编号：I0019

承 认 书
APPROVAL SHEET

客户名称 **CUSTOMER：**	
产品名称 **PART NAME：**	多层片式压敏电阻器 Multilayer Chip Varistors
规格 **SPECIFICATION:**	FPV Series
版本 **VERSION:**	A0
日期 **DATE OF ISSUE：**	2024-05-16

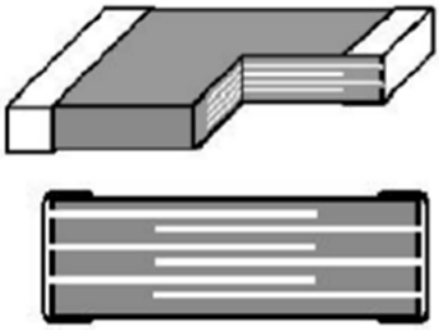
制 造 **MANUFACTURER**			客 户 **CUSTOMER**		
拟制 **DESIGN**	审核 **CHECK**	批准 **APPROVAL**	检验 **INSPECTOR**	审核 **CHECK**	批准 **APPROVAL**
褚俊华	**岑权进**	**陈志华**			

■多层片式压敏电阻器（MLV）
Multilayer chip varistors (MLV)

多层片式压敏电阻器（MLV）是一种浪涌电压抑制器。它是采用先进的叠层片式化技术制造的半导体陶瓷元件，它能为被保护元件（电路）提供强有力的保护，同时具有优良的浪涌能量吸收能力及内部散热能力。该元件是一种无引线的片式结构，其寄生电感非常小、响应速度非常快（响应时间<0.5ns），因此它具有优良的ESD及各种浪涌噪声的抑制能力。与传统的齐纳二极管和圆片压敏电阻器相似，具有体积小、重量轻、响应速度快的特点。

Multilayer chip varistors (MLV) are transient voltage suppressors (TVS) which manufacturedfrom semiconducting ceramics by the highly advanced multilayer formation technologies, which can offer rugged protection, excellent transient energy absorption and internal heat dissipation. The devices are leadless chip form, eliminating lead inductance and guaranteeing a faster speed of response time of less than 0.5ns, which makes them fast enough to ensure reliable protection against ESD pulse and other specific transient events. These transient suppression devices are significantly smaller footprints and lower profiles than traditional zener diodes or radial MOVs.

Multilayer formation technologies



Section of the chip

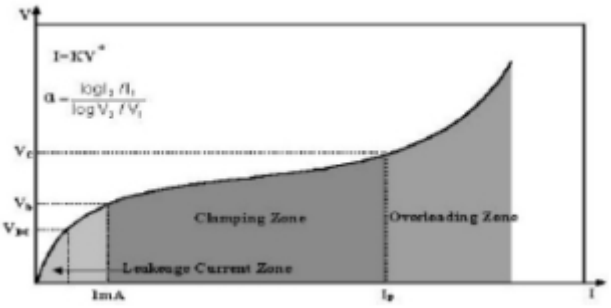
◆特征
Feature

* 叠层片式陶瓷结构
  Multilayer ceramic construction technology.
* 无引线
  Leadless
* 温度范围： －55℃～＋125℃
  Operating temperature: －55℃～＋125℃
* 具有双向限制特性
  Inherent bi-directional clamping
* 漏电流非常小
  Very low leakage current
* 寄生电感小、响应速度快（响应时间<0.5ns）
  Low Inductance, Fast response (Response time<0.5ns)
* 优良的温度系数
  Excellent temperature coefficient
* 良好的焊接性能（端电极为三层电镀）
  Good solderability (The electrode termination is selectable in plated)

◆压敏特性
Voltage dependent characteristic

叠层片式压敏电阻器是一种对电压敏感的电阻器， 具有对称的伏安特性， 其阻值随着电压上升呈非线性下降， 当电压在一定范围内进一步上升时， 这种短路现象更加剧烈。

Transient voltage suppressors (varistors) are voltage-dependent electrical resistors with symmetrical V/I characteristic. Their resistance value decrease with increasing voltage, thus "short-circuiting" further rises in overvoltage.



◆术语解释
Terms and descriptions

* 直流工作电压

Working DC voltage ($Vw_{(DC)}$)

在规定的环境条件下，保证压敏电阻器正常工作所允许连续施加的最大直流电压值，它也作为测量漏电流的参考点，在此电压通常小于元件的压敏电压。

This is the maximum continuous DC voltage, which may be applied up to the maximum operating temperature of the device. The rated DC operating voltage (working voltage) is also used as the reference point for leakage current. This voltage is always less than the breakdown voltage of the device.

*交流工作电压

Working AC voltage ($Vw_{(AC)}$)

在规定的环境条件下，保证压敏电阻器正常工作所允许连续施加的最大交流电压值。

This is the maximum continuous sinusoidal rms voltage, which maybe applied at any temperature up to the maximum operating temperature of the device.

*最大浪涌电流

Maximum Surge current (Peak current IP)

在规定的脉冲波形(8/20μs)和相应的电压下，保证压敏电阻器正常工作所允许施加最大电流。这个脉冲可以施加在元件任意一端。

This is the maximum peak current, which may be applied for an 8/20μs impulse, with rated line voltage also applied, without causing device failure. The pulse can be applied to the device in either polarity with the same confidence factor.

*最大的浪涌能量(能量耐量 Es)

Maximum surge energy (Es)

在单个规定的脉冲波形（10/1000μs）下，保证压敏电阻器正常工作时，其所能承受的最大的脉冲能量。

This is the maximum rated transient energy which may be dissipated for a single current pulse at a specified impulse duration (10/1000μs), with the rated DC or RMS voltage applied, without causing device failure.

*漏电流（IL）

Leakage (IL) at rated DC voltage

在非传导模式下，该元件具有非常高的阻抗（接近 $10^5\Omega$）在系统中呈开路状态，此时漏电流非常低(室温下<50μA)。与齐纳二极管不同，

叠层片式压敏电阻器具有低漏电流特性，在最高工作温度下，漏电流不超过 500μA。

In the no conducting mode, the device is at a very high impedance (approaching 10^9ohms) andappears as an almost open circuit in the system. The leakage current drawn at this level is very low(<50μA at ambient temperature) and, unlike the zener diode, the multilayer varistors have the added advantage that, when operated up to its maximum temperature, its leakage current will not increase above 500μA.

*压敏电压

Varistor voltage ($Vb_{(DC)}$)

该电压是压敏电阻器从开路状态进入导通状态的电压值，标称压敏电压通常为 1mA 直流电流所对应的电压。

This is the voltage at which the device changes from the off state to the on state and enters its conduction mode of operation. The voltage is usually characterized at the 1mA point.

*限制电压

Clamping voltage (Vc)

在规定脉冲波形（8/20μs）和电流下，元件两端产生的峰值电压，需要指出的是峰值电压和峰值电流的产生在时间上不一定要一致。

This is the peak voltage appearing across the suppressor when measured at conditions of specified pulse current and specified waveform (8/20μs). It is important to note that the peak current and peak voltage may not necessarily be coincidental in time.

*电容量

Capacitance (Cp)

这是元件在规定频率（1MHz）和偏置电压（0.5V）下的电容量。

This is the capacitance of the device at a specified frequency 1MHz and bias 0.5V

◆应用

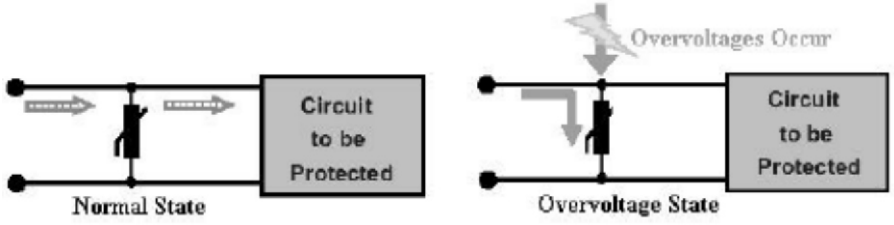
Application

防止过电压

The prevention of overvoltage

当施加的电压升高到压敏电压时， 压敏电阻器的电流急剧上升，被保护设备的浪涌电压迅速减小，从而使装有压敏电阻器的设备抗浪涌噪声能力达到相应要求。压敏电阻器可以抑制各种各样的浪涌电压，使电子设备免受干扰和破坏

When the voltage increases above the threshold of MLV, the suppressor will draws a rapidly increasing current, and then the overvoltage is considerably attenuated away from the protection of the equipments should be supplemented by including specific components that will raise the withstand capabilities to the required level. Varistors provide protection against all kind of overv oltage and prevent electronic equipment from being damaged by transient events.



具体应用

Specific application

*抑制各种感性负载切换或各种瞬间噪声在电路板中产生的EFT和浪涌电压。

Suppression of Inductive switching or other transient events such as EFT and surge voltage at the circuit board level

*保护元件和电路， 防止在电源供应、控制和信号线产生的ESD。

Protection of components and circuits censitive to ESD transients occurring on power supplies, control and signal lines.

*为IC、CMOS和MOSFET提供在线过压保护。

Provides on-board transient voltage protection for ICs, CMOS and MOSFET.

*在许多领域中可替换较大的表面贴装TVS齐纳二极管。

Replace larger surface mount TVS zeners in many applications

*用于协助各种终端产品实现电磁兼容性。

Used to help achieve electromagnetic compliance of end products

◆产品规格型号的表示方法
Part number identification

FPV	160808	G	3R3	P	M	T
①	②	③	④	⑤	⑥	⑦

①

产品代号 Product code	
FPV	叠层片式压敏电阻器 Multilayer chip varistor

②

规格尺寸(L×W×T) (mm) Dimensions	
100505	1.0×0.5×0.5
160808	1.6×0.8×0.8
201209	2.0×1.2×0.9
321611	3.2×1.6×1.1
322513	3.2×2.5×1.3
453215	4.5×3.2×1.5
5750	5.7×5.0
8063	8.0×6.3
1080	10.2×8.0

③

产品系列 Product Series	
E	高耐能型 High energy absorb Type
S	高速型 High speed Type
G	通用型 General Type

④

直流工作电压 Working DC Voltage	
3R3	3.3V
240	24V

⑤

端头 Termination	
P	电镀 Plated

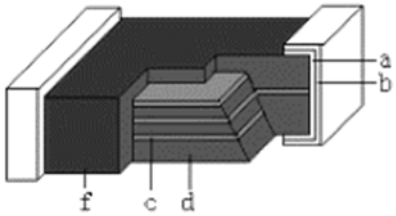
⑥

公差 Toleranc	
K	±10%
L	±15%
M	±20%

⑦

包装方式 Packaging Style	
T	编带包装 Tape & Reel
B	散装 Bulk

◆产品结构
Product structure



a.银层 Ag layer

b. Ni/Sn 镀层 Ni/Sn plating

c.内电极 Inner electrode

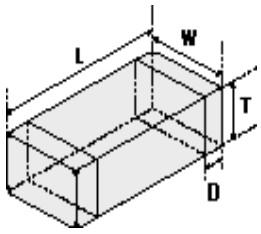
d.瓷体 Body

f.玻璃层 Gass layer

◆规格尺寸及等效电路

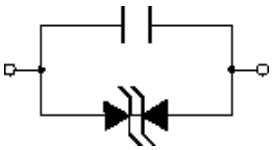
Dimension & Equivalent circuit

单位(Unit): mm/inch



型号 Size	L	W	T	D
100505 (0402)	1.0±0.15 (0.040±0.006)	0.5±0.15 (0.020±0.006)	0.5±0.15 (0.020±0.006)	0.25±0.10 (0.010±0.004)
160808 (0603)	1.60.2 (0.063±0.008)	0.80.2 (0.031±0.008)	0.80.2 (0.031±0.008)	0.30±0.2 (0.012±0.008)
201209 (0805)	2.0±0.2 (0.079±0.008)	1.2±0.2 (0.047±0.008)	0.9±0.2 (0.035±0.008)	0.5±0.3 (0.020±0.012)
321611 (1206)	3.2±0.2 (0.126±0.008)	1.6±0.2 (0.063±0.008)	1.1±0.2 (0.043±0.008)	0.5±0.3 (0.020±0.012)
322513 (1210)	3.2±0.2 (0.126±0.008)	2.5±0.2 (0.098±0.008)	1.3±0.2 (0.051±0.008)	0.5±0.3 (0.020±0.012)
453215 (1812)	4.5±0.2 (0.180±0.008)	3.2±0.2 (0.126±0.008)	1.5±0.2 (0.060±0.008)	0.5±0.3 (0.020±0.012)
5750 (2220)	5.7±0.3 (0.22±012)	5.0±0.3 (0.20±012)	1.0~2.5 (0.050~0.100)	0.7±0.3 (0.028±0.012)
8063 (3225)	8.0±0.3 (0.320±012)	6.3±0.3 (0.250±0.012)	1.0~2.5 (0.050~0.100)	0.7±0.3 (0.028±0.012)
1080 (4032)	10.2±0.3 (0.400±0.012)	8.0±0.3 (0.320±0.012)	1.0~2.5 (0.050~0.100)	0.7±0.3 (0.028±0.012)

Equivalent circuit



◆性能参数

Specification

*片式压敏电阻器通用系列

Multilayer chip varistor general series

通用系列是 FPV 片式压敏电阻器中主要的一种， 其工作电压宽、可靠性高， 应用非常广泛：

General series is a major series of FPV mulitlayer chip varistors (MLV), which can provide widely working voltage, high reliability and suppress varies transient event

*应用

Application

. 为各种IC提供浪涌电压保护

Protection from transient voltage noise in all kinds of IC

. 为电源I/O接口提供ESD、EFT及浪涌保护

Protection from ESD, EFT and surge in power I/O port

. 替代齐纳二极管

Replacement of zener diode

1005 (0402) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	pF
FPV100505G3R3PMT	3.3	2.5	5	±20%	14	0.05	20	300
FPV100505G5R6PLT	5.6	4	8	±15%	19	0.05	20	250
FPV100505G8R0PLT	8	5.7	12	±15%	27	0.05	20	230
FPV100505G9R0PLT	9	6.4	13	±15%	30	0.05	20	200
FPV100505G110PLT	11	7.8	16	±15%	33	0.05	20	180
FPV100505G120PLT	12	8.5	18	±15%	34	0.05	20	150
FPV100505G140PKT	14	10	20	±10%	35	0.05	20	120
FPV100505G160PKT	16	11.3	22	±10%	39	0.05	20	100
FPV100505G180PKT	18	12.7	25	±10%	44	0.05	20	90

1608 (0603) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	Volts
FPV160808G3R3PMT	3.3	2.5	5	±20%	14	0.1	30	300
FPV160808G5R6PLT	5.6	4	8	±15%	19	0.1	30	280
FPV160808G8R0PLT	8	5.7	12	±15%	27	0.1	30	250
FPV160808G9R0PLT	9	6.4	13	±15%	30	0.1	30	240
FPV160808G110PLT	11	7.8	16	±15%	33	0.1	30	220
FPV160808G120PLT	12	8.5	18	±15%	34	0.1	30	210
FPV160808G140PKT	14	10	20	±10%	35	0.1	30	190
FPV160808G160PKT	16	11.3	22	±10%	39	0.1	30	180
FPV160808G180PKT	18	12.7	25	±10%	44	0.1	30	170
FPV160808G220PKT	22	15.6	30	±10%	53	0.1	30	150
FPV160808G240PKT	24	17	33	±10%	58	0.1	30	140
FPV160808G260PKT	26	18.4	36	±10%	63	0.1	30	120
FPV160808G300PKT	30	21.2	42	±10%	74	0.1	30	100

2012 (0805) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	Volts
FPV201209G3R3PMT	3.3	2.5	5	±20%	14	0.1	40	380
FPV201209G5R6PLT	5.6	4	8	±15%	19	0.1	40	350
FPV201209G8R0PLT	8	5.7	12	±15%	27	0.1	40	300
FPV201209G9R0PLT	9	6.4	13	±15%	30	0.1	40	280
FPV201209G110PLT	11	7.8	16	±15%	33	0.1	35	250
FPV201209G120PLT	12	8.5	18	±15%	34	0.1	35	220
FPV201209G140PKT	14	10	20	±10%	35	0.1	35	200
FPV201209G160PKT	16	11.3	22	±10%	39	0.1	35	190
FPV201209G180PKT	18	12.7	25	±10%	44	0.1	35	180
FPV201209G220PKT	22	15.6	30	±10%	53	0.1	35	175
FPV201209G240PKT	24	17	33	±10%	58	0.1	35	170
FPV201209G260PKT	26	18.4	36	±10%	63	0.1	35	165
FPV201209G300PKT	30	21.2	42	±10%	74	0.1	35	150

3216 (1206) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	Volts
FPV321611G3R3PMT	3.3	2.5	5	±20%	14	0.1	40	750
FPV321611G5R6PLT	5.6	4	8	±15%	19	0.1	40	700
FPV321611G8R0PLT	8	5.7	12	±15%	27	0.1	40	650
FPV321611G9R0PLT	9	6.4	13	±15%	30	0.1	40	600
FPV321611G110PLT	11	7.8	16	±15%	33	0.1	35	500
FPV321611G120PLT	12	8.5	18	±15%	34	0.1	35	450
FPV321611G140PKT	14	10	20	±10%	35	0.1	35	350
FPV321611G160PKT	16	11.3	22	±10%	39	0.1	35	300
FPV321611G180PKT	18	12.7	25	±10%	44	0.1	35	270
FPV321611G220PKT	22	15.6	30	±10%	53	0.1	35	250
FPV321611G240PKT	24	17	33	±10%	58	0.1	35	230
FPV321611G260PKT	26	18.4	36	±10%	63	0.1	35	220
FPV321611G300PKT	30	21.2	42	±10%	74	0.1	35	200
FPV321611G330PKT	33	23.3	45	±10%	79	0.1	35	180
FPV321611G380PKT	38	27	51	±10%	90	0.1	35	160

3216 (1206) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	Volts
FPV321611G420PKT	42	30	56	±10%	99	0.1	35	150
FPV321611G480PKT	48	34	62	±10%	110	0.1	35	120
FPV321611G560PKT	56	40	72	±10%	127	0.1	35	110
FPV321611G600PKT	60	45	76	±10%	134	0.1	35	100
FPV321611G680PKT	68	48	86	±10%	151	0.1	35	90

*片式压敏电阻器高耐能系列

Multilayer chip varistor high energy absorb series

高耐能系列专为吸收电路中存在的能量较大的瞬态电压噪声而设计的，其通流量大，吸收功率大、响应速度快。

High energy absorb series is design to absorb the high energy transient voltage in circuit, which provide high rate current, highly energy absorb ability and fast response speed

*应用

Application

. 抑制各种感性负载切换或各种瞬间噪声在电路板中产生的EFT和浪涌电压。

Suppression of Inductive switching or other transient events such as EFT and surge voltage at the circuit board level.

. 保护元件和电路，防止在电源供应、控制和信号线产生的ESD。

Protection of components and circuits sensitive to ESD transients occurring on power supplies, control and signal lines.

. 为IC、CMOS和MOSFET提供在线过压保护。

Provides on-board transient voltage protection for IC, CMOS and MOSFET.

. 在许多领域中可替换较大的表面贴装TVS齐纳二极管。

Replace larger surface mount TVS zeners in many applications

2012 (0805) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	Volts
FPV201209E3R3PMT	3.3	2.5	5	±20%	14	0.3	120	650
FPV201209E5R6PLT	5.6	4	8	±15%	19	0.3	120	600
FPV201209E8R0PLT	8	5.7	12	±15%	27	0.3	120	500
FPV201209E9R0PLT	9	6.4	13	±15%	30	0.3	120	450
FPV201209E110PLT	11	7.8	16	±15%	33	0.3	120	440
FPV201209E120PLT	12	8.5	18	±15%	34	0.3	120	420

2012 (0805) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	Volts
FPV201209E140PKT	14	10	20	±10%	35	0.3	120	400
FPV201209E160PKT	16	11.3	22	±10%	39	0.3	120	380
FPV201209E180PKT	18	12.7	25	±10%	44	0.3	100	360
FPV201209E220PKT	22	15.6	30	±10%	53	0.3	100	320
FPV201209E240PKT	24	17	33	±10%	58	0.3	100	300
FPV201209E260PKT	26	18.4	36	±10%	63	0.3	100	280
FPV201209E300PKT	30	21.2	42	±10%	74	0.3	100	260

3216 (1206) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	Volts
FPV321611E3R3PMT	3.3	2.5	5	±20%	14	0.4	150	1500
FPV321611E5R6PLT	5.6	4	8	±15%	19	0.4	150	1300
FPV321611E8R0PLT	8	5.7	12	±15%	27	0.4	150	1100
FPV321611E9R0PLT	9	6.4	13	±15%	30	0.4	150	1000
FPV321611E110PLT	11	7.8	16	±15%	33	0.4	150	900
FPV321611E120PLT	12	8.5	18	±15%	34	0.4	150	850
FPV321611E140PKT	14	10	20	±10%	35	0.4	150	800
FPV321611E160PKT	16	11.3	22	±10%	39	0.4	150	750
FPV321611E180PKT	18	12.7	25	±10%	44	0.4	150	700
FPV321611E220PKT	22	15.6	30	±10%	53	0.4	150	600
FPV321611E240PKT	24	17	33	±10%	58	0.4	150	550
FPV321611E260PKT	26	18.4	36	±10%	63	0.4	120	500
FPV321611E300PKT	30	21.2	42	±10%	74	0.4	120	450
FPV321611E330PKT	33	23.3	45	±10%	79	0.4	120	400
FPV321611E380PKT	38	27	51	±10%	90	0.4	120	310
FPV321611E420PKT	42	30	56	±10%	99	0.4	120	260
FPV321611E480PKT	48	34	62	±10%	110	0.4	120	240
FPV321611E560PKT	56	40	72	±10%	127	0.4	120	200
FPV321611E600PKT	60	45	76	±10%	134	0.4	120	180
FPV321611E650PKT	65	46	82	±10%	144	0.4	120	165
FPV321611E680PKT	68	48	86	±10%	151	0.4	120	150

3225 (1210) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	Volts
FPV322513E180PKT	18	12.7	25	±10%	44	1.5	300	1200
FPV322513E220PKT	22	15.6	30	±10%	53	1.5	300	1100
FPV322513E240PKT	24	17	33	±10%	58	1.5	300	1050
FPV322513E260PKT	26	18.4	36	±10%	63	1.5	280	1000
FPV322513E300PKT	30	21.2	42	±10%	74	1.5	280	800
FPV322513E330PKT	33	23.3	45	±10%	79	1.5	280	700
FPV322513E380PKT	38	27	51	±10%	90	1.5	280	650
FPV322513E420PKT	42	30	56	±10%	99	1.5	280	580
FPV322513E480PKT	48	34	62	±10%	110	1.5	280	510
FPV322513E560PKT	56	40	72	±10%	127	1.5	250	450
FPV322513E600PKT	60	45	76	±10%	134	1.5	250	420
FPV322513E650PKT	65	46	82	±10%	144	1.5	250	390
FPV322513E680PKT	68	48	86	±10%	151	1.5	250	360

4532 (1812) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	Volts
FPV453215E180PKT	18	12.7	25	±10%	44	2.5	500	1800
FPV453215E220PKT	22	15.6	30	±10%	53	2.5	500	1600
FPV453215E240PKT	24	17	33	±10%	58	2.5	500	1500
FPV453215E260PKT	26	18.4	36	±10%	63	2.5	500	1300
FPV453215E300PKT	30	21.2	42	±10%	74	2.5	500	1200
FPV453215E330PKT	33	23.3	45	±10%	79	2.5	500	1100
FPV453215E380PKT	38	27	51	±10%	90	2.5	500	1050
FPV453215E420PKT	42	30	56	±10%	99	2.5	500	1000
FPV453215E480PKT	48	34	62	±10%	110	2.5	500	900
FPV453215E560PKT	56	40	72	±10%	127	2.5	500	800
FPV453215E600PKT	60	45	76	±10%	134	2.5	500	650
FPV453215E650PKT	65	46	82	±10%	144	2.5	500	600
FPV453215E680PKT	68	48	86	±10%	151	2.5	500	550

5750 (2220) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	Volts
FPV5750E180PKT	18	12.7	25	±10%	44	2.5	600	4000
FPV5750E220PKT	22	15.6	30	±10%	53	2.5	600	3500
FPV5750E240PKT	24	17	33	±10%	58	2.5	600	3000
FPV5750E260PKT	26	18.4	36	±10%	63	2.5	600	2500
FPV5750E300PKT	30	21.2	42	±10%	74	2.5	600	2200
FPV5750E330PKT	33	23.3	45	±10%	79	2.5	600	2000
FPV5750E380PKT	38	27	51	±10%	90	2.5	600	1800
FPV5750E420PKT	42	30	56	±10%	99	2.5	600	1600
FPV5750E480PKT	48	34	62	±10%	110	2.5	600	1400
FPV5750E560PKT	56	40	72	±10%	127	2.5	600	1000
FPV5750E600PKT	60	45	76	±10%	134	2.5	600	800
FPV5750E650PKT	65	46	82	±10%	144	2.5	600	700
FPV5750E680PKT	68	48	86	±10%	151	2.5	600	700

8063 (3225) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	Volts
FPV8063E14PKT	14	11	18	±10%	35@1A	0.3	100	4000
FPV8063E18PKT	18	14	22	±10%	44@1A	0.4	100	3500
FPV8063E22PKT	22	17	27	±10%	53@1A	0.5	100	3000
FPV8063E26PKT	26	20	33	±10%	63@1A	0.6	100	2600
FPV8063E31PKT	31	25	39	±10%	69@1A	0.7	100	2200
FPV8063E38PKT	38	30	47	±10%	90@1A	0.9	100	1800
FPV8063E45PKT	45	35	56	±10%	99@1A	1.1	100	1500
FPV8063E56PKT	56	40	68	±10%	127@1A	1.3	100	1200
FPV8063E65PKT	65	50	82	±10%	144@5A	1.8	400	1100
FPV8063E85PKT	85	60	100	±10%	176@5A	2.2	400	950
FPV8063E100PKT	100	75	120	±10%	211@5A	2.5	400	800
FPV8063E125PKT	125	95	150	±10%	264@5A	3.4	400	650
FPV8063E150PKT	150	115	180	±10%	317@5A	3.6	400	550
FPV8063E170PKT	170	130	205	±10%	361@5A	4.2	400	400
FPV8063E180PKT	180	140	220	±10%	387@5A	4.5	400	350
FPV8063E200PKT	200	150	240	±10%	422@5A	4.9	400	250
FPV8063E225PKT	225	175	270	±10%	475@5A	5.6	400	200

8063 (3225) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	Volts
FPV8063E300PKT	300	230	360	±10%	634@5A	7.2	400	90
FPV8063E320PKT	320	250	390	±10%	686@5A	8.2	400	80
FPV8063E350PKT	350	275	430	±10%	757@5A	8.6	400	75
FPV8063E385PKT	385	300	470	±10%	827@5A	9.6	400	60

1080(4032) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	Volts
FPV1080E14PKT	14	11	18	±10%	35@1A	0.8	250	5000
FPV1080E18PKT	18	14	22	±10%	44@1A	0.9	250	4500
FPV1080E22PKT	22	17	27	±10%	53@1A	1.1	250	4000
FPV1080E26PKT	26	20	33	±10%	63@1A	1.3	250	3500
FPV1080E31PKT	31	25	39	±10%	69@1A	1.6	250	3000
FPV1080E38PKT	38	30	47	±10%	90@1A	2.0	250	2800
FPV1080E45PKT	45	35	56	±10%	99@1A	2.5	250	2500
FPV1080E56PKT	56	40	68	±10%	127@1A	3.0	250	2000
FPV1080E65PKT	65	50	82	±10%	144@5A	4.2	1200	1900
FPV1080E85PKT	85	60	100	±10%	176@5A	4.8	1200	1700
FPV1080E100PKT	100	75	120	±10%	211@5A	5.9	1200	1500
FPV1080E125PKT	125	95	150	±10%	264@5A	7.6	1200	1350
FPV1080E150PKT	150	115	180	±10%	317@5A	8.4	1200	1000
FPV1080E170PKT	170	130	205	±10%	361@5A	9.5	1200	900
FPV1080E180PKT	180	140	220	±10%	387@5A	10.0	1200	800
FPV1080E200PKT	200	150	240	±10%	422@5A	11.0	1200	700
FPV1080E225PKT	225	175	270	±10%	475@5A	13.0	1200	500
FPV1080E300PKT	300	230	360	±10%	634@5A	17.0	1200	220
FPV1080E320PKT	320	250	390	±10%	686@5A	19.0	1200	200
FPV1080E350PKT	350	275	430	±10%	757@5A	21.0	1200	140
FPV1080E385PKT	385	300	470	±10%	827@5A	23.0	1200	110
FPV1080E615PKT	615	460	750	±10%	1320@5A	36.0	600	55

备注：8063与1080直流工作电压表示方法：18------18V 225-----225V。

Remark: The working DC voltage of 8063 and1080 part number are identified as: 18------18V 225-----225V

*片式压敏电阻器高速系列

Multilayer chip varistor high speed series

高速系列方式压敏电阻器是FPV电压保护元件中的一族，其容量非常低反应速度非常快。

The multilayer high-speed series is a very low capacitance extension to the FPV family of transient voltage suppressor.

高速系列产品为高速数据线和其它高频领域提供ESD和EFT保护。

The high speed series provides protection from ESD and EFT in high speed data -line and other high frequency applications.

. 数据、诊断I/O接口

Data, diagnostic I/O ports

. 通用串行总线（USB)

Universal serial bus (USB)

. 视频和音频接口

Video & Audio ports

. 便携式手提设备

Portable/Hand-Held products

. 移动通信/峰窝电话

Mobile communications/Cellular phones

. 计算机/DSP产品 Computer/DSP products

. 工业及医学仪器

Industrial instruments including medical

1005 (0402) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	pF
FPV100505S3R3PMT	3.3	2.5	7	±20%	15	0.05	10	70
FPV100505S5R6PLT	5.6	4	11	±15%	24	0.05	10	45
FPV100505S8R0PLT	8	5.7	14	±15%	31	0.05	10	30
FPV100505S9R0PLT	9	6.4	15	±15%	33	0.05	10	26
FPV100505S110PLT	11	7.8	18	±15%	40	0.05	10	24
FPV100505S120PLT	12	8.5	20	±15%	44	0.05	10	20
FPV100505S140PKT	14	10	22	±10%	49	0.05	10	18
FPV100505S160PKT	16	11.3	24	±10%	53	0.05	10	15
FPV100505S180PKT	18	12.7	27	±10%	60	0.05	10	15

1608 (0603) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	pF
FPV160808S3R3PMT	3.3	2.5	7	±20%	15	0.05	10	180
FPV160808S5R6PLT	5.6	4	11	±15%	24	0.05	10	110

1608 (0603) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	pF
FPV160808S8R0PLT	8	5.7	14	±15%	31	0.05	10	80
FPV160808S9R0PLT	9	6.4	15	±15%	33	0.05	10	70
FPV160808S110PLT	11	7.8	18	±15%	40	0.05	10	60
FPV160808S120PLT	12	8.5	20	±15%	44	0.05	10	55
FPV160808S140PKT	14	10	22	±10%	49	0.05	10	50
FPV160808S160PKT	16	11.3	24	±10%	53	0.05	10	45
FPV160808S180PKT	18	12.7	27	±10%	60	0.05	10	40
FPV160808S220PKT	22	15.6	32	±10%	71	0.05	10	30
FPV160808S240PKT	24	17	35	±10%	77	0.05	10	25
FPV160808S260PKT	26	18.4	38	±10%	84	0.05	10	25
FPV160808S300PKT	30	21.2	44	±10%	97	0.05	10	20
FPV160808S680PKT	68	48	88	±10%	194	0.05	10	17

2012 (0805) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	pF
FPV201209S3R3PMT	3.3	2.5	7	±20%	15	0.05	10	220
FPV201209S5R6PLT	5.6	4	11	±15%	24	0.05	10	140
FPV201209S8R0PLT	8	5.7	14	±15%	31	0.05	10	100
FPV201209S9R0PLT	9	6.4	15	±15%	33	0.05	10	90
FPV201209S110PLT	11	7.8	18	±15%	40	0.05	10	70
FPV201209S120PLT	12	8.5	20	±15%	44	0.05	10	60
FPV201209S140PKT	14	10	22	±10%	49	0.05	10	55
FPV201209S160PKT	16	11.3	24	±10%	53	0.05	10	50
FPV201209S180PKT	18	12.7	27	±10%	60	0.05	10	45
FPV201209S220PKT	22	15.6	32	±10%	71	0.05	10	40
FPV201209S240PKT	24	17	35	±10%	77	0.05	10	35
FPV201209S260PKT	26	18.4	38	±10%	84	0.05	10	30
FPV201209S300PKT	30	21.2	44	±10%	97	0.05	10	25

◆超低电容量片式压敏电阻器
Ultra-low capacitance chip varistor

超低电容压敏电阻器属于FPV高速系列，其容量更低反应速度更快。

Ultra-low capacitance varistors are FPV high-speed series, its lower capacity and faster response.

*应用
Application

. 数据、诊断I/O接口

Data, diagnostic I/O ports

. 通用串行总线（USB ）

Universal serial bus (USB)

. 视频和音频接口

Video & Audio ports

. 便携式手提设备

Portable/Hand-Held products

. 移动通信/峰窝电话

Mobile communications/Cellular phones

. 计算机/DSP产品 Computer/DSP products

. 工业及医学仪器

Industrial instruments including medical

*产品规格型号的表示方法
Part number identification

FPV	160808	S	3R3	P	M	T	030
①	②	③	④	⑤	⑥	⑦	⑧

①

产品代号 Product code	
FPV	叠层片式压敏电阻器 Multilayer chip varistor

②

规格尺寸(L×W×T) (mm) Dimensions	
100505	1.0×0.5×0.5
160808	1.6×0.8×0.8

③

产品系列 Product Series	
S	高速型 High speed Type

④

直流工作电压 Working DC Voltage	
3R3	3.3V
180	24V

⑤

端头 Termination	
P	电镀 Plated

⑥

公差 Toleranc	
K	±10%

⑦

包装方式 Packaging Style	
T	编带包装 Tape & Reel
B	散装 Bulk

⑧

电容量 Capacitance	
070	7pF
150	15 pF

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	pF
FPV100505S3R3PMT150	3.3	2.5	7	±20%	20	0.01	6	10.5~19.5
FPV100505S5R6PMT150	5.6	4	11	±20%	24	0.01	6	10.5~19.5
FPV100505S180PMT030	18	12.7	120	±20%	250	0.01	6	2.3~4.3
FPV100505S180PMT070	18	12.7	27	±20%	60	0.01	6	4.8~8.8
FPV160808S3R3PMT150	3.3	2.5	7	±20%	20	0.01	6	10.5~19.5
FPV160808S5R6PMT150	5.6	4	11	±20%	24	0.01	6	10.5~19.5
FPV160808S180PMT030	18	12.7	120	±20%	250	0.01	6	2.3~4.3
FPV160808S180PMT070	18	12.7	27	±20%	60	0.01	6	4.8~8.8

◆小尺寸超高电压多层片式压敏电阻器
Small size super high voltage multilayer chip varistor

*特性

Features

多层独石结构适合高密度安装

Multilayer monolithic construction suitable for high density mounting

良好的残压比和电压浪涌抑制能力强

Excellent clamping ratio and strong capability of voltage surge suppression

高压压敏电阻，适用于交流电路

High voltage varistor, suitable for AC circuit

*应用

Application

用于电源、网络接口、LED照明等防雷和电压浪涌抑制

Lightning protection and voltage surge suppression for power supply, Network interface, LED lighting .

可以代替小直径的插件类压敏电阻器

Can instead of the small diameter plug-in class varistor

*产品规格型号的表示方法

Part number identification

FPV	2016	H	200	P	K	T
①	②	③	④	⑤	⑥	⑦

①

产品代号 Product code	
FPV	叠层片式压敏电阻器 Multilayer chip varistor

②

规格尺寸(L×W×T) (mm) Dimensions	
2016	2.0×1.6
3216	3.2×1.6
3225	3.2×2.5
4532	4.5×3.2
5750	5.7×5.0

③

产品系列 Product Series	
H	超高压型 Super high voltage Type

④

直流工作电压 Working DC Voltage	
200	200V
385	385V

⑤

端头 Termination	
P	电镀 Plated

⑥

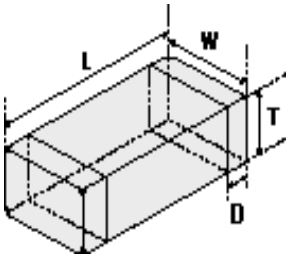
公差 Tolerance	
K	±10%

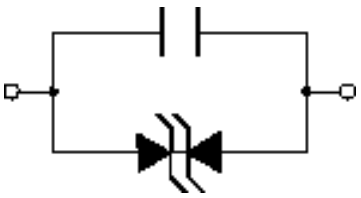
⑦

包装方式 Packaging Style	
T	编带包装 Tape & Reel
B	散装 Bulk

*规格尺寸及等效电路

Dimension & Equivalent circuit





Equivalent circuit

单位(Unit): mm（inch）

型号 Size	L	W	T	D
2016 (0806)	2.2±0.2 (0.087±0.008)	1.7±0.2 (0.077±0.008)	1.8 Max (0.071)	0.25~0.75 (0.010~0.029)
3216 (1206)	3.2+0.6/-0.2 (0.126+0.024/-0.008)	1.6+0.4/-0.2 (0.063+0.016/-0.008)	1.9 Max (0.075)	0.25~0.75 (0.010~0.029)
3225 (1210)	3.2+0.6/-0.2 (0.126+0.024/-0.008)	2.5+0.4/-0.2 (0.098+0.016/-0.008)	2.6 Max (0.102)	0.25~0.75 (0.010~0.029)
453215 (1812)	4.5+0.6/-0.2 (0.177+0.024/-0.008)	3.2+0.5/-0.2 (0.126+0.02/-0.008)	2.8 Max (0.110)	0.30~0.80 (0.012~0.031)
5750 (2220)	5.7+0.6/-0.2 (0.224+0.024/-0.008)	5.0+0.5/-0.2 (0.197+0.02/-0.008)	2.8 Max (0.110)	0.40~0.90 (0.016~0.034)

*性能参数

Specification

2016 (0806) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	pF
FPV2016H200PKT	200	150	240	±10%	360	0.36	100	40
FPV2016H225PKT	225	175	270	±10%	410	0.36	100	35
FPV2016H250PKT	250	195	300	±10%	450	0.36	80	32
FPV2016H300PKT	300	230	360	±10%	540	0.36	50	30
FPV2016H320PKT	320	250	390	±10%	590	0.36	50	25
FPV2016H350PKT	350	275	430	±10%	650	0.36	50	20

3216 (1206) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	pF
FPV3216H200PKT	200	150	240	±10%	360	0.9	150	50
FPV3216H225PKT	225	175	270	±10%	410	0.9	150	45
FPV3216H250PKT	250	195	300	±10%	450	0.9	150	40
FPV3216H300PKT	300	230	360	±10%	540	0.9	80	35
FPV3216H320PKT	320	250	390	±10%	590	0.9	80	30
FPV3216H350PKT	350	275	430	±10%	650	0.9	80	30
FPV3216H385PKT	385	300	470	±10%	710	0.9	80	25

3225 (1210) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	pF
FPV3225H200PKT	200	150	240	±10%	360	1.5	200	55
FPV3225H225PKT	225	175	270	±10%	410	1.5	200	50
FPV3225H250PKT	250	195	300	±10%	450	1.5	200	45
FPV3225H300PKT	300	230	360	±10%	540	1.5	150	40
FPV3225H320PKT	320	250	390	±10%	590	1.5	150	40
FPV3225H350PKT	350	275	430	±10%	650	1.5	150	35
FPV3225H385PKT	385	300	470	±10%	710	1.5	150	30

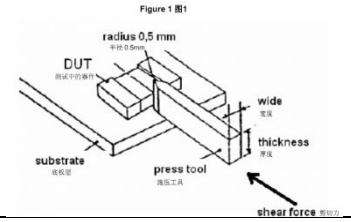
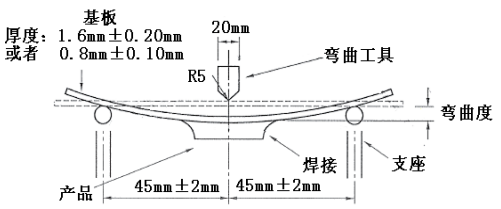
4532(1812) Type

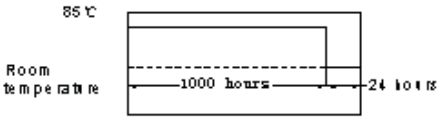
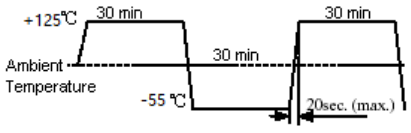
规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	pF
FPV4532H200PKT	200	150	240	±10%	360	4.5	200	70
FPV4532H225PKT	225	175	270	±10%	410	4.5	200	65
FPV4532H250PKT	250	195	300	±10%	450	5.0	200	60
FPV4532H300PKT	300	230	360	±10%	540	5.5	150	55
FPV4532H320PKT	320	250	390	±10%	590	6.0	150	50
FPV4532H350PKT	350	275	430	±10%	650	6.0	150	45
FPV4532H385PKT	385	300	470	±10%	710	6.5	150	40

5750(2220) Type

规格型号 Part NO	工作电压 Working voltage		压敏电压 Varistor voltage @1mA DC		最大限制电 Maximum clamping Voltage 8/20s 1A	能量耐量 Energy absorb 10/1000s	峰值电流 Peak current 8/20s	标准电容量 Typical capacitance @1MHz
	DC	AC						
	Volts	Volts	VB	VB	Volts	Joules	Amps	pF
FPV5750H200PKT	200	150	240	±10%	360	4.5	500	80
FPV5750H225PKT	225	175	270	±10%	410	4.5	500	70
FPV5750H250PKT	250	195	300	±10%	450	5.0	500	60
FPV5750H300PKT	300	230	360	±10%	540	5.5	400	55
FPV5750H320PKT	320	250	390	±10%	590	6.0	400	50
FPV5750H350PKT	350	275	430	±10%	650	6.0	400	45
FPV5750H385PKT	385	300	470	±10%	710	6.5	400	40

◆可靠性测试方法
Reliability Test Method

序号 No.	项目 Items	要求 Requirements	试验方法及备注 Test Methods and Remarks
1	工作温度范围 Operating temperature range	-55 to +125℃	
2	贮存温度范围 Storage temperature range	-10 to +40℃	
3	可焊性 Solder ability	电极面 95%以上覆盖新的焊料。 95% or more of electrode area shall be coated by new solder.	焊槽法；无铅焊锡； 温度(245±3) ℃； 浸渍时间（3±0.3) s。 Solder bath; Lead-free solder; Temperature (245±3) ℃; Immersion timer (3±0.3) seconds.
4	耐焊接热 Resistance to soldering	无可见损伤； 压敏电压变化在±10%之内。 No Visible damage； Varistor voltage change within±10%.	焊槽法； 温度(260±5) ℃； 浸渍时间（10±1) s。 Solder bath; Temperature (260±5) ℃; Immersion timer (10±1) seconds.
5	端子强度 Terminal Strength (SMD)	端电极没有破裂，也不会脱离瓷体 The terminal electrode shall not be broken off nor the chip element.	保持时间 Keep time:10S±1S 施加力 Applied force: 1005,1608:5N;2012:6N;3216,3225,4532:10N; 5750,8063,1080:15N 
6	抗弯强度 Flextrue strength	无可见损伤； 压敏电压变化在±10%之内。 No Visible damage； Varistor voltage change within±10%.	测试基板:玻璃环氧树脂基板 加压速度为（1±0.5）mm/s, 弯度:2mm, 保持时间 20s±1s Testing board: glass epoxy-resin substrate For （1±0.5） mm/s compression speed, curvature: 2mm, hold time30s±1s 。 
7	耐高温 High temperature resistance	无可见损伤； 压敏电压变化在±10%之内。 No Visible damage； Varistor voltage change within±10%.	测试温度： 125±2℃ Temperature: 125±2℃ 测试时间：1000^{+24}_{-0} 小时 Duration: 1000^{+24}_{-0} hrs

序号 No.	项目 Items	要求 Requirements	试验方法及备注 Test Methods and Remarks
8	耐低温 Loading at low temperature	无可见损伤； 压敏电压变化在±10%之内。 No Visible damage； Varistor voltage change within±10%.	温度:-55±2℃ Temperature: -55±2℃ 测试时间:1000 $^{+24}_{-0}$ 小时 Testing time: 1000 $^{+24}_{-0}$ hrs
9	高温负载 High temperature load	无可见损伤； 压敏电压变化在±10%之内。 No Visible damage； Varistor voltage change within±10%.	测试温度:85±2℃ Temperature: 85±2℃ 测试时间:1000 $^{+24}_{-0}$ 小时 Testing time: 1000 $^{+24}_{-0}$ hrs 施加直流工作电压 Bias at Working Voltage Vdc. 
10	恒定湿热 Static Humidity	无可见损伤； 压敏电压变化在±10%之内。 No Visible damage； Varistor voltage change within±10%.	湿度：90~95% RH Humidity:90 to 95% RH 温度：60±2℃ Temperature:40±2℃ 测试时间:1000 $^{+24}_{-0}$ 小时 Testing time: 1000 $^{+24}_{-0}$ hrs
11	振动 Vibration	无可见损伤； 压敏电压变化在±10%之内。 No Visible damage； Varistor voltage change within±10%.	频率：10~55~10Hz Frequency 10 to 55 to 10Hz 振幅：1.5mm Amplitude:1.5mm X、Y、Z 方向的时间：每方向 2 小时 Directions:2hrs each in X,Y,Z direction
12	温度冲击 Thermal shock	无可见损伤； 压敏电压变化在±10%之内。 No Visible damage； Varistor voltage change within±10%.	温度：-55℃，30±3 分钟 +125℃，30±3 分钟 Temperature: -55℃ for 30±3min +125℃ for 30±3min 转换时间：≤3min Transforming interval : ≤3min 循环次数：32 Number of cycles: 32 

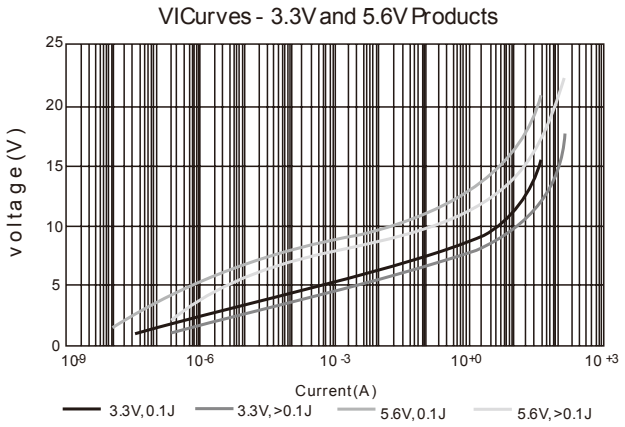
注：以上要求测试电性能的项目，应试验后在标准条件下放置 24 小时后测试。

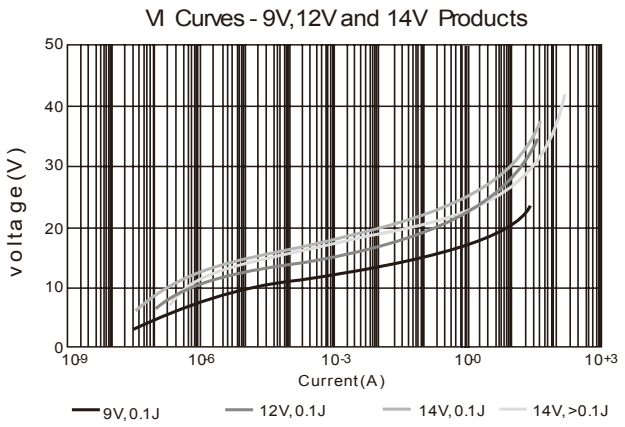
Note: When there are questions concerning, measurement shall be made after 24±2hrs of recovery under the standard condition.

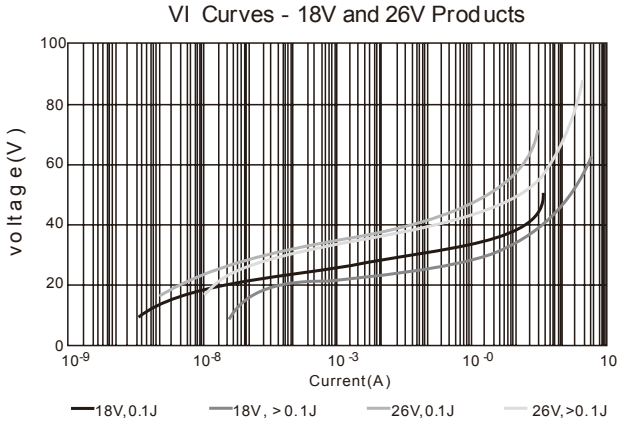
◆产品特性曲线图
Product Characteristic Curve

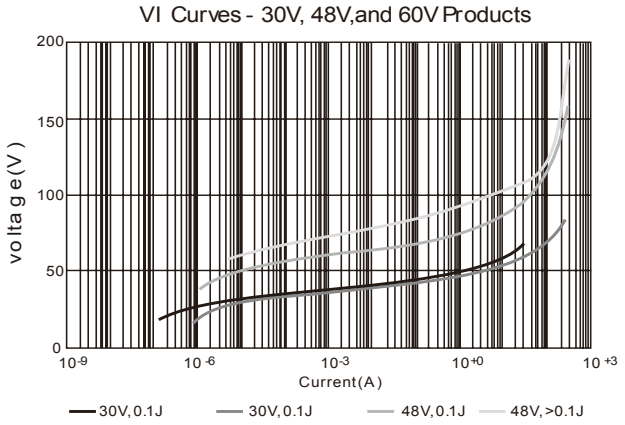
* I-V 曲线

I-V Curves



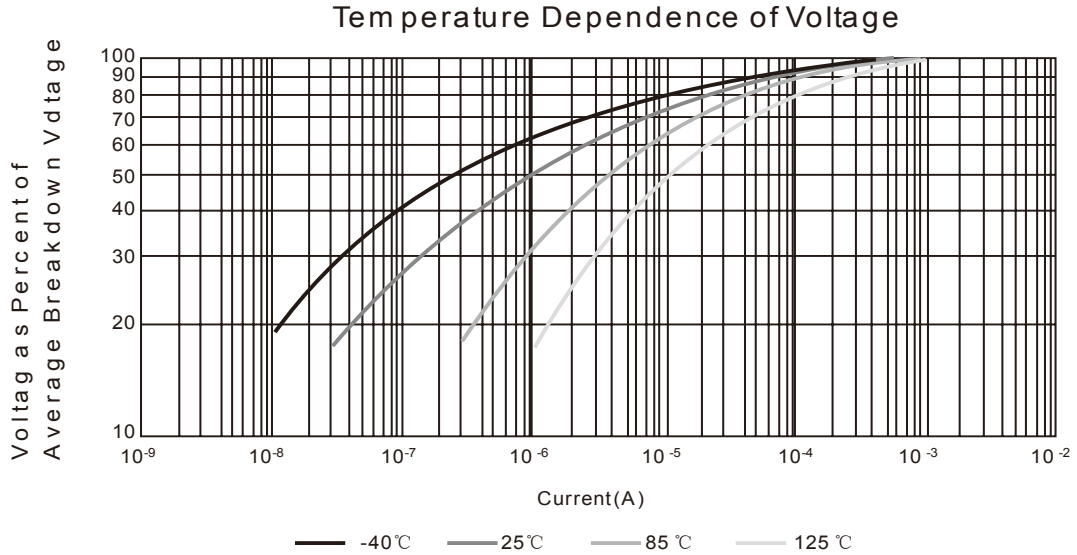






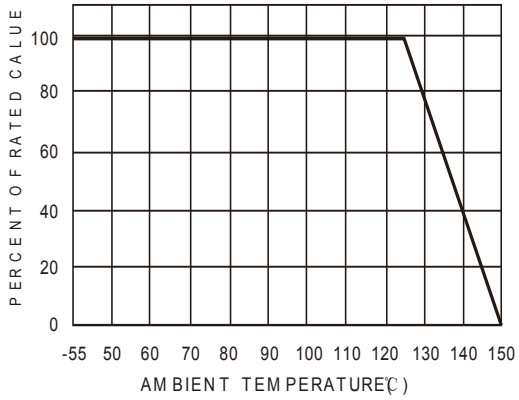
*VB 与温度关系

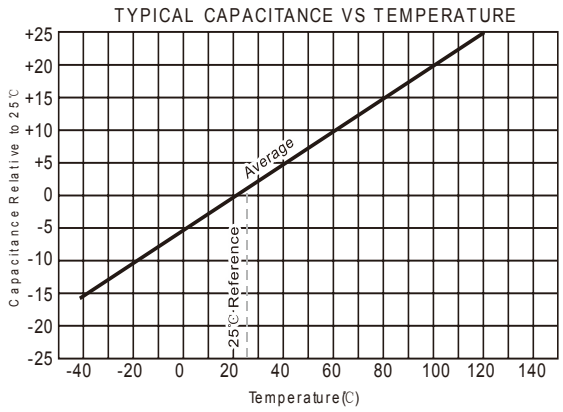
VB vs. temperature



*能量和电容与温度的关系

Energy and capacitance vs. temperature





◆包装

Packaging

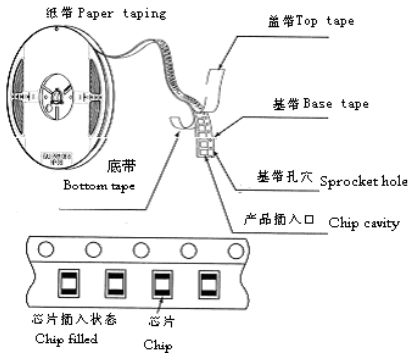
*包装数量

Packaging number

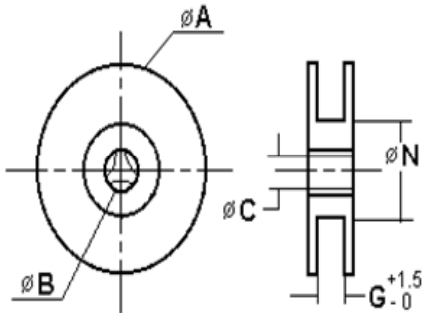
类型 SIZE	1080	8063	5750	453215	322513	321611	201209	160808	100505
每卷数量 REEL	2500	2500	3000	3000	3000	3000	4000	4000	10000
每盒数量 BOX	10000	10000	12000	12000	30000	30000	40000	40000	100000
每箱数量 CASE	30000	30000	36000	36000	180000	180000	240000	240000	600000

类型 SIZE	5750H	4532H	3225H	3216H	2012H
每卷数量 REEL	2500	2500	1500	1500	2000
每盒数量 BOX	10000	10000	15000	15000	20000
每箱数量 CASE	30000	30000	90000	90000	120000

* 编带图 Taping drawings

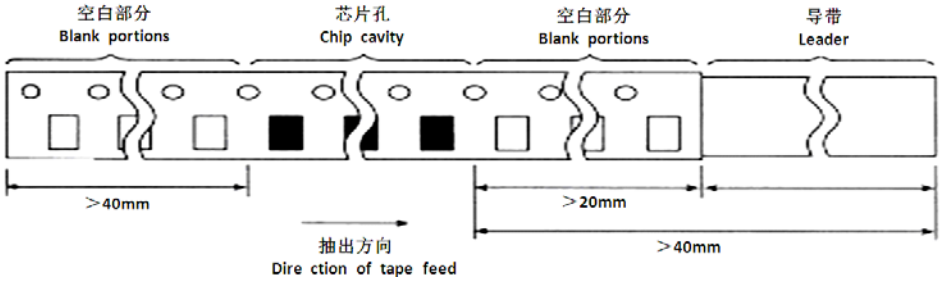


* 卷盘尺寸 Reel dimensions (Unit: mm)



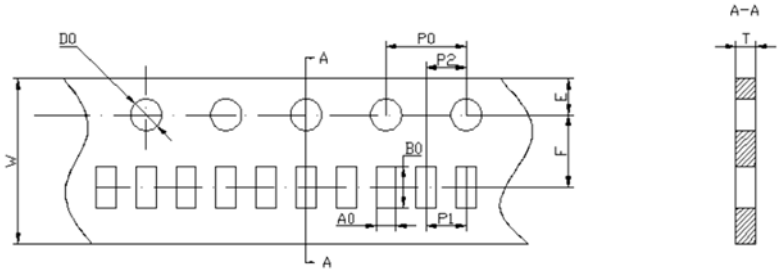
型号 Type	卷盘 Reel	A	B	C	N	G
1005-3225	CF-8	178±2.0	22.0±2.0	13.0±1.0	60±2.0	9.5±2.0
4532-5750	CF-12	330±2.0	21.5±2.0	13.5±1.0	100.0±2.0	12.4±2.0
8063	CF-16	330±2.0	22.0±2.0	12.5±1.5	110±2.0	16
1080	CF-24	330±2.0	22.0±2.0	12.5±1.5	98±2.0	24

* 导带及空格部分 Leader and blank portion



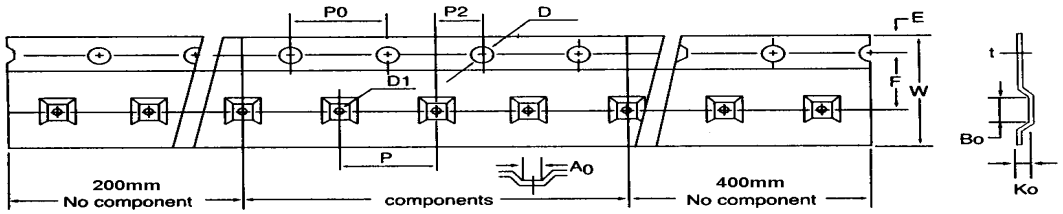
* 编带尺寸 Taping dimensions (Unit: mm)

纸带 Paper tape



Part NO.	A0	B0	W	F	E	P1	P2	P0	D0	T
100505	0.59±0.10	1.12±0.10	8.00±0.20	3.50±0.10	1.75±0.20	2.00±0.10	2.00±0.10	4.00±0.20	1.55±0.10	0.60±0.10
160808	1.05±0.20	1.85±0.20	8.00±0.20	3.50±0.10	1.75±0.20	2.00±0.20	2.00±0.10	4.00±0.20	1.55±0.10	0.95±0.10
201209	1.45±0.20	2.35±0.20	8.00±0.20	3.50±0.10	1.75±0.20	2.00±0.20	2.00±0.10	4.00±0.20	1.55±0.10	0.95±0.10

塑料胶带 Embossed carrier



Part NO	1080	8063	5750	453215	322513	321611
W	24.0+/-0.3	16.0+/-0.3	12.0+/-0.2	12.00+/-0.20	8.00+/-0.20	8.00+/-0.20
P	12+/-0.10	12+/-0.10	8.0+/-0.10	1.75+/-0.10	1.75+/-0.10	1.75+/-0.10
E	1.75+/-0.10	1.75+/-0.10	1.75+/-0.10	5.50+/-0.10	3.50+/-0.10	3.50+/-0.10
F	11.5+/-0.10	7.50+/-0.10	5.50+/-0.10	1.50+/-0.10	1.50+/-0.10	1.50+/-0.10
D	1.50 +0.1	1.50 +0.1	1.50 +0.1	1.50+/-0.10	1.00+/-0.10	1.00+/-0.10
D1	1.50 +0.1	1.50 +0.1	1.50 +0.1	4.00+/-0.10	4.00+/-0.10	4.00+/-0.10
Po	4.0+/-0.10	4.0+/-0.10	4.0+/-0.10	40.0+/-0.20	40.0+/-0.20	40.0+/-0.20
Po10	40.0+/-0.20	40.0+/-0.20	40.0+/-0.20	8.00+/-0.10	4.00+/-0.10	4.00+/-0.10
P2	2.0+/-0.1	2.0+/-0.1	2.0+/-0.1	2.00+/-0.10	2.0+/-0.05	2.0+/-0.05
A0	8.4+/-0.10	7.0+/-0.20	5.1+/-0.20	3.66+/-0.10	2.77+/-0.10	1.88+/-0.10
B0	10.5+/-0.10	8.7+/-0.20	6.0+/-0.20	4.95+/-0.10	3.42+/-0.10	3.50+/-0.10
t	0.3+/-0.05	0.3+/-0.05	0.3+/-0.05	1.85+/-0.10	1.55+/-0.10	1.27+/-0.10
Ko	1.9+/-0.1	2.0+/-0.1	2.0+/-0.1	0.24+/-0.10	0.22+/-0.10	0.22+/-0.10

Part NO	5750H	4532H	3225H	3216H	2016H
W	12.0+/-0.2	12.0+/-0.2	8.0+/-0.2	8.0+/-0.2	8.0+/-0.2
P	8.0+/-0.10	8.0+/-0.10	4.0+/-0.10	4.0+/-0.10	4.0+/-0.10
E	1.75+/-0.10	1.75+/-0.10	1.75+/-0.10	1.75+/-0.10	1.75+/-0.10
F	5.50+/-0.10	5.50+/-0.10	3.50+/-0.10	3.50+/-0.10	3.50+/-0.10
D	1.50 +0.1	1.55 +/-0.05	1.50 +0.1	1.50 +0.1	1.50 +0.1
D1	1.50 +0.1	1.50 +0.25	1.00 +0.05	1.00 +0.05	1.00 +0.05
Po	4.0+/-0.10	4.0+/-0.10	4.0+/-0.10	4.0+/-0.10	4.0+/-0.10
Po10	40.0+/-0.20	40.0+/-0.20	40.0+/-0.20	40.0+/-0.20	40.0+/-0.20
P2	2.0+/-0.1	2.0+/-0.05	2.0+/-0.05	2.0+/-0.05	2.0+/-0.05
A0	5.1+/-0.20	3.66+/-0.20	3.0+/-0.20	2.1+/-0.20	2.0+/-0.20
B0	6.0+/-0.20	4.95+/-0.10	3.9+/-0.10	3.9+/-0.10	2.5+/-0.10
t	0.3+/-0.05	0.23+/-0.05	0.23+/-0.05	0.23+/-0.05	0.23+/-0.05
Ko	3.0+/-0.1	3.0+/-0.1	2.55+/-0.1	2.0+/-0.1	1.9+/-0.1

■修订履历

版本	日期	修订内容	修订人
A0	2024-05-16	首次发行	岑权进

注：上述所提供之内容为产品规格说明。在产品未变更时，风华保有修改此内容不另行通知之所有权利，任何产品变更将会以ＰＣＮ通知客户。