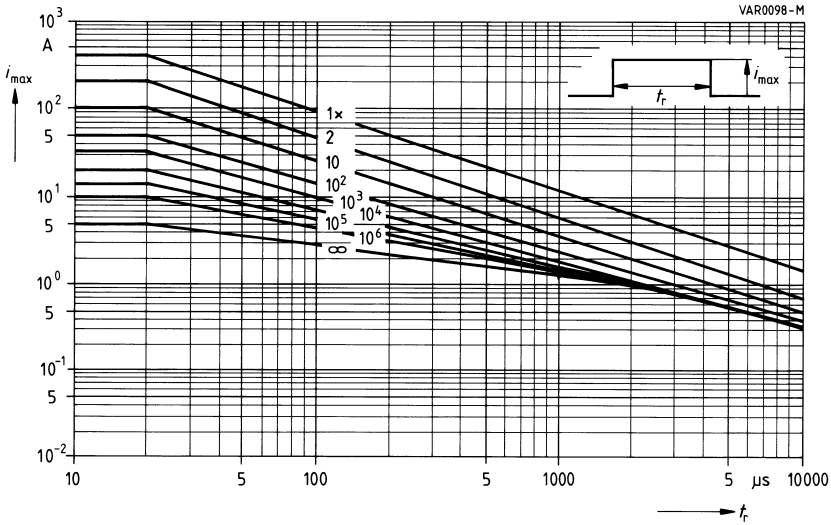
SIOV-CU4032K14AUTOG2 ... K30AUTOG2

SIOV Metal Oxide Varistors

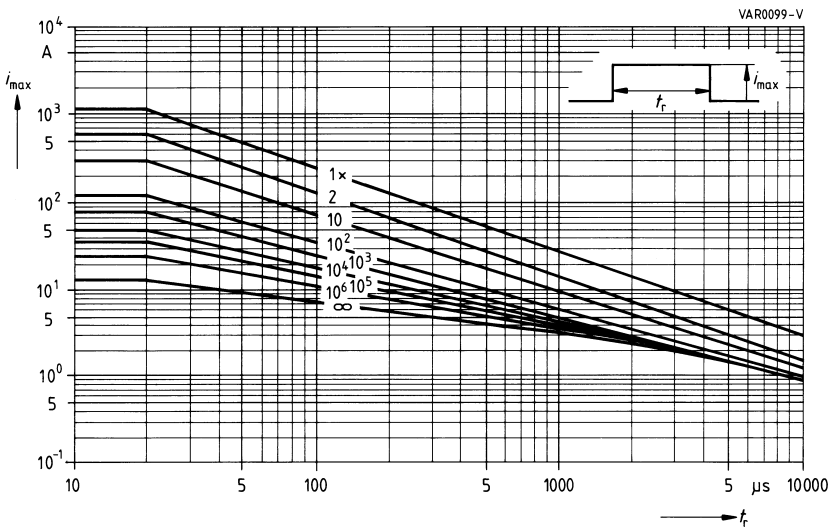
Derating Curves

Maximum surge current

$i_{\max} = f(t_r, \text{pulse train})$ – for explanation of the derating curves refer to section 1.8.1)



SIOV-S05K50 ... K460
SIOV-CU3225K50G2 ... K300G2



SIOV-S07K50 ... K460
SIOV-S07S60AGS2/95AGS2

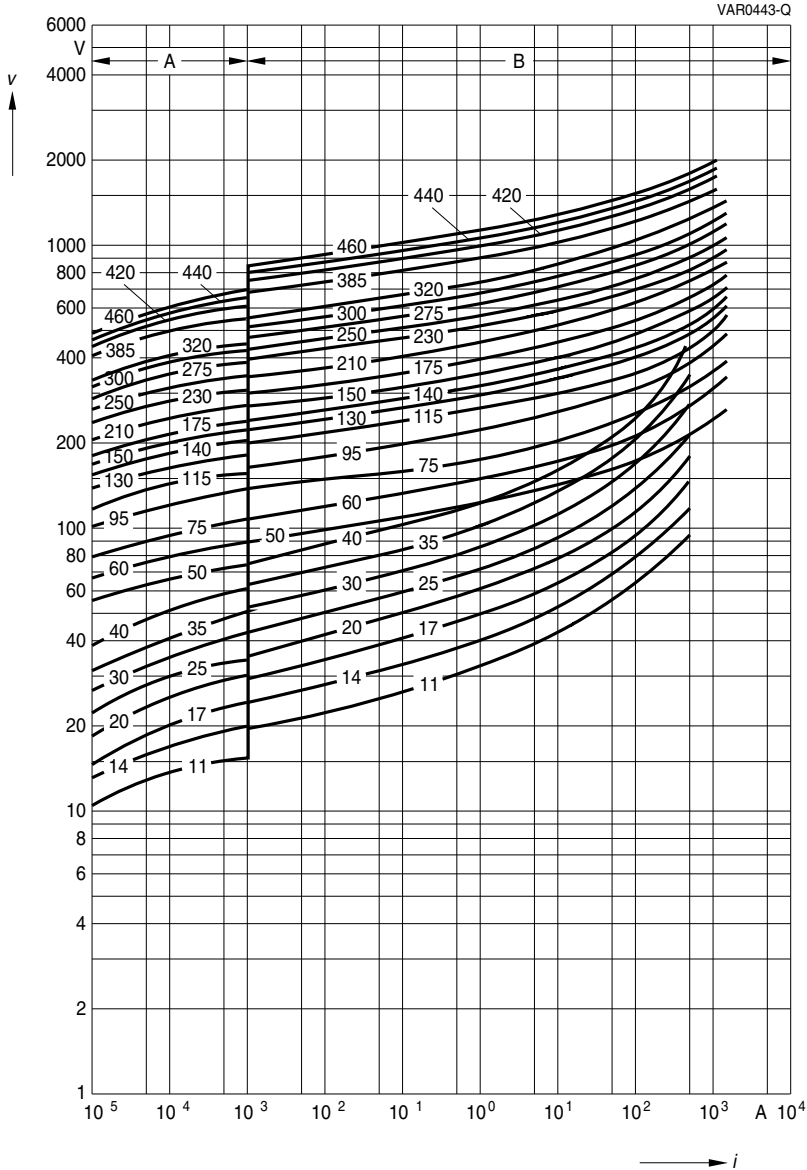
SIOV-CU4032K50G2 ... K300G2
SIOV-CU4032S60AG2/S95AG2

SIOV Metal Oxide Varistors
VII Characteristics

$v = f(i)$ – for explanation of the characteristics refer to section 1.6.3

A = Leakage current
 B = Protection level

{ for worst-case varistor tolerances



SIOV-S07 ... (D1)(E2)

SIOV-CU4032 ... (AUTO)G2

SIOV Metal Oxide Varistors

Structure of Varistor Type Code (P/N)

Structure of Varistor Type Code (P/N) – Quick check

Digit *)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	29	30	REMARKS																					
EPCOS Varistor																																		Varistor = Variable Resistor =																	
Metal oxide varistor	S	I	O	V																																SIOV registered trademark															
High-capacitive varistor	S	H	C	V																																	SHCV registered trademark														
DESIGN	SMD, multilayer, array	C	A																													K 2	C = chip, A = array; (MLV)																		
	SMD, multilayer	C	N																														AgPd termination																		
	SMD, ML	C	N																														AgPt termination; (ML = multilayer)																		
	SMD, ML	C	T																														Ni barrier termination																		
	SMD, monolithic	C	M																														Uncoated																		
	SMD, M	C	U																														Coated; (M = monolithic)																		
	Disk, M	S																															Round, leaded																		
	Leaded, ML	S	R																														Rectangular																		
	Disk, M	Q																															Q = square, leaded (EnergetIQ)																		
	Strap, M	L	S																														Disk, strapped for screws																		
	Strap, M	L	S																														Disk, straight straps																		
	Block Varistor, M	B																															BV=block varistor, screw terminals																		
	Arrester Block, M	E																															AB=cylindrical, for pressure contact																		
SIZE (Area)	Dimensions (l x w) others are	0	4	0	2																													e.g. 47/100 x 27/100 (1.0mm x 0.5mm)																	
	Varistor package	2	2	2	0																																	22*/100 x 20*/100 (5.7 x 5.0 mm)													
	SHCV (l x w) nominal	3	2	2	5																																	32*/100 x 25*/100 (8.0 x 6.3 mm)													
		4	0	3	2																																		40*/100 x 32*/100 (10.0 x 8.0 mm)												
	Disk diameter, nominal	1																																					Coded, 1812												
	Var. Voltage (1mA)	2																																					Coded, 2220												
TOLERANCE	Special tolerances (1mA)	0	5																																				05 ... 80 in mm												
	SHCV (capacitance)	K																																					(+/- 10%), Vv												
		L																																					(+/- 15%)												
		M																																					(+/-20%)												
		S																																					(A/B/C)												
VOLTAGE	Max. permissible AC oper. Voltage	1	1	0	0																																		(+/-20%)												
	Rated voltage Arrester-Block (AB)	V	R	3	0	2																																			(4 ... 1100) Vrms max.										
Additional SPEC.																																						e.g. (30 x 10 ⁴ E2=3kV)													
CAPACITANCE	SHCV (capacitance)																																							e.g. (47 x 10 ⁴ E4 in pF)											
	Controlled capacitance																																									Defined tolerance range									
	High capacitance																																										Defined minimum rating								
	Low capacitance																																											Defined maximum rating							
APPLICATION																																										Automotive specification									
OTHERS	Advanced series																																											Telecom specification							
	Superior series																																											Advance D							
	Shape																																											Superior R							
	Indication																																														Square				
	Trimmed lead length																																														Suffix to define modifications				
	Coating																																																Trimming on request, mm		
	Coating																																																(standard) Epoxy resin		
MATERIAL	SHCV (capacitor)																																														(special) For high temperature applications				
TAPING	Reel																																														Ceramic characteristics XTR				
	Ammopack																																															Ceramic characteristics Z5U			
CRIMP	Crimp style																																																e.g. (taping) Reel size(G ... G5)		
LEADS	Lead spacing (LS)																																																	e.g. (crimp style) S ... S5)	
																																																			e.g. (lead space R5), LS differs from standard

*) main part of type designation. (other consecutive digits to omit, if not relevant for type designation)

Symbols and terms

C_{typ}	Typical capacitance
i	Current
i_{max}	Maximum surge current
L_{typ}	Typical inductance
P_{max}	Maximum average power dissipation
R_{min}	Minimum resistance
T_A	Ambient temperature
t_r	Duration of equivalent rectangular wave
v	Voltage
V_{DC}	DC operating voltage
V_{Jump}	Maximum jump start voltage
V_{RMS}	AC operating voltage, root-mean-square value
V_V	Varistor voltage
ΔV_V	Tolerance of varistor voltage
W_{LD}	Maximum load dump
W_{max}	Maximum energy absorption
e	Lead spacing

All dimensions are given in mm.

The commas used in numerical values denote decimal points.