

7D 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。



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

Product Profile

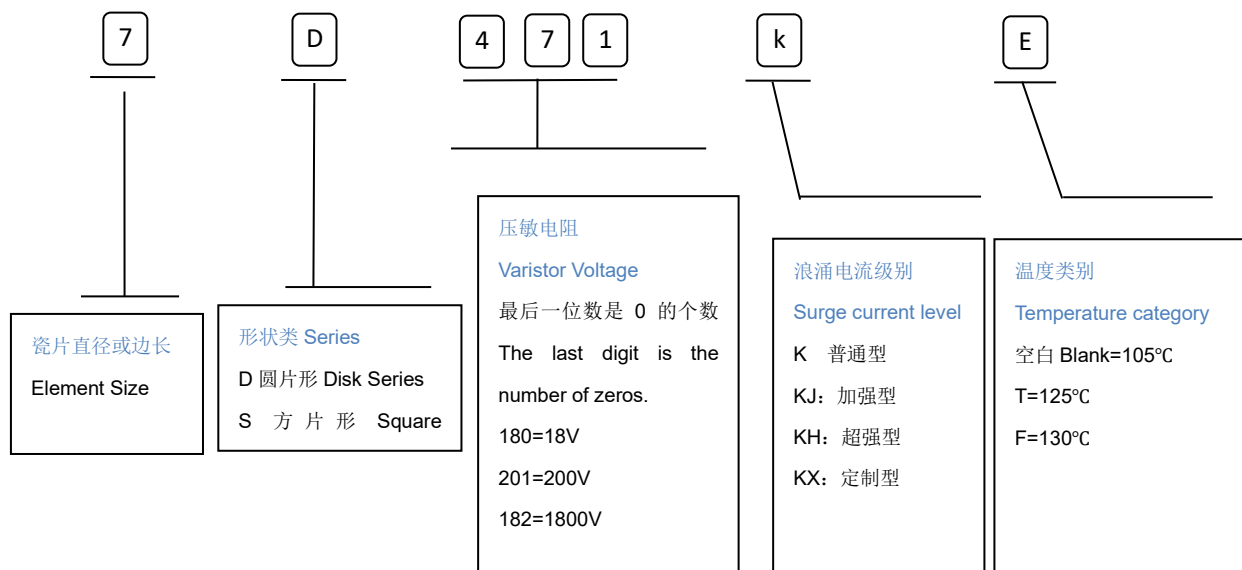
The body of varistor is a matrix structure composed of zinc oxide particles. The grain boundaries between particles are similar to the electrical characteristics of bidirectional PN junctions. When the voltage is low, these grain boundaries are in the high impedance state, and when the voltage is high,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

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:		
			IEC61051-2	GB/T10194		IEC60950-1: 2013/Annex Q		
			IEC61051-2-2	GBT10195		GB/4943.1-2011		
			CSA-C22.2	No.269.5-17		GB8898-2011		
			UL1449			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

7D 系列 电气参数 7D 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 (1.2/50 μ s&8/20 μ s)		静态 功率 Rated Wattage	能量耐量 Energy (10/1000 μ s)	静态电容量 (参考值) Typical Capacitance
	V _{1mA}		AC	DC	V _{10A}	I _{max}	I _n	(W)	(J)	1KHz
	(V)		(V)		(V)	(A)				(PF)
7D180K	18	16-20	11	14	38	250	—	0.02	1.3	3500
7D220K	22	20-24	14	18	43	250	—	0.02	1.7	2800
7D270K	27	24-30	17	22	53	250	—	0.02	2.0	2200
7D330K	33	30-36	20	26	65	250	—	0.02	2.4	1800
7D390K	39	35-43	25	31	77	250	—	0.02	2.8	1450
7D470K	47	42-52	30	38	93	250	—	0.02	3.5	1150
7D560K	56	50-62	35	45	110	250	—	0.02	4.1	1050
7D680K	68	61-75	40	56	135	250	—	0.02	5.0	970
7D820K	82	74-90	50	65	135	1200	500	0.25	6.0	930
7D101K	100	90-100	60	85	165	1200	500	0.25	7.4	860
7D121K	120	108-132	75	100	200	1200	500	0.25	8.0	670
7D151K	150	135-165	95	125	250	1200	500	0.25	10	490
7D181K	180	162-198	115	150	300	1200	500	0.25	12	330
7D201K	200	185-225	130	170	340	1200	500	0.25	14	240
7D221K	220	198-242	140	180	360	1200	500	0.25	15	190
7D241K	240	216-264	150	200	395	1200	500	0.25	16	165
7D271K	270	243-297	175	225	455	1200	500	0.25	19	150
7D301K	300	270-330	195	250	500	1200	500	0.25	22	135
7D331K	330	297-363	215	275	550	1200	500	0.25	24	130
7D361K	360	324-396	230	300	595	1200	500	0.25	26	125
7D391K	390	351-429	250	320	650	1200	500	0.25	26	105
7D431K	430	387-473	275	350	710	400	500	0.25	29	100
7D471K	470	423-517	300	385	775	1200	500	0.25	31	90
7D511K	510	459-561	320	410	845	1200	500	0.25	34	80
7D561K	560	504-616	350	455	930	1200	500	0.25	34	75
7D621K	620	558-682	385	505	1025	1200	500	0.25	36	70
7D681K	680	612-748	420	560	1120	1200	500	0.25	36	65
7D751K	750	657-825	460	615	1240	1200	500	0.25	39	61
7D781K	780	702-858	485	640	1290	1200	500	0.25	41	54
7D821K	820	738-902	510	670	1355	1200	500	0.25	43	48

注：180K 至 680K 最大限制电压测试电流是 2.5A

The maximum limit voltage test current K 180K to 680 is 2.5 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 (1.2/50 μ s&8/20 μ s)		静态功率 Rated Wattage (W)	能量耐量 Energy (10/1000 μ s) (J)	静态电容量 (参考值) Typical Capacitance
	V_{1mA}		AC	DC	V_{10A}	I_{max}	I_n			1KHz
	(V)		(V)		(V)	(A)		(PF)		
7D180KJ	18	16-20	11	14	38	500	250	0.02	1.8	3500
7D220KJ	22	20-24	14	18	43	500	250	0.02	2.4	2800
7D270KJ	27	24-30	17	22	53	500	250	0.02	2.8	2200
7D330KJ	33	30-36	20	26	65	500	250	0.02	3.4	1800
7D390KJ	39	35-43	25	31	77	500	250	0.02	3.9	1450
7D470KJ	47	42-52	30	38	93	500	250	0.02	4.9	1150
7D560KJ	56	50-62	35	45	110	500	250	0.02	5.7	1050
7D680KJ	68	61-75	40	56	135	500	250	0.02	7.0	970
7D820KJ	82	74-90	50	65	135	1750	1000	0.25	8.4	930
7D101KJ	100	90-100	60	85	165	1750	1000	0.25	10	860
7D121KJ	120	108-132	75	100	200	1750	1000	0.25	12	670
7D151KJ	150	135-165	95	125	250	1750	1000	0.25	15	490
7D181KJ	180	162-198	115	150	300	1750	1000	0.25	19	330
7D201KJ	200	185-225	130	170	340	1750	1000	0.25	21	240
7D221KJ	220	198-242	140	180	360	1750	1000	0.25	23	190
7D241KJ	240	216-264	150	200	395	1750	1000	0.25	25	165
7D271KJ	270	243-297	175	225	455	1750	1000	0.25	28	150
7D301KJ	300	270-330	195	250	500	1750	1000	0.25	32	135
7D331KJ	330	297-363	215	275	550	1750	1000	0.25	34	130
7D361KJ	360	324-396	230	300	595	1750	1000	0.25	37	125
7D391KJ	390	351-429	250	320	650	1750	1000	0.25	40	105
7D431KJ	430	387-473	275	350	710	1750	1000	0.25	46	100
7D471KJ	470	423-517	300	385	775	1750	1000	0.25	49	90
7D511KJ	510	459-561	320	410	845	1750	1000	0.25	54	80
7D561KJ	560	504-616	350	455	930	1750	1000	0.25	55	75
7D621KJ	620	558-682	385	505	1025	1750	1000	0.25	59	70
7D681KJ	680	612-748	420	560	1120	1750	1000	0.25	62	65
7D751KJ	750	657-825	460	615	1240	1750	1000	0.25	66	61
7D781KJ	780	702-858	485	640	1290	1750	1000	0.25	68	54
7D821KJ	820	738-902	510	670	1355	1750	1000	0.25	71	48

注：180K 至 680K 最大限制电压测试电流是 2.5A

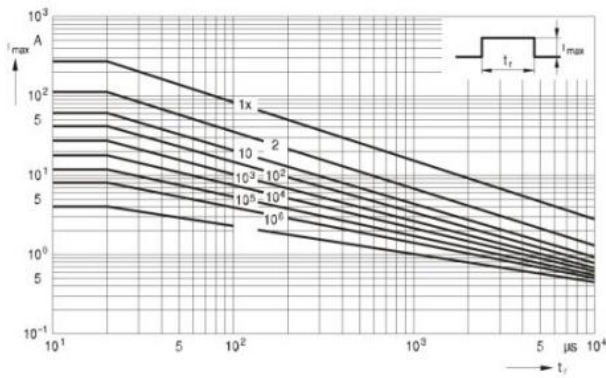
The maximum limit voltage test current K 180K to 680 is 2.5 A.

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 _{10A}	I _{max}	I _n (40次)	(W)	(J)	1KHz
	(V)		(V)		(V)	(A)				(PF)
7D431KH	430	387-473	275	350	710	1750	2KV/1KA	0.25	46	100
7D471KH	470	423-517	300	385	775	1750	2KV/1KA	0.25	49	90
7D551KH	510	459-561	320	418	842	1750	2KV/1KA	0.25	54	80
7D561KH	560	504-616	350	460	920	1750	2KV/1KA	0.25	55	75
7D621KH	620	558-682	385	505	1025	1750	2KV/1KA	0.25	59	70
7D681KH	680	612-748	420	560	1120	1750	2KV/1KA	0.25	62	65
7D751KH	750	675-825	460	615	1240	1750	2KV/1KA	0.25	66	61
7D781KH	780	702-858	485	640	1290	1750	2KV/1KA	0.25	68	54
7D821KH	820	738-902	510	670	1355	1750	2KV/1KA	0.25	71	48

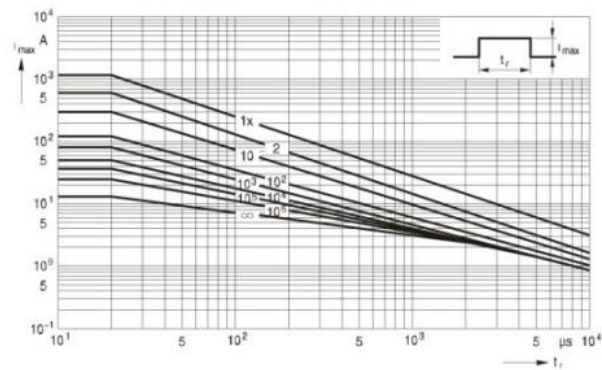
降额曲线图 Reduction curve

横轴是冲击时间即浪涌波型宽度，纵轴是冲击电流峰值，线上的数字是冲击次数

Maximum Surge current $i_{max}=f(t_r, \text{pules train})$
7D180k-7D680K



7D820K-7D751K

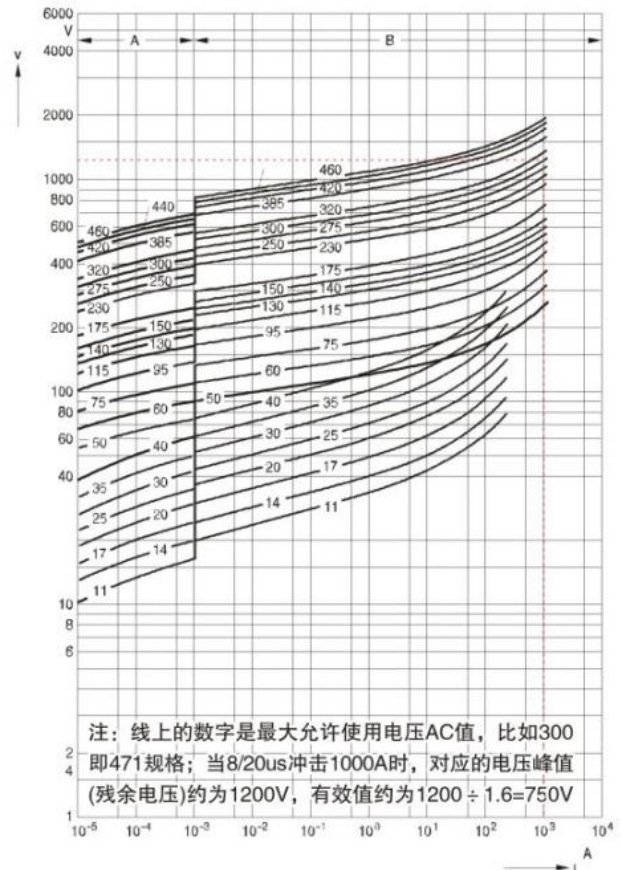


伏安特性图 v/i characteristics

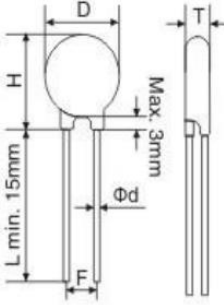
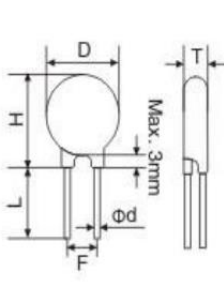
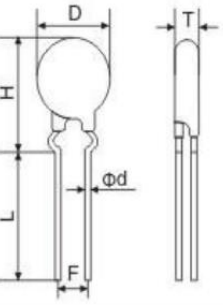
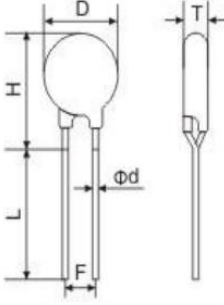
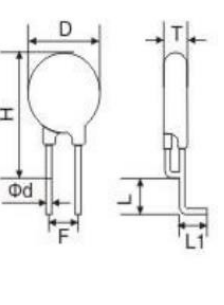
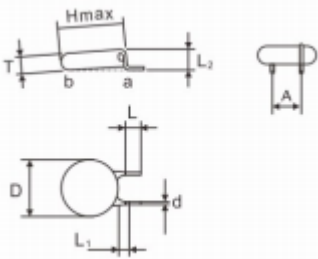
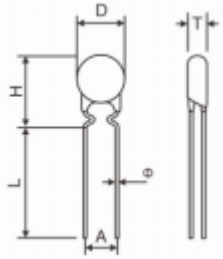
A 区是泄露电流图，A=Leakage current

B 区是冲击电流与限制电流对称区

B=Protection level for worst-case varistor tolerances
7D180k-7D751K

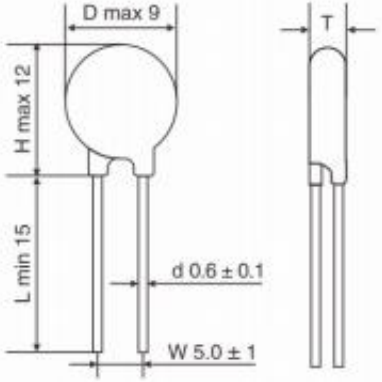


产品外形 Product Shape

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
	7D	18V~39V	3.9
		47V~68V	4.4
		82V~150V	3.9
		180V~270V	4.3
		330V~390V	4.9
		430V~560V	5.7
		620V~780V	6.5
		820V	6.8

 注：如果脚型为外弯等非直线型，则通常 $H_{max} = 14mm$
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.