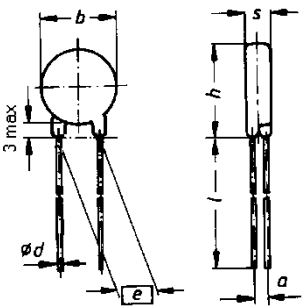
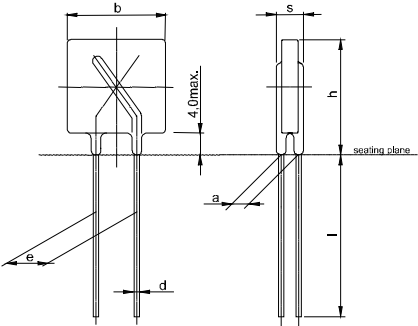


<p><i>Specification available from:</i> Österreichischer Verband für Elektrotechnik (OVE) A-1010 Wien, Eschenbachgasse 9</p>	<p>IEC 61051-2-2 AT0001 Issue 12 / 2021-09 QC 420102 AT0001</p>
<p><i>Electronic components of assessed quality in accordance with:</i> IEC 61051-1: 2018-10 IEC 61051-2: 1991-01 IEC 61051-2 Amendment 1: 2009-05 IEC 60950-1: 2013-05 Annex Q IEC 62368-1: 2018-10 Annex G.8.1 QC 420000</p>	<p>IEC 61051-2-2: 1991-01 QC 420102</p>
<p>Outline drawing for S*-,SNF*-types (see 1.2.1)</p>  <p>Outline drawing for Q*-types (see 1.2.1)</p>  <p>Crimp-Type Standard (Q-types)</p>	<p>ZINC OXYDE SURGE SUPPRESSION VARISTORS</p> <p>Insulated</p> <p>Assessment level: E</p>

NOTES

- 1 - Other shapes and crimp styles are permitted within the dimensions given.
- 2 - The undimensioned details do not affect the performance of the device.
- 3 - The terminations are suitable for soldering.
- 4 - The terminations are suitable for printed wiring applications.
- 5 - The terminations are rigid.

Information on the availability of components qualified to this detail specification is given in the Qualified Products List.

SECTION ONE – GENERAL DATA

1 General data

1.1 Recommended method (s) of mounting

The varistors shall be mounted by their normal means in such a manner that there shall be no parasitic vibration.

1.2 Dimensions, ratings and characteristics (see table 1)

1.2.1 Dimensions (All dimensions are in millimeters)

- Body diameter: b see table 1
- Body thickness (including terminations of styles with wire terminations): s see table 1
- Diameter of wire terminations: d see below
- Length of wire termination: l l_{min} = 25 mm
- Distance between wire terminations: e see below

e [mm] ± 1.0	5.0	7.1	7.5	10.0	12.7
φ d [mm] ± 0.05	0.6	0.8	0.8	1.0	1.0
Style S05, S07, SNF05, SNF07	*	---	R7	R10	---
Style S10, S14, SNF10, SNF14,	R5	R7	*	R10	---
Style S20, SNF20	R5	---	R7	*	---
Style Q14, Q20	---	---	R7	*	---
Style S25	---	---	R7	R10	R12

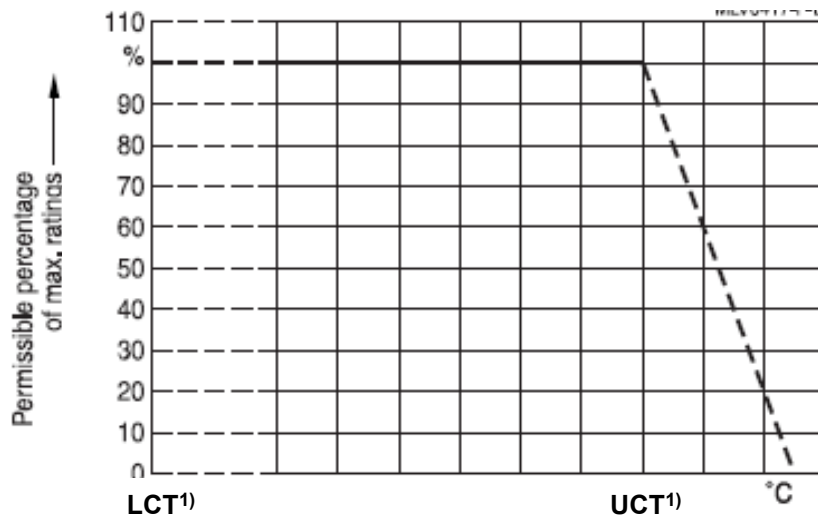
* Default Varistors types ("R" is omitted)

1.2.2 Ratings and characteristics

Climatic category (excluding SNF types):	40/105/56
LCT/UCT (Lower/Upper category temperature) ¹⁾	-40°C/105°C
Climatic category (SNF types):	40/125/56
LCT/UCT (Lower/Upper category temperature) ¹⁾	-40°C/125°C
Maximum continuous a.c. voltage:	see table 1
Maximum continuous d.c. voltage:	see table 1
Supply voltage:	see table 1
Voltage at specified current (1 mA):	
- at 25°C	see table 1
- if applicable, at upper category temperature:	-
- if applicable, at ... °C	-
Maximum peak current:	
10 pulses 8/20 µs at 2 per min in one direction	see table 1 and 1.2.3
Rated energy:	
Single current pulse with 2 ms rectangular wave shape or 10 µs / 1 000 µs wave shape	see table 1 and 1.2.3
Class current:	see table 1
Voltage at class current (protection level):	see table 1
Capacitance:	see table 1
Isolation voltage (standard rating; if not defined otherwise see 1.5):	2500 V (a.c.)
Maximum temperature coefficient of the voltage at specified current	-(0.09 % / K)max.

1.2.3 Derating curve

Maximum continuous a.c. or d.c. voltage with temperature.



Maximum peak current ratings: See 1.3/ Table 1.

¹⁾ LCT/UCT: Lower/Upper category temperature = Operating temperature range.

1.3 Related documents

Generic specification:	IEC Publication 61051-1: Varistors for Use in Electronic Equipment. Part 1: Generic Specification.
Sectional specification:	IEC Publication 61051-2: Varistors for Use in Electronic Equipment. Part 2: Sectional Specification for Surge Suppression Varistors.

Table 1 (1 of 20)

Style (1)	Equivalent KV type	Supply voltage	Maximum continuous voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions for S*		Dimensions for SNF*	
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						bmax (mm)	smax (mm)	b _{max} (mm)	S _{max} (mm)
S(NF)05K11	S(NF)05KV180	-	11	14	18	1,0	36	100	50	N/A	0,3	3000	7,0	3,3	9,0	6,3
S(NF)07K11	S(NF)07KV180		11	14	18	2,5	36	250	100	N/A	0,8	7000	9,0	3,4	11,0	6,4
S(NF)10K11	S(NF)10KV180		11	14	18	5,0	36	500	250	N/A	1,7	15000	12,0	4,0	14,0	7,0
S(NF)14K11	S(NF)14KV180		11	14	18	10,0	36	1000	500	N/A	3,2	35000	15,5	4,0	17,5	7,0
S(NF)20K11	S(NF)20KV180		11	14	18	20,0	36	2000	1000	N/A	10,0	70000	21,5	4,5	23,5	7,5
S(NF)05K14	S(NF)05KV220		14	18	22	1,0	43	100	50	N/A	0,4	2500	7,0	3,4	9,0	6,4
S(NF)07K14	S(NF)07KV220		14	18	22	2,5	43	250	100	N/A	0,9	5500	9,0	3,8	11,0	6,8
S(NF)10K14	S(NF)10KV220		14	18	22	5,0	43	500	250	N/A	2,0	12000	12,0	4,2	14,0	7,2
S(NF)14K14	S(NF)14KV220		14	18	22	10,0	43	1000	500	N/A	4,0	30000	15,5	4,2	17,5	7,2
S(NF)20K14	S(NF)20KV220		14	18	22	20,0	43	2000	1000	N/A	12,0	60000	21,5	4,6	23,5	7,6
S(NF)05K17	S(NF)05KV270		17	22	27	1,0	53	100	50	N/A	0,5	2000	7,0	3,5	9,0	6,5
S(NF)07K17	S(NF)07KV270		17	22	27	2,5	53	250	100	N/A	1,1	4000	9,0	3,6	11,0	6,6
S(NF)10K17	S(NF)10KV270		17	22	27	5,0	53	500	250	N/A	2,5	8000	12,0	4,4	14,0	7,4
S(NF)14K17	S(NF)14KV270		17	22	27	10,0	53	1000	500	N/A	5,0	20000	15,5	4,4	17,5	7,4
S(NF)20K17	S(NF)20KV270		17	22	27	20,0	53	2000	1000	N/A	14,0	45000	21,5	4,8	23,5	7,8
S(NF)05K20	S(NF)05KV330		20	26	33	1,0	65	100	50	N/A	0,6	1800	7,0	3,5	9,0	6,5
S(NF)07K20	S(NF)07KV330		20	26	33	2,5	65	250	100	N/A	1,3	3000	9,0	3,6	11,0	6,6
S(NF)10K20	S(NF)10KV330		20	26	33	5,0	65	500	250	N/A	3,1	6000	12,0	4,5	14,0	7,5
S(NF)14K20	S(NF)14KV330		20	26	33	10,0	65	1000	500	N/A	6,0	15000	15,5	4,6	17,5	7,6
S(NF)20K20	S(NF)20KV330		20	26	33	20,0	65	2000	1000	N/A	18,0	35000	21,5	5,1	23,5	8,1
S(NF)05K25	S(NF)05KV390	25	31	39	1,0	77	100	50	N/A	0,7	1000	7,0	3,6	9,0	6,6	
S(NF)07K25	S(NF)07KV390	25	31	39	2,5	77	250	100	N/A	1,6	2500	9,0	3,7	11,0	6,7	
S(NF)10K25	S(NF)10KV390	25	31	39	5,0	77	500	250	N/A	3,7	5000	12,0	4,2	14,0	7,2	
S(NF)14K25	S(NF)14KV390	25	31	39	10,0	77	1000	500	N/A	7,0	12000	15,5	4,2	17,5	7,2	
S(NF)20K25	S(NF)20KV390	25	31	39	20,0	77	2000	1000	N/A	22,0	30000	21,5	4,7	23,5	7,7	

(1) For explanation of style reference number, see clause 1.5.

(2) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated.

Table 1 (2 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continuous voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions for S*		Dimensions for SNF*	
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						bmax (mm)	smax (mm)	bmax (mm)	Smax (mm)
S(NF)05K30	S(NF)05KV470	-	30	38	47	1,0	93	100	50	N/A	0,9	1500	7,0	3,6	9,0	6,6
S(NF)07K30	S(NF)07KV470		30	38	47	2,5	93	250	100	N/A	2,0	3000	9,0	3,7	11,0	6,7
S(NF)10K30	S(NF)10KV470		30	38	47	5,0	93	500	250	N/A	4,4	6000	12,0	4,4	14,0	7,4
S(NF)14K30	S(NF)14KV470		30	38	47	10,0	93	1000	500	N/A	9,0	11000	15,5	4,4	17,5	7,4
S(NF)20K30	S(NF)20KV470		30	38	47	20,0	93	2000	1000	N/A	26,0	25000	21,5	4,9	23,5	7,9
S(NF)05K35	S(NF)05KV560		35	45	56	1,0	110	100	50	N/A	1,1	1250	7,0	3,7	9,0	6,7
S(NF)07K35	S(NF)07KV560		35	45	56	2,5	110	250	100	N/A	2,5	2300	9,0	3,9	11,0	6,9
S(NF)10K35	S(NF)10KV560		35	45	56	5,0	110	500	250	N/A	5,4	4500	12,0	4,4	14,0	7,4
S(NF)14K35	S(NF)14KV560		35	45	56	10,0	110	1000	500	N/A	10,0	9000	15,5	4,5	17,5	7,5
S(NF)20K35	S(NF)20KV560		35	45	56	20,0	110	2000	1000	N/A	33,0	20000	21,5	5,1	23,5	8,1
S(NF)05K40	S(NF)05KV680		40	56	68	1,0	135	100	50	N/A	1,3	1200	7,0	3,9	9,0	6,9
S(NF)07K40	S(NF)07KV680		40	56	68	2,5	135	250	100	N/A	3,0	1900	9,0	4,1	11,0	7,1
S(NF)10K40	S(NF)10KV680		40	56	68	5,0	135	500	250	N/A	6,4	3600	12,0	4,8	14,0	7,8
S(NF)14K40	S(NF)14KV680		40	56	68	10,0	135	1000	500	N/A	13,0	6000	15,5	4,9	17,5	7,9
S(NF)20K40	S(NF)20KV680		40	56	68	20,0	135	2000	1000	N/A	37,0	10000	21,5	5,4	23,5	8,4
S(NF)05K50	S(NF)05KV820		50	65	82	5,0	135	400	150	N/A	1,8	900	7,0	3,3	9,0	6,3
S(NF)07K50	S(NF)07KV820		50	65	82	10,0	135	1200	500	N/A	4,2	1800	9,0	3,3	11,0	6,3
S(NF)10K50	S(NF)10KV820		50	65	82	25,0	135	2500	1500	N/A	8,4	3400	12,0	3,9	14,0	6,9
*S(NF)14K50	*S(NF)14KV820		50	65	82	50,0	135	4500	3000	6.0kV/3.0kA	15,0	5400	15,5	3,9	17,5	6,9
*S(NF)20K50	*S(NF)20KV820		50	65	82	100,0	135	6500	3000	6.0kV/3.0kA	27,0	9000	21,5	4,3	23,5	7,3
S(NF)05K60	S(NF)05KV101	60	85	100	5,0	165	400	150	N/A	2,2	600	7,0	3,3	9,0	6,3	
S(NF)07K60	S(NF)07KV101	60	85	100	10,0	165	1200	500	N/A	4,8	1000	9,0	3,3	11,0	6,3	
S(NF)10K60	S(NF)10KV101	60	85	100	25,0	165	2500	1500	N/A	10,0	2000	12,0	4,0	14,0	7,0	
*S(NF)14K60	*S(NF)14KV101	60	85	100	50,0	165	4500	3000	6.0kV/3.0kA	17,0	3400	15,5	4,0	17,5	7,0	
*S(NF)20K60	*S(NF)20KV101	60	85	100	100,0	165	6500	3000	6.0kV/3.0kA	33,0	6000	21,5	4,4	23,5	7,4	

(1) For explanation of style reference number, see clause 1.5.

(2) All types marked with *** are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.

(3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated.

Table 1 (3 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continuous voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions for S*		Dimensions for SNF*	
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						b _{max}	s _{max}	b _{max}	s _{max}
S(NF)05K75	S(NF)05KV121	-	75	100	120	5,0	200	400	150	N/A	2,5	420	7,0	3,4	9,0	6,4
S(NF)07K75	S(NF)07KV121		75	100	120	10,0	200	1200	500	N/A	5,9	790	9,0	3,6	11,0	6,6
S(NF)10K75	S(NF)10KV121		75	100	120	25,0	200	2500	1500	N/A	12,0	1600	12,5	4,2	14,0	7,2
*S(NF)14K75	*S(NF)14KV121		75	100	120	50,0	200	4500	3000	6.0kV/3.0kA	20,0	3000	15,5	4,2	17,5	7,2
*S(NF)20K75	*S(NF)20KV121		75	100	120	100,0	200	6500	3000	6.0kV/3.0kA	40,0	5000	21,5	4,6	23,5	7,6
S(NF)05K95	S(NF)05KV151		95	125	150	5,0	250	400	150	N/A	3,4	350	7,0	3,4	9,0	6,4
S(NF)07K95	S(NF)07KV151		95	125	150	10,0	250	1200	500	N/A	7,6	700	9,0	3,4	11,0	6,4
S(NF)10K95	S(NF)10KV151		95	125	150	25,0	250	2500	1500	N/A	15,0	1400	12,5	4,0	14,0	7,0
*S(NF)14K95	*S(NF)14KV151		95	125	150	50,0	250	4500	3000	6.0kV/3.0kA	25,0	2500	15,5	4,0	17,5	7,0
*S(NF)20K95	*S(NF)20KV151		95	125	150	100,0	250	6500	3000	6.0kV/3.0kA	50,0	4500	21,5	4,5	23,5	7,5
S(NF)05K115	S(NF)05KV181		115	150	180	5,0	300	400	150	N/A	3,6	300	7,0	3,6	9,0	6,6
S(NF)07K115	S(NF)07KV181		115	150	180	10,0	300	1200	500	N/A	8,4	640	9,0	3,6	11,0	6,6
S(NF)10K115	S(NF)10KV181		115	150	180	25,0	300	2500	1500	N/A	18,0	1200	12,5	4,2	14,0	7,2
*S(NF)14K115	*S(NF)14KV181		115	150	180	50,0	300	4500	3000	6.0kV/3.0kA	30,0	2200	15,5	4,2	17,5	7,2
*S(NF)20K115	*S(NF)20KV181		115	150	180	100,0	300	6500	3000	6.0kV/3.0kA	60,0	4000	21,5	4,6	23,5	7,6
S(NF)05K130	S(NF)05KV201		130	170	205	5,0	340	400	150	N/A	4,2	240	7,0	3,6	9,0	6,6
S(NF)07K130	S(NF)07KV201		130	170	205	10,0	340	1200	500	N/A	9,5	580	9,0	3,6	11,0	6,6
S(NF)10K130	S(NF)10KV201		130	170	205	25,0	340	2500	1500	N/A	19,0	1050	12,5	4,2	14,0	7,2
*S(NF)14K130	*S(NF)14KV201		130	170	205	50,0	340	4500	3000	6.0kV/3.0kA	34,0	1900	15,5	4,2	17,5	7,2
*S(NF)20K130	*S(NF)20KV201		130	170	205	100,0	340	8000	3000	6.0kV/3.0kA	74,0	3500	21,5	4,7	23,5	7,7
S(NF)05K140	S(NF)05KV221		140	180	220	5,0	360	400	150	N/A	4,5	220	7,0	3,7	9,0	6,7
S(NF)07K140	S(NF)07KV221		140	180	220	10,0	360	1200	500	N/A	10,0	550	9,0	3,7	11,0	6,7
S(NF)10K140	S(NF)10KV221		140	180	220	25,0	360	2500	1500	N/A	22,0	980	12,5	4,3	14,0	7,3
*S(NF)14K140	*S(NF)14KV221		140	180	220	50,0	360	4500	3000	6.0kV/3.0kA	36,0	1750	15,5	4,3	17,5	7,3
*S(NF)20K140	*S(NF)20KV221	140	180	220	100,0	360	8000	3000	6.0kV/3.0kA	78,0	3250	21,5	4,8	23,5	7,8	

(1) For explanation of style reference number, see clause 1.5

(2) All types marked with "*" are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.

(3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated

Table 1 (4 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continious voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions for S*		Dimensions for SNF*	
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						b _{max}	s _{max}	b _{max}	S _{max}
S(NF)05K150	S(NF)05KV241	120	150	200	240	5,0	395	400	150	N/A	4,9	200	7,0	3,8	9,0	6,8
S(NF)07K150	S(NF)07KV241		150	200	240	10,0	395	1200	500	N/A	11,0	520	9,0	3,8	11,0	6,8
S(NF)10K150	S(NF)10KV241		150	200	240	25,0	395	2500	1500	N/A	24,0	900	12,0	4,4	14,0	7,4
*S(NF)14K150	*S(NF)14KV241		150	200	240	50,0	395	4500	3000	6.0kV/3.0kA	40,0	1600	15,5	4,4	17,5	7,4
*S(NF)20K150	*S(NF)20KV241		150	200	240	100,0	395	8000	3000	6.0kV/3.0kA	85,0	3000	21,5	4,9	23,5	7,9
S(NF)05K175	S(NF)05KV271		175	225	270	5,0	455	400	150	N/A	5,6	170	7,0	4,3	9,0	6,9
S(NF)07K175	S(NF)07KV271		175	225	270	10,0	455	1200	500	N/A	13,0	380	9,0	4,3	11,0	7,0
S(NF)10K175	S(NF)10KV271		175	225	270	25,0	455	2500	1500	N/A	28,0	720	12,5	4,9	14,0	7,6
*S(NF)14K175	*S(NF)14KV271		175	225	270	50,0	455	4500	3000	6.0kV/3.0kA	46,0	1380	16,5	4,9	17,5	7,6
*S(NF)20K175	*S(NF)20KV271		175	225	270	100,0	455	8000	3000	6.0kV/3.0kA	98,0	2600	22,5	5,3	23,5	8,0
S(NF)05K210	S(NF)05KV331		210	270	330	5,0	550	400	150	N/A	7,0	155	7,0	4,2	9,0	7,0
S(NF)07K210	S(NF)07KV331		210	270	330	10,0	550	1200	500	N/A	15,0	340	9,0	4,2	11,0	7,0
S(NF)10K210	S(NF)10KV331		210	270	330	25,0	550	2500	1500	N/A	34,0	635	12,0	5,0	14,0	7,7
*S(NF)14K210	*S(NF)14KV331		210	270	330	50,0	550	4500	3000	6.0kV/3.0kA	55,0	1250	15,5	5,0	17,5	7,7
*S(NF)20K210	*S(NF)20KV331		210	270	330	100,0	550	8000	3000	6.0kV/3.0kA	120,0	2300	21,5	5,4	23,5	8,1
S(NF)05K230	S(NF)05KV361		230	300	360	5,0	595	400	150	N/A	7,2	140	7,0	4,8	9,0	7,0
S(NF)07K230	S(NF)07KV361		230	300	360	10,0	595	1200	500	N/A	17,0	300	9,0	4,8	11,0	7,0
S(NF)10K230	S(NF)10KV361		230	300	360	25,0	595	2500	1500	N/A	36,0	550	12,5	5,4	14,0	7,7
*S(NF)14K230	*S(NF)14KV361		230	300	360	50,0	595	4500	3000	6.0kV/3.0kA	60,0	1100	16,5	5,5	17,5	7,7
*S(NF)20K230	*S(NF)20KV361		230	300	360	100,0	595	8000	3000	6.0kV/3.0kA	130,0	2000	22,5	5,9	23,5	8,1

(1) For explanation of style reference number, see clause 1.5.

(2) All types marked with "*" are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.

(3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Typical AC Mains Supply voltages are indicated

Table 1 (5 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continious voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions for S*		Dimensions for SNF*		
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						b _{max}	s _{max}	b _{max}	S _{max}	
S(NF)05K250	S(NF)05KV391	120	250	320	390	5,0	650	400	150	N/A	8,2	120	7,0	4,2	9,0	7,2	
S(NF)07K250	S(NF)07KV391		250	320	390	10,0	650	1200	500	N/A	19,0	240	9,0	4,2	11,0	7,2	
S(NF)10K250	S(NF)10KV391		250	320	390	25,0	650	2500	1500	N/A	38,0	480	12,0	4,8	14,0	7,8	
*S(NF)14K250	*S(NF)14KV391		250	320	390	50,0	650	4500	3000	6.0kV/3.0kA	65,0	940	15,5	4,8	17,5	7,8	
*S(NF)20K250	*S(NF)20KV391		250	320	390	100,0	650	8000	3000	6.0kV/3.0kA	140,0	1800	21,5	5,3	23,5	8,3	
S(NF)05K275	S(NF)05KV431		275	350	430	5,0	710	400	150	N/A	8,6	120	7,0	4,3	9,0	7,3	
S(NF)07K275	S(NF)07KV431		275	350	430	10,0	710	1200	500	N/A	21,0	210	9,0	4,4	11,0	7,4	
S(NF)10K275	S(NF)10KV431		275	350	430	25,0	710	2500	1500	N/A	43,0	440	12,0	5,0	14,0	8,0	
*S(NF)14K275	*S(NF)14KV431		275	350	430	50,0	710	4500	3000	6.0kV/3.0kA	71,0	900	15,5	5,0	17,5	8,0	
*S(NF)20K275	*S(NF)20KV431	275	350	430	100,0	710	8000	3000	6.0kV/3.0kA	151,0	1800	21,5	5,4	23,5	8,4		
S(NF)05K300	S(NF)05KV471	230/240	300	385	470	5,0	775	400	150	N/A	9,6	110	7,0	4,5	9,0	7,5	
S(NF)07K300	S(NF)07KV471		300	385	470	10,0	775	1200	500	N/A	23,0	170	9,0	4,5	11,0	7,5	
S(NF)10K300	S(NF)10KV471		300	385	470	25,0	775	2500	1500	N/A	47,0	360	12,0	5,1	14,0	8,1	
*S(NF)14K300	*S(NF)14KV471		300	385	470	50,0	775	4500	3000	6.0kV/3.0kA	76,0	780	15,5	5,2	17,5	8,2	
*S(NF)20K300	*S(NF)20KV471		300	385	470	100,0	775	8000	3000	6.0kV/3.0kA	173,0	1500	21,5	5,6	23,5	8,6	
S(NF)05K320	S(NF)05KV511		320	420	510	10,0	845	400	150	N/A	10,5	105	7,0	4,6	9,0	7,6	
S(NF)07K320	S(NF)07KV511		320	420	510	25,0	845	1200	500	N/A	25,0	155	9,0	4,6	11,0	7,6	
S(NF)10K320	S(NF)10KV511		320	420	510	25,0	845	2500	1500	N/A	50,0	340	12,0	5,4	14,0	8,4	
*S(NF)14K320	*S(NF)14KV511		320	420	510	50,0	845	4500	3000	6.0kV/3.0kA	84,0	680	15,5	5,4	17,5	8,4	
*S(NF)20K320	*S(NF)20KV511	320	420	510	100,0	845	8000	3000	6.0kV/3.0kA	184,0	1300	21,5	5,8	23,5	8,8		

(1) For explanation of style reference number, see clause 1.5.

(2) All types marked with "*" are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.

(3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated

Table 1 (6 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continious voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions for S*		Dimensions for SNF*		
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						b _{max}	s _{max}	b _{max}	S _{max}	
S(NF)05K350	S(NF)05KV561	230/240	350	460	560	5,0	910	400	150	N/A	12,0	50	7,0	6,0	9,0	8,0	
S(NF)07K350	S(NF)07KV561		350	460	560	10,0	910	1200	500	N/A	24,0	75	9,0	6,0	11,0	8,0	
S(NF)10K350	S(NF)10KV561		350	460	560	25,0	910	2500	1500	N/A	45,0	160	12,5	6,6	14,0	8,5	
*S(NF)14K350	*S(NF)14KV561		350	460	560	50,0	910	4500	3000	6.0kV/3.0kA	82,0	260	16,5	6,6	17,5	8,6	
*S(NF)20K350	*S(NF)20KV561		350	460	560	100,0	910	8000	3000	6.0kV/3.0kA	145,0	650	22,5	7,2	23,5	9,2	
S(NF)05K385	S(NF)05KV621			385	505	620	5,0	1025	400	150	N/A	13,0	100	7,0	5,1	9,0	8,1
S(NF)07K385	S(NF)07KV621			385	505	620	10,0	1025	1200	500	N/A	28,0	150	9,0	5,2	11,0	8,2
S(NF)10K385	S(NF)10KV621			385	505	620	25,0	1025	2500	1500	N/A	40,0	320	12,5	5,8	14,0	8,8
*S(NF)14K385	*S(NF)14KV621			385	505	620	50,0	1025	4500	3000	6.0kV/3.0kA	80,0	670	15,5	5,9	17,5	8,9
*S(NF)20K385	*S(NF)20KV621			385	505	620	100,0	1025	8000	3000	6.0kV/3.0kA	150,0	1250	21,5	6,3	23,5	9,3
S(NF)05K420	S(NF)05KV681			420	560	680	5,0	1120	400	150	N/A	14,0	90	7,0	5,4	9,0	8,4
S(NF)07K420	S(NF)07KV681			420	560	680	10,0	1120	1200	500	N/A	32,0	140	9,0	5,4	11,0	8,4
S(NF)10K420	S(NF)10KV681			420	560	680	25,0	1120	2500	1500	N/A	45,0	290	12,5	6,1	14,0	9,1
*S(NF)14K420	*S(NF)14KV681			420	560	680	50,0	1120	4500	3000	6.0kV/3.0kA	90,0	600	15,5	6,1	17,5	9,1
*S(NF)20K420	*S(NF)20KV681			420	560	680	100,0	1120	8000	3000	6.0kV/3.0kA	175,0	1100	21,5	6,5	23,5	9,5
S(NF)05K440	S(NF)05KV721			440	585	715	5,0	1180	400	150	N/A	16,0	75	7,0	5,5	9,0	8,5
S(NF)07K440	S(NF)07KV721			440	585	715	10,0	1180	1200	500	N/A	34,0	130	9,0	5,5	11,0	8,5
S(NF)10K440	S(NF)10KV721		440	585	715	25,0	1180	2500	1500	N/A	47,0	280	12,5	6,2	14,0	9,2	
*S(NF)14K440	*S(NF)14KV721		440	585	715	50,0	1180	4500	3000	6.0kV/3.0kA	95,0	540	15,5	6,3	17,5	9,3	
*S(NF)20K440	*S(NF)20KV721		440	585	715	100,0	1180	8000	3000	6.0kV/3.0kA	185,0	1000	21,5	6,7	23,5	9,7	

- (1) For explanation of style reference number, see clause 1.5.
- (2) All types marked with "*" are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.
- (3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated

Table 1 (7 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continious voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions for S*		Dimensions for SNF*		
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						b _{max}	s _{max}	b _{max}	S _{max}	
S(NF)05K460	S(NF)05KV751	230/240	460	615	750	5	1240	400	150	N/A	18,0	80	7,0	5,7	9,0	8,7	
S(NF)07K460	S(NF)07KV751		460	615	750	10	1240	1200	500	N/A	36,0	120	9,0	5,7	11,0	8,7	
S(NF)10K460	S(NF)10KV751		460	615	750	25	1240	2500	1500	N/A	50,0	250	12,0	6,3	14,0	9,3	
*S(NF)14K460	*S(NF)14KV751		460	615	750	50	1240	4500	3000	6.0kV/3.0kA	100,0	570	15,5	6,4	17,5	9,4	
*S(NF)20K460	*S(NF)20KV751		460	615	750	100	1240	8000	3000	6.0kV/3.0kA	195,0	1100	21,5	6,8	23,5	9,8	
S(NF)07K510	S(NF)07KV821	380	510	670	820	10	1355	1200	500	N/A	40,0	110	9	8,1	11,0	10,0	
S(NF)10K510	S(NF)10KV821		510	670	820	25	1355	2500	1500	N/A	55,0	220	12,0	6,7	14,0	9,7	
*S(NF)14K510	*S(NF)14KV821		510	670	820	50	1355	4500	3000	6.0kV/3.0kA	110,0	460	15,5	6,8	17,5	9,8	
*S(NF)20K510	*S(NF)20KV821		510	670	820	100	1355	6500	3000	8.0kV/4.0kA	190,0	900	21,5	7,1	23,5	10,1	
S(NF)07K550	S(NF)07KV911		550	745	910	10	1500	1200	500	N/A	42,0	100	9	8	11,0	10,4	
S(NF)10K550	S(NF)10KV911		550	745	910	25	1500	2500	1500	N/A	60,0	200	12,0	7,1	14,0	10,1	
*S(NF)14K550	*S(NF)14KV911		550	745	910	50	1500	4500	3000	6.0kV/3.0kA	120,0	350	15,5	7,2	17,5	10,2	
*S(NF)20K550	*S(NF)20KV911		550	745	910	100	1500	6500	3000	8.0kV/4.0kA	210,0	700	21,5	7,5	23,5	10,5	
S(NF)07K625	S(NF)07KV102	690	625	825	1000	10	1650	1200	500	N/A	44,0	90	9	7,5	11,0	10,5	
S(NF)10K625	S(NF)10KV102		625	825	1000	25	1650	2500	1500	N/A	68,0	180	12,0	7,5	14,0	10,5	
*S(NF)14K625	*S(NF)14KV102		625	825	1000	50	1650	4500	3000	6.0kV/3.0kA	130,0	320	15,5	7,5	17,5	10,5	
*S(NF)20K625	*S(NF)20KV102		625	825	1000	100	1650	6500	3000	8.0kV/4.0kA	230,0	650	21,5	7,5	23,5	10,9	
S(NF)10K680	S(NF)10KV112		680	895	1100	25	1815	2500	1500	N/A	72,0	150	12,0	7,9	14,0	10,9	
*S(NF)14K680	*S(NF)14KV112		680	895	1100	50	1815	4500	3000	6.0kV/3.0kA	140,0	280	15,5	8,0	17,5	11,0	
*S(NF)20K680	*S(NF)20KV112		680	895	1100	100	1815	6500	3000	8.0kV/4.0kA	250,0	600	21,5	8,4	23,5	11,4	
*S(NF)14K1000	*S(NF)14KV182		1100	1465	1800	50	2970	4500	3000	6.0kV/3.0kA	230,0	200	15,5	11,0	17,5	14,0	
*S(NF)20K1000	*S(NF)20KV182		1100	1465	1800	100	2970	6500	3000	8.0kV/4.0kA	410,0	400	21,5	11,4	23,5	14,4	

- (1) For explanation of style reference number, see clause 1.5.
- (2) All types marked with *** are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.
- (3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated

Table 1 (8 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continuous voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions for S*		Dimensions for SNF*	
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						b _{max} (mm)	s _{max} (mm)	b _{max} (mm)	s _{max} (mm)
S(NF)05K11E2	S(NF)05KV180E2		11	14	18	1,0	36	250	55	N/A	0,4	3000	7,0	3,5	9,0	6,5
S(NF)07K11E2	S(NF)07KV180E2		11	14	18	2,5	36	500	110	N/A	0,9	7000	9,0	3,5	11,0	6,5
S(NF)10K11E2	S(NF)10KV180E2		11	14	18	5,0	36	1000	250	N/A	2,2	15000	12,0	4,1	14,0	7,1
S(NF)14K11E2	S(NF)14KV180E2		11	14	18	10,0	36	2000	500	N/A	4,3	35000	15,5	4,1	17,5	7,1
S(NF)20K11E2	S(NF)20KV180E2		11	14	18	20,0	36	3000	1000	N/A	12,0	70000	21,5	4,5	23,5	7,5
S(NF)05K14E2	S(NF)05KV220E2		14	18	22	1,0	43	250	55	N/A	0,5	2500	7,0	3,6	9,0	6,6
S(NF)07K14E2	S(NF)07KV220E2		14	18	22	2,5	43	500	110	N/A	1,1	5500	9,0	3,6	11,0	6,6
S(NF)10K14E2	S(NF)10KV220E2		14	18	22	5,0	43	1000	250	N/A	2,6	12000	12,0	4,2	14,0	7,2
S(NF)14K14E2	S(NF)14KV220E2		14	18	22	10,0	43	2000	500	N/A	5,3	30000	15,5	4,2	17,5	7,2
S(NF)20K14E2	S(NF)20KV220E2		14	18	22	20,0	43	3000	1000	N/A	14,0	60000	21,5	4,6	23,5	7,6
S(NF)05K17E2	S(NF)05KV270E2		17	22	27	1,0	53	250	55	N/A	0,7	2000	7,0	3,7	9,0	6,7
S(NF)07K17E2	S(NF)07KV270E2		17	22	27	2,5	53	500	110	N/A	1,3	4000	9,0	3,7	11,0	6,7
S(NF)10K17E2	S(NF)10KV270E2		17	22	27	5,0	53	1000	250	N/A	3,2	8000	12,0	4,4	14,0	7,4
S(NF)14K17E2	S(NF)14KV270E2		17	22	27	10,0	53	2000	500	N/A	6,5	20000	15,5	4,4	17,5	7,4
S(NF)20K17E2	S(NF)20KV270E2		17	22	27	20,0	53	3000	1000	N/A	17,0	45000	21,5	4,8	23,5	7,8
S(NF)05K20E2	S(NF)05KV330E2		20	26	33	1,0	65	250	55	N/A	0,8	1800	7,0	3,9	9,0	6,9
S(NF)07K20E2	S(NF)07KV330E2		20	26	33	2,5	65	500	110	N/A	1,6	3000	9,0	3,9	11,0	6,9
S(NF)10K20E2	S(NF)10KV330E2		20	26	33	5,0	65	1000	250	N/A	4,0	6000	12,0	4,5	14,0	7,5
S(NF)14K20E2	S(NF)14KV330E2		20	26	33	10,0	65	2000	500	N/A	7,9	15000	15,5	4,6	17,5	7,6
S(NF)20K20E2	S(NF)20KV330E2		20	26	33	20,0	65	3000	1000	N/A	21,0	35000	21,5	5,1	23,5	8,1
S(NF)05K25E2	S(NF)05KV390E2		25	31	39	1,0	77	250	55	N/A	0,9	1000	7,0	3,6	9,0	6,6
S(NF)07K25E2	S(NF)07KV390E2		25	31	39	2,5	77	500	110	N/A	1,9	2500	9,0	3,7	11,0	6,7
S(NF)10K25E2	S(NF)10KV390E2		25	31	39	5,0	77	1000	250	N/A	4,7	5000	12,0	4,3	14,0	7,3
S(NF)14K25E2	S(NF)14KV390E2		25	31	39	10,0	77	2000	500	N/A	9,4	12000	15,5	4,4	17,5	7,4
S(NF)20K25E2	S(NF)20KV390E2		25	31	39	20,0	77	3000	1000	N/A	25,0	30000	21,5	4,8	23,5	7,8

(1) For explanation of style reference number, see clause 1.5.

(2) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated.

Table (9 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continuous voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions for S*		Dimensions for SNF*	
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						b _{max} (mm)	s _{max} (mm)	b _{max} (mm)	s _{max} (mm)
S(NF)05K30E2	S(NF)05KV470E2		30	38	47	1,0	93	250	55	N/A	1,1	1500	7,0	3,8	9,0	6,8
S(NF)07K30E2	S(NF)07KV470E2		30	38	47	2,5	93	500	110	N/A	2,3	3000	9,0	3,8	11,0	6,8
S(NF)10K30E2	S(NF)10KV470E2		30	38	47	5,0	93	1000	250	N/A	5,6	6000	12,0	4,4	14,0	7,4
S(NF)14K30E2	S(NF)14KV470E2		30	38	47	10,0	93	2000	500	N/A	11,0	11000	15,5	4,5	17,5	7,5
S(NF)20K30E2	S(NF)20KV470E2		30	38	47	20,0	93	3000	1000	N/A	30,0	25000	21,5	5,0	23,5	8,0
S(NF)05K35E2	S(NF)05KV560E2		35	45	56	1,0	110	250	55	N/A	1,3	1250	7,0	3,9	9,0	6,9
S(NF)07K35E2	S(NF)07KV560E2		35	45	56	2,5	110	500	110	N/A	2,7	2300	9,0	3,9	11,0	6,9
S(NF)10K35E2	S(NF)10KV560E2		35	45	56	5,0	110	1000	250	N/A	6,7	4500	12,0	4,5	14,0	7,5
S(NF)14K35E2	S(NF)14KV560E2		35	45	56	10,0	110	2000	500	N/A	13,0	9000	15,5	4,7	17,5	7,7
S(NF)20K35E2	S(NF)20KV560E2		35	45	56	20,0	110	3000	1000	N/A	36,0	20000	21,5	5,2	23,5	8,2
S(NF)05K40E2	S(NF)05KV680E2		40	56	68	1,0	135	250	55	N/A	1,6	1200	7,0	4,1	9,0	7,1
S(NF)07K40E2	S(NF)07KV680E2		40	56	68	2,5	135	500	110	N/A	3,3	1900	9,0	4,1	11,0	7,1
S(NF)10K40E2	S(NF)10KV680E2		40	56	68	5,0	135	1000	250	N/A	8,2	3600	12,0	4,8	14,0	7,8
S(NF)14K40E2	S(NF)14KV680E2		40	56	68	10,0	135	2000	500	N/A	16,0	6000	15,5	4,9	17,5	7,9
S(NF)20K40E2	S(NF)20KV680E2		40	56	68	20,0	135	3000	1000	N/A	44,0	10000	21,5	5,4	23,5	8,4
S(NF)05K50E2	S(NF)05KV820E2		50	65	82	5,0	135	800	280	N/A	2,5	900	7,0	3,5	9,0	6,5
S(NF)07K50E2	S(NF)07KV820E2		50	65	82	10,0	135	1750	600	N/A	5,0	1800	9,0	3,5	11,0	6,5
S(NF)10K50E2	S(NF)10KV820E2		50	65	82	25,0	135	3500	1500	N/A	10,0	3400	12,0	4,1	14,0	7,1
*S(NF)14K50E2	*S(NF)14KV820E2		50	65	82	50,0	135	6000	3000	6.0kV/3.0kA	20,0	5400	15,5	4,1	17,5	7,1
*S(NF)20K50E2	*S(NF)20KV820E2		50	65	82	100,0	135	10000	3000	6.0kV/3.0kA	40,0	9000	21,5	4,5	23,5	7,5
S(NF)05K60E2	S(NF)05KV101E2		60	85	100	5,0	165	800	280	N/A	3,0	600	7,0	3,5	9,0	6,5
S(NF)07K60E2	S(NF)07KV101E2		60	85	100	10,0	165	1750	600	N/A	6,0	1000	9,0	3,5	11,0	6,5
S(NF)10K60E2	S(NF)10KV101E2		60	85	100	25,0	165	3500	1500	N/A	12,0	2000	12,0	4,1	14,0	7,1
*S(NF)14K60E2	*S(NF)14KV101E2		60	85	100	50,0	165	6000	3000	6.0kV/3.0kA	25,0	3400	15,5	4,2	17,5	7,2
*S(NF)20K60E2	*S(NF)20KV101E2		60	85	100	100,0	165	10000	3000	6.0kV/3.0kA	50,0	6000	21,5	4,6	23,5	7,6

(1) For explanation of style reference number, see clause 1.5.

(2) All types marked with "*" are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.

(3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated.

Table 1 (10 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continuous voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions for S*		Dimensions for SNF*	
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						b _{max} (mm)	s _{max} (mm)	b _{max} (mm)	s _{max} (mm)
S(NF)05K75E2	S(NF)05KV121E2	-	75	100	120	5,0	200	800	280	N/A	3,5	420	7,0	3,6	9,0	6,6
S(NF)07K75E2	S(NF)07KV121E2		75	100	120	10,0	200	1750	600	N/A	7,0	790	9,0	3,6	11,0	6,6
S(NF)10K75E2	S(NF)10KV121E2		75	100	120	25,0	200	3500	1500	N/A	14,5	1600	12,0	4,2	14,0	7,2
*S(NF)14K75E2	*S(NF)14KV121E2		75	100	120	50,0	200	6000	3000	6.0kV/3.0kA	30,0	3000	15,5	4,2	17,5	7,2
*S(NF)20K75E2	*S(NF)20KV121E2		75	100	120	100,0	200	10000	3000	6.0kV/3.0kA	60,0	5000	21,5	4,6	23,5	7,6
S(NF)05K95E2	S(NF)05KV151E2		95	125	150	5,0	250	800	280	N/A	4,5	350	7,0	3,6	9,0	6,6
S(NF)07K95E2	S(NF)07KV151E2		95	125	150	10,0	250	1750	600	N/A	9,0	700	9,0	3,6	11,0	6,6
S(NF)10K95E2	S(NF)10KV151E2		95	125	150	25,0	250	3500	1500	N/A	18,0	1400	12,0	4,2	14,0	7,2
*S(NF)14K95E2	*S(NF)14KV151E2		95	125	150	50,0	250	6000	3000	6.0kV/3.0kA	37,5	2500	15,5	4,2	17,5	7,2
*S(NF)20K95E2	*S(NF)20KV151E2		95	125	150	100,0	250	10000	3000	6.0kV/3.0kA	75,0	4500	21,5	4,6	23,5	7,6
S(NF)05K115E2	S(NF)05KV181E2		115	150	180	5,0	300	800	280	N/A	4,5	300	7,0	3,6	9,0	6,6
S(NF)07K115E2	S(NF)07KV181E2		115	150	180	10,0	300	1750	600	N/A	9,0	640	9,0	3,6	11,0	6,6
S(NF)10K115E2	S(NF)10KV181E2		115	150	180	25,0	300	3500	1500	N/A	18,5	1200	12,5	4,2	14,0	7,2
*S(NF)14K115E2	*S(NF)14KV181E2		115	150	180	50,0	300	6000	3000	6.0kV/3.0kA	35,0	2200	15,5	4,2	17,5	7,2
*S(NF)20K115E2	*S(NF)20KV181E2		115	150	180	100,0	300	10000	3000	6.0kV/3.0kA	75,0	4000	21,5	4,6	23,5	7,6
S(NF)05K130E2	S(NF)05KV201E2		130	170	205	5,0	340	800	280	N/A	6,0	240	7,0	3,9	9,0	6,9
S(NF)07K130E2	S(NF)07KV201E2		130	170	205	10,0	340	1750	600	N/A	12,5	580	9,0	3,9	11,0	6,9
S(NF)10K130E2	S(NF)10KV201E2		130	170	205	25,0	340	3500	1500	N/A	25,0	1050	12,0	4,5	14,0	7,5
*S(NF)14K130E2	*S(NF)14KV201E2		130	170	205	50,0	340	6000	3000	6.0kV/3.0kA	50,0	1900	15,5	4,6	17,5	7,6
*S(NF)20K130E2	*S(NF)20KV201E2		130	170	205	100,0	340	10000	3000	6.0kV/3.0kA	100,0	3500	21,5	5,0	23,5	8,0
S(NF)05K140E2	S(NF)05KV221E2		140	180	220	5,0	360	800	280	N/A	6,5	220	7,0	4,0	9,0	7,0
S(NF)07K140E2	S(NF)07KV221E2		140	180	220	10,0	360	1750	600	N/A	13,5	550	9,0	4,0	11,0	7,0
S(NF)10K140E2	S(NF)10KV221E2		140	180	220	25,0	360	3500	1500	N/A	27,5	980	12,0	4,6	14,0	7,6
*S(NF)14K140E2	*S(NF)14KV221E2		140	180	220	50,0	360	6000	3000	6.0kV/3.0kA	55,0	1750	15,5	4,7	17,5	7,7
*S(NF)20K140E2	*S(NF)20KV221E2		140	180	220	100,0	360	10000	3000	6.0kV/3.0kA	110,0	3250	21,5	5,1	23,5	8,1

(1) For explanation of style reference number, see clause 1.5.

(2) All types marked with "*" are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.

(3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Typical AC Mains Supply voltages are indicated.

Table 1 (11 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continuous voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions for S*		Dimensions for SNF*	
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						b _{max} (mm)	s _{max} (mm)	b _{max} (mm)	s _{max} (mm)
S(NF)05K150E2	S(NF)05KV241E2	120	150	200	240	5,0	395	800	280	N/A	7,5	200	7,0	4,1	9,0	7,1
S(NF)07K150E2	S(NF)07KV241E2		150	200	240	10,0	395	1750	600	N/A	15,0	520	9,0	4,1	11,0	7,1
S(NF)10K150E2	S(NF)10KV241E2		150	200	240	25,0	395	3500	1500	N/A	30,0	900	12,0	4,7	14,0	7,7
*S(NF)14K150E2	*S(NF)14KV241E2		150	200	240	50,0	395	6000	3000	6.0kV/3.0kA	60,0	1600	15,5	4,8	17,5	7,8
*S(NF)20K150E2	*S(NF)20KV241E2		150	200	240	100,0	395	10000	3000	6.0kV/3.0kA	120,0	3000	21,5	5,2	23,5	8,2
S(NF)05K175E2	S(NF)05KV271E2		175	225	270	5,0	455	800	280	N/A	8,0	170	7,0	4,3	9,0	7,3
S(NF)07K175E2	S(NF)07KV271E2		175	225	270	10,0	455	1750	600	N/A	17,0	380	9,0	4,3	11,0	7,3
S(NF)10K175E2	S(NF)10KV271E2		175	225	270	25,0	455	3500	1500	N/A	35,0	720	12,0	4,9	14,0	7,9
*S(NF)14K175E2	*S(NF)14KV271E2		175	225	270	50,0	455	6000	3000	6.0kV/3.0kA	70,0	1380	15,5	4,9	17,5	7,9
*S(NF)20K175E2	*S(NF)20KV271E2		175	225	270	100,0	455	10000	3000	6.0kV/3.0kA	135,0	2600	21,5	5,3	23,5	8,3
S(NF)05K210E2	S(NF)05KV331E2		210	270	330	5,0	545	800	280	N/A	9,5	155	7,0	4,2	9,0	7,2
S(NF)07K210E2	S(NF)07KV331E2		210	270	330	10,0	545	1750	600	N/A	20,0	340	9,0	4,2	11,0	7,2
S(NF)10K210E2	S(NF)10KV331E2		210	270	330	25,0	545	3500	1500	N/A	42,0	635	12,0	5,0	14,0	8,0
*S(NF)14K210E2	*S(NF)14KV331E2		210	270	330	50,0	545	6000	3000	6.0kV/3.0kA	80,0	1250	15,5	5,0	17,5	8,0
*S(NF)20K210E2	*S(NF)20KV331E2		210	270	330	100,0	545	10000	3000	6.0kV/3.0kA	160,0	2300	21,5	5,4	23,5	8,4
S(NF)05K230E2	S(NF)05KV361E2		230	300	360	5,0	595	800	280	N/A	11,0	140	7,0	4,4	9,0	7,4
S(NF)07K230E2	S(NF)07KV361E2	230	300	360	10,0	595	1750	600	N/A	23,0	300	9,0	4,4	11,0	7,4	
S(NF)10K230E2	S(NF)10KV361E2	230	300	360	25,0	595	3500	1500	N/A	45,0	550	12,0	5,0	14,0	8,0	
*S(NF)14K230E2	*S(NF)14KV361E2	230	300	360	50,0	595	6000	3000	6.0kV/3.0kA	90,0	1100	15,5	5,1	17,5	8,1	
*S(NF)20K230E2	*S(NF)20KV361E2	230	300	360	100,0	595	10000	3000	6.0kV/3.0kA	180,0	2000	21,5	5,5	23,5	8,5	
S(NF)05K250E2	S(NF)05KV391E2	250	320	390	5,0	650	800	280	N/A	12,0	120	7,0	4,5	9,0	7,5	
S(NF)07K250E2	S(NF)07KV391E2	250	320	390	10,0	650	1750	600	N/A	25,0	240	9,0	4,5	11,0	7,5	
S(NF)10K250E2	S(NF)10KV391E2	250	320	390	25,0	650	3500	1500	N/A	50,0	480	12,0	5,2	14,0	8,2	
*S(NF)14K250E2	*S(NF)14KV391E2	250	320	390	50,0	650	6000	3000	6.0kV/3.0kA	100,0	940	15,5	5,2	17,5	8,2	
*S(NF)20K250E2	*S(NF)20KV391E2	250	320	390	100,0	650	10000	3000	6.0kV/3.0kA	195,0	1800	21,5	5,7	23,5	8,7	

(1) For explanation of style reference number, see clause 1.5.

(2) All types marked with "*" are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.

(3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Typical AC Mains Supply voltages are indicated.

Table 1 (12 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continious voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions for S*		Dimensions for SNF*	
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						b _{max} (mm)	s _{max} (mm)	b _{max} (mm)	s _{max} (mm)
S(NF)05K275E2	S(NF)05KV431E2	120	275	350	430	5,0	710	800	280	N/A	13,5	120	7,0	4,6	9,0	7,6
S(NF)07K275E2	S(NF)07KV431E2		275	350	430	10,0	710	1750	600	N/A	27,5	210	9,0	4,6	11,0	7,6
S(NF)10K275E2	S(NF)10KV431E2		275	350	430	25,0	710	3500	1500	N/A	55,0	440	12,0	5,4	14,0	8,4
*S(NF)14K275E2	*S(NF)14KV431E2		275	350	430	50,0	710	6000	3000	6.0kV/3.0kA	110,0	900	15,5	5,4	17,5	8,4
*S(NF)20K275E2	*S(NF)20KV431E2		275	350	430	100,0	710	10000	3000	6.0kV/3.0kA	215,0	1800	21,5	5,8	23,5	8,8
S(NF)05K300E2	S(NF)05KV471E2	230/240	300	385	470	5,0	775	800	280	N/A	15,0	110	7,0	4,7	9,0	7,7
S(NF)07K300E2	S(NF)07KV471E2		300	385	470	10,0	775	1750	600	N/A	30,0	170	9,0	4,7	11,0	7,7
S(NF)10K300E2	S(NF)10KV471E2		300	385	470	25,0	775	3500	1500	N/A	60,0	360	12,0	5,6	14,0	8,6
*S(NF)14K300E2	*S(NF)14KV471E2		300	385	470	50,0	775	6000	3000	6.0kV/3.0kA	125,0	780	15,5	5,6	17,5	8,6
*S(NF)20K300E2	*S(NF)20KV471E2		300	385	470	100,0	775	10000	3000	6.0kV/3.0kA	250,0	1500	21,5	6,1	23,5	9,1
S(NF)07K320E2	S(NF)07KV511E2		320	420	510	10,0	845	1750	600	N/A	32,0	155	9,0	4,6	11,0	7,6
S(NF)10K320E2	S(NF)10KV511E2		320	420	510	25,0	845	3500	1500	N/A	67,0	340	12,0	5,8	14,0	8,8
*S(NF)14K320E2	*S(NF)14KV511E2		320	420	510	50,0	845	6000	3000	6.0kV/3.0kA	136,0	680	15,5	5,8	17,5	8,8
*S(NF)20K320E2	*S(NF)20KV511E2		320	420	510	100,0	845	10000	3000	6.0kV/3.0kA	273,0	1300	21,5	6,2	23,5	9,2
S(NF)07K350E2	S(NF)07KV561E2		350	455	560	10	930	1750	600	N/A	32,0	140	9	5,7	11,0	7,7
S(NF)10K350E2	S(NF)10KV561E2	350	455	560	25,0	930	3500	1500	N/A	55,0	330	12,0	6,9	14,0	8,9	
*S(NF)14K350E2	*S(NF)14KV561E2	350	455	560	50,0	930	5000	3000	6.0kV/3.0kA	110,0	675	15,5	6,9	17,5	8,9	
*S(NF)20K350E2	*S(NF)20KV561E2	350	455	560	100,0	930	10000	3000	6.0kV/3.0kA	200,0	1270	21,5	7,4	23,5	9,4	
S(NF)07K385E2	S(NF)07KV621E2	385	505	620	10	1025	1750	600	N/A	38,0	130	9	6,6	11,0	8,2	
S(NF)10K385E2	S(NF)10KV621E2	385	505	620	25,0	1025	3500	1500	N/A	67,0	320	12,0	7,1	14,0	10,1	
*S(NF)14K385E2	*S(NF)14KV621E2	385	505	620	50,0	1025	5000	3000	6.0kV/3.0kA	136,0	670	15,5	7,1	17,5	10,1	
*S(NF)20K385E2	*S(NF)20KV621E2	385	505	620	100,0	1025	10000	3000	6.0kV/3.0kA	273,0	1250	21,5	7,6	23,5	10,6	
S(NF)07K420E2	S(NF)07KV681E2	420	560	680	10	1120	1750	600	N/A	57,0	120	9	7	11,0	8,6	
S(NF)10K420E2	S(NF)10KV681E2	420	560	680	25,0	1120	3500	1500	N/A	67,0	290	12,0	7,4	14,0	10,4	
*S(NF)14K420E2	*S(NF)14KV681E2	420	560	680	50,0	1120	5000	3000	6.0kV/3.0kA	136,0	600	15,5	7,5	17,5	10,5	
*S(NF)20K420E2	*S(NF)20KV681E2	420	560	680	100,0	1120	10000	3000	6.0kV/3.0kA	273,0	1100	21,5	7,9	23,5	10,9	

- (1) For explanation of style reference number, see clause 1.5.
- (2) All types marked with "*" are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.
- (3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated.

Table 1 (13 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continuous voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions for S*		Dimensions for SNF*	
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						b _{max} (mm)	s _{max} (mm)	b _{max} (mm)	S _{max} (mm)
S(NF)10K460E2	S(NF)10KV751E2	230/240	460	615	750	25,0	1240	3500	1500	N/A	70,0	250	12,0	7,7	14,0	10,7
*S(NF)14K460E2	*S(NF)14KV751E2		460	615	750	50,0	1240	5000	3000	6.0kV/3.0kA	150,0	570	15,5	7,8	17,5	10,8
*S(NF)20K460E2	*S(NF)20KV751E2		460	615	750	100,0	1240	10000	3000	6.0kV/3.0kA	300,0	1100	21,5	8,2	23,5	11,2
S(NF)10K510E2	S(NF)10KV821E2	380	510	670	820	25,0	1355	3500	1500	N/A	80,0	220	12,0	8,0	14,0	11,0
*S(NF)14K510E2	*S(NF)14KV821E2		510	670	820	50,0	1355	5000	3000	6.0kV/3.0kA	165,0	460	15,5	8,1	17,5	11,1
*S(NF)20K510E2	*S(NF)20KV821E2		510	670	820	100,0	1355	10000	3000	8.0kV/4.0kA	325,0	900	21,5	8,6	23,5	11,6
S(NF)10K550E2	S(NF)10KV911E2		550	745	910	25,0	1500	3500	1500	N/A	90,0	200	12,0	8,4	14,0	11,4
*S(NF)14K550E2	*S(NF)14KV911E2		550	745	910	50,0	1500	5000	3000	6.0kV/3.0kA	180,0	350	15,5	8,5	17,5	11,5
*S(NF)20K550E2	*S(NF)20KV911E2		550	745	910	100,0	1500	10000	3000	8.0kV/4.0kA	360,0	700	21,5	9,0	23,5	12,0
S(NF)10K625E2	S(NF)10KV102E2		625	825	1000	25,0	1650	3500	1500	N/A	100,0	180	12,0	8,8	14,0	11,8
*S(NF)14K625E2	*S(NF)14KV102E2		625	825	1000	50,0	1650	5000	3000	6.0kV/3.0kA	200,0	320	15,5	8,9	17,5	11,9
*S(NF)20K625E2	*S(NF)20KV102E2		625	825	1000	100,0	1650	10000	3000	8.0kV/4.0kA	400,0	650	21,5	9,4	23,5	12,4
S(NF)10K680E2	S(NF)10KV112E2		680	895	1100	25,0	1815	3500	1500	N/A	110,0	150	12,0	9,3	14,0	12,2
*S(NF)14K680E2	*S(NF)14KV112E2		680	895	1100	50,0	1815	5000	3000	6.0kV/3.0kA	220,0	280	15,5	9,4	17,5	12,3
*S(NF)20K680E2	*S(NF)20KV112E2		680	895	1100	100,0	1815	10000	3000	8.0kV/4.0kA	440,0	600	21,5	9,9	23,5	12,8
S(NF)10K880E2	S(NF)10KV142E2	690	880	1244	1450	25,0	2300	3500	1500	N/A	136,0	130	13,5	12,4	15,5	15,4
S(NF)10K1000E2	*S(NF)10KV182E2		1100	1465	1800	25,0	2970	3500	1500	N/A	183,0	130	13,5	13,4	15,5	16,4
*S(NF)14K1000E2	*S(NF)14KV182E2		1100	1465	1800	50,0	2970	5000	3000	6.0kV/3.0kA	360,0	200	15,5	12,8	17,5	15,3
*S(NF)20K1000E2	*S(NF)20KV182E2		1100	1465	1800	100,0	2970	10000	2200	8.0kV/4.0kA	720,0	400	21,5	13,4	23,5	15,7

- (1) For explanation of style reference number, see clause 1.5.
- (2) All types marked with "*" are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.
- (3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated.

Table 1 (14 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continuous voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions		
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						bmax (mm)	smax (mm)	
*S14K360E3	*S14KV581E3	240	360	475	580	50	945	6500	2000	6.0kV/3.0kA	150	670	15,5	6,9	
*S20K115E3	*S20KV181E3	-	115	150	180	100,0	300	12000	5000	6.0kV/3.0kA	110	4000	22,5	4,8	
*S20K130E3	*S20KV201E3		130	170	205	100,0	340	12000	5000	6.0kV/3.0kA	130	3500	22,5	5,0	
*S20K140E3	*S20KV221E3		140	180	220	100,0	360	12000	5000	6.0kV/3.0kA	140	3250	22,5	5,1	
*S20K150E3	*S20KV241E3		120	150	200	240	100,0	395	12000	5000	6.0kV/3.0kA	150	3000	22,5	5,2
*S20K175E3	*S20KV271E3	120	175	225	270	100,0	455	12000	5000	6.0kV/3.0kA	180	2600	22,5	5,3	
*S20K210E3	*S20KV331E3		210	270	330	100,0	550	12000	5000	6.0kV/3.0kA	210	2300	22,5	5,4	
*S20K230E3	*S20KV361E3		230	300	360	100,0	595	12000	5000	6.0kV/3.0kA	220	2000	22,5	5,9	
*S20K250E3	*S20KV391E3		250	320	390	100,0	650	12000	5000	6.0kV/3.0kA	250	1800	22,5	6,1	
*S20K275E3	*S20KV431E3		275	350	430	100,0	710	12000	5000	6.0kV/3.0kA	260	1800	22,5	6,3	
*S20K300E3	*S20KV471E3		240	300	385	470	100,0	775	12000	5000	6.0kV/3.0kA	290	1500	22,5	6,6
*S20K320E3	*S20KV511E3		320	420	510	510	100,0	845	12000	5000	6.0kV/3.0kA	320	1300	22,5	6,8
*S20K350E3	*S20KV561E3		350	460	560	560	100	930	12000	5000	6.0kV/3.0kA	320	1270	22,5	7,3
*S20K385E3	*S20KV621E3	385	505	620	620	100	1025	12000	5000	6.0kV/3.0kA	320	1200	22,5	8,3	
*S20K420E3	*S20KV681E3	420	560	680	680	100	1120	12000	5000	6.0kV/3.0kA	320	1100	22,5	8,6	
*S20K460E3	*S20KV751E3	460	615	750	750	100	1240	12000	5000	6.0kV/3.0kA	370	1100	22,5	8,9	
*S20K510E3	*S20KV821E3	380	510	670	820	100	1355	10000	5000	8.0kV/4.0kA	410	900	23	9,3	
*S20K550E3	*S20KV911E3	550	745	910	910	100	1500	10000	5000	8.0kV/4.0kA	450	700	23	9,8	
*S20K625E3	*S20KV102E3	625	825	1000	1000	100	1650	10000	5000	8.0kV/4.0kA	500	650	23	10,3	
*S20K680E3	*S20KV112E3	680	895	1100	1100	100	1815	10000	5000	8.0kV/4.0kA	540	600	23	10,9	

(1) For explanation of style reference number, see clause 1.5.

(2) All types marked with "*" are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.

(3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated

Table 1 (15 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continuous voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions for S*		Dimensions for S*	
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						b _{max}	s _{max}	b _{max}	s _{max}
*S(NF)10K130E2K1	*S(NF)10KV201E2K1	120	130	170	205	25	340	3500	2000	6.0kV/3.0kA	30	1400	12	4.7	14	7.7
*S(NF)10K140E2K1	*S(NF)10KV221E2K1		140	180	220	25	360	3500	2000	6.0kV/3.0kA	32,5	1200	12	4.8	14	7.8
*S(NF)10K150E2K1	*S(NF)10KV241E2K1		150	200	240	25	395	3500	2000	6.0kV/3.0kA	35	1100	12	4.9	14	7.9
*S(NF)10K175E2K1	*S(NF)10KV271E2K1		175	225	270	25	455	3500	2000	6.0kV/3.0kA	40	900	12	5.1	14	8.1
*S(NF)10K210E2K1	*S(NF)10KV331E2K1		210	270	330	25	545	3500	2000	6.0kV/3.0kA	47	780	12	5.4	14	8.4
*S(NF)10K230E2K1	*S(NF)10KV361E2K1		230	300	360	25	595	3500	2000	6.0kV/3.0kA	50	660	12	5.6	14	8.6
*S(NF)10K250E2K1	*S(NF)10KV391E2K1		250	320	390	25	650	3500	2000	6.0kV/3.0kA	55	580	12	5.7	14	8.7
*S(NF)10K275E2K1	*S(NF)10KV431E2K1		275	350	430	25	710	3500	2000	6.0kV/3.0kA	60	520	12	5.9	14	8.9
*S(NF)10K300E2K1	*S(NF)10KV471E2K1	240	300	385	470	25	775	3500	2000	6.0kV/3.0kA	65	430	12	6.1	14	9.1
*S(NF)10K320E2K1	*S(NF)10KV511E2K1		320	420	510	25	840	3500	2000	6.0kV/3.0kA	72	400	12	6.3	14	9.3
*S(NF)10K350E2K1	*S(NF)10KV561E2K1		350	460	560	25	910	3500	2000	6.0kV/3.0kA	77	390	12.5	6.7	14.5	9.7
*S(NF)10K385E2K1	*S(NF)10KV621E2K1		385	505	620	25	1025	3500	2000	6.0kV/3.0kA	82	380	12.5	7.7	14.5	10.7
*S(NF)10K420E2K1	*S(NF)10KV681E2K1		420	560	680	25	1120	3500	2000	6.0kV/3.0kA	87	350	12.5	8.1	14.5	11.1
*S(NF)10K460E2K1	*S(NF)10KV751E2K1		460	615	750	25	1240	3500	2000	6.0kV/3.0kA	92	300	12.5	8.4	14.5	11.4
*S(NF)10K510E2K1	*S(NF)10KV821E2K1	380	510	670	820	25	1355	3500	2000	8.0kV/4.0kA	92	260	13	8.8	15	11.8
*S(NF)10K550E2K1	*S(NF)10KV911E2K1		550	745	910	25	1500	3500	2000	8.0kV/4.0kA	97	240	13	9.3	15	12.3
*S(NF)10K625E2K1	*S(NF)10KV102E2K1		625	825	1000	25	1650	3500	2000	8.0kV/4.0kA	105	210	13	9.8	15	12.8
*S(NF)10K680E2K1	*S(NF)10KV112E2K1		680	895	1100	25	1815	3500	2000	8.0kV/4.0kA	115	180	13	10.4	15	13.4

(1) For explanation of style reference number, see clause 1.5.

(2) All types marked with "*" are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.

(3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated

Table 1 (16 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continious voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions for S*		Dimensions for S*		
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						b _{max} (mm)	s _{max} (mm)	b _{max} (mm)	s _{max} (mm)	
*S(NF)14K130E2K1	*S(NF)14KV201E2K1	120	130	170	205	50	340	6000	3000	6.0kV/3.0kA	60.0	2600	16	4.7	18	7.7	
*S(NF)14K140E2K1	*S(NF)14KV221E2K1		140	180	220	50	360	6000	3000	6.0kV/3.0kA	65.0	2200	16	4.8	18	7.8	
*S(NF)14K150E2K1	*S(NF)14KV241E2K1		150	200	240	50	395	6000	3000	6.0kV/3.0kA	70.0	2000	16	4.9	18	7.9	
*S(NF)14K175E2K1	*S(NF)14KV271E2K1		175	225	270	50	455	6000	3000	6.0kV/3.0kA	80.0	1800	16	5.1	18	8.1	
*S(NF)14K210E2K1	*S(NF)14KV331E2K1		210	270	330	50	545	6000	3000	6.0kV/3.0kA	95.0	1600	16	5.4	18	8.4	
*S(NF)14K230E2K1	*S(NF)14KV361E2K1		230	300	360	50	595	6000	3000	6.0kV/3.0kA	105.0	1400	16	5.6	18	8.6	
*S(NF)14K250E2K1	*S(NF)14KV391E2K1		250	320	390	50	650	6000	3000	6.0kV/3.0kA	115.0	1200	16	5.7	18	8.7	
*S(NF)14K275E2K1	*S(NF)14KV431E2K1		275	350	430	50	710	6000	3000	6.0kV/3.0kA	130.0	1100	16	5.9	18	8.9	
*S(NF)14K300E2K1	*S(NF)14KV471E2K1		240	300	385	470	50	775	6000	3000	6.0kV/3.0kA	140.0	1000	16	6.1	18	9.1
*S(NF)14K320E2K1	*S(NF)14KV511E2K1	320		420	510	50	840	6000	3000	6.0kV/3.0kA	150.0	900	16	6.3	18	9.3	
*S(NF)14K350E2K1	*S(NF)14KV561E2K1	350		460	560	50	910	6000	3000	6.0kV/3.0kA	165.0	800	16.5	6.7	18.5	9.7	
*S(NF)14K385E2K1	*S(NF)14KV621E2K1	385		505	620	50	1025	6000	3000	6.0kV/3.0kA	180.0	850	16.5	7.7	18.5	10.7	
*S(NF)14K420E2K1	*S(NF)14KV681E2K1	420		560	680	50	1120	6000	3000	6.0kV/3.0kA	190.0	750	16.5	8.2	18.5	11.2	
*S(NF)14K460E2K1	*S(NF)14KV751E2K1	460		615	750	50	1240	6000	3000	6.0kV/3.0kA	200.0	700	16.5	8.5	18.5	11.5	
*S(NF)14K480E2K1	*S(NF)14KV751E2K1	480		640	780	50	1300	6000	3000	6.0kV/3.0kA	205.0	650	16.5	8.7	18.5	11.7	
*S(NF)14K510E2K1	*S(NF)14KV821E2K1	380		510	670	820	50	1355	6000	3000	8.0kV/4.0kA	200.0	600	17	8.9	19	11.9
*S(NF)14K550E2K1	*S(NF)14KV911E2K1			550	745	910	50	1500	6000	3000	8.0kV/4.0kA	220.0	500	17	9.4	19	12.4
*S(NF)14K625E2K1	*S(NF)14KV102E2K1		625	825	1000	50	1650	6000	3000	8.0kV/4.0kA	240.0	450	17	9.9	19	12.9	
*S(NF)14K680E2K1	*S(NF)14KV112E2K1		680	895	1100	50	1815	6000	3000	8.0kV/4.0kA	260.0	400	17	10.5	19	13.5	

(1) For explanation of style reference number, see clause 1.5.

(2) All types marked with "*" are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.

(3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated

Table 1 (17 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continuous voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions for S*		Dimensions for S*	
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						b _{max} (mm)	s _{max} (mm)	b _{max} (mm)	s _{max} (mm)
*S(NF)20K130E3K1	*S(NF)20KV201E3K1	120	130	170	205	100	340	12000	5000	6.0kV/3.0kA	135	4700	22.5	5.1	24.5	8.1
*S(NF)20K140E3K1	*S(NF)20KV221E3K1		140	180	220	100	360	12000	5000	6.0kV/3.0kA	145	4000	22.5	5.2	24.5	8.2
*S(NF)20K150E3K1	*S(NF)20KV241E3K1		150	200	240	100	395	12000	5000	6.0kV/3.0kA	155	3700	22.5	5.3	24.5	8.3
*S(NF)20K175E3K1	*S(NF)20KV271E3K1		175	225	270	100	455	12000	5000	6.0kV/3.0kA	180	3500	22.5	5.5	24.5	8.5
*S(NF)20K210E3K1	*S(NF)20KV331E3K1		210	270	330	100	545	12000	5000	6.0kV/3.0kA	215	3000	22.5	5.8	24.5	8.8
*S(NF)20K230E3K1	*S(NF)20KV361E3K1		230	300	360	100	595	12000	5000	6.0kV/3.0kA	235	2400	22.5	6	24.5	9
*S(NF)20K250E3K1	*S(NF)20KV391E3K1		250	320	390	100	650	12000	5000	6.0kV/3.0kA	255	2300	22.5	6.1	24.5	9.1
*S(NF)20K275E3K1	*S(NF)20KV431E3K1		275	350	430	100	710	12000	5000	6.0kV/3.0kA	280	2200	22.5	6.5	24.5	9.5
*S(NF)20K300E3K1	*S(NF)20KV471E3K1	240	300	385	470	100	775	12000	5000	6.0kV/3.0kA	305	1800	22.5	6.8	24.5	9.8
*S(NF)20K320E3K1	*S(NF)20KV511E3K1		320	420	510	100	840	12000	5000	6.0kV/3.0kA	330	1600	22.5	6.9	24.5	9.9
*S(NF)20K350E3K1	*S(NF)20KV561E3K1		350	460	560	100	910	12000	5000	6.0kV/3.0kA	335	1550	22.5	7.3	24.5	10.3
*S(NF)20K385E3K1	*S(NF)20KV621E3K1		385	505	620	100	1025	12000	5000	6.0kV/3.0kA	370	1500	22.5	8.3	24.5	11.3
*S(NF)20K420E3K1	*S(NF)20KV681E3K1		420	560	680	100	1120	12000	5000	6.0kV/3.0kA	405	1400	22.5	8.6	24.5	11.6
*S(NF)20K460E3K1	*S(NF)20KV751E3K1		460	615	750	100	1240	12000	5000	6.0kV/3.0kA	445	1350	22.5	8.9	24.5	11.9
*S(NF)20K510E3K1	*S(NF)20KV821E3K1	380	510	670	820	100	1355	10000	5000	8.0kV/4.0kA	445	1100	23	9.3	25	12.3
*S(NF)20K550E3K1	*S(NF)20KV911E3K1		550	745	910	100	1500	10000	5000	8.0kV/4.0kA	490	900	23	9.8	25	12.8
*S(NF)20K625E3K1	*S(NF)20KV102E3K1		625	825	1000	100	1650	10000	5000	8.0kV/4.0kA	540	800	23	10.3	25	13.3
*S(NF)20K680E3K1	*S(NF)20KV112E3K1		680	895	1100	100	1815	10000	5000	8.0kV/4.0kA	595	750	23	10.9	25	13.9

- (1) For explanation of style reference number, see clause 1.5.
- (2) All types marked with "*" are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.
- (3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated

Table 1 (18 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continuous voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions		
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						bmax (mm)	smax (mm)	
*Q14K130	*Q14KV201	-	130	170	205	65	340	8000	3000	6.0kV/3.0kA	75	2800	16,5	5,0	
*Q14K140	*Q14KV221		140	180	220	65	360	8000	3000	6.0kV/3.0kA	80	2570	16,5	5,1	
*Q14K150	*Q14KV241		120	150	200	240	65	395	8000	3000	6.0kV/3.0kA	85	2370	16,5	5,2
*Q14K175	*Q14KV271			175	225	270	65	455	8000	3000	6.0kV/3.0kA	100	2140	16,5	5,3
*Q14K210	*Q14KV331			210	270	330	65	550	8000	3000	6.0kV/3.0kA	115	1710	16,5	5,4
*Q14K230	*Q14KV361			230	300	360	65	595	8000	3000	6.0kV/3.0kA	130	1570	16,5	5,5
*Q14K250	*Q14KV391			250	320	390	65	650	8000	3000	6.0kV/3.0kA	140	1430	16,5	5,7
*Q14K275	*Q14KV431			275	350	430	65	710	8000	3000	6.0kV/3.0kA	150	1340	16,5	5,8
*Q14K300	*Q14KV471	240	300	385	470	65	775	8000	3000	6.0kV/3.0kA	175	1230	16,5	6,1	
*Q14K320	*Q14KV511		320	420	510	65	840	8000	3000	6.0kV/3.0kA	185	1110	16,5	6,3	
*Q14K350	*Q14KV561		350	460	560	65	910	8000	3000	6.0kV/3.0kA	200	1030	16,5	7,3	
*Q14K385	*Q14KV621		385	505	620	65	1025	8000	3000	6.0kV/3.0kA	225	930	16,5	7,6	
*Q14K420	*Q14KV681		420	560	680	65	1120	8000	3000	6.0kV/3.0kA	245	870	16,5	7,9	
*Q14K440	*Q14KV721		440	585	715	65	1180	8000	3000	6.0kV/3.0kA	260	830	16,5	8,1	
*Q14K460	*Q14KV751		460	615	750	65	1240	8000	3000	6.0kV/3.0kA	270	790	16,5	8,2	
*Q14K510	*Q14KV821		380	510	670	820	65	1355	6000	3000	8.0kV/4.0kA	240	710	16,5	8,6
*Q14K550	*Q14KV911	550		745	910	65	1500	6000	3000	8.0kV/4.0kA	260	660	16,5	9,0	
*Q14K625	*Q14KV102	625		825	1000	65	1650	6000	3000	8.0kV/4.0kA	290	580	16,5	9,4	
*Q14K680	*Q14KV112	680		895	1100	65	1815	6000	3000	8.0kV/4.0kA	320	520	16,5	9,9	

(1) For explanation of style reference number, see clause 1.5.

(2) All types marked with "*" are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.

(3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated

Table 1 (19 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continuous voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions	
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						bmax (mm)	smax (mm)
*Q20K130	*Q20KV201	-	130	170	205	130	340	15000	5000	6.0kV/3.0kA	100	5560	22,5	5,0
*Q20K140	*Q20KV221		140	180	220	130	360	15000	5000	6.0kV/3.0kA	110	5130	22,5	5,1
*Q20K150	*Q20KV241	120	150	200	240	130	395	15000	5000	6.0kV/3.0kA	120	4700	22,5	5,2
*Q20K175	*Q20KV271		175	225	270	130	455	15000	5000	6.0kV/3.0kA	135	4280	22,5	5,3
*Q20K210	*Q20KV331		210	270	330	130	550	15000	5000	6.0kV/3.0kA	165	3420	22,5	5,4
*Q20K230	*Q20KV361		230	300	360	130	595	15000	5000	6.0kV/3.0kA	180	3140	22,5	5,5
*Q20K250	*Q20KV391		250	320	390	130	650	15000	5000	6.0kV/3.0kA	195	2850	22,5	5,7
*Q20K275	*Q20KV431		275	350	430	130	710	15000	5000	6.0kV/3.0kA	215	2650	22,5	5,8
*Q20K300	*Q20KV471		300	385	470	130	775	15000	5000	6.0kV/3.0kA	235	2420	22,5	6,1
*Q20K320	*Q20KV511	240	320	420	510	130	840	15000	5000	6.0kV/3.0kA	255	2220	22,5	6,3
*Q20K350	*Q20KV561		350	460	560	130	910	15000	5000	6.0kV/3.0kA	280	1970	22,5	7,3
*Q20K385	*Q20KV621		385	505	620	130	1025	15000	5000	6.0kV/3.0kA	315	1800	22,5	7,6
*Q20K420	*Q20KV681		420	560	680	130	1120	15000	5000	6.0kV/3.0kA	340	1680	22,5	7,9
*Q20K440	*Q20KV721		440	585	715	130	1180	15000	5000	6.0kV/3.0kA	365	1600	22,5	8,1
*Q20K460	*Q20KV751		460	615	750	130	1240	15000	5000	6.0kV/3.0kA	380	1510	22,5	8,2
*Q20K510	*Q20KV821		510	670	820	130	1355	13000	5000	8.0kV/4.0kA	360	1370	22,5	8,6
*Q20K550	*Q20KV911	380	550	745	910	130	1500	13000	5000	8.0kV/4.0kA	390	1280	22,5	9,0
*Q20K625	*Q20KV102		625	825	1000	130	1650	13000	5000	8.0kV/4.0kA	430	1110	22,5	9,4
*Q20K680	*Q20KV112		680	895	1100	130	1815	13000	5000	8.0kV/4.0kA	470	1000	22,5	9,9

(1) For explanation of style reference number, see clause 1.5.

(2) All types marked with "*" are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q.

(3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated

Table 1 (20 of 20)

Style (1)	Equivalent KV type (1)	Supply voltage (3)	Maximum continuous voltage		Voltage at 1 mA (V)	Voltage at class current (8/20µs)		Max. peak current (8/20µs, 1 time) (A)	Max. peak current (8/20µs, 10 time) (A)	Max. peak current (8/20µs, combination pulse, 10 times) (A)	Max. peak current (2 ms, 1 time) (J)	Maximum capacitance (pF)	Dimensions		
			r.m.s. (V)	d.c. (V)		Class current(A)	Max. volt (V)						bmax (mm)	smax (mm)	
*S25K115E4R12	*S25KV181E4R12	120	115	150	180	150	300	20000	10000	6.0kV/3.0kA	165	8000	27.5	5.6	
*S25K130E4R12	*S25KV201E4R12		130	170	205	150	340	20000	10000	6.0kV/3.0kA	185	7000	27.5	5.7	
*S25K140E4R12	*S25KV221E4R12		140	180	220	150	360	20000	10000	6.0kV/3.0kA	195	6500	27.5	5.8	
*S25K150E4R12	*S25KV241E4R12		150	200	240	150	395	20000	10000	6.0kV/3.0kA	215	6000	27.5	5.9	
*S25K175E4R12	*S25KV271E4R12		175	225	270	150	455	20000	10000	6.0kV/3.0kA	245	5200	27.5	6.1	
*S25K210E4R12	*S25KV331E4R12		210	270	330	150	545	20000	10000	6.0kV/3.1kA	280	4600	27.5	6.2	
*S25K230E4R12	*S25KV361E4R12		230	300	360	150	595	20000	10000	6.0kV/3.0kA	315	4000	27.5	6.7	
*S25K250E4R12	*S25KV391E4R12		250	320	390	150	650	20000	10000	6.0kV/3.0kA	345	3600	27.5	6.9	
*S25K275E4R12	*S25KV431E4R12		275	350	430	150	710	20000	10000	6.0kV/3.0kA	375	3600	27.5	7.2	
*S25K300E4R12	*S25KV471E4R12	240	300	385	470	150	775	20000	10000	6.0kV/3.0kA	410	3000	27.5	7.4	
*S25K320E4R12	*S25KV511E4R12		320	420	510	150	840	20000	10000	6.0kV/3.0kA	445	2600	27.5	7.6	
*S25K350E4R12	*S25KV561E4R12		350	460	560	150	910	20000	10000	6.0kV/3.0kA	460	2540	27.5	8	
*S25K385E4R12	*S25KV621E4R12		385	505	620	150	1025	20000	10000	6.0kV/3.0kA	600	2500	27.5	8.3	
*S25K420E4R12	*S25KV681E4R12		420	560	680	150	1120	20000	10000	6.0kV/3.0kA	700	2200	27.5	8.6	
*S25K440E4R12	*S25KV721E4R12		440	585	715	150	1180	20000	10000	6.0kV/3.0kA	710	2200	27.5	8.9	
*S25K460E4R12	*S25KV751E4R12		460	615	750	150	1240	20000	10000	6.0kV/3.0kA	720	2200	27.5	9.1	
*S25K510E4R12	*S25KV821E4R12		380	510	670	820	150	1355	20000	10000	8.0kV/4.0kA	750	1800	27.5	9.5
*S25K550E4R12	*S25KV911E4R12			550	745	910	150	1500	20000	10000	8.0kV/4.0kA	780	1092	27.5	10
*S25K580E4R12	*S25KV941E4R12	580		780	940	150	1580	20000	10000	8.0kV/4.0kA	800	1120	27.5	10.2	
*S25K625E4R12	*S25KV102E4R12	625		825	1000	150	1650	20000	10000	8.0kV/4.0kA	855	1197	27.5	10.6	
*S25K680E4R12	*S25KV112E4R12	680		895	1100	150	1815	20000	10000	8.0kV/4.0kA	940	1316	27.5	11.2	
*S25K750E4R12	*S25KV122E4R12	750		1060	1200	150	2000	20000	10000	8.0kV/4.0kA	1025	1435	27.5	11.7	

(1) For explanation of style reference number, see clause 1.5.

(2) All types marked with "*" are covered by IEC 62368-1 G.8.2 and IEC 60950-1 Annex Q

(3) Acc. to IEC 62368-1 G.8.2 and IEC60950-1, Annex Q: Maximum continuous voltage of the Varistors should be at least 1.25 times rated voltage of equipment/ rated voltage range. Only typical AC Mains Supply voltages are indicated

1.4 Marking

The varistors are marked with their:

- style reference (includes style – 05 and 07 without S, NF, tolerance, max. continuous r.m.s. voltage; alternatively style – 05 and 07 without S, NF, tolerance, varistor voltage at 1 mA)

They are distinguished as follows: no underline under the S..., S...(Standard); an additional underline under the S..., S...(for type series AdvanceD – E2) or a line above the S..., S...(for type series SuperioR – E3), or a line above and under the S...(for type series SuperioR – E4)

S20 K275	<u>S20</u> K275	<u>S20</u> K275	<u>S25</u> K275
StandarD	AdvanceD	SuperioR	SuperioR
S10 K300	<u>S10</u> K300	<u>SNF20</u> K300	
StandarD	AdvanceD	SuperioR	

- Manufacturer's code or trade mark
- Date of manufacture

1.5 Ordering information

Orders for varistors covered by this specification shall contain, in clear or in coded form, the following minimum information

Example:

S 05 K 275 (V431) A (B,C) E2 G GX A S R B C D Z U H M
P K K8 K9 W T VB
 :

<u>S</u>	Style - (S: round disc; Q: square disc; NF: Nonflammable disc;)
<u>05</u>	Disc size (S: diameter of ceramic disc; Q: length of each side)
<u>K</u>	Tolerance ± 10 % of voltage at 1 mA (J: ± 5 %; L: ± 15 %; M: ± 20 %; S: special tolerance)
<u>275</u>	Max. continuous r.m.s. voltage
<u>V431</u>	Alternative type designation with varistor voltage at 1 mA instead of max. cont. r.m.s voltage (code: 43×10^1)
<u>A (B,C)</u>	designation for special types
<u>E2 E3 E4</u>	High energy series
<u>G</u>	Taping according IEC 60286, part 2. May be followed by numbers
<u>GX</u>	Customized packing not defined with other standard packing styles, G and X may be followed by numbers
<u>A</u>	Ammopack
<u>S</u>	Crimp-Type, is omitted when Crimp-Type Standard
<u>R</u>	Lead spacing (e): mm
<u>B</u>	Customized diameter dimension (b): mm. Not effecting IECQ specifications, all related ratings covered.
<u>C</u>	Customized thickness (s): mm. Not effecting IECQ specifications, all related ratings covered.
<u>D</u>	Customized wire diameter (d): mm. Not effecting IECQ specifications, all related ratings covered.
<u>Z</u>	Customized diagonal dimension: mm. Not effecting IECQ specifications, all related ratings covered.
<u>U1</u>	Customized insulation voltage rating: 1.0kV. "U1" is only applied to types with customized insulation voltage rating (deviant from default value acc. to 1.2.2.)
<u>H</u>	Component height (h or h_1): mm
<u>M</u>	Cut lead length (l): mm
<u>P</u>	Test requirements additionally agreed to this detail specification
<u>K</u>	Customer specific properties not defined with other codes (K1 - K99 available except for the two reserved codes below)
<u>K8</u>	Special combination lead diameter - lead spacing
<u>K9</u>	Components have the same ratings but they are matched for the varistor voltage at 1 mA within one package
<u>W</u>	Customer specific properties not defined with other codes (Y1 - Y99 available). Not effecting IECQ specifications, all related ratings covered.
<u>T</u>	Resistance to temperature changes - denotes that the varistor exceeds the normally defined temperature range
(:)	additional numbers 00-99
SIOV	may be prefixed

Special varistor types with customer specific tolerances (tolerance designation S in combination with the letters A, B or C) and varistors with special geometrical specifications designated by R., H., M., B., C., D., Z. or K8. are available on request.

1.6 Certified records or released lots

Not required.

1.7 Additional information (not for inspection purposes)

The voltage indicated on the component is the maximum allowable steady state sinusoidal voltage at 50 - 60 Hz. When use is made of a supply voltage, the maximum continuous a.c. r.m.s. voltage = 1.1 x supply voltage. Should the varistor be subjected to voltage above the indicated voltage, it may fail by package rupture or expulsion material, causing a major problem in the equipment.

Coating information:

Material: Epoxy,
Ref. No.: CP-930-1
Supplier: Dae Joo

Material: Epoxy,
Ref. No.: PCE-282
Supplier: Pelnox

Material: Epoxy,
Ref. No.: EF-150C, EF-150
Supplier: Kaihua, Tianjin

Material: Silicone (only for SNF types)
Ref. No.: CE-77
Supplier: Pelnox

Material: Silicone (only for SNF types)
Ref. No.: FC-505 A
Supplier: Fuyou, Dongguan

1.8 Additional or increased severities or requirements to those specified in the generic and/or sectional specification

None.

SECTION TWO – INSPECTION REQUIREMENTS

2 Inspection requirements

2.1 Procedures

2.1.1 For Qualification Approval the procedure shall be in accordance with the Sectional Specification, IEC Publication 61051-2, Sub-clause 3.2.

2.1.2 For Quality Conformance Inspection the test schedule (Table II) includes sampling, periodicity, severities and requirements. The formation of inspection lots is covered by Sub-clause 3.3.1 of the Sectional Specification.

TABLE II

- Notes
1. - Sub-clause numbers of tests and performance requirements refer to the Generic Specification, IEC Publication 61051-1.
 2. - Inspection Levels and AQL's are selected from IEC Publication 60410 (alternatively IEC 61193-2):
Sampling Plans and Procedures for Inspection by Attributes.
 3. - In this table:
 - p = periodicity (in months)
 - n = sample size
 - c = acceptance criterion (permitted number of defectives)
 - D = destructive
 - ND = non-destructive
 - IL = inspection level
 - AQL = acceptable quality level } IEC 60410 (alternatively IEC 61193-2)
 4. - The bump test and shock test are considered to be alternative. The detail specification shall indicate which test is to be performed.
 5. - Where d.c. has been applied to the varistor, the reference voltage shall be measured in the same direction.
 7. - The manufacturer shall only be required to perform one of these tests.

Sub-clause number and Test (see Note 1)	D or ND	Conditions of test (see Note 1)	IL	AQL	Performance requirements (see Note 1)
			(see Note 2)		
<p><u>GROUP A INSPECTION</u> (lot-by-lot)</p> <p><u>Sub-group A1</u></p> <p>6.4.1 Visual examination</p> <p>6.4.2 Marking</p>	ND		II	1,0%	<p>As in 6.4.1</p> <p>Legible marking and as specified in 1.4 of this specification</p>
<p><u>Sub-group A2</u></p> <p>6.6 Voltage</p>	ND	Voltage at specified current	II	0,65%	As specified in 1.2.2 of this specification
<p><u>Sub-group A3</u></p> <p>6.4.3 Dimensions (gauging)</p>	ND	Not applicable	S-4	1,0%	As specified in 1.2.1 of this specification
<p><u>GROUP B INSPECTION</u> (lot-by-lot)</p> <p><u>Sub-group B1</u></p> <p>6.17.2 Robustness of terminations</p> <p>6.19 Solderability (if applicable)</p> <p>6.27 Solvent resistance of the marking (if applicable)</p>	D	<p>IEC 60068-2-21, Test Ua1</p> <p>F = 10 N (d ≤ 0.8 mm) F = 20 N (d = 1 mm)</p> <p>Visual examination</p> <p>Voltage at specified current</p> <p>IEC 60068-2-20, Test Ta, Method 1</p> <p>Soldering bath conditions: Pb- free solder: 245±3°C, 3s</p> <p>IEC 60068-2-45, Test XA (3.1.1, Method 1): T = 23±5°C, t = 5±0,5 min Solvent mixture (70±5% Diethylenglycoldibutylether, 30±5% 2-propanol). Rubbing material: Cotton wool F = 5±0,5 N, 10 strokes.</p> <p>Visual examination</p>	S-3	2,5%	<p>No visible damage</p> $\left \frac{\Delta U}{U} \right \leq 10\%$ <p>The terminations shall be uniformly tinned</p> <p>Legible marking</p>

Sub-clause number and Test (see Note 1)	D or ND	Conditions of test (see Note 1)	IL	AQL	Performance requirements (see Note 1)
			(see Note 2)		
<u>Sub-group B2</u> 6.11 Clamping voltage 6.9 Voltage proof	D	At class current: See table 1. Metal balls method (6.9.3) 2500 V, 60 s	S-2	1,0%	As specified in the detail specification As in 6.9

Sub-clause number and Test (see Note 1)	D or ND	Conditions of test (see Note 1)	Sample size & criterion of acceptability (see Note 3)			Performance requirements (see Note 1)
			p	n	c	
<u>GROUP C INSPECTION</u> (periodic) <u>Sub-group C1</u> 6.13 Maximum peak current	D	<u>Pulse current</u> 10 pulses 8/20 µs at 2 per min in one direction (current according table 1 and 1.2.3) Visual examination Voltage at specified current <u>Combination pulse</u> 10 pulses (combination pulse), in one direction, 1 per min Visual examination Leakage current or voltage at specified current	6	13	1	No visible damage $\left \frac{\Delta U}{U} \right \leq 10\%$
<u>Sub-group C2</u> 6.15 Rated Energy	D	Single current pulse with 2 ms rectangular wave shape or 10 µs /1 000 µs wave shape (current according table 1 and 1.2.3) Visual examination Voltage at specified current	12	13	1	No visible damage $\left \frac{\Delta U}{U} \right \leq 10\%$

Sub-clause number and Test (see Note 1)	D or ND	Conditions of test (see Note 1)	Sample size & criterion of acceptability (see Note 3)			Performance requirements (see Note 1)
			p	n	c	
<p><u>Sub-group C3A</u></p> <p>Part of sample of Sub-group C3</p> <p>6.8 Capacitance</p> <p>6.18 Resistance to soldering heat (if applicable)</p> <p>6.28 Component solvent resistance (if applicable)</p> <p>6.20 Rapid change of temperature</p>	D	<p>f = 1 kHz Signal level ≤ 1V Zero bias</p> <p>IEC 60068-2-20, Test Tb, Method 1A</p> <p>T = 260±5°C, d = 10±1s</p> <p>Visual examination</p> <p>Voltage at specified current</p> <p>IEC 60068-2-45, Test XA (3.1.1, Method 2): T = 23±5°C t = 5±0,5 min Solvent mixture: 70±5% Diethylglycoldibutylether, 30±5% 2-propanol.</p> <p>Recovery: 48h</p> <p>Visual examination</p> <p>Voltage at specified current</p> <p>IEC 60068-2-14, Test Na</p> <p>N = 5 cycles, d = 30 min</p> <p>θ_A = -40±3°C θ_B = UCT±2°C</p> <p>Visual examination</p> <p>Voltage at specified current</p>	12	7		<p>As specified in 1.2.2 of this specification</p> <p>No visible damage Legible marking</p> $\left \frac{\Delta U}{U} \right \leq 5\%$ <p>No visible damage Legible marking</p> $\left \frac{\Delta U}{U} \right \leq 5\%$ <p>No visible damage Legible marking</p> $\left \frac{\Delta U}{U} \right \leq 5\%$

Sub-clause number and Test (see Note 1)	D or ND	Conditions of test (see Note 1)	Sample size & criterion of acceptability (see Note 3)			Performance requirements (see Note 1)
			p	n	c	
<p><u>Sub-group C3B</u></p> <p>Other part of sample of Sub-group C3</p> <p>6.21 Shock</p>		<p>IEC 60068-2-27, Test Ea</p> <p>Pulse shape: half-sine a = 500 m/s², d = 11ms N = 6 x 3 shocks. (The mounting shall be such that there shall be no parasitic vibration)</p> <p>Visual examination</p> <p>Voltage at specified current</p>	12	6		<p>No visible damage Legible marking</p> $\left \frac{\Delta U}{U} \right \leq 5\%$
<p>6.21 Repetitive Shock</p>		<p>IEC 60068-2-27, Test Ea</p> <p>Pulse shape: half sine. a = 400 m/s², d = 6 ms N = 6 x 5000 shocks. (The mounting shall be such that there shall be no parasitic vibration)</p> <p>Visual examination</p> <p>Voltage at specified current</p>				<p>No visible damage Legible marking</p> $\left \frac{\Delta U}{U} \right \leq 5\%$
<p>6.22 Vibration</p>		<p>IEC 60068-2-6, Test Fc, Method B4</p> <p>Frequency range: 10 Hz to 55 Hz a = 0,75 mm or 98 m/s² (whichever is the less) d = 3x2 h (The mounting shall be such that there shall be no parasitic vibration)</p> <p>Visual examination</p> <p>Voltage at specified current</p>				<p>No visible damage Legible marking</p> $\left \frac{\Delta U}{U} \right \leq 5\%$

Sub-clause number and Test (see Note 1)	D or ND	Conditions of test (see Note 1)	Sample size & criterion of acceptability (see Note 3)			Performance requirements (see Note 1)
			p	n	c	
<p><u>Sub-group C3</u></p> <p>Combined sample of specimens of Sub-groups C3A and C3B</p> <p>6.23 Climatic sequence</p> <ul style="list-style-type: none"> - Dry heat - Damp heat, cyclic, Test Db, first cycle - Cold - Damp heat, cyclic, Test Db, remaining cycles - Final measurement 	D	<p>(Low air pressure test not applicable)</p> <p>IEC 60068-2-2, Test Ba 16±2h, T = UCT±2°C; IEC 60068-2-30, Test Db 24h, T = 55±2°C; IEC 60068-2-1, Test Aa 2h, T = -40±3°C; IEC 60068-2-30, Test Db 24h, T = 55±2°C;</p> <p>Visual examination</p> <p>Voltage at specified current</p> <p>Insulation resistance U = 500V (Insulated varistors only)</p> <p>Voltage proof (Insulated varistors only)</p>	12	13	1	<p>No visible damage Legible marking</p> $\left \frac{\Delta U}{U} \right \leq 10\%$ <p>≥ 100 MΩ</p> <p>No breakdown or flashover</p>
<p><u>Sub-group C4</u></p> <p>6.26 Endurance at upper category temperature</p>	D	<p>T = UCT±2°C, Duration: 1000 h</p> <p>Voltage: max. a.c. voltage</p> <p>Examination at 48 h, 500 h and 1000 h:</p> <p>Visual examination</p> <p>Voltage at specified current</p> <p>Examination at 1000 h:</p> <p>Voltage at class current</p> <p>Insulation resistance U = 500V (Insulated varistors only)</p>	12	13	1	<p>No visible damage Legible marking</p> $\left \frac{\Delta U}{U} \right \leq 10\%$ <p>1,1 x the initial limit</p> <p>≥ 1 GΩ</p>

Sub-clause number and Test (see Note 1)	D or ND	Conditions of test (see Note 1)	Sample size & criterion of acceptability (see Note 3)			Performance requirements (see Note 1)
			p	n	c	
<u>GROUP D INSPECTION</u> <u>Sub-group D1</u> 6.24 Damp heat, steady state	D	IEC 60068-2-78, Test Ca T = 40±2°C, RH = 93(±2)%, 56d <u>4 specimens:</u> No voltage applied <u>Other 4 specimens:</u> Applied voltage: 10% of the max. d.c. voltage Visual examination Voltage at specified current Insulation resistance U = 500V (Insulated varistors only)	24	8	1	No visible damage Legible marking $\left \frac{\Delta U}{U} \right \leq 10\%$ $\geq 100 \text{ M}\Omega$
<u>Sub-group D2</u> 6.4.4 Dimensions (detail) 6.6 Voltage (if applicable)	ND	At specified current At following temperatures: LCT (+3/-0°C) and UCT (+0/-3°C)	24	8	1	As specified in 1.2.1 of this specification As specified in 1.2.2 of this specification $\frac{U_{25^{\circ}\text{C}} - U_{\text{LCT}}}{\Delta T} \cdot \frac{100\%}{U_{25^{\circ}\text{C}}} \leq 0,09\%K^{-1}$ $\frac{U_{25^{\circ}\text{C}} - U_{\text{UCT}}}{\Delta T} \cdot \frac{100\%}{U_{25^{\circ}\text{C}}} \leq 0,09\%K^{-1}$
<u>Sub-group D3</u> 6.25 Fire hazard (Needle flame test)	D	IEC 60695-11-5 Severity: Vertical 10 s	24	5	0	Duration of burning: 5 s max.