

# ZINC OXIDE VARISTOR

## ■ 压敏电阻器

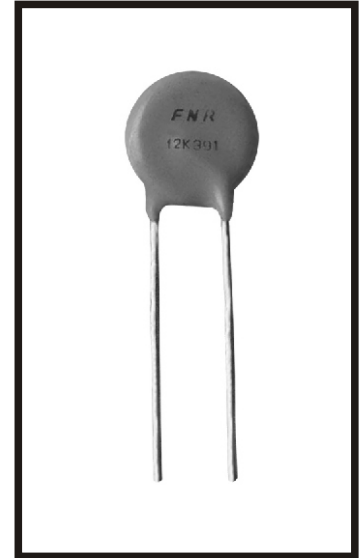
### ZINC OXIDE VARISTOR

#### ● 特性

- \* 电压范围宽 (18V—1.8KV)
- \* 反应速度快 (毫微秒级)
- \* 非线性指数大
- \* 无极性
- \* 通流量大 (2000A/cm<sup>2</sup>)
- \* 无续流
- \* 寿命长

#### ● FEATURES

- \* Widely voltage range 18v-1.8kv
- \* Fast response to the rapidly increase Voltage(Musec.)
- \* Excellent non-linearity voltage
- \* Symmetric V-I characteristics
- \* Great withstanding surge current (2000A/cm<sup>2</sup>)
- \* No follow-on current
- \* Long life
- \*



#### ● 订货方式 HOW TO ORDER

<p><b>F</b></p> <div style="border: 1px solid black; padding: 5px; width: 100%;">                 广东风华高新科技集团有限公司                  Fenghua Advanced Technology(Group) CO.,LTD.             </div>	<p><b>NR</b></p> <div style="border: 1px solid black; padding: 5px; width: 100%;">                 非线性电阻                  Non-Linear Resistor             </div>	<p><b>05</b></p> <div style="border: 1px solid black; padding: 5px; width: 100%;">                 瓷片直径(mm)                  Element Diameter  <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>05</td> <td>5</td> </tr> <tr> <td>40</td> <td>40</td> </tr> </table> </div>	05	5	40	40	<p><b>K</b></p> <div style="border: 1px solid black; padding: 5px; width: 100%;">                 允许误差                  Tolerance  <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>K</td> <td>±10%</td> </tr> <tr> <td>M</td> <td>±20%</td> </tr> </table> </div>	K	±10%	M	±20%	<p><b>180</b></p> <div style="border: 1px solid black; padding: 5px; width: 100%;">                 压敏电压 (V)                  Varistor Voltage  <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>180=18×10<sup>0</sup></td> </tr> <tr> <td>181=18×10<sup>1</sup></td> </tr> <tr> <td>182=18×10<sup>2</sup></td> </tr> </table> </div>	180=18×10 <sup>0</sup>	181=18×10 <sup>1</sup>	182=18×10 <sup>2</sup>	<p><b>T</b></p> <div style="border: 1px solid black; padding: 5px; width: 100%;">                 包装方式  <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>B</td> <td>散包装 Bulk</td> </tr> <tr> <td>T</td> <td>编带包装 Tape &amp; Reel</td> </tr> </table> </div>	B	散包装 Bulk	T	编带包装 Tape & Reel
05	5																			
40	40																			
K	±10%																			
M	±20%																			
180=18×10 <sup>0</sup>																				
181=18×10 <sup>1</sup>																				
182=18×10 <sup>2</sup>																				
B	散包装 Bulk																			
T	编带包装 Tape & Reel																			

#### ● 特性曲线 CHARACTERISTICS

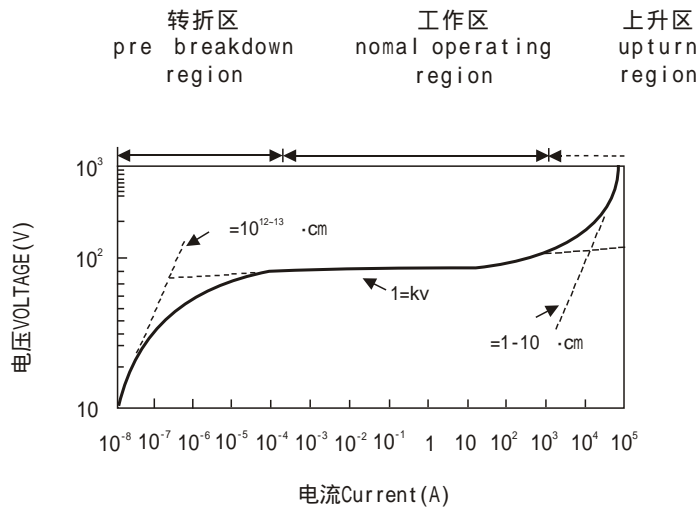


图 Fig1  
Voltage Current Characteristic



## ■ 压敏电阻器

### ZINC OXIDE VARISTOR

#### ● 测试条件 TEST CONDITIONS

项目 Item	试验方法 Test Methods
使用环境温度 Operating Temperature Range	- 40 ~ +85
保存温度 Storage Temperature Range	- 40 ~ +85
压敏电压 Varistor Voltage	除 5以下元件试验电流为DC0.1mA(V0.1mA) 外它作均为DC1mA(V1mA) Element Diameter 5mm Test Currentv (DC) 0.1mA(V0.1mA) others DC1mA(V1mA)
最大限制电压 Max Clamping Voltage	测试电流波形为8×20μs Current Waveshape8×20μs
能量耐量 Emergv	测试电流波形为2ms方波或10/1000μs Current input of Rectangular Wave 2ms or 10/1000μs
最大通流容量 Max Withstanding Surge Current	测试电流波形为8×20μs Current Waveshape8×20μs

#### ● 压敏电阻器选用方法(参数)

##### 压敏电阻选取

对于过压保护方面的应用，压敏电压值应大于实际电路的电压值，一般用

$$V_{1mA} = a \cdot v / b \cdot c$$

- a—电源电压波动系数：一般取1.2
- v—电路直流工作电压(交流时为有效值)
- b—压敏电压误差，一般取0.85
- c—元件的老化系数，一般取0.9

这样计算到的 $V_{1mA}$ 实际数值是直流工作电压的1.5倍，在交流状态下要考虑电压峰值，因此计算结果应扩大  $2\sqrt{2}$ 倍，在应用中可参考此公式通过实际来确定。

##### 通流量的选取

通常产品给出的通流量是按产品标准给定的波形、冲击次数和间隙时间进行脉冲试验时产品压敏电压变化率小于初值的±10%所能承受的最大电流值，产品所能承受的冲击数是波形、幅值和间隙时间的函数，当电流波形幅值降低50%时冲击次数可增加一倍，所以在实际应用中，压敏电阻器所吸收的浪涌电流应小于产品的最大通流量，以使产品有较长的工作寿命，

#### ZINC OXIDE VARISTOR SELECTION(ONLY REFERENCE)

Varistor voltage

Varistor voltage should be more than the operating voltage in over - protective circuit, The formula is shown as the following.

$$V_{1mA} = a \cdot v / b \cdot c$$

- a-power Voltage ripple coefficient usually take 1.2
- v-DC Voltage(significant value only AC power)
- b-Tolerance usually take 0.85
- c-Ageing coefficient usually take 0.9

The calibrated Value is 1.5 times of DC voltage, the face value should be 2 time of the calibrated value because of the peak voltage in alternating current power, Withstanding surge current  
In general, withstanding surge current is max, Pulse current value which determined by test conditions such as wave - shape, amplitude and internal time, when the amplitude decrease to 50% of the initial, it should be increased to 2 times of the initial in order to keep the life longer, the surge current which is absorbed by the varistor should be less than max. withstanding surge current.

## ZINC OXIDE VARISTOR

### • 防浪涌通用型压敏电阻器 GENERAL TYPE

防浪涌通用型压敏电阻器。广泛用于IC、二极管、可控硅元件，民用、军用、工业电器通讯、计测控制装置的保护。General type is widely used in surge protection for IC, diode, triac semiconductor, thyristor, consumer, military industry telecom - munication measuring & controlling instrument etc.

通用型压敏电阻器结构尺寸(mm)  
GENERAL TYPE DIMENSIONS

	电压范围(V) Varistor Voltage	D Max	d ±0.1	W ±1.0	H Max	T Max
05	18-82	7.0	0.6	5.0	10.0	3.5
	100-470	7.5	0.6	5.0	10.0	6.0
07	18-470	9.0	0.6	5.0	12.0	6.0
10	18-330	13.5	0.8	7.5	16.5	5.4
	360-1100	14.0	0.8	7.5	17.0	8.5
	18-330	17.0	0.8	7.5	20.0	5.4
14	360-1100	17.5	0.8	7.5	20.5	8.5
	1800	25.0	0.8	7.5	30.0	12.0
	18-330	23.0	1.0	10.0	27.0	5.5
20	360-1100	24.0	1.0	10.0	28.0	9.0
	1800	25.0	1.0	10.0	30.0	12.0

### • 防雷型压敏电阻器 LIGHTNING ARRESTER TYPE

防雷型压敏电阻器，该产品具有通流量大，电压范围宽、保护速度快，残压低等特点，广泛应用于半导体元件、铁路信号、通信、计测装置、通讯中转站、低压配电盘等各电气设备的浪涌吸收和防雷保卫。Lightning arrester type is ideal for semiconductor, signal relay, telecommunication, calibrating equipment, communication intermedium station, distribution board, surge absorption and lightning-protection of all sorts of electric equipment because of the properties, with the Great withstanding surge current, wide voltage range, quick responding speed and low residual voltage etc.

防雷型产品结构尺寸(mm)  
LIGHTNING ARRESER TYPE DIMENSIONS

规格 Part No.	产品尺寸(mm) Dimensions			
	D Max	T Max	W ±1.0	d ±0.1
FNR-25	30	12	15	1.2
FNR-32	38	13	18	1.5
FNR-40	45	13	20	1.5



● 通用型产品系列一览表 GENERAL TYPE PRODUCTS SERIES

型号规格 Part No.	压敏电压 Varistor Voltage	最大允许使用电压 Maximum Operating Voltage		最大限制电压 Maximum Clamping Voltage (8×20us)		最大通流容量 Maximum Withstanding surge Current(8×20us)		最大能量耐量 Maximum Energy (J)	最大静态 功率 Rated Wattage	静态电容量 (参考值) Capacitance (Reference)1KHz
	V(v) DC	AC (v)	DC (v)	VC (v)	IP (A)	2Times (A)	1Times (A)	2ms	(W)	(PF)
FNR - 05K180	18	11	14	40	1	50	100	0.3	0.01	1600
FNR - 07K180	18	11	14	36	2.5	125	250	0.8	0.02	3500
FNR - 10K180	18	11	14	36	5	250	500	1.7	0.05	7500
FNR - 14K180	18	11	14	36	10	500	1000	3.5	0.1	18000
FNR - 20K180	18	11	14	36	20	1000	2000	10.0	0.2	37000
	22	14	18	48	1	50	100	0.4	0.01	1300
FNR - 05K220	22	14	18	43	2.5	125	250	0.9	0.02	2800
FNR - 07K220	22	14	18	43	5	250	500	2.0	0.05	6000
FNR - 10K220	22	14	18	43	10	500	1000	4.0	0.1	15000
FNR - 14K220	22	14	18	43	20	1000	2000	13.0	0.2	30000
FNR - 20K220	27	17	22	60	1	50	100	0.5	0.01	1050
	27	17	22	53	2.5	125	250	1.1	0.02	2000
FNR - 05K270	27	17	22	53	5	250	500	2.5	0.05	4000
FNR - 07K270	27	17	22	53	10	500	1000	5.0	0.1	10000
FNR - 10K270	27	17	22	53	20	1000	2000	15.0	0.2	20000
FNR - 14K270	33	20	26	73	1	50	100	0.6	0.01	900
FNR - 20K270	33	20	26	65	2.5	125	250	1.3	0.02	1500
	33	20	26	65	5	250	500	3.1	0.05	3000
FNR - 05K330	33	20	26	65	10	500	1000	6.0	0.1	7500
FNR - 07K330	33	20	26	65	20	1000	2000	20.0	0.2	17000
FNR - 10K330	39	25	31	86	1	50	100	0.8	0.01	500
FNR - 14K330	39	25	31	77	2.5	125	250	1.6	0.02	1350
FNR - 20K330	39	25	31	77	5	250	500	3.7	0.05	2600
FNR - 05K390	39	25	31	77	10	500	1000	7.0	0.1	6500
FNR - 07K390	39	25	31	77	20	1000	2000	24.0	0.2	15000
FNR - 10K390	47	30	38	104	1	50	100	1.0	0.01	450
FNR - 14K390	47	30	38	93	2.5	125	250	2.0	0.02	1150
FNR - 20K390	47	30	38	93	5	250	500	4.5	0.05	2200
	47	30	38	93	10	500	1000	9.0	0.1	5500
	47	30	38	93	20	1000	2000	30.0	0.2	13000
FNR - 05K470	56	35	45	123	1	50	100	1.1	0.01	400
FNR - 07K470	56	35	45	110	2.5	125	250	2.5	0.02	950
FNR - 10K470	56	35	45	110	5	250	500	5.5	0.05	1800
FNR - 14K470	56	35	45	110	10	500	1000	10.0	0.1	4500
FNR - 20K470	56	35	45	110	20	1000	2000	35.0	0.2	11000
	68	40	56	150	1	50	100	1.3	0.01	350
FNR - 05K560	68	40	56	135	2.5	125	250	3.0	0.02	700
FNR - 07K560	68	40	56	135	5	250	500	6.5	0.05	1300
FNR - 10K560	68	40	56	135	10	500	1000	13.0	0.1	3300
FNR - 14K560	68	40	56	135	20	1000	2000	40.0	0.2	7000
FNR - 20K560	82	50	65	145	5	200	400	1.8	0.1	250
	82	50	65	135	10	600	1200	4.2	0.25	550
FNR - 05K680	82	50	65	135	25	1250	2500	8.4	0.4	1800
FNR - 07K680	82	50	65	135	50	2500	4500	15.0	0.6	2900
FNR - 10K680	82	50	65	135	100	4000	6500	27.0	1.0	5500
FNR - 14K680	100	60	85	175	5	200	400	2.2	0.1	200
FNR - 20K680	100	60	85	165	10	600	1200	4.8	0.25	500
	100	60	85	165	25	1250	2500	10.0	0.4	1400
FNR - 05K820	100	60	85	165	50	2500	4500	18.0	0.5	2400
FNR - 07K820	100	60	85	165	100	4000	6500	33.0	1.0	4800
FNR - 10K820										
FNR - 14K820										
FNR - 20K820										
FNR - 05K101										
FNR - 07K101										
FNR - 10K101										
FNR - 14K101										
FNR - 20K101										

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型号规格 Part No.	压敏电压 Varistor Voltage	最大允许使用电压 Maximum Operating Voltage		最大限制电压 Maximum Clamping Voltage (8 × 20us)		最大通流量 Maximum Withstanding surge Current (8 × 20us)		最大能量耐量 Maximum Energy (J)	最大静态 功率 Rated Wattage	静态电容 (参考值) Capacitance (Reference) 1KHz
	V(v) DC	AC (v)	DC (v)	VC (v)	IP (A)	2Times (A)	1Times (A)	2ms	(W)	(PF)
FNR - 05K121	120	75	100	210	5	200	400	2.5	0.1	170
FNR - 07K121	120	75	100	200	10	600	1200	5.9	0.25	450
FNR - 10K121	120	75	100	200	25	1250	2500	15.0	0.4	1100
FNR - 14K121	120	75	100	200	50	2500	4500	26.0	0.6	1900
FNR - 20K121	120	75	100	200	100	4000	6500	52.0	1.0	3800
	150	95	125	260	5	200	400	4.0	0.1	140
FNR - 05K151	150	95	125	250	10	600	1200	8.0	0.25	350
FNR - 07K151	150	95	125	250	25	1250	2500	20.0	0.4	900
FNR - 10K151	150	95	125	250	50	2500	4500	32.0	0.6	1500
FNR - 14K151	150	95	125	250	100	4000	6500	65.0	1.0	3000
FNR - 20K151	180	115	150	315	5	200	400	4.5	0.1	110
	180	115	150	300	10	600	1200	10.0	0.25	300
FNR - 05K181	180	115	150	300	25	1250	2500	23.0	0.4	700
FNR - 07K181	180	115	150	300	50	2500	4500	39.0	0.6	1250
FNR - 10K181	180	115	150	300	100	4000	6500	78.0	1.0	2500
FNR - 14K181	200	130	170	355	5	200	400	5.0	0.1	80
FNR - 20K181	200	130	170	340	10	600	1200	13.0	0.25	250
	200	130	170	340	25	1250	2500	26.0	0.4	500
FNR - 05K201	200	130	170	340	50	2500	4500	45.0	0.6	1000
FNR - 07K201	200	130	170	340	100	4000	6500	91.0	1.0	2000
FNR - 10K201	220	140	180	380	5	200	400	6.0	0.1	70
FNR - 14K201	220	140	180	360	10	600	1200	13.0	0.25	250
FNR - 20K201	220	140	180	360	25	1250	2500	30.0	0.4	450
FNR - 05K221	220	140	180	360	50	2500	4500	52.0	0.6	1000
FNR - 07K221	220	140	180	360	100	4000	6500	97.0	1.0	2000
FNR - 10K221	240	150	200	415	5	200	400	6.5	0.1	70
FNR - 14K221	240	150	200	395	10	600	1200	13.0	0.25	2000
FNR - 20K221	240	150	200	395	25	1250	2500	32.0	0.4	400
	240	150	200	395	50	2500	4500	52.0	0.6	900
	240	150	200	395	100	4000	6500	100.0	1.0	1800
FNR - 05K241	270	175	225	475	5	200	400	8.0	0.1	65
FNR - 07K241	270	175	225	455	10	600	1200	15.0	0.25	170
FNR - 10K241	270	175	225	455	25	1250	2500	40.0	0.4	350
FNR - 14K241	270	175	225	455	50	2500	4500	65.0	0.6	750
FNR - 20K241	270	175	225	455	100	4000	6500	117.0	1.0	1600
	300	200	250	525	5	200	400	8.0	0.1	55
FNR - 05K271	300	200	250	600	10	600	1200	17.0	0.25	160
FNR - 07K271	300	200	250	500	25	1250	2500	35.0	0.4	325
FNR - 10K271	300	200	250	500	50	2500	4500	71.0	0.6	650
FNR - 14K271	300	200	250	500	100	4000	6500	136.0	1.0	1400
FNR - 20K271	330	210	275	580	5	200	400	8.5	0.1	60
	330	210	275	550	10	600	1200	20.0	0.25	150
FNR - 05K301	330	210	275	550	25	1250	2500	39.0	0.4	325
FNR - 07K301	330	210	275	550	50	2500	4500	78.0	0.6	650
FNR - 10K301	330	210	275	550	100	4000	6500	136.0	1.0	1400
FNR - 14K301	360	230	300	620	5	200	400	10.0	0.1	50
FNR - 20K301	360	230	300	595	10	600	1200	20.0	0.25	1300
	360	230	300	595	25	1250	2500	32.0	0.4	300
FNR - 05K331	360	230	300	595	50	2500	4500	84.0	0.6	550
FNR - 07K331	360	230	300	595	100	4000	6500	156.0	1.0	1200
FNR - 10K331										
FNR - 14K331										
FNR - 20K331										
FNR - 05K361										
FNR - 07K361										
FNR - 10K361										
FNR - 14K361										
FNR - 20K361										



型号规格 Part No.	压敏电压 Varistor Voltage	最大允许使用电压 Maximum Operating Voltage		最大限制电压 Maximum Clamping Voltage (8 × 20us)		最大通流容量 Maximum Withstanding surge Current (8 × 20us)		最大能量耐量 Maximum Energy (J)	最大静态 功率 Rated Wattage	静态电容量 (参考值) Capacitance (Reference) 1KHz
	V(v) DC	AC (v)	DC (v)	VC (v)	IP (A)	2Times (A)	1Times (A)	2ms	(W)	(PF)
FNR - 05K391	390	250	320	675	5	200	400	10.0	0.1	50
FNR - 07K391	390	250	320	650	10	600	1200	22.0	0.25	130
FNR - 10K391	390	250	320	650	25	1250	2500	52.0	0.4	270
FNR - 14K391	390	250	320	650	50	2500	4500	91.0	0.6	500
FNR - 20K391	390	250	320	650	100	4000	6500	169.0	1.0	1000
	430	275	350	745	5	200	400	12.0	0.1	45
FNR - 05K431	430	275	350	710	10	600	1200	26.0	0.25	110
FNR - 07K431	430	275	350	710	25	1250	2500	58.0	0.4	250
FNR - 10K431	430	275	350	710	50	2500	4500	97.0	0.6	450
FNR - 14K431	430	275	350	710	100	4000	6500	182.0	1.0	900
FNR - 20K431	470	300	385	810	5	200	400	13.0	0.1	40
	470	300	385	775	10	600	1200	26.0	0.25	100
FNR - 05K471	470	300	385	775	25	1250	2500	58.0	0.4	230
FNR - 07K471	470	300	385	775	50	2500	4500	104.0	0.6	440
FNR - 10K471	470	300	385	775	100	4000	6500	195.0	1.0	900
FNR - 14K471	510	318	415	840	25	1250	2500	58.0	0.4	200
FNR - 20K471	510	318	415	840	50	2500	4500	104.0	0.6	380
	510	318	415	840	100	4000	6500	195.0	1.0	800
FNR - 10K511	560	350	455	925	25	1250	2500	58.0	0.4	180
FNR - 14K511	560	350	455	925	50	2500	4500	104.0	0.6	345
FNR - 20K511	560	350	455	925	100	4000	6500	195.0	1.0	700
FNR - 10K561	620	380	505	1025	25	1250	2500	58.0	0.4	130
FNR - 14K561	620	380	505	1025	50	2500	4500	110.0	0.6	250
FNR - 20K561	620	380	505	1025	100	4000	6500	195.0	1.0	500
FNR - 10K621	680	420	560	1120	25	1250	2500	60.0	0.4	130
FNR - 14K621	680	420	560	1120	50	2500	4500	117.0	0.6	250
FNR - 20K621	680	420	560	1120	100	4000	6500	208.0	1.0	460
FNR - 10K681	750	460	615	1240	25	1250	2500	65.0	0.4	120
	750	460	615	1240	50	2500	4500	130.0	0.6	230
	750	460	615	1240	100	4000	6500	227.0	1.0	420
FNR - 14K681	780	485	640	1290	25	1250	2500	65.0	0.4	120
FNR - 20K681	780	485	640	1290	50	2500	4500	136.0	0.6	230
FNR - 10K751	780	485	640	1290	100	4000	6500	234.0	1.0	420
FNR - 14K751	820	510	670	1355	25	1250	2500	71.0	0.4	110
FNR - 20K751	820	510	670	1355	50	2500	4500	143.0	0.6	200
	820	510	670	1355	100	4000	6500	247.0	1.0	400
FNR - 10K781	910	550	745	1500	25	1250	2500	78.0	0.4	100
FNR - 14K781	910	550	745	1500	50	2500	4500	156.0	0.6	180
FNR - 20K781	910	550	745	1500	100	4000	6500	280.0	1.0	350
FNR - 10K821	1000	625	825	1650	25	1250	2500	84.0	0.4	90
FNR - 14K821	1000	625	825	1650	50	2500	4500	169.0	0.6	150
	1000	625	825	1650	100	4000	6500	299.0	1.0	320
FNR - 20K821	1100	680	895	1815	25	1250	2500	91.0	0.4	80
FNR - 10K911	1100	680	895	1815	50	2500	4500	182.0	0.6	150
FNR - 14K911	1100	680	895	1815	100	4000	6500	325.0	1.0	300
FNR - 20K911	1800	1000	1465	2970	50	2500	4500	312.0	0.6	100
FNR - 10K102	1800	1000	1465	2970	100	4000	6500	400.0	1.0	200
FNR - 14K102										
FNR - 20K102										
FNR - 10K112										
FNR - 14K112										
FNR - 20K112										
FNR - 14K182										
FNR - 20K182										

## ZINC OXIDE VARISTOR

型号规格 Part No.	压敏电压 Varistor Voltage	最大允许使用电压 Maximum Operating Voltage		最大限制电压 Maximum Clamping Voltage (8 × 20us)		最大通流容量 Maximum Withstanding surge Current (8 × 20us)	最大能量耐量 Maximum Energy (J)	最大静态 功率 Rated Watt age	静态电容量 (参考值) Capacitance (Reference) 1KHz
	V(v) DC	AC (v)	DC (v)	VC (v)	IP (A)	2Times (A)	2ms	(W)	(PF)
FNR - 25K470	47	30	38	89	40	1250	15	1.0	10000
FNR - 32K470	47	30	38	89	40	2500	25	1.2	11000
FNR - 40K470	47	30	38	89	40	5000	40	1.4	15000
FNR - 25K560	56	35	45	106	40	1250	18	1.0	8000
FNR - 32K560	56	35	45	106	40	2500	30	1.2	10000
	56	35	45	106	40	5000	45	1.4	14000
FNR - 40K560	68	40	56	129	40	1250	21	1.0	7000
FNR - 25K680	68	40	56	129	40	2500	32	1.2	9000
FNR - 32K680	68	40	56	129	40	5000	50	1.4	13000
FNR - 40K680	82	50	65	156	200	5000	23	1.0	6000
FNR - 25K820	82	50	65	156	200	10000	35	1.2	8000
	82	50	65	156	200	20000	60	1.4	12000
FNR - 32K820	100	60	85	190	200	5000	32	1.0	5000
FNR - 40K820	100	60	85	190	200	10000	49	1.2	7000
FNR - 25K101	100	60	85	190	200	20000	90	1.4	11500
FNR - 32K101	120	75	100	216	200	5000	36	1.0	4000
FNR - 40K101	120	75	100	216	200	10000	54	1.2	6000
	120	75	100	216	200	20000	117	1.4	11000
FNR - 25K121	150	95	125	270	200	5000	39	1.0	3000
FNR - 32K121	150	95	125	270	200	10000	65	1.2	5000
FNR - 40K121	150	95	125	270	200	20000	156	1.4	10500
FNR - 25K151	200	130	170	360	200	5000	45	1.0	2400
FNR - 32K151	200	130	170	360	200	10000	91	1.2	4700
FNR - 40K151	200	130	170	360	200	20000	208	1.4	10000
FNR - 25K201	220	140	180	385	200	5000	52	1.0	2200
FNR - 32K201	220	140	180	385	200	10000	117	1.2	4300
FNR - 40K201	220	140	180	385	200	20000	234	1.4	9500
FNR - 25K221	240	150	200	420	200	5000	78	1.0	2000
	240	150	200	420	200	10000	156	1.2	4000
	240	150	200	420	200	20000	286	1.4	9000
FNR - 32K221	270	175	225	473	200	5000	117	1.0	1700
FNR - 40K221	270	175	225	473	200	10000	195	1.2	3500
FNR - 25K241	270	175	225	473	200	20000	308	1.4	750
FNR - 32K241	360	230	300	612	200	5000	156	1.0	1400
FNR - 40K241	360	230	300	612	200	10000	234	1.2	3000
	360	230	300	612	200	20000	390	1.4	6000
FNR - 25K271	390	250	320	663	200	5000	195	1.0	1200
FNR - 32K271	390	250	320	663	200	10000	286	1.2	2500
FNR - 40K271	390	250	320	663	200	20000	442	1.4	5000
FNR - 25K361									
FNR - 32K361									
FNR - 40K361									
FNR - 25K391									
FNR - 32K391									
FNR - 40K391									



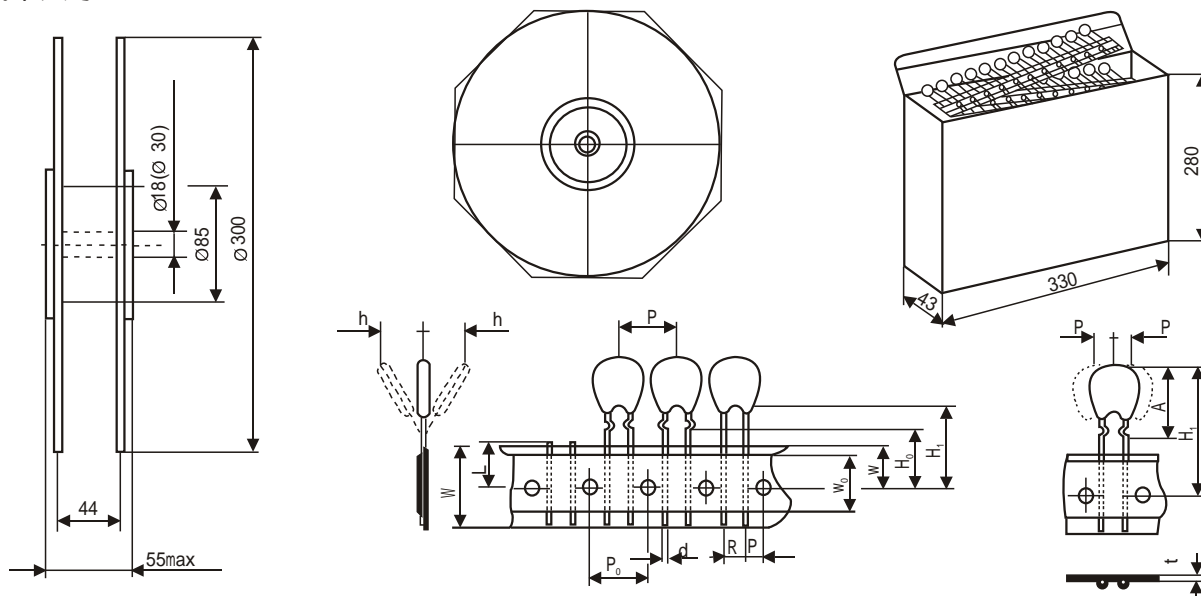
型号规格 Part No.	压敏电压 Varistor Voltage	最大允许使用电压 Maximum Operating Voltage		最大限制电压 Maximum Clamping Voltage (8 × 20 $\mu$ s)		最大通流容量 Maximum Withstanding surge Current (8 × 20 $\mu$ s)	最大能量耐量 Maximum Energy (J)	最大静态 功率 Rated Wattage	静电容量 (参考值) Capacitance (Reference) 1KHz
	V(v) DC	AC (v)	DC (v)	VC (v)	IP (A)	2Times (A)	2ms	(W)	(PF)
FNR - 25K431	430	275	350	731	200	5000	234	1.0	1100
FNR - 32K431	430	275	350	731	200	10000	338	1.2	2250
FNR - 40K431	430	275	350	731	200	20000	494	1.4	4500
FNR - 25K471	470	300	380	799	200	5000	286	1.0	1000
FNR - 32K471	470	300	380	799	200	10000	390	1.2	1900
	470	300	380	799	200	20000	546	1.4	3600
FNR - 40K471	620	385	505	1054	200	5000	338	1.0	1500
FNR - 25K621	620	385	505	1054	200	10000	442	1.2	3200
FNR - 32K621	620	385	505	1054	200	20000	585	1.4	3300
FNR - 40K621	680	420	560	1160	200	5000	390	1.0	1200
FNR - 25K681	680	420	560	1160	200	10000	494	1.2	3000
	680	420	560	1160	200	20000	650	1.4	3000
FNR - 32K681	750	460	615	1275	200	5000	455	1.0	1100
FNR - 40K681	750	460	615	1275	200	10000	559	1.2	2700
FNR - 25K751	750	460	615	1275	200	20000	715	1.4	2500
FNR - 32K751	780	485	640	1326	200	5000	481	1.0	1050
FNR - 40K751	780	485	640	1326	200	10000	624	1.2	2600
	780	485	640	1326	200	20000	780	1.4	2450
FNR - 25K781	820	510	670	1400	200	5000	520	1.0	1000
FNR - 32K781	820	510	670	1400	200	10000	689	1.2	2400
FNR - 40K781	820	510	670	1400	200	20000	832	1.4	2400
FNR - 25K821	910	550	745	1550	200	5000	546	1.0	900
FNR - 32K821	910	550	745	1550	200	10000	754	1.2	2200
FNR - 40K821	910	550	745	1550	200	20000	910	1.4	2200
FNR - 25K911	1000	625	825	1700	200	5000	585	1.0	800
FNR - 32K911	1000	625	825	1700	200	10000	819	1.2	1900
FNR - 40K911	1000	625	825	1700	200	20000	1040	1.4	2000
FNR - 25K102	1100	680	895	1870	200	5000	650	1.0	700
	1100	680	895	1870	200	10000	910	1.2	1700
	1100	680	895	1870	200	20000	1105	1.4	1800
FNR - 32K102	1800	1000	1465	3060	200	10000	975	1.2	1600
FNR - 40K102	1800	1000	1465	3060	200	20000	1300	1.4	1600
FNR - 25K112									
FNR - 32K112									
FNR - 40K112									
FNR - 32K182									
FNR - 40K182									



## ZINC OXIDE VARISTOR

## ● 编带尺寸 REEL DIMENSIONS

盒装 Ammo Packaging



项目 Item	符号 Code	尺寸 Dimension (mm)			
		5	7	10	14
瓷片直径 Element Diameter					
产品直径 Body Diameter	D	7.5Max.	9.0Max.	13.5Max.	16.5Max.
引线直径 Lead Wire Diameter	d	0.6 ± 0.1		0.8 ± 0.1	
元件间距 Pitch of Component	P	12.7 ± 1		25.4 ± 1	
孔距 Feed Hole Pitch	P <sub>0</sub>	12.7 ± 3		12.7 ± 0.3	
孔与引线距 Feed Hole Center to Lead	P <sub>1</sub>	3.85 ± 0.7		7.5 ± 0.8	
引线间距 Lead to Lead Pitch	R	5 ± 0.8		7.5 ± 0.8	
元件垂直度 Component Alignment	h	2.0Max.		2.0Max.	
纸带宽度 Basepaper Tape Width	W	18		18	
胶带宽度 Adhesive Tape Width	W <sub>0</sub>	13Min.		13Min.	
定位孔距 Hole Position	W <sub>1</sub>	9 ± 0.5		9 ± 0.5	
元件高度 Component Height	H <sub>1</sub>	30Max.		40Max.	
弯曲部到孔心距 Lead-Wire Clinch Height	H <sub>0</sub>	16 ± 0.5		1.0Max.	
孔直径 Feed Hole Diameter	D <sub>0</sub>	4 ± 0.2		4 ± 0.2	
纸带厚度 Total Tape Thickness	t	0.9Max.		0.9Max.	
孔心到引线长度 Length of Clipped Lead	L	11Max.		11Max.	
从弯曲部分起元件高度 Component Height from Seating Plane	A	13Max.	15Max.	19.5Max.	22.5Max.
元件位置偏差 Component Position Tolerance	P	± 1.3Max.		± 2.0Max.	

## ● 盒装 (卷装) 数量 AMMO AND REEL PACKING QUANTITY

瓷片 Element Diameter	数量 Quantity (pcs)	
	18-270(V)	300-470(V)
05	2500	2000
07	1500	1500
10	1500	1500
14	1500	1000