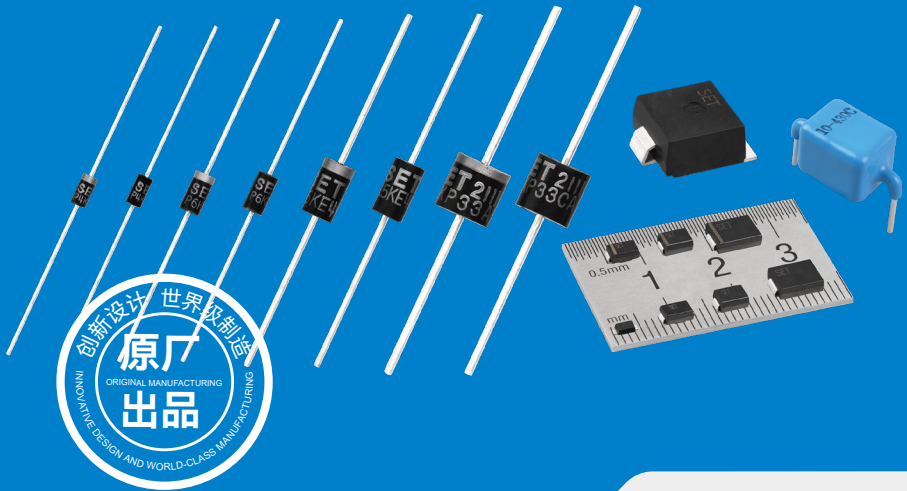


# TVS

## 瞬态电压抑制二极管 *Transient Voltage Suppression Diodes*

- 快速响应
- 玻璃钝化保护
- 优异的箝位性能
- 低浪涌电阻
- 小型化紧凑封装
- 符合IEC 61000-4-2标准的数据线路的ESD保护
- 符合IEC 61000-4-4标准的数据线路的EFT保护
- 封装材料阻燃等级94 V-0
- 无卤素，符合RoHS要求
- Fast Response
- Glass Passivated chip junction
- Excellent clamping capability
- Low incremental surge resistance
- Low profile package
- ESD protection of data lines in accordance with IEC 61000-4-2(IEC801-2)
- EFT protection of data lines in accordance with IEC61000-4-4(IEC801-4)
- Plastic package has underwriters laboratory flammability rating 94 V-0
- Halogen free and RoHS compliant



SET safe | SET fuse

赛尔特

制造电路控制及安全保护元器件 提供电路安全解决方案  
Providing a Total Solution for High Standard Safety Circuit Protection

# WHAT

## CAN DO FOR YOU

赛尔特设计、制造、销售业界领先的**电路控制及安全保护元器件**、提供**电路安全解决方案**。

2000年成立于中国厦门。产品销往40多个国家和地区，与世界500强的部分企业有深远的合作，首创、独创多个产品；取得CCC、UL、cUL、VDE、TUV、PSE、KC等认证，符合RoHS、REACH，获得IATF16949、ISO9001、ISO14001、ISO45001、GB/T29490管理体系认证，参与多项电路保护元器件的国家、国际标准制定、修订。

赛尔特(SETsafe | SETfuse)产品的主要应用市场：通信、防雷器、电源、新能源、照明、家电、移动设备、医疗。

### MISSION

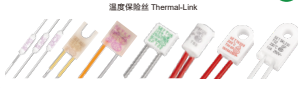
**PROVIDING A TOTAL SOLUTION FOR HIGH STANDARD SAFETY CIRCUIT PROTECTION.**

SETsafe | SETfuse was established in 2000 in Xiamen, China. We have a presence in more than 40 countries and regions recognising our products. Some of the world's 500 fortune companies are our valuable customers. We have pioneered, innovated & developed several products exclusively. Products are compliance with CCC, UL, cUL, VDE, TUV, PSE, KC, IATF16949, ISO9001, ISO14001, ISO45001, GB/T29490 certificates. We are in one of the core participating teams for revising and setting several national & international standards in the field of Circuit Protection.


SETsafe | SETfuse Key Markets: Telecom, Surge Protector, Power, New Energy, Lighting, Home Appliances, Mobile Devices, Medical.

### 过温保护 Over Temperature Protection


**ATCO**  
温度保险丝 Thermal-Link 1



**DC-ATCO**  
直流温度保险丝 Thermal-Link 2



**OTCO**  
温度保险丝 Thermal-Link 3

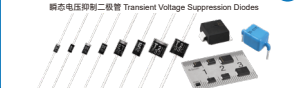


**TMS**  
热保护器 Thermal Protector 4




### 过电压保护 Over Voltage Protection


**TVS Diodes**  
瞬态电压抑制二极管 Transient Voltage Suppression Diodes 1




**GDT**  
气体放电管 Gas Discharge Tube 2




**MOV**  
压敏电阻 Metal Oxide Varistor 3



**TFMOV**  
热保护型压敏电阻 Thermal Fuse & MOV 4



**TFMOV**  
热保护型压敏电阻 Thermally Protected Varistors 5




### 过电压保护 Over Voltage Protection

**SPD-M**  
电涌保护模块 Surge Protective Device Module 6




**SPD**  
低压电源系统 Low-voltage Power Systems 7



**SPD**  
光伏供电系统 PV System 8



**SPD**  
室外照明系统 Outdoor Lighting 9



**SPD**  
信号通信系统 Signaling Networks 10



### 过电流保护 Over Current Protection

**Mini Fuses**  
小型熔断器 Miniature Fuses 1



**TRXF**  
热保护型熔断电阻器 Thermal-Link & Fusing Resistor 2



**TPR**  
热保护型熔断电阻器 Thermally Protected Resistor 3



**NTC**  
抑制浪涌电流NTC热敏电阻器 Inrush Current Limiting NTC Thermistor 4



**LV Fuses**  
低压熔断器 Low Voltage Fuses 5



### 主动保护 Active Protection

**iTCO**  
受控熔断器 Iode Thermal-Link 1

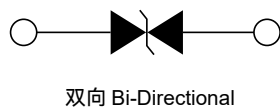
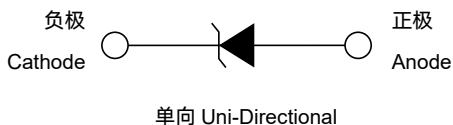


## 产品概述 Description

TVS二极管用于保护敏感电路免受高压瞬变的影响。它们的p-n结比普通二极管有更大的截面积，这使得它们可以在不损坏的情况下将大电流传导到地。SETsafe | SETfuse 提供峰值功率率从200 W到30 kW的TVS二极管，反向电压从5.0 V到512 V。

TVS Diodes are used to protect sensitive circuit from high-voltage transients. Their p-n junctions have a larger cross-sectional area than those of a normal diode, allowing them to conduct large currents to ground without damage. SETsafe | SETfuse supplies TVS Diodes with peak power ratings from 200 W to 30 kW, and reverse standoff voltages from 5.0 V to 512 V.

## 功能图 Functional Diagram

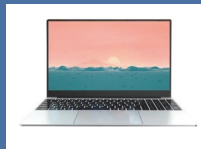


## 应用 Applications

消费电子  
Consumer Electronics



计算机  
Computing



移动设备  
Mobile Handheld



电信设备  
Datacom/Telecom



汽车/航空  
Automotive / Aerospace



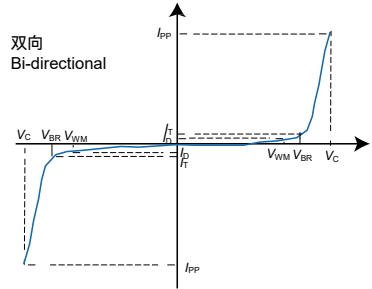
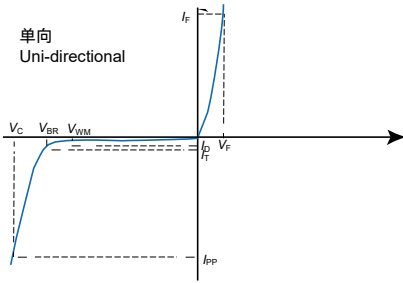
工业/家用电器  
Industrial / Home Appliance



清洁能源  
Green / Alternative Energy



# 伏安特性曲线 I-V Curve Characteristics



## 参考性能曲线(除有另外注释, 默认TA=25 °C) Performance Curve for Reference(TA=25 °C Unless Otherwise Noted)

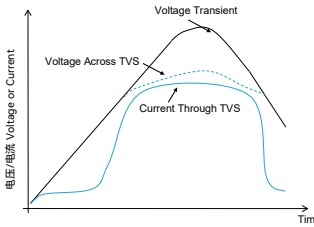


FIGURE 1 TVS瞬态箝位波形  
TVS Transients Clamping Waveform

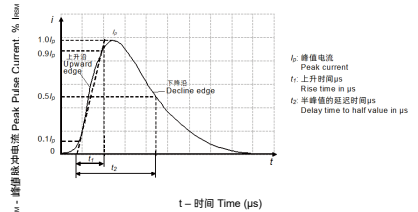


FIGURE 2 脉冲波形 Pulse Waveform(8/20  $\mu s$ )

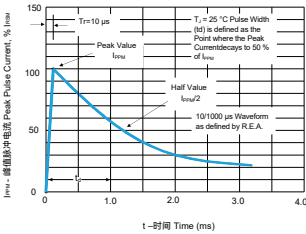


FIGURE 3 脉冲波形 Pulse Waveform (10/1000)

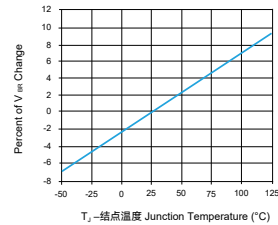


FIGURE 4 典型 V<sub>BR</sub> 随结温变化曲线  
Typical Curve of V<sub>BR</sub> Change VS T<sub>J</sub> Change

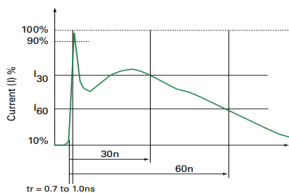
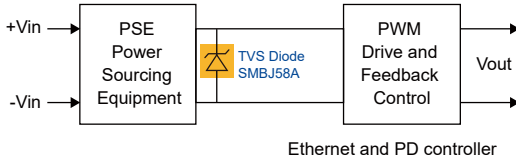


FIGURE 5 ESD测试波形 ESD Test Waveform (10/1000)

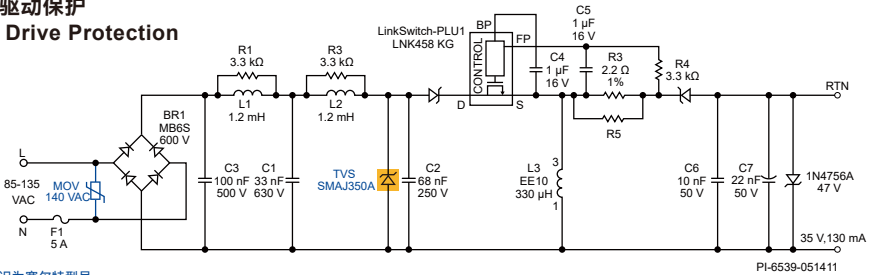
# 典型应用 Typical Applications

## 以太网供电 (POE) 保护 Power Over Ethernet ( POE ) Protection



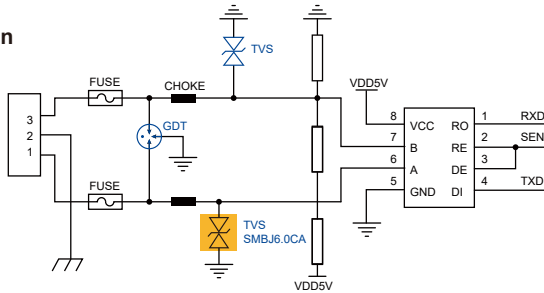
标识为赛尔特型号  
Means SETsafe | SETfuse Model

## LED驱动保护 LED Drive Protection



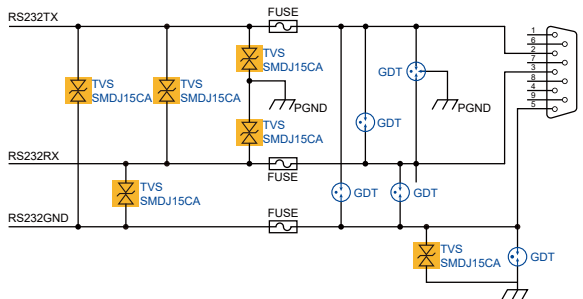
标识为赛尔特型号  
Means SETsafe | SETfuse Model

## RS485接口保护 RS485 Interface Protection



标识为赛尔特型号  
Means SETsafe | SETfuse Model

## 具有高浪涌要求的RS232接口保护 RS232 Interface Protection with High Surge Requirement

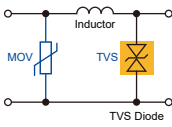


标识为赛尔特型号  
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# 典型应用 Typical Applications

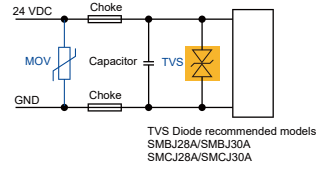
## 联合MOV压敏电阻和TVS二极管保护方案 Combined MOV Varistor and TVS Diode Protection Scenarios

### MOV + TVS Combination



具体型号依客户需求选择  
The specific model is selected according to customer needs

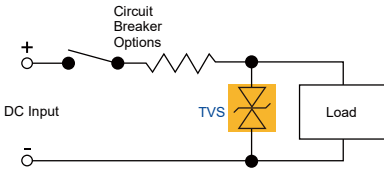
### MOV+ Choke + TVS Combination



标识为赛尔特型号  
Means SETsafe | SETfuse Model

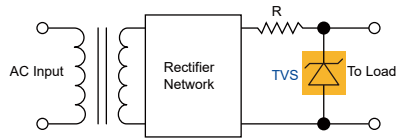
TVS Diode recommended models  
SMBJ28A/SMBJ30A  
SMCJ28A/SMCJ30A

## 直流电源保护 DC Supply Protection



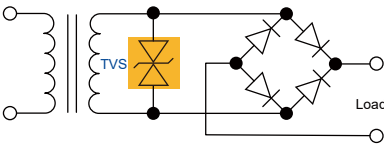
具体型号依客户需求选择  
The specific model is selected according to customer needs

## 直流负载保护 DC Load Protection



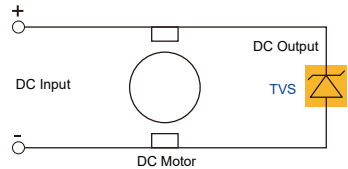
具体型号依客户需求选择  
The specific model is selected according to customer needs

## 交流电源保护 AC Supply Protection



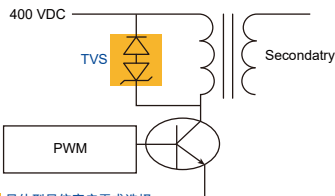
具体型号依客户需求选择  
The specific model is selected according to customer needs

## 电磁干扰限制 Electro-Magnetic Interference Limiting



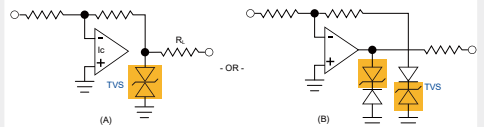
具体型号依客户需求选择  
The specific model is selected according to customer needs

## 脉宽调制 (PWM) 驱动保护 Pulse Width Modulated ( PWM )Drive Protection



具体型号依客户需求选择  
The specific model is selected according to customer needs

## 运算放大器保护 Amplifier Protection



具体型号依客户需求选择  
The specific model is selected according to customer needs





## 瞬态抑制二极管 (轴向引线式) 特征概览 Transient Voltage Suppressor (Axial Lead) Features Overview

		系列 Series												
DO-201	1.5KE	LCE							SPCL1	SPCL3	SPCL6	SPCL10	SPCL15	SPCL20
DO-41	P4KE													
DO-15		P6KE												
P600		SAC												
			5KP	15KPA	20KPA	30KPA								
Radial lead														
产品结构 (mm) Product Outline														
$V_R / V_{WM} (V)$ 反向关断电压 Reverse Stand-off Voltage	5.8 ~ 468	5.0 ~ 50	5.8 ~ 512	5.8 ~ 512	5.0 ~ 250	17 ~ 280	20 ~ 300	28 ~ 360	76	15 ~ 430	30 ~ 430	15 ~ 530	58 ~ 380	16 ~ 76
$P_{PPM} (W)$ 额定峰值脉冲功率 Rated Peak Impulse Power Dissipation (10/100 µs)	400	500	600	1500	5000	15000	20000	30000						
$I_{PPM} (A)$ 额定峰值脉冲电流 Rated Peak Impulse Current (8/20 µs)									1	3	6	10	15	20
工作温度 (°C) Operating Temperature														

-55 to +150

-55 to +125

[www.SETsafe.com](http://www.SETsafe.com)  
[www.SETfuse.com](http://www.SETfuse.com)

20+

OVER 20 YEARS OF DESIGNING, MANUFACTURING  
AND SELLING OF CIRCUIT PROTECTION COMPONENTS  
超过20年的设计、制造、销售电路保护元器件

40+

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+86 592-5715-838 [sales@SETfuse.com](mailto:sales@SETfuse.com)

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更新 Update: Jun 2, 2022

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