

20D Series

产品简介

压敏电阻的本身是由氧化锌颗粒组成的矩阵结构。颗粒之间的晶界类似双向 PN 结的电气特性，当低电压时，这些晶界处于高阻抗状态，当电压高时，又会处于击穿状态，是一种非线性器件。



Product Profile

The body of varistor is a matrix structure composed of zinc oxide particles. The grain boundaries between particles are similar to the electrical characteristics of bidirectional PN junctions. When the voltage is low, these grain boundaries are in the high impedance state, and when the voltage is high, they will be in the breakdown state, which is a kind of non-linear device.

应用领域：

抑制消费类电子产品及工业用电子设备主电源所窜入的浪涌电流。如 LED 照明、电度表、开关电源、排插等。

通讯等有线网络设备窜入的浪涌电流。

房舍装置以及瓦斯和油类设施上所装置的电子器材的浪涌保护

抑制电子线路内发生的浪涌

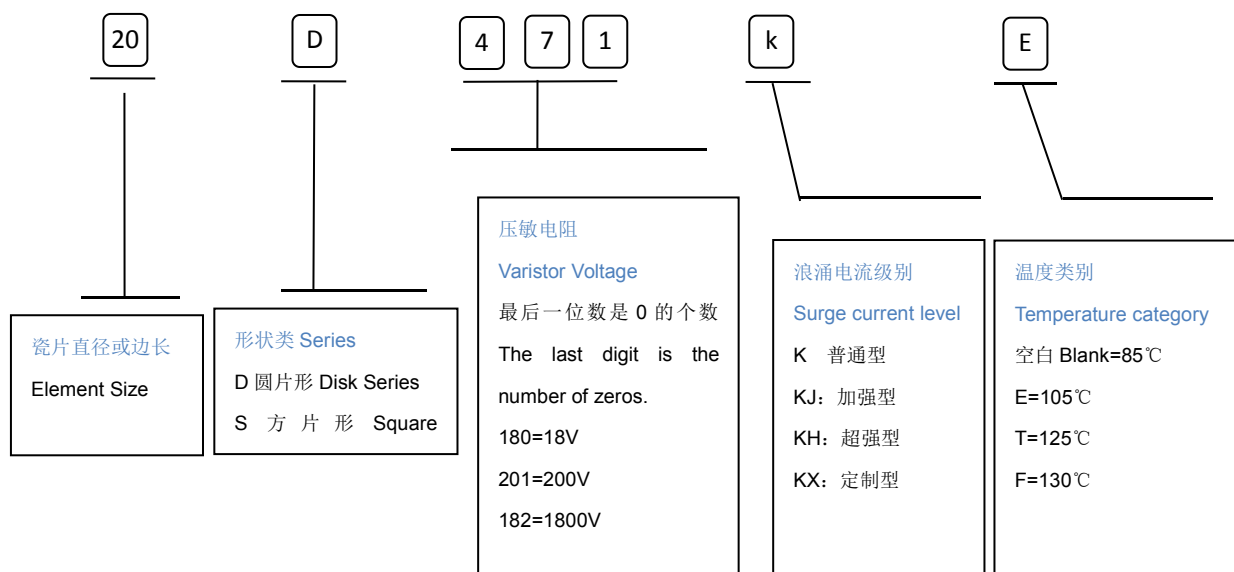
照相器材用于限压开关

Application

Suppresses surge current from the main power supply of consumer electronics and industrial electronic equipment. Such as LED lighting, watt-hour meter, switching power supply, layout and so on.

Surge protection of electronic equipment on building installations and gas and oil installations Suppression of Surges in Electronic Circuits Photographic equipment for voltage limiting switches

产品料号代码 HOW TO ORDER



按冲击 8/20 μ s 浪涌电流分类 Classification According to 8/20 μ s Surge Current

一、普通型、KJ 加强型

型号 Part NO.	压敏电压	最大允许 使用电压	K 普通型			KJ 加强型		
	V1mA (V)	AC (V)	I _{max} (8/20 μ s) (A)	I _n (15 次) (8/20 μ s) (A)	能量 (10/1000 μ s) (J)	I _{max} (8/20 μ s) (A)	I _n (15 次) (8/20 μ s) (A)	能量 (10/1000 μ s) (J)
5D	82-750	50-400	400	150	2.5-18	800	250	3.5-33
7D	82-820	50-400	1200	500	6.0-43	1750	1000	8.4-7.1
10D	82-1800	50-1000	2500	1500	13-185	3500	1500	18-259
14D	82-1800	50-1000	4500	3000	26-378	6000	3000	31-450
20D	82-1800	50-1000	6500	3000	48-632	10000	5000	67-850
5D	18-68	11-40	100		0.5-2.1	250	150	0.7-2.9
7D	18-68	11-40	250		1.3-5.0	500	250	1.8-7.0
10D	18-68	11-40	500		2.8-11	1000	500	3.9-15
14D	18-68	11-40	1000		5.7-21	2000	1000	6.8-25
20D	18-68	11-40	2000		11-46	3000	1000	13-55
符合国际及国家标准			IEC61051-1	GB/T10193	包含左栏，并增加以下标准： IEC60950-1: 2013/Annex Q GB/4943.1-2011 GB8898-2011 UL1449			
			IEC61051-2	GB/T10194				
			IEC61051-2-2	GBT10195				
			CSA-C22.2	No.269.5-17				
			UL1449					

二、KH 加强型(整机标准)

1.符合整机标准：IEC61000-4-5,GB/T17626.5《电磁兼容试验和测量技术浪涌（冲击）抗扰度试验》，在使用 AC 电压的 4 个相位角，每个相位角正负个冲击 5 次，总计 40 次冲击；

2.冲击峰值

5D:1KV/0.5KA 7D:2KV/1KA

10D:4KV/2KA 14D:6KV/3KA

20D:10KV/5KA

3.电压规格：V1mA $\geq$ 430V，也即 431 及以上规格；

4.组合波：开路为电压波 1.2/50 μ s，短路为电流波 8/20 μ s，叠加 AC 电压

三、KX 定制型

1.雷击要求高于 KH 级，比如

A.一次冲击的峰值（I_{max}）要求高于 KH,举例：14D 产品，要求 I_{max} $\geq$ 10KA

B.浪涌冲击次数（I_n）要求冲击次数多，举例：14D 产品，要求 6KV/3KA 组合波冲击 100 次、500 次.....

2.小型化要求：10D 替代 14D,14D 替代 20D，20D 替代 32D.....适合 SPD 产品应用

20D 系列 电气参数 20D Series Electrical Parameters

型号 规格 Part NO.	压敏电压 Varistor Voltage		最大允许使用电压 Maximum allowable voltage		最大限制电压 Maximum Limited Voltage	通流容量 Withstanding Surge current (1.2/50μs&8/20μs)		静态功率 Rated Wattage	能量耐量 Energy (10/1000μs)	静态电容量 (参考值) Typical Capacitance
	V1mA	AC	DC	V100A	I _{max}	I _n	(W)	(J)	1KHz (PF)	
(V)	(V)		(V)	(A)						
20D180K	18	16-20	11	14	.38	2000	—	0.2	11	39000
20D220K	22	20-24	14	18	.43	2000	—	0.2	14	32000
20D270K	27	24-30	17	22	.53	2000	—	0.2	18	22000
20D330K	33	30-36	20	26	.65	2000	—	0.2	23	18000
20D390K	39	35-43	25	31	.77	2000	—	0.2	26	16000
20D470K	47	42-52	30	38	.93	2000	—	0.2	33	14000
20D560K	56	50-62	35	45	.110	2000	—	0.2	41	12000
20D680K	68	61-75	40	56	.135	2000	—	0.2	46	10000
20D820K	82	74-90	50	65	135	6500	3000	1.0	48	5800
20D101K	100	90-100	60	85	165	6500	3000	1.0	52	4800
20D121K	120	108-132	75	100	200	6500	3000	1.0	56	3800
20D151K	150	135-165	95	125	250	6500	3000	1.0	71	3000
20D181K	180	162-198	115	150	300	6500	3000	1.0	86	2600
20D201K	200	180-220	130	170	340	6500	3000	1.0	97	2400
20D221K	220	198-242	140	180	360	6500	3000	1.0	102	2100
20D241K	240	216-264	150	200	395	6500	3000	1.0	110	1950
20D271K	270	243-297	175	225	455	6500	3000	1.0	130	1700
20D301K	300	270-330	195	250	505	6500	3000	1.0	139	1600
20D331K	330	297-363	210	275	550	6500	3000	1.0	153	1400
20D361K	360	324-396	230	300	595	6500	3000	1.0	166	1300
20D391K	390	351-429	250	320	650	6500	3000	1.0	184	1180
20D431K	430	387-473	275	350	710	6500	3000	1.0	194	1100
20D471K	470	423-517	300	385	775	6500	3000	1.0	224	1050
20D511K	510	459-561	320	418	842	6500	3000	1.0	224	1000
20D561K	560	504-616	350	460	920	6500	3000	1.0	224	970
20D621K	620	558-682	385	505	1025	6500	3000	1.0	224	950
20D681K	680	612-748	420	560	1120	6500	3000	1.0	235	900
20D751K	750	675-825	460	615	1240	6500	3000	1.0	260	850
20D781K	780	702-858	485	640	1290	6500	3000	1.0	269	750
20D821K	820	738-902	510	670	1355	6500	3000	1.0	288	700
20D911K	910	919-1001	550	745	1500	6500	3000	1.0	316	600
20D951K	950	855-1045	580	780	1570	6500	3000	1.0	328	580
20D102K	1000	900-1100	625	825	1650	6500	3000	1.0	349	500

20D112K	1100	990-1210	680	895	1815	6500	3000	1.0	391	450
20D152K	1500	1350-1650	900	1220	2475	6500	3000	1.0	516	400
20D182K	1800	1620-1980	1000	1465	2970	6500	3000	1.0	632	220

注：180K 至 680K 最大限制电压测试电流是 25A

The maximum limit voltage test current K 180K to 680 is 25 A.

型号 规格 Part NO.	压敏电压 Varistor Voltage		最大允许使用电压 Maximum allowable voltage		最大限制电压 Maximum Limited Voltage	通流容量 Withstanding Surge current (1.2/50μs&8/20μs)		静态功率 Rated Wattage	能量耐量 Energy 10/1000μs	静态电容量 (参考值) Typical Capacitance
	V _{1mA}	AC	DC	V _{100A}	I _{max}	I _n	(W)	(J)	1KHz (PF)	
(V)	(V)		(V)	(A)						
20D180KJ	18	16-20	11	14	.38	3000	1000	0.2	13	39000
20D220KJ	22	20-24	14	18	.43	3000	1000	0.2	17	32000
20D270KJ	27	24-30	17	22	.53	3000	1000	0.2	22	22000
20D330KJ	33	30-36	20	26	.65	3000	1000	0.2	28	18000
20D390KJ	39	35-43	25	31	.77	3000	1000	0.2	31	16000
20D470KJ	47	42-52	30	38	.93	3000	1000	0.2	40	14000
20D560KJ	56	50-62	35	45	.110	3000	1000	0.2	49	12000
20D680KJ	68	61-75	40	56	.135	3000	1000	0.2	55	10000
20D820KJ	82	74-90	50	65	135	10000	5000	1.0	67	5800
20D101KJ	100	90-100	60	85	165	10000	5000	1.0	73	4800
20D121KJ	120	108-132	75	100	200	10000	5000	1.0	78	3800
20D151KJ	150	135-165	95	125	250	10000	5000	1.0	99	3000
20D181KJ	180	162-198	115	150	300	10000	5000	1.0	152	2600
20D201KJ	200	180-220	130	170	340	10000	5000	1.0	175	2400
20D221KJ	220	198-242	140	180	360	10000	5000	1.0	185	2100
20D241KJ	240	216-264	150	200	395	10000	5000	1.0	198	1950
20D271KJ	270	243-297	175	225	455	10000	5000	1.0	220	1700
20D301KJ	300	270-330	195	250	505	10000	5000	1.0	245	1600
20D331KJ	330	297-363	210	275	550	10000	5000	1.0	268	1400
20D361KJ	360	324-396	230	300	595	10000	5000	1.0	315	1300
20D391KJ	390	351-429	250	320	650	10000	5000	1.0	350	1180
20D431KJ	430	387-473	275	350	710	10000	5000	1.0	380	1100
20D471KJ	470	423-517	300	385	775	10000	5000	1.0	405	1050
20D511KJ	510	459-561	320	418	842	10000	5000	1.0	445	1000
20D561KJ	560	504-616	350	460	920	10000	5000	1.0	475	970
20D621KJ	620	558-682	385	505	1025	10000	5000	1.0	490	950
20D681KJ	680	612-748	420	560	1120	10000	5000	1.0	500	900
20D751KJ	750	675-825	460	615	1240	10000	5000	1.0	525	850

20D781KJ	780	702-858	485	640	1290	10000	5000	1.0	530	750
20D821KJ	820	738-902	510	670	1355	10000	5000	1.0	545	700
20D911KJ	910	919-1001	550	745	1500	10000	5000	1.0	595	600
20D951KJ	950	855-1045	580	780	1570	10000	5000	1.0	610	580
20D102KJ	1000	900-1100	625	825	1650	10000	5000	1.0	650	500
20D112KJ	1100	990-1210	680	895	1815	10000	5000	1.0	720	450
20D152KJ	1500	1350-1650	900	1220	2475	10000	5000	1.0	790	400
20D182KJ	1800	1620-1980	1000	1465	2970	10000	5000	1.0	850	220

注：180K 至 680K 最大限制电压测试电流是 25A

The maximum limit voltage test current K 180K to 680 is 25A.

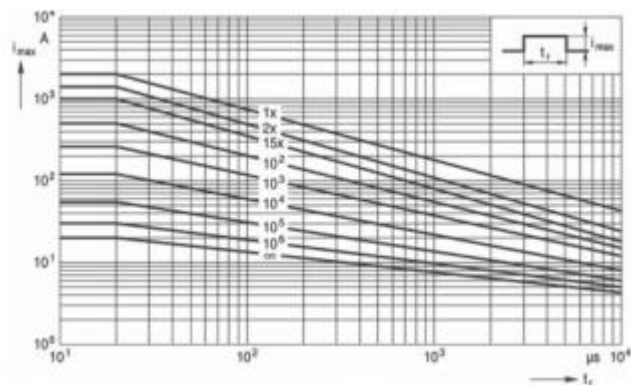
型号 规格 Part NO.	压敏电压 Varistor Voltage		最大允许 使用电压 Maximum allowable voltage		最大限制 电压 Maximum Limited Voltage	通流容量 Withstanding Surge current (1.2/50μs&8/20μs)		静态 功率 Rated Wattage	能量耐 量 Energy 10/1000μs	静态电容量 (参考值) Typical Capacitance
	V _{1mA}		AC	DC	V _{100A}	I _{max}	V _n (40 次)	(W)	(J)	1KHz
	(V)		(V)		(V)	(A)				(PF)
20D431KH	430	387-473	275	350	710	10000	10KV/5KA	1.0	380	1100
20D471KH	470	423-517	300	385	775	10000	10KV/5KA	1.0	405	1050
20D511KH	510	459-561	320	418	842	10000	10KV/5KA	1.0	445	1000
20D561KH	560	504-616	350	460	920	10000	10KV/5KA	1.0	475	970
20D621KH	620	558-682	385	505	1025	10000	10KV/5KA	1.0	490	950
20D681KH	680	612-748	420	560	1120	10000	10KV/5KA	1.0	500	900
20D751KH	750	675-825	460	615	1240	10000	10KV/5KA	1.0	525	850
20D781KH	780	702-858	485	640	1290	10000	10KV/5KA	1.0	530	750
20D821KH	820	738-902	510	670	1355	10000	10KV/5KA	1.0	545	700
20D911KH	910	919-1001	550	745	1500	10000	10KV/5KA	1.0	595	600
20D951KH	950	855-1045	580	780	1570	10000	10KV/5KA	1.0	610	580
20D102KH	1000	900-1100	625	825	1650	10000	10KV/5KA	1.0	650	500
20D112KH	1100	990-1210	680	895	1815	10000	10KV/5KA	1.0	720	450
20D152KH	1500	1350-1650	900	1220	2475	10000	10KV/5KA	1.0	790	400
20D182KH	1800	1620-1980	1000	1465	2970	10000	10KV/5KA	1.0	850	220

降额曲线图 Reduction curve

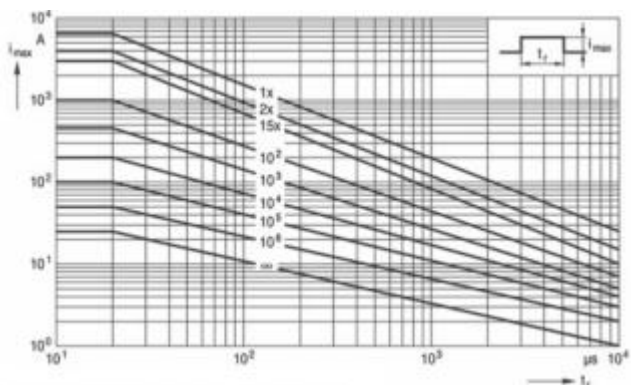
横轴是冲击时间即浪涌波形宽度，纵轴是冲击电流峰值，
线上的数字是冲击次数

Maximum Surge current $i_{max}=f(t_r, \text{ pulses train})$

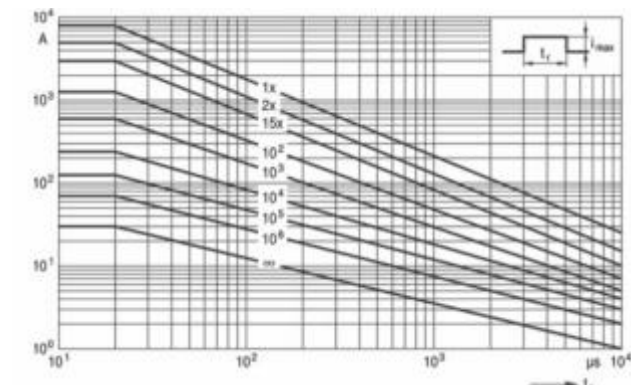
20D180k-20D680K



20D820K-20D181K



20D201K-20D511K



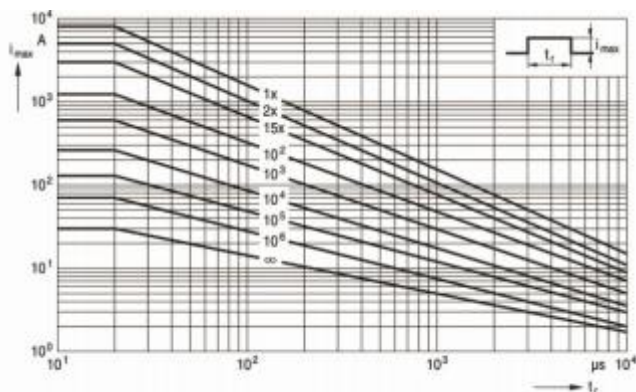
伏安特性图 v/i characteristics

A 区是泄露电流图，A=Leakage current

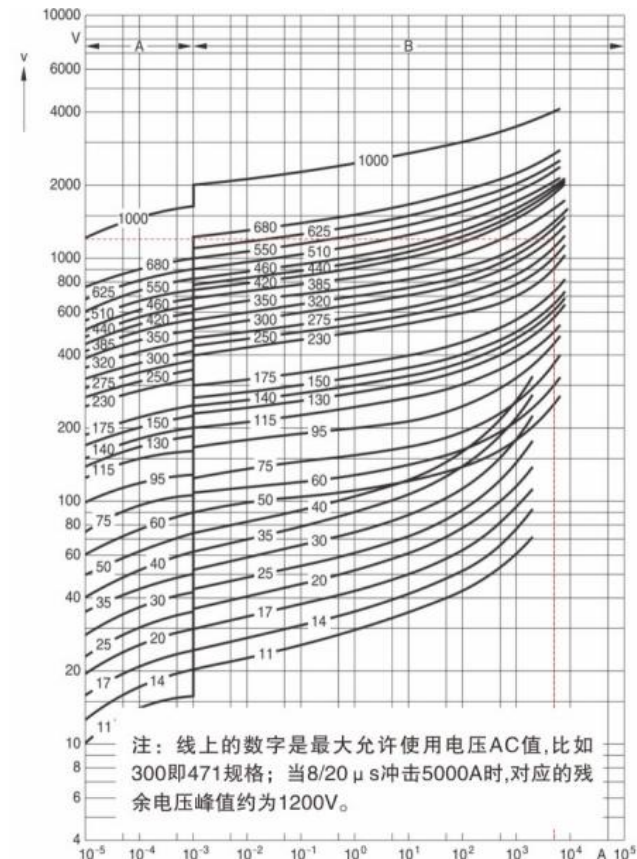
B 区是冲击电流与限制电流对称区

B=Protection level for worst-case varistor tolerances

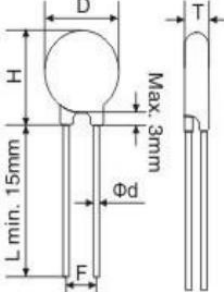
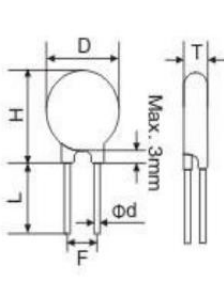
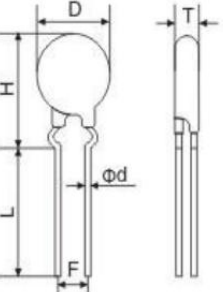
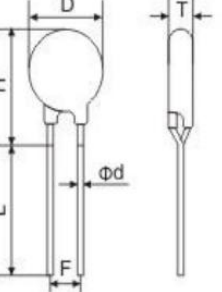
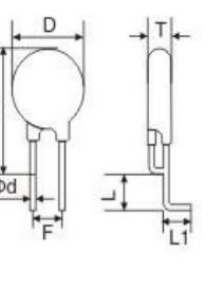
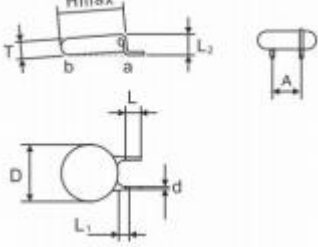
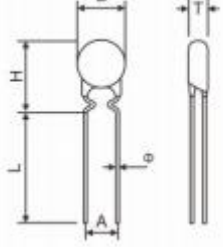
20D561-20D751K



20D180k-20D182K

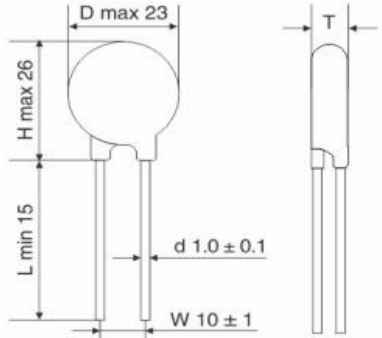


产品外形 Product Shape

Bulk Straight 标准外形	Cutting Straight 切短脚	Out Forming 外弯脚	Y-Forming Y 型脚	Cutting Bending 折脚
				
Flat Type 平角型 (M Type)		Inward Bending 内弯型 (D Type)		
				

产品尺寸

单位 (Unit) :mm

产品外型 Product Shape	系列 Series	压敏电压 Varistor Voltage	厚度 Tmax (mm)
	20D	18V~39V	5.1
		47V~68V	5.6
		82V~150V	5.1
		180V~270V	5.7
		330V~390V	6.1
		430V~560V	6.7
		620V~780V	7.7
		820V~1200V	8.9
		1300V~1500V	10
		1600V~1800V	11.8

注：如果脚型为外弯等非直线型，则通常 $H_{max} = 27mm$

Disclaimer

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.