

# Metal Oxide Varistors-Z Series (High Energy)

## Data Sheet




### Feature

- Wide operating voltage range from 18V to 1200V
- Operating Temperature: -40°C ~ +105°C
- Storage Temperature: 15°C ~ 35°C

### Applications

- The over-voltage protection for transistors, IC, SCR and semiconductor switching components and a variety of electronic, electrical equipment
- Surge absorption and over-voltage protection for household appliances
- Industrial electrical surge absorption
- Electrostatic discharge and noise signal cancellation
- Surge absorption of relays and solenoid valves
- Over-voltage protection for leakage switch
- The lightning protection and over-voltage protection for Telephone program-controlled switches and communications equipment

### Applicable Standard

Approval		Organization	Safety Standards	Certificate No.
China		CQC	GB/T10193 GB/T10194 GB8898-2011 GB4943.1-2011	5D: CQC19001213185
				7D: CQC19001213190
				10D: CQC19001213188
				14D: CQC19001213191
				20D: CQC19001213192
				25D: CQC21001289415
USA Canada		UL	UL1449	E330837
Germany		VDE	IEC61051 IEC60950-1:2013	40023049

Part Number Code

Inner Management

STE	10	D	471	K	1	E	N0	F	Z	B	0	R	0
-----	----	---	-----	---	---	---	----	---	---	---	---	---	---

**Songtian**  
(STE)

**Product Categories**  
D: (Circular)

**Tolerance**  
K:±10%

**Pitch**  
B:5.0mm  
E:7.5mm  
D:10.0mm

**Package**  
B: Bulk  
T:Tape

**Environmental Standard**  
R:RoHS  
F:RoHS+Halogen-Free

**Core Diameter**  
05:5mm  
07:7mm  
10:10mm  
14:14mm  
20:20mm

**Foot Type**  
1:Long straight  
2:Outside Crimped  
3:Short Straight  
8:Vertical Crimped

**Style**  
Z: High Energy

**Lead Material**  
F: Tinned copper clad steel wire  
C:Copper wire

**Nominal Varistor Voltage**  
220:22V  
471:470V  
122:1200V

**Lead Length**  
S0~S9:1.0~1.9mm  
X0~X9:2.0~2.9mm  
A0~A9:3.0~3.9mm  
B0~B9:4.0~4.9mm  
C0~C9:5.0~5.9mm  
D0~D9:6.0~6.9mm  
E0~E9:7.0~7.9mm

**Lead Length**  
F0~F9:8.0~8.9mm  
G0~G9:9.0~9.9mm  
H0~H9:10.0~10.9mm  
J0~J9:11.0~11.9mm  
K0~K9:12.0~12.9mm  
L0~L9:13.0~13.9mm  
M0~M9:14.0~14.9mm

**Lead Length**  
M0~M9:14.0~14.9mm  
N0:16~27.0mm(Bulk)  
**Crimped Lead Taped**  
N0:H0=16.5mm  
P0:H0=17.0mm  
Q0:H0=19.0mm  
**Straight Lead**  
Q0:20.0mm

## Electrical Characteristics

### 5D-Z Series

Part Number	Maximum Allowable Voltage		Varistor Voltage	Maximum Clamping Voltage		Peak Current Rating(8/20 $\mu$ s)		Maximum Energy (10/1000 $\mu$ s) (J)	Rated Power (W)	Typical Capacitance (Reference) 1KHz (pF)
	AC <sub>rms</sub> (V)	DC <sub>rms</sub> (V)		V <sub>0.1mA</sub> (V)	VC (V)	IP (A)	1 pulse (A)			
STE-05D180KZ	11	14	18(15-21.6)	40	1	250	100	0.6	0.01	1400
STE-05D220KZ	14	18	22(19.5-26)	48	1	250	100	0.7	0.01	1150
STE-05D270KZ	17	22	27(24-31)	60	1	250	100	0.9	0.01	930
STE-05D330KZ	20	26	33(29.5-36.5)	73	1	250	100	1.1	0.01	760
STE-05D390KZ	25	31	39(35-43)	80	1	250	100	1.2	0.01	640
STE-05D470KZ	30	38	47(42-52)	104	1	250	100	1.5	0.01	530
STE-05D560KZ	35	45	56(50-62)	123	1	250	100	1.8	0.01	450
STE-05D680KZ	40	56	68(61-75)	145	1	250	100	2.2	0.01	370
STE-05D820KZ	50	65	82(74-90)	150	5	800	400	4.0	0.1	300
STE-05D101KZ	60	85	100(90-110)	175	5	800	400	4.1	0.1	250
STE-05D121KZ	75	100	120(108-132)	210	5	800	400	5.5	0.1	210
STE-05D151KZ	95	125	150(135-165)	260	5	800	400	6.5	0.1	165
STE-05D181KZ	115	150	180(162-198)	320	5	800	400	7.5	0.1	140
STE-05D201KZ	130	170	200(180-220)	355	5	800	400	8.5	0.1	125
STE-05D221KZ	140	180	220(198-242)	380	5	800	400	9.0	0.1	110
STE-05D241KZ	150	200	240(216-264)	415	5	800	400	10.5	0.1	100
STE-05D271KZ	175	225	270(243-297)	475	5	800	400	11.0	0.1	95
STE-05D301KZ	190	250	300(270-330)	520	5	800	400	12.0	0.1	85
STE-05D331KZ	210	275	330(297-363)	570	5	800	400	13.0	0.1	75
STE-05D361KZ	230	300	360(324-396)	620	5	800	400	16.0	0.1	70
STE-05D391KZ	250	320	390(351-429)	675	5	800	400	17.0	0.1	65
STE-05D431KZ	275	350	430(387-473)	745	5	800	400	20.0	0.1	60
STE-05D471KZ	300	385	470(423-517)	810	5	800	400	21.0	0.1	55
STE-05D511KZ	320	415	510(459-561)	845	5	800	400	22.5	0.1	50
STE-05D561KZ	350	460	560(504-616)	920	5	800	400	24.0	0.1	45
STE-05D621KZ	385	505	620(558-682)	1025	5	800	400	26.6	0.1	40
STE-05D681KZ	420	560	680(612-748)	1120	5	800	400	29.1	0.1	38

**7D-Z Series**

Part Number	Maximum Allowable Voltage		Varistor Voltage V <sub>1mA</sub> (V)	Maximum Clamping Voltage		Peak Current Rating(8/20μs)		Maximum Energy (10/1000μs) (J)	Rated Power (W)	Typical Capacitance (Reference) 1KHz (pF)
	AC <sub>rms</sub> (V)	DC <sub>rms</sub> (V)		VC (V)	IP (A)	1 pulse (A)	2 pulse (A)			
STE-07D180KZ	11	14	18(15-21.6)	36	2.5	500	250	2.0	0.02	2800
STE-07D220KZ	14	18	22(19.5-26)	43	2.5	500	250	2.4	0.02	2300
STE-07D270KZ	17	22	27(24-31)	53	2.5	500	250	3.0	0.02	1800
STE-07D330KZ	20	26	33(29.5-36.5)	65	2.5	500	250	3.5	0.02	1500
STE-07D390KZ	25	31	39(35-43)	77	2.5	500	250	4.0	0.02	1300
STE-07D470KZ	30	38	47(42-52)	93	2.5	500	250	5.0	0.02	1100
STE-07D560KZ	35	45	56(50-62)	110	2.5	500	250	6.0	0.02	890
STE-07D680KZ	40	56	68(61-75)	135	2.5	500	250	7.0	0.02	740
STE-07D820KZ	50	65	82(74-90)	135	10	1750	1200	9.8	0.25	810
STE-07D101KZ	60	85	100(90-110)	165	10	1750	1200	11.6	0.25	700
STE-07D121KZ	75	100	120(108-132)	200	10	1750	1200	14.0	0.25	590
STE-07D151KZ	95	125	150(135-165)	250	10	1750	1200	16.8	0.25	500
STE-07D181KZ	115	150	180(162-198)	300	10	1750	1200	18.2	0.25	280
STE-07D201KZ	130	170	200(180-220)	340	10	1750	1200	25.2	0.25	200
STE-07D221KZ	140	180	220(198-242)	360	10	1750	1200	28.0	0.25	190
STE-07D241KZ	150	200	240(216-264)	395	10	1750	1200	28.0	0.25	170
STE-07D271KZ	175	225	270(243-297)	455	10	1750	1200	32.2	0.25	150
STE-07D301KZ	190	250	300(270-330)	500	10	1750	1200	35.0	0.25	140
STE-07D331KZ	210	275	330(297-363)	550	10	1750	1200	37.8	0.25	130
STE-07D361KZ	230	300	360(324-396)	595	10	1750	1200	42.0	0.25	130
STE-07D391KZ	250	320	390(351-429)	650	10	1750	1200	46.2	0.25	130
STE-07D431KZ	275	350	430(387-473)	710	10	1750	1200	50.4	0.25	120
STE-07D471KZ	300	385	470(423-517)	775	10	1750	1200	56.0	0.25	100
STE-07D511KZ	320	415	510(459-561)	845	10	1750	1200	56.0	0.25	90
STE-07D561KZ	350	460	560(504-616)	925	10	1750	1200	56.0	0.25	90
STE-07D621KZ	385	505	620(558-682)	1025	10	1750	1200	61.6	0.25	80
STE-07D681KZ	420	560	680(612-748)	1120	10	1750	1200	61.6	0.25	75
STE-07D751KZ	460	615	750(678-825)	1240	10	1750	1200	64.0	0.25	70
STE-07D781KZ	485	640	780(702-858)	1290	10	1750	1200	69.0	0.25	65
STE-07D821KZ	510	670	820(738-902)	1355	10	1750	1200	73.0	0.25	60

**10D-Z Series**

Part Number	Maximum Allowable Voltage		Varistor Voltage V <sub>1mA</sub> (V)	Maximum Clamping Voltage		Peak Current Rating(8/20μs)		Maximum Energy (10/1000μs) (J)	Rated Power (W)	Typical Capacitance (Reference) 1KHz (pF)
	AC <sub>rms</sub> (V)	DC <sub>rms</sub> (V)		VC (V)	IP (A)	1 pulse (A)	2 pulse (A)			
STE-10D180KZ	11	14	18(15-21.6)	36	5	1000	500	3.0	0.05	5600
STE-10D220KZ	14	18	22(19.5-26)	43	5	1000	500	5.0	0.05	4500
STE-10D270KZ	17	22	27(24-31)	53	5	1000	500	6.0	0.05	3700
STE-10D330KZ	20	26	33(29.5-36.5)	65	5	1000	500	7.0	0.05	3000
STE-10D390KZ	25	31	39(35-43)	77	5	1000	500	9.0	0.05	2400
STE-10D470KZ	30	38	47(42-52)	93	5	1000	500	11.0	0.05	2100
STE-10D560KZ	35	45	56(50-62)	110	5	1000	500	13.0	0.05	1800
STE-10D680KZ	40	56	68(61-75)	135	5	1000	500	15.0	0.05	1500
STE-10D820KZ	50	65	82(74-90)	135	25	3500	2500	16.8	0.4	2000
STE-10D101KZ	60	85	100(90-110)	165	25	3500	2500	18.2	0.4	1700
STE-10D121KZ	75	100	120(108-132)	200	25	3500	2500	21.0	0.4	1400
STE-10D151KZ	95	125	150(135-165)	250	25	3500	2500	25.2	0.4	1100
STE-10D181KZ	115	150	180(162-198)	300	25	3500	2500	30.8	0.4	560
STE-10D201KZ	130	170	200(180-220)	340	25	3500	2500	42.0	0.4	430
STE-10D221KZ	140	180	220(198-242)	360	25	3500	2500	46.2	0.4	410
STE-10D241KZ	150	200	240(216-264)	395	25	3500	2500	50.4	0.4	380
STE-10D271KZ	175	225	270(243-297)	455	25	3500	2500	57.4	0.4	350
STE-10D301KZ	190	250	300(270-330)	500	25	3500	2500	63.0	0.4	330
STE-10D331KZ	210	275	330(297-363)	550	25	3500	2500	68.6	0.4	300
STE-10D361KZ	230	300	360(324-396)	595	25	3500	2500	74.2	0.4	300
STE-10D391KZ	250	320	390(351-429)	650	25	3500	2500	81.2	0.4	300
STE-10D431KZ	275	350	430(387-473)	710	25	3500	2500	68.2	0.4	270
STE-10D471KZ	300	385	470(423-517)	775	25	3500	2500	99.4	0.4	230
STE-10D511KZ	320	415	510(459-561)	845	25	3500	2500	99.4	0.4	210
STE-10D561KZ	350	460	560(504-616)	925	25	3500	2500	99.4	0.4	180
STE-10D621KZ	385	505	620(558-682)	1025	25	3500	2500	102.2	0.4	190
STE-10D681KZ	420	560	680(612-748)	1120	25	3500	2500	102.2	0.4	170
STE-10D751KZ	460	615	750(675-825)	1240	25	3500	2500	124.6	0.4	160
STE-10D781KZ	485	640	780(702-858)	1290	25	3500	2500	124.6	0.4	125
STE-10D821KZ	510	670	820(738-902)	1355	25	3500	2500	124.6	0.4	140
STE-10D911KZ	550	745	910(819-1001)	1500	25	3500	2500	133.0	0.4	120
STE-10D102KZ	625	825	1000(900-1100)	1650	25	3500	2500	133.0	0.4	110
STE-10D112KZ	680	895	1100(990-1210)	1815	25	3500	2500	155.0	0.4	90

**14D-Z Series**

Part Number	Maximum Allowable Voltage		Varistor Voltage V <sub>1mA</sub> (V)	Maximum Clamping Voltage		Peak Current Rating(8/20μs)		Maximum Energy (10/1000μs) (J)	Rated Power (W)	Typical Capacitance (Reference) 1KHz (pF)
	AC <sub>rms</sub> (V)	DC <sub>rms</sub> (V)		VC (V)	IP (A)	1 pulse (A)	2 pulse (A)			
STE-14D180KZ	11	14	18(15-21.6)	36	10	2000	1000	7.0	0.1	11100
STE-14D220KZ	14	18	22(19.5-26)	43	10	2000	1000	8.0	0.1	9100
STE-14D270KZ	17	22	27(24-31)	53	10	2000	1000	10.0	0.1	7400
STE-14D330KZ	20	26	33(29.5-36.5)	65	10	2000	1000	12.0	0.1	6100
STE-14D390KZ	25	31	39(35-43)	77	10	2000	1000	13.0	0.1	5100
STE-14D470KZ	30	38	47(42-52)	93	10	2000	1000	17.0	0.1	4300
STE-14D560KZ	35	45	56(50-62)	110	10	2000	1000	20.0	0.1	3600
STE-14D680KZ	40	56	68(61-75)	135	10	2000	1000	24.0	0.1	2900
STE-14D820KZ	50	65	82(74-90)	135	50	6000	4500	29.4	0.6	3700
STE-14D101KZ	60	85	100(90-110)	165	50	6000	4500	33.6	0.6	3200
STE-14D121KZ	75	100	120(108-132)	200	50	6000	4500	40.6	0.6	2700
STE-14D151KZ	95	125	150(135-165)	250	50	6000	4500	51.8	0.6	2200
STE-14D181KZ	115	150	180(162-198)	300	50	6000	4500	58.8	0.6	1100
STE-14D201KZ	130	170	200(180-220)	340	50	6000	4500	79.8	0.6	770
STE-14D221KZ	140	180	220(198-242)	360	50	6000	4500	79.8	0.6	740
STE-14D241KZ	150	200	240(216-264)	395	50	6000	4500	82.6	0.6	700
STE-14D271KZ	175	225	270(243-297)	455	50	6000	4500	93.8	0.6	640
STE-14D301KZ	190	250	300(270-330)	500	50	6000	4500	103.6	0.6	670
STE-14D331KZ	210	275	330(297-363)	550	50	6000	4500	112.0	0.6	580
STE-14D361KZ	230	300	360(324-396)	595	50	6000	4500	123.2	0.6	540
STE-14D391KZ	250	320	390(351-429)	650	50	6000	4500	134.2	0.6	500
STE-14D431KZ	275	350	430(387-473)	710	50	6000	4500	145.6	0.6	450
STE-14D471KZ	300	385	470(423-517)	775	50	6000	4500	149.8	0.6	400
STE-14D511KZ	320	415	510(459-561)	845	50	6000	4500	149.8	0.6	350
STE-14D561KZ	350	460	560(504-616)	925	50	6000	4500	149.8	0.6	360
STE-14D621KZ	385	505	620(558-682)	1025	50	6000	4500	168.0	0.6	330
STE-14D681KZ	420	560	680(612-748)	1120	50	6000	4500	168.0	0.6	320
STE-14D751KZ	460	615	750(675-825)	1240	50	6000	4500	203.0	0.6	310
STE-14D781KZ	485	640	780(702-858)	1290	50	6000	4500	203.0	0.6	260
STE-14D821KZ	510	670	820(738-902)	1355	50	6000	4500	203.0	0.6	280
STE-14D911KZ	550	745	910(819-1001)	1500	50	6000	4500	217.0	0.6	250
STE-14D102KZ	625	825	1000(900-1100)	1650	50	6000	4500	217.0	0.6	230
STE-14D112KZ	680	895	1100(990-1210)	1815	50	6000	4500	310.0	0.6	180

**20D-Z Series**

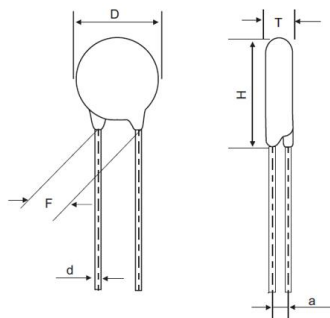
Part Number	Maximum Allowable Voltage		Varistor Voltage	Maximum Clamping Voltage		Peak Current Rating(8/20 $\mu$ s)		Maximum Energy (10/1000 $\mu$ s) (J)	Rated Power (W)	Typical Capacitance (Reference) 1KHz (pF)
	AC <sub>rms</sub> (V)	DC <sub>rms</sub> (V)		V <sub>1mA</sub> (V)	VC (V)	IP (A)	1 pulse (A)			
STE-20D180KZ	11	14	18(15-21.6)	36	20	3000	2000	13.0	0.2	28500
STE-20D220KZ	14	18	22(19.5-26)	43	20	3000	2000	16.0	0.2	18500
STE-20D270KZ	17	22	27(24-31)	53	20	3000	2000	19.0	0.2	13000
STE-20D330KZ	20	26	33(29.5-36.5)	65	20	3000	2000	24.0	0.2	11500
STE-20D390KZ	25	31	39(35-43)	77	20	3000	2000	28.0	0.2	8500
STE-20D470KZ	30	38	47(42-52)	93	20	3000	2000	34.0	0.2	7400
STE-20D560KZ	35	45	56(50-62)	110	20	3000	2000	44.0	0.2	6500
STE-20D680KZ	40	56	68(61-75)	135	20	3000	2000	49.0	0.2	5800
STE-20D820KZ	50	65	82(74-90)	135	100	10000	6500	37.8	1.0	7500
STE-20D101KZ	60	85	100(90-110)	165	100	10000	6500	42.0	1.0	6500
STE-20D121KZ	75	100	120(108-132)	200	100	10000	6500	56.0	1.0	5500
STE-20D151KZ	95	125	150(135-165)	250	100	10000	6500	70.0	1.0	4500
STE-20D181KZ	115	150	180(162-198)	300	100	10000	6500	84.0	1.0	2200
STE-20D201KZ	130	170	200(180-220)	340	100	10000	6500	98.0	1.0	1700
STE-20D221KZ	140	180	220(198-242)	360	100	10000	6500	105.0	1.0	1600
STE-20D241KZ	150	200	240(216-264)	395	100	10000	6500	112.0	1.0	1500
STE-20D271KZ	175	225	270(243-297)	455	100	10000	6500	126.0	1.0	1300
STE-20D301KZ	190	250	300(270-330)	500	100	10000	6500	133.0	1.0	1300
STE-20D331KZ	210	275	330(297-363)	550	100	10000	6500	140.0	1.0	1100
STE-20D361KZ	230	300	360(324-396)	595	100	10000	6500	168.0	1.0	1100
STE-20D391KZ	250	320	390(351-429)	650	100	10000	6500	182.0	1.0	1100
STE-20D431KZ	275	350	430(387-473)	710	100	10000	6500	196.0	1.0	1000
STE-20D471KZ	300	385	470(423-517)	775	100	10000	6500	210.0	1.0	900
STE-20D511KZ	320	415	510(459-561)	845	100	10000	6500	210.0	1.0	800
STE-20D561KZ	350	460	560(504-616)	925	100	10000	6500	210.0	1.0	710
STE-20D621KZ	385	505	620(558-682)	1025	100	10000	6500	224.0	1.0	700
STE-20D681KZ	420	560	680(612-748)	1120	100	10000	6500	224.0	1.0	650
STE-20D751KZ	460	615	750(675-825)	1240	100	10000	6500	266.0	1.0	600
STE-20D781KZ	485	640	780(702-858)	1290	100	10000	6500	440.0	1.0	510
STE-20D821KZ	510	670	820(738-902)	1355	100	10000	6500	266.0	1.0	530
STE-20D911KZ	550	745	910(819-1001)	1500	100	10000	6500	280.0	1.0	500
STE-20D102KZ	625	825	1000(900-1100)	1650	100	10000	6500	280.0	1.0	450
STE-20D112KZ	680	895	1100(990-1210)	1815	100	10000	6500	620.0	1.0	360

**25D-Z Series**

Part Number	Maximum Allowable Voltage		Varistor Voltage	Maximum Clamping Voltage		Peak Current Rating(8/20 $\mu$ s)	Maximum Energy (10/1000 $\mu$ s)	Typical Capacitance (Reference)
	AC <sub>rms</sub> (V)	DC <sub>rms</sub> (V)		V <sub>1mA</sub> (V)	VC (V)			
STE-25D181KZ	115	150	180(162-198)	300	100	18000	180	3900
STE-25D201KZ	130	170	200(180-220)	340	100	18000	200	3600
STE-25D221KZ	140	180	220(198-242)	360	100	18000	225	3300
STE-25D241KZ	150	200	240(216-264)	395	100	18000	235	3000
STE-25D271KZ	175	225	270(243-297)	455	100	18000	245	2600
STE-25D301KZ	190	250	300(270-330)	505	100	18000	255	2400
STE-25D331KZ	210	275	330(297-363)	545	100	18000	270	2200
STE-25D361KZ	230	300	360(324-396)	595	100	18000	315	2050
STE-25D391KZ	250	320	390(351-429)	650	100	18000	342	1900
STE-25D431KZ	275	350	430(387-473)	710	100	18000	370	1750
STE-25D471KZ	300	385	470(423-517)	775	100	18000	390	1600
STE-25D511KZ	320	415	510(459-561)	840	100	18000	422	1400
STE-25D561KZ	350	460	560(504-616)	910	100	18000	460	1200
STE-25D621KZ	385	505	620(558-682)	1025	100	18000	495	1800
STE-25D681KZ	420	560	680(612-748)	1120	100	18000	515	1100
STE-25D751KZ	460	615	750(675-825)	1240	100	18000	530	1000
STE-25D781KZ	485	640	780(702-858)	1290	100	18000	540	950
STE-25D821KZ	510	670	820(738-902)	1350	100	18000	550	900
STE-25D911KZ	550	745	910(819-1001)	1400	100	18000	600	850
STE-25D102KZ	625	825	1000(900-1100)	1620	100	18000	630	760
STE-25D112KZ	680	895	1100(990-1210)	1800	100	18000	700	650
STE-25D122KZ	750	990	1200(1080-1320)	1950	100	18000	750	600



## Dimensions (mm) and Approval



### 5D-Z Series

Part No.	Size (mm)				Approval			
	D Max.	T Max.	F±0.8	d±0.05	CQC	VDE	UL (USA)	cUL (Canada)
STE-05D180KZ	7.5	3.0	5.0	0.5			√	√
STE-05D220KZ	7.5	3.5	5.0	0.5			√	√
STE-05D270KZ	7.5	3.5	5.0	0.5			√	√
STE-05D330KZ	7.5	3.5	5.0	0.5			√	√
STE-05D390KZ	7.5	3.5	5.0	0.5			√	√
STE-05D470KZ	7.5	4.0	5.0	0.5				
STE-05D560KZ	7.5	4.0	5.0	0.5				
STE-05D680KZ	7.5	4.5	5.0	0.5				
STE-05D820KZ	7.5	3.5	5.0	0.5	√		√	√
STE-05D101KZ	7.5	3.5	5.0	0.5	√		√	√
STE-05D121KZ	7.5	3.5	5.0	0.5	√		√	√
STE-05D151KZ	7.5	3.5	5.0	0.5	√		√	√
STE-05D181KZ	7.5	4.0	5.0	0.5	√		√	√
STE-05D201KZ	7.5	4.0	5.0	0.5	√		√	√
STE-05D221KZ	7.5	4.0	5.0	0.5	√		√	
STE-05D241KZ	7.5	4.0	5.0	0.5	√		√	
STE-05D271KZ	7.5	4.0	5.0	0.5	√		√	
STE-05D301KZ	7.5	4.5	5.0	0.5	√		√	
STE-05D331KZ	7.5	4.5	5.0	0.5	√		√	
STE-05D361KZ	7.5	4.5	5.0	0.5	√		√	
STE-05D391KZ	7.5	5.0	5.0	0.5	√		√	
STE-05D431KZ	7.5	4.5	5.0	0.5	√		√	
STE-05D471KZ	7.5	4.5	5.0	0.5	√		√	
STE-05D511KZ	7.5	5.0	5.0	0.5	√		√	
STE-05D561KZ	7.5	5.0	5.0	0.5	√		√	
STE-05D621KZ	7.5	5.0	5.0	0.5				
STE-05D681KZ	7.5	5.5	5.0	0.5				

**7D-Z Series**

Part No.	Size (mm)				Approval			
	D Max.	T Max.	F±0.8	d±0.05	CQC	VDE	UL (USA)	cUL (Canada)
STE-07D180KZ	9.0	3.5	5.0	0.5			√	√
STE-07D220KZ	9.0	3.5	5.0	0.5			√	√
STE-07D270KZ	9.0	3.5	5.0	0.5			√	√
STE-07D330KZ	9.0	3.5	5.0	0.5			√	√
STE-07D390KZ	9.0	3.5	5.0	0.5			√	√
STE-07D470KZ	9.0	4.0	5.0	0.5			√	√
STE-07D560KZ	9.0	4.0	5.0	0.5			√	√
STE-07D680KZ	9.0	4.5	5.0	0.5			√	√
STE-07D820KZ	9.0	3.5	5.0	0.5	√	√	√	√
STE-07D101KZ	9.0	3.5	5.0	0.5	√	√	√	√
STE-07D121KZ	9.0	3.5	5.0	0.5	√	√	√	√
STE-07D151KZ	9.0	3.5	5.0	0.5	√	√	√	√
STE-07D181KZ	9.0	4.0	5.0	0.5	√	√	√	√
STE-07D201KZ	9.0	4.0	5.0	0.5	√	√	√	√
STE-07D221KZ	9.0	4.5	5.0	0.5	√	√	√	√
STE-07D241KZ	9.0	4.0	5.0	0.5	√	√	√	√
STE-07D271KZ	9.0	4.0	5.0	0.5	√	√	√	√
STE-07D301KZ	9.0	4.5	5.0	0.5	√	√	√	√
STE-07D331KZ	9.0	4.5	5.0	0.5	√	√	√	√
STE-07D361KZ	9.0	4.5	5.0	0.5	√	√	√	√
STE-07D391KZ	9.0	5.0	5.0	0.5	√	√	√	√
STE-07D431KZ	9.0	4.5	5.0	0.5	√	√	√	√
STE-07D471KZ	9.0	4.5	5.0	0.5	√	√	√	√
STE-07D511KZ	9.0	5.0	5.0	0.5	√	√	√	√
STE-07D561KZ	9.0	5.0	5.0	0.5	√	√	√	√
STE-07D621KZ	9.0	5.0	5.0	0.5	√	√	√	√
STE-07D681KZ	9.0	5.5	5.0	0.5	√	√	√	√
STE-07D751KZ	9.0	6.0	5.0	0.5	√			
STE-07D821KZ	9.0	6.0	5.0	0.5	√			
STE-07D911KZ	9.0	6.5	5.0	0.5				

**10D-Z Series**

Part No.	Size (mm)				Approval			
	D Max.	T Max.	F±0.8	d±0.05	CQC	VDE	UL (USA)	cUL (Canada)
STE-10D180KZ	12.5	3.5	7.5	0.7			√	√
STE-10D220KZ	12.5	3.5	7.5	0.7			√	√
STE-10D270KZ	12.5	4.0	7.5	0.7			√	√
STE-10D330KZ	12.5	4.0	7.5	0.7			√	√
STE-10D390KZ	12.5	4.0	7.5	0.7			√	√
STE-10D470KZ	12.5	4.0	7.5	0.7			√	√
STE-10D560KZ	12.5	4.5	7.5	0.7			√	√
STE-10D680KZ	12.5	5.0	7.5	0.7			√	√
STE-10D820KZ	12.5	4.0	7.5	0.7	√	√	√	√
STE-10D101KZ	12.5	4.0	7.5	0.7	√	√	√	√
STE-10D121KZ	12.5	4.0	7.5	0.7	√	√	√	√
STE-10D151KZ	12.5	4.5	7.5	0.7	√	√	√	√
STE-10D181KZ	12.5	4.5	7.5	0.7	√	√	√	√
STE-10D201KZ	12.5	4.5	7.5	0.7	√	√	√	√
STE-10D221KZ	12.5	4.5	7.5	0.7	√	√	√	√
STE-10D241KZ	12.5	4.5	7.5	0.7	√	√	√	√
STE-10D271KZ	12.5	4.5	7.5	0.7	√	√	√	√
STE-10D301KZ	12.5	5.0	7.5	0.7	√	√	√	√
STE-10D331KZ	12.5	5.0	7.5	0.7	√	√	√	√
STE-10D361KZ	12.5	5.0	7.5	0.7	√	√	√	√
STE-10D391KZ	12.5	5.0	7.5	0.7	√	√	√	√
STE-10D431KZ	12.5	5.0	7.5	0.7	√	√	√	√
STE-10D471KZ	12.5	5.0	7.5	0.7	√	√	√	√
STE-10D511KZ	12.5	5.5	7.5	0.7	√	√	√	√
STE-10D561KZ	12.5	5.5	7.5	0.7	√	√	√	√
STE-10D621KZ	12.5	5.5	7.5	0.7	√	√	√	√
STE-10D681KZ	12.5	6.0	7.5	0.7	√	√	√	√
STE-10D751KZ	12.5	6.0	7.5	0.7	√	√	√	√
STE-10D781KZ	12.5	6.5	7.5	0.7	√		√	√
STE-10D821KZ	12.5	6.5	7.5	0.7	√	√	√	√
STE-10D911KZ	12.5	7.0	7.5	0.7	√	√	√	√
STE-10D102KZ	12.5	7.5	7.5	0.7	√	√	√	√
STE-10D112KZ	12.5	7.5	7.5	0.7	√		√	√

**14D-Z Series**

Part No.	Size (mm)				Approval			
	D Max.	T Max.	F±0.8	d±0.05	CQC	VDE	UL (USA)	cUL (Canada)
STE-14D180KZ	16.5	3.5	7.5	0.7			√	√
STE-14D220KZ	16.5	3.5	7.5	0.7			√	√
STE-14D270KZ	16.5	4.0	7.5	0.7			√	√
STE-14D330KZ	16.5	4.0	7.5	0.7			√	√
STE-14D390KZ	16.5	4.0	7.5	0.7			√	√
STE-14D470KZ	16.5	4.0	7.5	0.7			√	√
STE-14D560KZ	16.5	4.5	7.5	0.7			√	√
STE-14D680KZ	16.5	5.0	7.5	0.7			√	√
STE-14D820KZ	16.5	4.0	7.5	0.7	√	√	√	√
STE-14D101KZ	16.5	4.0	7.5	0.7	√	√	√	√
STE-14D121KZ	16.5	4.0	7.5	0.7	√	√	√	√
STE-14D151KZ	16.5	4.5	7.5	0.7	√	√	√	√
STE-14D181KZ	16.5	4.5	7.5	0.7	√	√	√	√
STE-14D201KZ	16.5	4.5	7.5	0.7	√	√	√	√
STE-14D221KZ	16.5	4.5	7.5	0.7	√	√	√	√
STE-14D241KZ	16.5	4.5	7.5	0.7	√	√	√	√
STE-14D271KZ	16.5	4.5	7.5	0.7	√	√	√	√
STE-14D301KZ	16.5	5.0	7.5	0.7	√	√	√	√
STE-14D331KZ	16.5	5.0	7.5	0.7	√	√	√	√
STE-14D361KZ	16.5	5.0	7.5	0.7	√	√	√	√
STE-14D391KZ	16.5	5.0	7.5	0.7	√	√	√	√
STE-14D431KZ	16.5	5.0	7.5	0.7	√	√	√	√
STE-14D471KZ	16.5	5.0	7.5	0.7	√	√	√	√
STE-14D511KZ	16.5	5.5	7.5	0.7	√	√	√	√
STE-14D561KZ	16.5	5.5	7.5	0.7	√	√	√	√
STE-14D621KZ	16.5	5.5	7.5	0.7	√	√	√	√
STE-14D681KZ	16.5	6.0	7.5	0.7	√	√	√	√
STE-14D751KZ	16.5	6.0	7.5	0.7	√	√	√	√
STE-14D781KZ	16.5	6.5	7.5	0.7	√		√	√
STE-14D821KZ	16.5	6.5	7.5	0.7	√	√	√	√
STE-14D911KZ	16.5	7.0	7.5	0.7	√	√	√	√
STE-14D102KZ	16.5	7.5	7.5	0.7	√	√	√	√
STE-14D112KZ	16.5	7.5	7.5	0.7	√		√	√

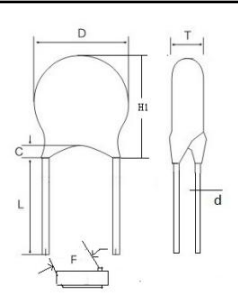
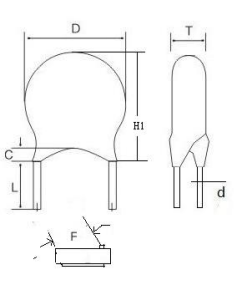
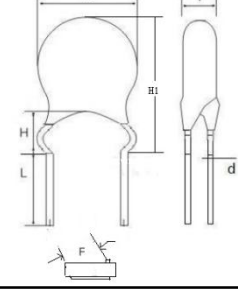
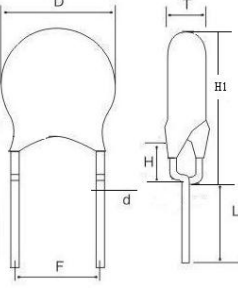
**20D-Z Series**

Part No.	Size (mm)					Approval			
	D Max.	T Max.	F±0.8	d±0.05		CQC	VDE	UL (USA)	cUL (Canada)
				Straight lead	Crimped lead				
STE-20D180KZ	23.0	4.0	10.0	1.0	0.7			√	√
STE-20D220KZ	23.0	4.0	10.0	1.0	0.7			√	√
STE-20D270KZ	23.0	4.5	10.0	1.0	0.7			√	√
STE-20D330KZ	23.0	4.5	10.0	1.0	0.7			√	√
STE-20D390KZ	23.0	4.5	10.0	1.0	0.7			√	√
STE-20D470KZ	23.0	5.0	10.0	1.0	0.7			√	√
STE-20D560KZ	23.0	5.0	10.0	1.0	0.7			√	√
STE-20D680KZ	23.0	5.5	10.0	1.0	0.7			√	√
STE-20D820KZ	23.0	4.0	10.0	1.0	0.7	√	√	√	√
STE-20D101KZ	23.0	4.5	10.0	1.0	0.7	√	√	√	√
STE-20D121KZ	23.0	4.5	10.0	1.0	0.7	√	√	√	√
STE-20D151KZ	23.0	5.0	10.0	1.0	0.7	√	√	√	√
STE-20D181KZ	23.0	5.0	10.0	1.0	0.7	√	√	√	√
STE-20D201KZ	23.0	5.0	10.0	1.0	0.7	√	√	√	√
STE-20D221KZ	23.0	5.5	10.0	1.0	0.7	√	√	√	√
STE-20D241KZ	23.0	5.0	10.0	1.0	0.7	√	√	√	√
STE-20D271KZ	23.0	5.0	10.0	1.0	0.7	√	√	√	√
STE-20D301KZ	23.0	5.5	10.0	1.0	0.7	√	√	√	√
STE-20D331KZ	23.0	5.5	10.0	1.0	0.7	√	√	√	√
STE-20D361KZ	23.0	5.5	10.0	1.0	0.7	√	√	√	√
STE-20D391KZ	23.0	5.5	10.0	1.0	0.7	√	√	√	√
STE-20D431KZ	23.0	5.5	10.0	1.0	0.7	√	√	√	√
STE-20D471KZ	23.0	5.5	10.0	1.0	0.7	√	√	√	√
STE-20D511KZ	23.0	6.0	10.0	1.0	0.7	√	√	√	√
STE-20D561KZ	23.0	6.0	10.0	1.0	0.7	√	√	√	√
STE-20D621KZ	23.0	6.5	10.0	1.0	0.7	√	√	√	√
STE-20D681KZ	23.0	6.5	10.0	1.0	0.7	√	√	√	√
STE-20D751KZ	23.0	7.0	10.0	1.0	0.7	√	√	√	√
STE-20D781KZ	23.0	7.0	10.0	1.0	0.7	√		√	√
STE-20D821KZ	23.0	7.0	10.0	1.0	0.7	√	√	√	√
STE-20D911KZ	23.0	7.5	10.0	1.0	0.7	√	√	√	√
STE-20D102KZ	23.0	8.0	10.0	1.0	0.7	√	√	√	√
STE-20D112KZ	23.0	8.0	10.0	1.0	0.7	√		√	√

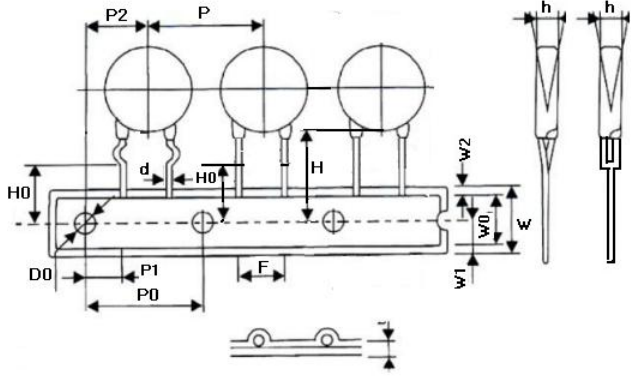
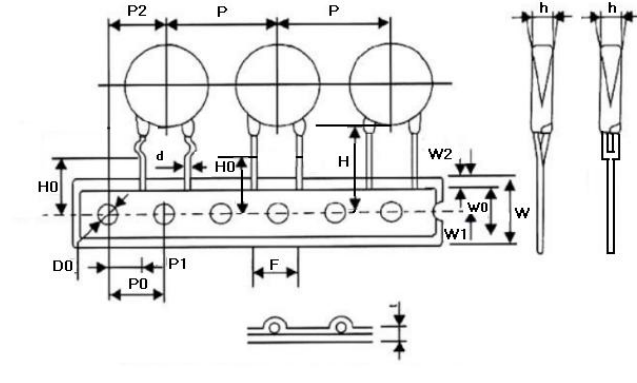
**25D-Z Series**

Part No.	Size (mm)				Approval			
	D Max.	T Max.	F±0.8	d±0.05	CQC	VDE	UL (USA)	cUL (Canada)
STE-25D181KZ	28.5	4.70	12.7	1.0	√	√	√	√
STE-25D201KZ	28.5	4.80	12.7	1.0	√	√	√	√
STE-25D221KZ	28.5	5.00	12.7	1.0	√	√	√	√
STE-25D241KZ	28.5	5.10	12.7	1.0	√	√	√	√
STE-25D271KZ	28.5	5.40	12.7	1.0	√	√	√	√
STE-25D301KZ	28.5	5.60	12.7	1.0	√	√	√	√
STE-25D331KZ	28.5	5.80	12.7	1.0	√	√	√	√
STE-25D361KZ	28.5	6.00	12.7	1.0	√	√	√	√
STE-25D391KZ	28.5	6.00	12.7	1.0	√	√	√	√
STE-25D431KZ	28.5	6.10	12.7	1.0	√	√	√	√
STE-25D471KZ	28.5	6.20	12.7	1.0	√	√	√	√
STE-25D511KZ	28.5	6.40	12.7	1.0	√	√	√	√
STE-25D561KZ	28.5	6.70	12.7	1.0	√	√	√	√
STE-25D621KZ	28.5	7.00	12.7	1.0	√	√	√	√
STE-25D681KZ	28.5	7.40	12.7	1.0	√	√	√	√
STE-25D751KZ	28.5	7.80	12.7	1.0	√	√	√	√
STE-25D781KZ	28.5	8.00	12.7	1.0	√		√	√
STE-25D821KZ	28.5	8.20	12.7	1.0	√	√	√	√
STE-25D911KZ	28.5	8.60	12.7	1.0	√	√	√	√
STE-25D102KZ	28.5	8.90	12.7	1.0	√	√	√	√
STE-25D112KZ	28.5	9.50	12.7	1.0	√		√	√
STE-25D122KZ	28.5	9.80	12.7	1.0	√	√	√	√

## Lead Configuration

Lead Style	Drawing	Lead Length L (mm)	Coating Lead Length C (mm)	Height H (mm)
Long Straight		16.0 min	3.0 Max	/
Short Straight		①[2.5≤L<6.0]±0.5; ②[6.0≤L≤10]±1.0	3.0 Max	/
Outside Crimped		①[2.5≤L<6.0]±0.5; ②[6.0≤L≤10]±1.0	Not exceed the bend point	5.5mm Max
Vertical Crimped		①[2.5≤L<6.0]±0.5; ②[6.0≤L≤10]±1.0	Not exceed the bend point	4.5mm Max

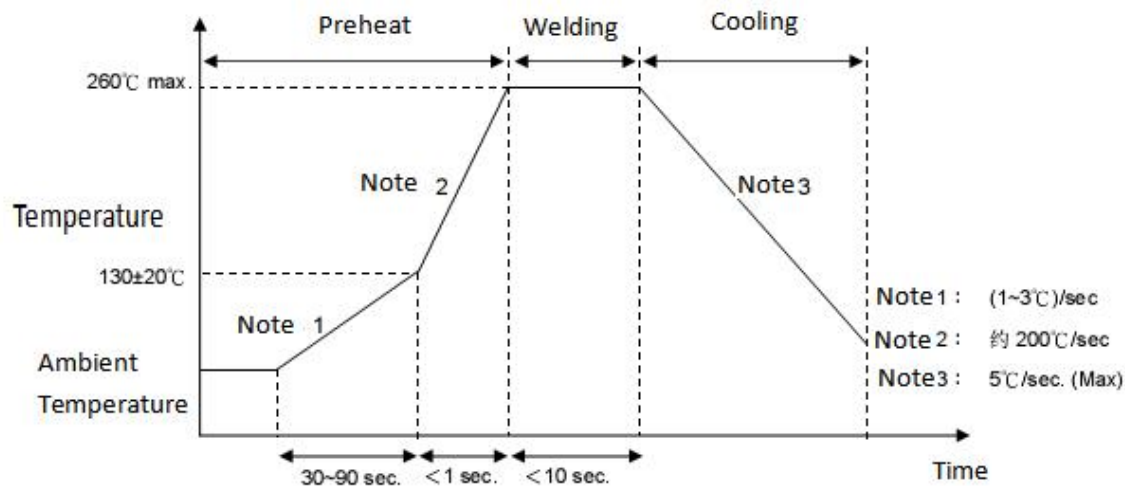
### Taping And Dimensions (mm)

Figure	Fig.1		Fig.2				
	Symbol	P=5.0	P=7.5		P=10.0		
	Po	12.7±0.3	12.7±0.3		12.7±0.3		
	P	12.7±1.0	25.4±1.0		25.4±1.0		
	P1	3.85±0.7	8.95±0.7		7.7±0.7		
	P2	6.35±1.3	12.7±1.3		12.7±1.3		
	F	5±0.8	7.5±0.8		10.0±0.8		
	Δh	0±2.0	0±2.0		0±2.0		
	W	18.0+1.5/-1.0	18.0 +1.5/-1.0		18.0 +1.5/-1.0		
	Wo	10.5 Max	10.5 Max		10.5 Max		
	W1	9.0+0.75/-0.5	9.0+0.75/-0.5		9.0+0.75/-0.5		
	W2	3.0 Max	3.0 Max		3.0 Max		
	Do	4.0±0.2	4.0±0.2		4.0±0.2		
	H	20+1.5/-1.0	20+1.5/-1.0		20+1.5/-1.0		
	Ho	16.5&17.0&19.0 +1.5/-1.0	16.5&17.0&19.0 +1.5/-1.0		16.5&17.0&19.0 +1.5/-1.0		
	L	Straight Lead	Crimped Lead	Straight Lead	Crimped Lead	Straight Lead	Crimped Lead
		11.0 Max	9.0 Max	11.0 Max	9.0 Max	11.0 Max	9.0 Max
	t1	0.5±0.2	0.5±0.2		0.5±0.2		
	Fig.2 (P=7.5 & 10)	t2	1.7 Max	1.7 Max		1.7 Max	



## Soldering Condition

### Wave Soldering Graph



Note: Film capacitor is not suitable for reflow soldering welding, because it will cause thermal contraction and affect electrical performance.

### Iron Soldering Condition

Item	Condition
Temperature of soldering copper bit	$360^\circ\text{C}$ (max.)
Soldering duration	3sec (max.)
Space between soldering position and coating layer	2mm (min.)