

# 壓敏電阻器 ZINC OXIDE VARISTOR

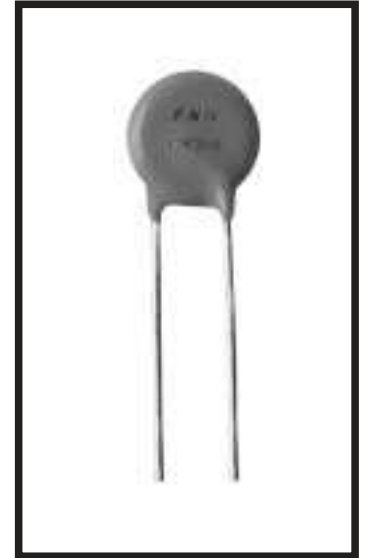
## ■ 壓敏電阻器 ZINC OXIDE VARISTOR

### ● 特性

- \* 電壓範圍寬 (18V—1.8KV)
- \* 反應速度快 (毫微秒級)
- \* 非線性指數大
- \* 無極性
- \* 通流量大 (2000A/cm<sup>2</sup>)
- \* 無續流
- \* 壽命長

### ● 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



### ● 訂貨方式 HOW TO ORDER

<p>F</p> <p>廣東風華高科技集團有限公司 Fenghua Advanced Technology(Group) CO.,LTD.</p>	<p>NR</p> <p>非線性電阻 Non-Linear Resistor</p>	<p>05</p> <p>瓷片直徑(mm) Element Diameter</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>05</td> <td>5</td> </tr> <tr> <td>40</td> <td>40</td> </tr> </table>	05	5	40	40	<p>K</p> <p>允許誤差 Tolerance</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>K</td> <td>±10%</td> </tr> <tr> <td>M</td> <td>±20%</td> </tr> </table>	K	±10%	M	±20%	<p>180</p> <p>壓敏電壓 (V) Varistor Voltage</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>180</td> <td><math>=18 \times 10^0</math></td> </tr> <tr> <td>181</td> <td><math>=18 \times 10^1</math></td> </tr> <tr> <td>182</td> <td><math>=18 \times 10^2</math></td> </tr> </table>	180	$=18 \times 10^0$	181	$=18 \times 10^1$	182	$=18 \times 10^2$	<p>T</p> <p>包裝方式</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>B</td> <td>散包裝 Bulk</td> </tr> <tr> <td>T</td> <td>編帶包裝 Tape &amp; Reel</td> </tr> </table>	B	散包裝 Bulk	T	編帶包裝 Tape & Reel
05	5																						
40	40																						
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T	編帶包裝 Tape & Reel																						

### ● 特性曲線 CHARACTERISTICS

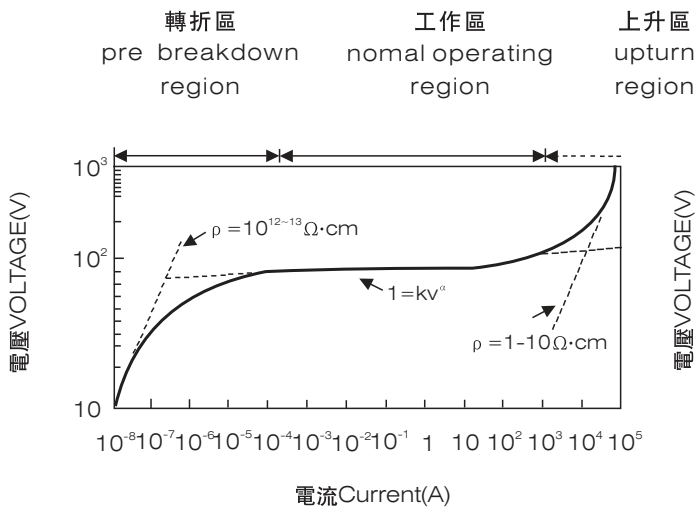
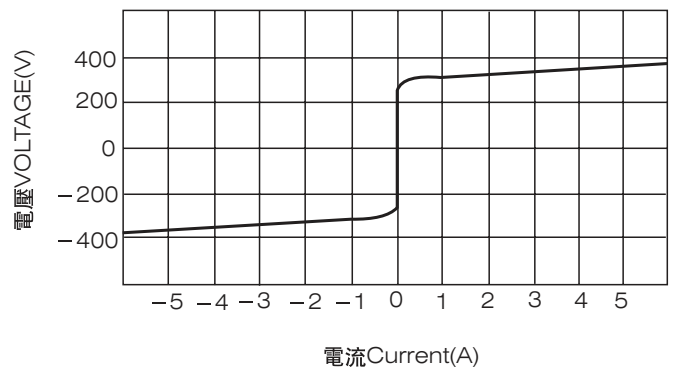


圖 Fig1  
Voltage Current Characteristic



圖Fig 2  
Electronic Characteristics

## ■ 壓敏電阻器

### ZINC OXIDE VARISTOR

#### ● 測試條件 TEST CONDITIONS

項目 Item	試驗方法 Test Methods
使用環境溫度 Operating Temperature Range	-40°C~+85°C
保存溫度 Storage Temperature Range	-40°C~+85°C
壓敏電壓 Varistor Voltage	除Φ5以下元件測驗電流為DC0.1mA(V0.1mA) 外它作均為DC1mA(V1mA) Element Diameter ≤ 5mm Test Currentv (DC) 0.1mA(V0.1mA) others DC1mA(V1mA)
最大限制電壓 Max Clamping Voltage	測試電流波形為8×20μs Current Waveshape8×20μs
能量耐量 Emergv	測試電流波形為2ms方波或10/1000μs Current input of Rectangular Wave
最大通流容量 Max Withstanding Surge Current	測試電流波形為8×20μs Current Waveshape8×20μs

#### ● 壓敏電阻器選用方法 ( 參數 )

##### 壓敏電阻選取

對於過壓保護方面的應用，壓敏電壓值應大于實際電路的電壓值，一般用

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

- a—電源電壓波動系數：一般取1.2
- v—電路直流工作電壓(交流時為有效值)
- b—壓敏電壓誤差，一般取0.85
- c—元件的老化系數，一般取0.9

這樣計算到的V1mA實際數值是直流工作電壓的1.5倍，在交流狀態下要考慮電壓峰值，因此計算結果應擴大 $\sqrt{2}$ 倍，在應用中可參考此公式通過實際來確定。

##### 通流量的選取

通常產品給出的通流量是按產品標準給定的波形、衝擊次數和間隙時間進行脈衝試驗時產品壓敏電壓變化率小于初值的±10%所能承受的最大電流值，產品所能承受的衝擊數是波形、幅值和間隙時間的函數，當電流波形幅值降低50%時衝擊次數可增加一倍，所以在實際應用中，壓敏電阻器所吸收的浪涌電流應小于產品的最大通流量，以使產品有較長的工作壽命，

#### 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 shoule be  $\sqrt{2}$  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 intermal time, when the amplitude decrease to 50% of the initial, it should be increased to 2 times of the intial in order to keep the life longer, the surge current which is absorberd by the varistor should be less than max. withstanding surge current.

# 壓敏電阻器 ZINC OXIDE VARISTOR

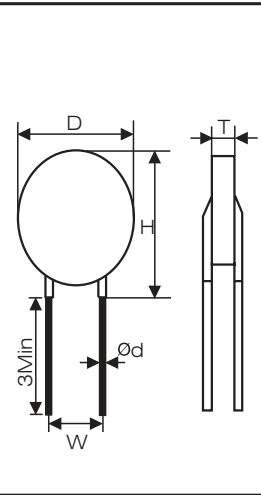
## • 防浪涌通用型壓敏電阻器 GENERAL TYPE

防浪涌通用型壓敏電阻器。廣泛用于IC、二極管、可控硅元件, 民用、軍用、工業電器通訊、計測控制裝置的保護。

General type is widely used in surge protection for IC, diode, triac semiconductor, thyristor, consumer, military industry telecom – munication measuring & controlling instrument etc.

通用型壓敏電阻器結構尺寸(mm)  
GENERAL TYPE DIMENSIONS

	電壓範圍(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
14	18~330	17.0	0.8	7.5	20.0	5.4
	360~1100	17.5	0.8	7.5	20.5	8.5
	1800	25.0	0.8	15.0	30.0	12.0
20	18~330	23.0	1.0	10.0	27.0	5.5
	360~1100	24.0	1.0	10.0	28.0	9.0
	1800	25.0	1.0	15.0	30.0	12.0



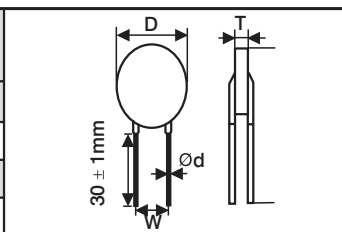
## • 防雷型壓敏電阻器 LIGHTNING ARRESTER TYPE

防雷型壓敏電阻器, 該產品具有通流容量大, 電壓範圍寬、保護速度快, 殘壓低等特點, 廣泛應用于半導體元件、鐵路信號、通信、計測裝置、通訊中轉站、低壓配電盤等各電氣設備的浪涌吸收和防雷保衛。

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 Greatwithstanding surge current, wide voltage range, quick responding speed and low residual voltage etc.

防雷型產品結構尺寸(mm)  
LIGHTNING ARRESTER TYPE DIMENSIONS

規格 Part No.	產品尺寸(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



**• 通用型產品系列一覽表 GENERAL TYPE PRODUCTS SERIES**

型號規格 Part No.	壓敏電壓 Varistor Voltage	最大允許使用電壓 Maximum Operating Voltage		最大限制電壓 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)		最大靜態 功率 Rated Wattage	靜態電容量 (參考值) Capacitance (Reference)1KHz
	V(v) DC	AC (v)	DC (v)	VC (v)	IP (A)	2Times (A)	1Times (A)	2ms	10/1000 μs	(W)	(PF)
FNR-05K180	18	11	14	40	1	50	100	0.3	0.4	0.01	1600
FNR-07K180	18	11	14	36	2.5	125	250	0.8	0.9	0.02	3500
FNR-10K180	18	11	14	36	5	250	500	1.5	2.1	0.05	7500
FNR-14K180	18	11	14	36	10	500	1000	3.5	4.0	0.1	18000
FNR-20K180	18	11	14	36	20	1000	2000	10.0	11.0	0.2	37000
FNR-05K220	22	14	18	48	1	50	100	0.4	0.5	0.01	1300
FNR-07K220	22	14	18	43	2.5	125	250	0.9	1.1	0.02	2800
FNR-10K220	22	14	18	43	5	250	500	2.0	2.5	0.05	6000
FNR-14K220	22	14	18	43	10	500	1000	4.0	5.0	0.1	15000
FNR-20K220	22	14	18	43	20	1000	2000	13.0	14.0	0.2	30000
FNR-05K270	27	17	22	60	1	50	100	0.5	0.6	0.01	1050
FNR-07K270	27	17	22	53	2.5	125	250	1.0	1.4	0.02	2000
FNR-10K270	27	17	22	53	5	250	500	2.5	3.0	0.05	4000
FNR-14K270	27	17	22	53	10	500	1000	5.0	6.0	0.1	10000
FNR-20K270	27	17	22	53	20	1000	2000	15.0	18.0	0.2	20000
FNR-05K330	33	20	26	73	1	50	100	0.6	0.8	0.01	900
FNR-07K330	33	20	26	65	2.5	125	250	1.2	1.7	0.02	1500
FNR-10K330	33	20	26	65	5	250	500	3.0	4.0	0.05	3000
FNR-14K330	33	20	26	65	10	500	1000	6.0	7.5	0.1	7500
FNR-20K330	33	20	26	65	20	1000	2000	20.0	13.0	0.2	17000
FNR-05K390	39	25	31	86	1	50	100	0.8	0.9	0.01	500
FNR-07K390	39	25	31	77	2.5	125	250	1.5	2.1	0.02	1350
FNR-10K390	39	25	31	77	5	250	500	3.5	4.6	0.05	2600
FNR-14K390	39	25	31	77	10	500	1000	7.0	8.6	0.1	6500
FNR-20K390	39	25	31	77	20	1000	2000	24.0	26.0	0.2	15000
FNR-05K470	47	30	38	104	1	50	100	1.0	1.1	0.01	450
FNR-07K470	47	30	38	93	2.5	125	250	1.8	2.5	0.02	1150
FNR-10K470	47	30	38	93	5	250	500	4.5	5.5	0.05	2200
FNR-14K470	47	30	38	93	10	500	1000	8.5	10.0	0.1	5500
FNR-20K470	47	30	38	93	20	1000	2000	30.0	33.0	0.2	13000
FNR-05K560	56	35	45	123	1	50	100	1.0	1.3	0.01	400
FNR-07K560	56	35	45	110	2.5	125	250	2.2	3.1	0.02	950
FNR-10K560	56	35	45	110	5	250	500	5.5	7.0	0.05	1800
FNR-14K560	56	35	45	110	10	500	1000	10.0	11.0	0.1	4500
FNR-20K560	56	35	45	110	20	1000	2000	35.0	41.0	0.2	11000
FNR-05K680	68	40	56	150	1	50	100	1.2	1.6	0.01	350
FNR-07K680	68	40	56	135	2.5	125	250	2.5	3.6	0.02	700
FNR-10K680	68	40	56	135	5	250	500	6.5	8.2	0.05	1300
FNR-14K680	68	40	56	135	10	500	1000	12.0	14.0	0.1	3300
FNR-20K680	68	40	56	135	20	1000	2000	40.0	46.0	0.2	7000
FNR-05K820	82	50	65	145	5	200	400	1.7	2.5	0.1	250
FNR-07K820	82	50	65	135	10	600	1200	3.5	5.5	0.25	550
FNR-10K820	82	50	65	135	25	1250	2500	8.0	12.0	0.4	1800
FNR-14K820	82	50	65	135	50	2500	4500	14.0	22.0	0.6	2900
FNR-20K820	82	50	65	135	100	4000	6500	27.0	38.0	1.0	5500
FNR-05K101	100	60	85	175	5	200	400	2.0	3.0	0.1	200
FNR-07K101	100	60	85	165	10	600	1200	4.0	6.5	0.25	500
FNR-10K101	100	60	85	165	25	1250	2500	10.0	15.0	0.4	1400
FNR-14K101	100	60	85	165	50	2500	4500	18.0	28.0	0.5	2400
FNR-20K101	100	60	85	165	100	4000	6500	30.0	45.0	1.0	4800

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	V(V) DC	AC (V)	DC (V)	VC (V)	IP (A)	2Times (A)	1Times (A)	2ms	10/1000 μs	(W)	(PF)
FNR - 05K121	120	75	100	210	5	200	400	2.5	0.4	0.1	170
FNR - 07K121	120	75	100	200	10	600	1200	5.0	7.8	0.25	450
FNR - 10K121	120	75	100	200	25	1250	2500	12.0	18.0	0.4	1100
FNR - 14K121	120	75	100	200	50	2500	4500	20.0	32.0	0.6	1900
FNR - 20K121	120	75	100	200	100	4000	6500	40.0	55.0	1.0	3800
FNR - 05K151	150	95	125	260	5	200	400	3.0	4.8	0.1	140
FNR - 07K151	150	95	125	250	10	600	1200	6.0	9.7	0.25	350
FNR - 10K151	150	95	125	250	25	1250	2500	16.0	22.0	0.4	900
FNR - 14K151	150	95	125	250	50	2500	4500	25.0	40.0	0.6	1500
FNR - 20K151	150	95	125	250	100	4000	6500	50.0	70.0	1.0	3000
FNR - 05K181	180	115	150	315	5	200	400	3.5	5.5	0.1	110
FNR - 07K181	180	115	150	300	10	600	1200	8.0	1.0	0.25	300
FNR - 10K181	180	115	150	300	25	1250	2500	18.0	25.0	0.4	700
FNR - 14K181	180	115	150	300	50	2500	4500	30.0	50.0	0.6	1250
FNR - 20K181	180	115	150	300	100	4000	6500	60.0	85.0	1.0	2500
FNR - 05K201	200	130	170	355	5	200	400	4.0	6.5	0.1	80
FNR - 07K201	200	130	170	340	10	600	1200	10.0	13.0	0.25	250
FNR - 10K201	200	130	170	340	25	1250	2500	20.0	30.0	0.4	500
FNR - 14K201	200	130	170	340	50	2500	4500	35.0	57.0	0.6	1000
FNR - 20K201	200	130	170	340	100	4000	6500	70.0	95.0	1.0	2000
FNR - 05K221	220	140	180	380	5	200	400	4.5	7.0	0.1	70
FNR - 07K221	220	140	180	360	10	600	1200	10.0	14.0	0.25	250
FNR - 10K221	220	140	180	360	25	1250	2500	23.0	32.0	0.4	450
FNR - 14K221	220	140	180	360	50	2500	4500	40.0	60.0	0.6	1000
FNR - 20K221	220	140	180	360	100	4000	6500	75.0	100.0	1.0	2000
FNR - 05K241	240	150	200	415	5	200	400	5.0	8.0	0.1	70
FNR - 07K241	240	150	200	395	10	600	1200	10.0	15.0	0.25	200
FNR - 10K241	240	150	200	395	25	1250	2500	25.0	35.0	0.4	400
FNR - 14K241	240	150	200	395	50	2500	4500	40.0	63.0	0.6	900
FNR - 20K241	240	150	200	395	100	4000	6500	80.0	108.0	1.0	1800
FNR - 05K271	270	175	225	475	5	200	400	6.0	8.5	0.1	65
FNR - 07K271	270	175	225	455	10	600	1200	12.0	18.0	0.25	170
FNR - 10K271	270	175	225	455	25	1250	2500	30.0	40.0	0.4	350
FNR - 14K271	270	175	225	455	50	2500	4500	50.0	70.0	0.6	750
FNR - 20K271	270	175	225	455	100	4000	6500	90.0	127.0	1.0	1600
FNR - 05K301	300	200	250	525	5	200	400	6.0	9.0	0.1	55
FNR - 07K301	300	200	250	500	10	600	1200	13.0	20.8	0.25	150
FNR - 10K301	300	200	250	500	25	1250	2500	27.0	42.0	0.4	325
FNR - 14K301	300	200	250	500	50	2500	4500	55.0	75.0	0.6	650
FNR - 20K301	300	200	250	500	100	4000	6500	105.0	135.0	1.0	1400
FNR - 05K331	330	210	275	580	5	200	400	6.5	9.0	0.1	60
FNR - 07K331	330	210	275	550	10	600	1200	14.5	22.0	0.25	150
FNR - 10K331	330	210	275	550	25	1250	2500	30.0	44.0	0.4	325
FNR - 14K331	330	210	275	550	50	2500	4500	60.0	80.0	0.6	650
FNR - 20K331	330	210	275	550	100	4000	6500	105.0	155.0	1.0	1400
FNR - 05K361	360	230	300	620	5	200	400	7.5	10.0	0.1	50
FNR - 07K361	360	230	300	595	10	600	1200	15.0	25.0	0.25	130
FNR - 10K361	360	230	300	595	25	1250	2500	25.0	47.0	0.4	300
FNR - 14K361	360	230	300	595	50	2500	4500	65.0	93.0	0.6	550
FNR - 20K361	360	230	300	595	100	4000	6500	120.0	163.0	1.0	1200

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	V(V) DC	AC (V)	DC (V)	VC (V)	IP (A)	2Times (A)	1Times (A)	2ms	10/1000 μs	(W)	(PF)
FNR - 05K391	390	250	320	675	5	200	400	8.0	12.0	0.1	50
FNR - 07K391	390	250	320	650	10	600	1200	17.0	25.0	0.25	130
FNR - 10K391	390	250	320	650	25	1250	2500	40.0	60.0	0.4	270
FNR - 14K391	390	250	320	650	50	2500	4500	70.0	100.0	0.6	500
FNR - 20K391	390	250	320	650	100	4000	6500	130.0	180.0	1.0	1000
FNR - 05K431	430	275	350	745	5	200	400	9.0	13.0	0.1	45
FNR - 07K431	430	275	350	710	10	600	1200	20.0	28.0	0.25	110
FNR - 10K431	430	275	350	710	25	1250	2500	45.0	65.0	0.4	250
FNR - 14K431	430	275	350	710	50	2500	4500	75.0	115.0	0.6	450
FNR - 20K431	430	275	350	710	100	4000	6500	140.0	190.0	1.0	900
FNR - 05K471	470	300	385	810	5	200	400	10.0	15.0	0.1	40
FNR - 07K471	470	300	385	775	10	600	1200	20.0	30.0	0.25	100
FNR - 10K471	470	300	385	775	25	1250	2500	45.0	70.0	0.4	230
FNR - 14K471	470	300	385	775	50	2500	4500	80.0	125.0	0.6	440
FNR - 20K471	470	300	385	775	100	4000	6500	150.0	220.0	1.0	900
FNR - 10K511	510	318	415	840	25	1250	2500	45.0	70.0	0.4	200
FNR - 14K511	510	318	415	840	50	2500	4500	80.0	125.0	0.6	380
FNR - 20K511	510	318	415	840	100	4000	6500	150.0	220.0	1.0	800
FNR - 10K561	560	350	455	925	25	1250	2500	45.0	70.0	0.4	180
FNR - 14K561	560	350	455	925	50	2500	4500	80.0	125.0	0.6	345
FNR - 20K561	560	350	455	925	100	4000	6500	150.0	220.0	1.0	700
FNR - 10K621	620	380	505	1025	25	1250	2500	45.0	70.0	0.4	130
FNR - 14K621	620	380	505	1025	50	2500	4500	85.0	125.0	0.6	250
FNR - 20K621	620	380	505	1025	100	4000	6500	150.0	220.0	1.0	500
FNR - 10K681	680	420	560	1120	25	1250	2500	45.0	70.0	0.4	130
FNR - 14K681	680	420	560	1120	50	2500	4500	90.0	130.0	0.6	250
FNR - 20K681	680	420	560	1120	100	4000	6500	160.0	230.0	1.0	460
FNR - 10K751	750	460	615	1240	25	1250	2500	50.0	75.0	0.4	120
FNR - 14K751	750	460	615	1240	50	2500	4500	100.0	143.0	0.6	230
FNR - 20K751	750	460	615	1240	100	4000	6500	175.0	255.0	1.0	420
FNR - 10K781	780	485	640	1290	25	1250	2500	50.0	80.0	0.4	120
FNR - 14K781	780	485	640	1290	50	2500	4500	105.0	148.0	0.6	230
FNR - 20K781	780	485	640	1290	100	4000	6500	180.0	265.0	1.0	420
FNR - 10K821	820	510	670	1355	25	1250	2500	55.0	85.0	0.4	110
FNR - 14K821	820	510	670	1355	50	2500	4500	110.0	157.0	0.6	200
FNR - 20K821	820	510	670	1355	100	4000	6500	190.0	282.0	1.0	400
FNR - 10K911	910	550	745	1500	25	1250	2500	60.0	93.0	0.4	100
FNR - 14K911	910	550	755	1500	50	2500	4500	120.0	175.0	0.6	180
FNR - 20K911	910	550	755	1500	100	4000	6500	215.0	310.0	1.0	350
FNR - 10K102	1000	625	825	1650	25	1250	2500	65.0	102.0	0.4	90
FNR - 14K102	1000	625	825	1650	50	2500	4500	130.0	190.0	0.6	150
FNR - 20K102	1000	625	825	1650	100	4000	6500	230.0	342.0	1.0	320
FNR - 10K112	1100	680	895	1815	25	1250	2500	70.0	115.0	0.4	80
FNR - 14K112	1100	680	895	1815	50	2500	4500	140.0	213.0	0.6	150
FNR - 20K112	1100	680	895	1815	100	4000	6500	250.0	383.0	1.0	300
FNR - 14K182	1800	1000	1465	2970	50	2500	4500	240.0	337.0	0.6	100
FNR - 20K182	1800	1000	1465	2970	100	4000	6500	400.0	625.0	1.0	200

# 壓敏電阻器 ZINC OXIDE VARISTOR

型號規格 Part No.	壓敏電壓 Varistor Voltage	最大允許使用電壓 Maximum Operating Voltage		最大限制電壓 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)	最大靜態 功率 Rated Wattage	靜態電容量 (參考值) 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
FNR - 40K560	56	35	45	106	40	5000	45	1.4	14000
FNR - 25K680	68	40	56	129	40	1250	21	1.0	7000
FNR - 32K680	68	40	56	129	40	2500	32	1.2	9000
FNR - 40K680	68	40	56	129	40	5000	50	1.4	13000
FNR - 25K820	82	50	65	156	200	5000	23	1.0	6000
FNR - 32K820	82	50	65	156	200	10000	35	1.2	8000
FNR - 40K820	82	50	65	156	200	20000	60	1.4	12000
FNR - 25K101	100	60	85	190	200	5000	25	1.0	5000
FNR - 32K101	100	60	85	190	200	10000	38	1.2	7000
FNR - 40K101	100	60	85	190	200	20000	75	1.4	11500
FNR - 25K121	120	75	100	216	200	5000	28	1.0	4000
FNR - 32K121	120	75	100	216	200	10000	42	1.2	6000
FNR - 40K121	120	75	100	216	200	20000	90	1.4	11000
FNR - 25K151	150	95	125	270	200	5000	30	1.0	3000
FNR - 32K151	150	95	125	270	200	10000	50	1.2	5000
FNR - 40K151	150	95	125	270	200	20000	120	1.4	10500
FNR - 25K201	200	130	170	360	200	5000	35	1.0	2400
FNR - 32K201	200	130	170	360	200	10000	70	1.2	4700
FNR - 40K201	200	130	170	360	200	20000	160	1.4	10000
FNR - 25K221	220	140	180	385	200	5000	40	1.0	2200
FNR - 32K221	220	140	180	385	200	10000	90	1.2	4300
FNR - 40K221	220	140	180	385	200	20000	180	1.4	9500
FNR - 25K241	240	150	200	420	200	5000	60	1.0	2000
FNR - 32K241	240	150	200	420	200	10000	120	1.2	4000
FNR - 40K241	240	150	200	420	200	20000	220	1.4	9000
FNR - 25K271	270	175	225	473	200	5000	90	1.0	1700
FNR - 32K271	270	175	225	473	200	10000	150	1.2	3500
FNR - 40K271	270	175	225	473	200	20000	260	1.4	750
FNR - 25K361	360	230	300	612	200	5000	120	1.0	1400
FNR - 32K361	360	230	300	612	200	10000	180	1.2	3000
FNR - 40K361	360	230	300	612	200	20000	300	1.4	6000
FNR - 25K391	390	250	320	663	200	5000	150	1.0	1200
FNR - 32K391	390	250	320	663	200	10000	220	1.2	2500
FNR - 40K391	390	250	320	663	200	20000	340	1.4	5000

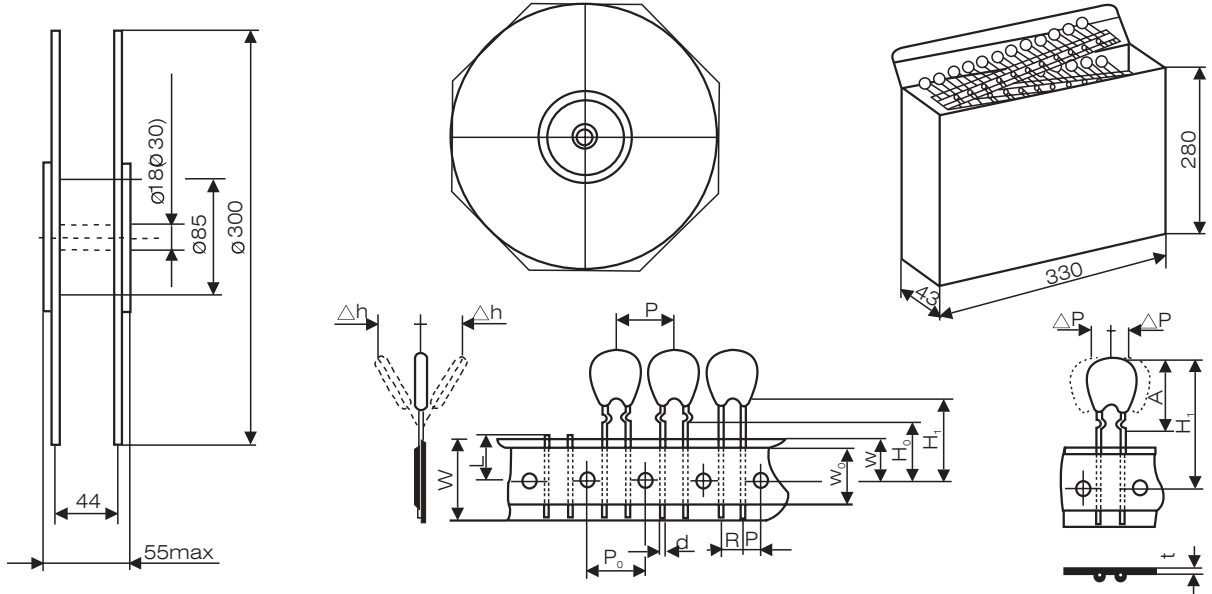
型號規格 Part No.	壓敏電壓 Varistor Voltage	最大允許使用電壓 Maximum Operating Voltage		最大限制電壓 Maximum Clamping Voltage (8 × 20us)		最大通流容量 Maximum Withstanding surge Current(8 × 20us)	最大能量耐量 Maximum Energy (J)	最大靜態 功率 Rated Wattage	靜態電容量 (參考值) Capacitance (Reference)1KHz
	V(V) DC	AC (V)	DC (V)	VC (V)	IP (A)	2Times (A)	2ms	(W)	(PF)
FNR - 25K431	430	275	350	731	200	5000	180	1.0	1100
FNR - 32K431	430	275	350	731	200	10000	260	1.2	2250
FNR - 40K431	430	275	350	731	200	20000	380	1.4	4500
FNR - 25K471	470	300	380	799	200	5000	220	1.0	1000
FNR - 32K471	470	300	380	799	200	10000	300	1.2	1900
FNR - 40K471	470	300	380	799	200	20000	420	1.4	3600
FNR - 25K621	620	385	505	1054	200	5000	260	1.0	1500
FNR - 32K621	620	385	505	1054	200	10000	340	1.2	3200
FNR - 40K621	620	385	505	1054	200	20000	450	1.4	3300
FNR - 25K681	680	420	560	1160	200	5000	300	1.0	1200
FNR - 32K681	680	420	560	1160	200	10000	380	1.2	3000
FNR - 40K681	680	420	560	1160	200	20000	500	1.4	3000
FNR - 25K751	750	460	615	1275	200	5000	350	1.0	1100
FNR - 32K751	750	460	615	1275	200	10000	430	1.2	2700
FNR - 40K751	750	460	615	1275	200	20000	550	1.4	2500
FNR - 25K781	780	485	640	1326	200	5000	370	1.0	1050
FNR - 32K781	780	485	640	1326	200	10000	480	1.2	2600
FNR - 40K781	780	485	640	1326	200	20000	600	1.4	2450
FNR - 25K821	820	510	670	1400	200	5000	400	1.0	1000
FNR - 32K821	820	510	670	1400	200	10000	5300	1.2	2400
FNR - 40K821	820	510	670	1400	200	20000	640	1.4	2400
FNR - 25K911	910	550	745	1550	200	5000	420	1.0	900
FNR - 32K911	910	550	745	1550	200	10000	580	1.2	2200
FNR - 40K911	910	550	745	1550	200	20000	700	1.4	2200
FNR - 25K102	1000	625	825	1700	200	5000	450	1.0	800
FNR - 32K102	1000	625	825	1700	200	10000	630	1.2	1900
FNR - 40K102	1000	625	825	1700	200	20000	800	1.4	2000
FNR - 25K112	1100	680	895	1870	200	5000	500	1.0	700
FNR - 32K112	1100	680	895	1870	200	10000	700	1.2	1700
FNR - 40K112	1100	680	895	1870	200	20000	850	1.4	1800
FNR - 32K182	1800	1000	1465	3060	200	10000	750	1.2	1600
FNR - 40K182	1800	1000	1465	3060	200	20000	1000	1.4	1600



# 壓敏電阻器 ZINC OXIDE VARISTOR

## ● 編帶尺寸 REEL DIMENSIONS

盒裝 Ammo Packaging



項目 Item	符號 Code	尺寸 Dimension(mm)			
		5	7	10	14
瓷片直徑Element Diameter	Φ	5	7	10	14
產品直徑 Body Diameter	D	7.5Max.	9.0Max.	13.5Max.	16.5Max.
引線直徑Lead Wire Diameter	d	0.6 ± 0.1		0.8 ± 0.1	
元件間距Pitch of Component	p	12.7 ± 1		25.4 ± 1	
孔距Feed Hole Pitch	p <sub>o</sub>	12.7 ± 3		12.7 ± 0.3	
孔與引線距Feed Hole Center to Lead	p <sub>1</sub>	3.85 ± 0.7		7.5 ± 0.8	
引線間距 Lead to Lead Pitch	R	5 ± 0.8		7.5 ± 0.8	
元件垂直度Component Alignment	Δh	2.0Max.		2.0Max.	
紙帶寬度Basepaper Tape Width	W	18		18	
膠帶寬度Adhesive Tape Width	W <sub>o</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.	
彎曲部到孔心距Lead-Wire Clinch Height	H <sub>o</sub>	16 ± 0.5		1.0Max.	
孔直徑Feed Hole Diameter	D <sub>o</sub>	4 ± 0.2		4 ± 0.2	
紙帶厚度Total Tape Thickness	t	0.9Max.		0.9Max.	
孔心到引線長度Length of Clipped Lead	L	11Max.		11Max.	
從彎曲部分起元件高度 Component Height from Seating Plane	A	13Max.	15Max.	19.5Max.	22.5Max.
元件位置偏差 Component Position Tolerance	ΔP	± 1.3Max.		± 2.0Max.	

## ● 盒裝 (卷裝) 數量 AMMO AND REEL PACKING QUANTITY

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