DATA SHEET

ZINC OXIDE VARISTOR – 20 Φ SERIES

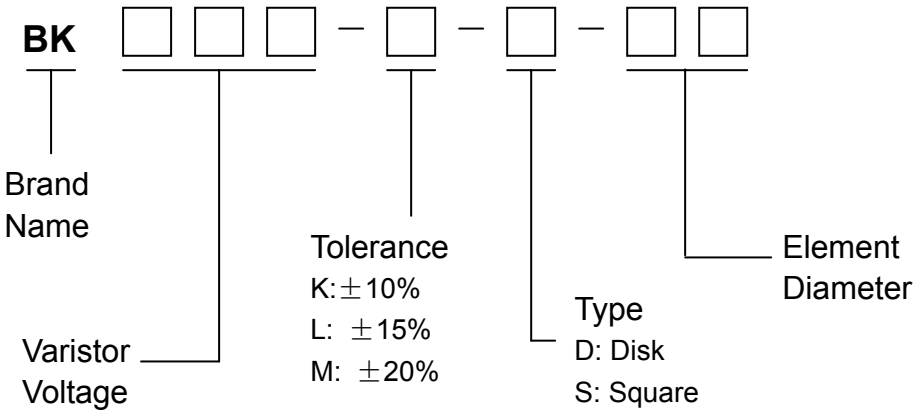
FEATURES

- ✧ Wide operating voltage (V_{1mA}) range from 8V to 1800V.
- ✧ Fast responding to transient over-voltage.
- ✧ Large absorbing transient energy capability.
- ✧ Low clamping ratio and no following-on current.

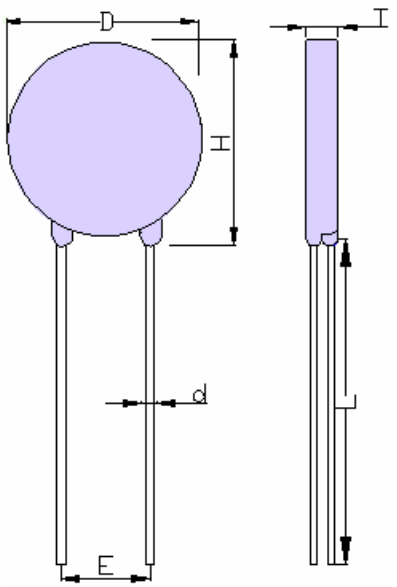
APPLICATION

- ✧ Transistor, diode, IC, thyristor or triac semiconductor protection.
- ✧ Surge protection in consumer electronics.
- ✧ Surge protection in industrial electronics.
- ✧ Surge protection in electronic home appliances, gas and petroleum appliances.
- ✧ Relay and electromagnetic valve surge absorption.

PART NUMBER CODE



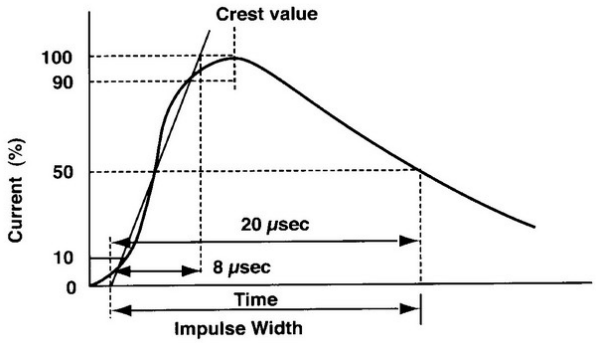
PACKAGE DIMENSIONS



unit :mm

Part Code	T	L	D	H	d	E
	Max.	Min.	Max.	Max.	±0.05	±0.8
182K	15.6	20	25	28		
152K	13.2	20	25	28		
112K	10.1	20	25	28		
102K	9.5	20	25	28		
911K	9.0	20	25	28		
821K	8.5	20	25	28		
781K	8.4	20	25	28		
751K	8.2	20	25	28		
681K	7.8	20	25	28		
621K	7.5	20	25	28		
561K	7.0	20	25	28		
511K	6.8	20	25	28		
471K	6.6	20	25	28		
431K	6.4	20	25	28		
391K	6.2	20	25	28		
361K	6.2	20	25	28	0.8/1.0	7.5/10
331K	5.9	20	25	28		
301K	5.7	20	25	28		
271K	5.6	20	25	28		
241K	5.4	20	25	28		
221K	5.3	20	25	28		
201K	5.0	20	25	28		
181K	5.0	20	25	28		
151K	5.6	20	25	28		
121K	5.3	20	25	28		
101K	5.1	20	25	28		
820K	4.9	20	25	28		
680K	5.8	20	25	28		
560K	5.7	20	25	28		
470K	5.6	20	25	28		
390K	5.5	20	25	28		

ELECTRICAL RATINGS

<table>
<tr><th>Item</th><th>Test Condition/Description</th><th>Requirement</th></tr>
<tr><td>Varistor Voltage</td><td>The voltage between two terminals with the specified measuring current 1mA.DC applied is call Vb.</td><td rowspan="6">To meet the specified value</td></tr>
<tr><td>Maximum Allowable Voltage</td><td>The recommended maximum sine wave voltage (RMS) or the maximum DC voltage can be applied continuously.</td></tr>
<tr><td>Maximum Clamping Voltage</td><td>The maximum voltage between two terminals with the specification standard impulse current.
Applied waveform: 8/20μsec.
 
</td></tr>
<tr><td>Rated Wattage</td><td>The maximum average power that can be applied within the specified ambient temperature.</td></tr>
<tr><td>Energy</td><td>The maximum energy within the varistor voltage change of ±10% when one impulse of 10/1000μsec. or 2 msec. is applied.</td></tr>
<tr><td>Withstanding Surge Current</td><td>The maximum current within the varistor voltage change of ±10% with the standard impulse current (8/20μsec.) applied one time.</td></tr>
<tr><td>Varistor Voltage Temp. Coefficient</td><td>$\frac{Vb\ at\ 20℃\ -\ Vb\ at\ 70℃}{Vb\ at\ 20℃} \times \frac{1}{50} \times 100\ (\%℃)$</td><td>+0.05% / ℃max</td></tr>
<tr><td>Surge Life</td><td>The change of Vb shall be measured after the impulse listed below is applied 10,000 times continuously with the interval of ten seconds at room temperature.
<table>
<tr><td rowspan="2">5Φ series</td><td>180L to 680K</td><td>10A (8/20μsec.)</td></tr>
<tr><td>820K to 751K</td><td>20A (8/20μsec.)</td></tr>
<tr><td rowspan="2">7Φ series</td><td>180L to 680K</td><td>25A (8/20μsec.)</td></tr>
<tr><td>820K to 821K</td><td>50A (8/20μsec.)</td></tr>
<tr><td rowspan="2">10Φ series</td><td>180L to 680K</td><td>50A (8/20μsec.)</td></tr>
<tr><td>820K to 182K</td><td>100A (8/20μsec.)</td></tr>
<tr><td rowspan="2">14Φ series</td><td>180L to 680K</td><td>75A (8/20μsec.)</td></tr>
<tr><td>820K to 182K</td><td>150A (8/20μsec.)</td></tr>
<tr><td rowspan="2">20Φ series</td><td>180L to 680K</td><td>100A (8/20μsec.)</td></tr>
<tr><td>820K to 182K</td><td>200A (8/20μsec.)</td></tr>
</table></td><td>$\frac{\Delta Vb}{Vb} \le \pm 10\%$</td></tr>
</table>

ELECTRIACL CHARACTERISTIC

Part Number	Maximum Allowable Voltage		Maximum Energy	Withstanding Surge Current 8/20μs		Rated Wattage	Varistor Voltage	Maximum Clamping Voltage	Certification		
	ACrms (V)	DC (V)	10/1000μs (J)	1 time (A)	2 times (A)	(W)	V_{1mA} (V)	V_{100A} (V)			
182KD20	1000	1465	560.0	6500	4000	1.0	1800(1620-1980)	2970			
152KD20	750	1300	420.0				1500(1350-1650)	2475			
112KD20	680	895	280.0				1100(990-1210)	1815			•
102KD20	625	825	280.0				1000(900-1100)	1650	•	•	•
911KD20	550	745	280.0				910(819-1001)	1500	•	•	•
821KD20	510	670	266.0				820(738-902)	1355	•	•	•
781KD20	485	640	266.0				780(702-858)	1290	•	•	•
751KD20	460	615	266.0				750(675-825)	1240	•	•	•
681KD20	420	560	224.0				680(612-748)	1120	•	•	•
621KD20	385	505	224.0				620(558-682)	1025	•	•	•
561KD20	350	460	210.0				560(504-616)	920	•	•	•
511KD20	320	415	210.0				510(459-561)	845	•	•	•
471KD20	300	385	210.0				470(423-517)	775	•	•	•
431KD20	275	350	196.0				430(387-473)	710	•	•	•
391KD20	250	320	182.0				390(351-429)	650	•	•	•
361KD20	230	300	168.0				360(324-396)	595	•	•	•
331KD20	210	275	140.0				330(297-363)	550	•	•	•
301KD20	190	250	133.0				300(270-330)	505	•	•	•
271KD20	175	225	126.0				270(243-297)	455	•	•	•
241KD20	150	200	112.0				240(216-264)	395	•	•	•
221KD20	140	180	105.0				220(198-242)	360	•	•	•
201KD20	130	170	98.0				200(180-220)	330	•	•	•
181KD20	115	150	84.0				180(162-198)	300	•	•	•
151KD20	95	125	70.0				150(135-165)	250	•	•	•
121KD20	75	100	56.0				120(108-132)	200	•	•	•
101KD20	60	85	42.0				100(90-110)	165	•	•	•
820KD20	50	65	37.8				82(74-90)	135	•	•	•
680KD20	40	56	23.8	2000	1000	0.2	68(61-75)	*135	•		
560KD20	35	45	19.6				56(50-62)	*110	•		
470KD20	30	38	16.8				47(42-52)	*93	•		
390KD20	25	31	13.2				39(35-43)	*77	•		
330KD20	20	26	11.2				33(30-36)	*65	•		
270KD20	17	22	9.1				27(24-30)	*53	•		
220KD20	14	18	7.4				22(20-24)	*43	•		
180KD20	10	14	6.1				18(15-21)	*38	•		

* 680K-180L Max. Clamping Voltage testing current 25A.