

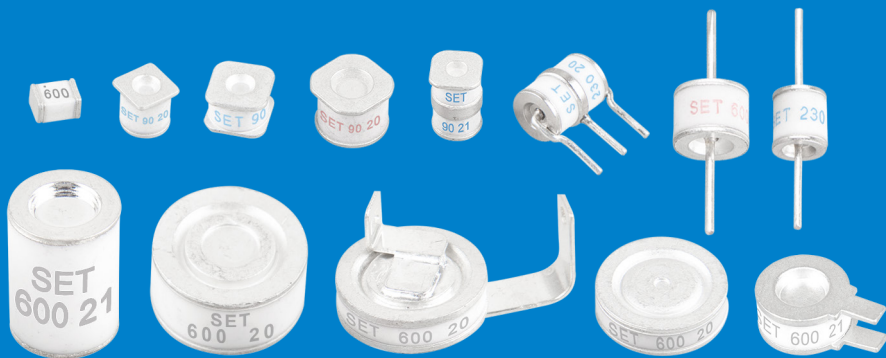
# GDT

## 气体放电管

Gas Discharge Tube

- 快速响应
- 性能稳定
- 高通流
- 低电容
- 高绝缘
- 符合RoHS & REACH

Fast Response Time  
Stable Performance Over Life  
High Current Rating  
Low Capacitance  
High insulation Resistance  
RoHS & REACH Compliant



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

SETsafe | SET fuse  
赛尔特

# 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



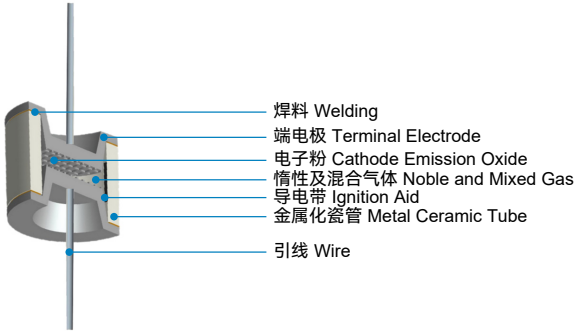
## 产品描述 Description

赛尔特公司的气体放电管(GDT)是一种在金属电极和金属化陶瓷的空间里，充入一定比例的惰性气体或与其它混合气体等放电介质，经过高温封接而成单间隙或多间隙的开关型防护器件。当被保护的电路或设备受到浪涌冲击时，放电管将从高阻抗状态变为低阻抗状态释放浪涌能量到地，降低电路残压，进而保护设备电路或人身免受瞬态过电压的危害。赛尔特公司的气体放电管产品电压70 ~ 3600 V，通流量 (@8/20 $\mu$ s) 0.5 ~ 200 kA全系列覆盖，被广泛应用在信号、电源及各类端口的过压防护；安规认证包括：UL、cUL、TUV，同时符合RoHS、REACH环保要求。

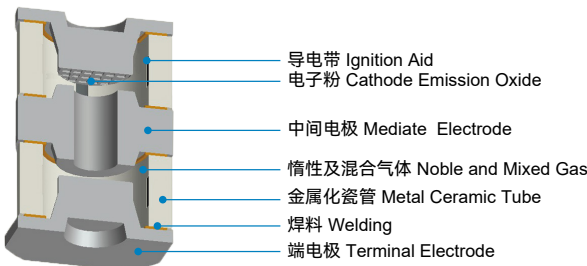
SETsafe | SETfuse Gas Discharge Tube (GDT) is a single-gap or multi-gap switch type protective device in a space enclosed by metal electrodes and metallized ceramics, discharge media such as inert gas or gas mixture are filled at different atmospheric pressures to form single-gap or multi-gap switch-type protective devices. They have high insulation resistance plus low capacitance and leakage to ensure minimal effect on normal operation of equipment. SETsafe | SETfuse GDT are widely use in signal, power supply and all kinds of port overvoltage protection, with the D.C.Sparkover voltage 70 to 3600 V, the Impluse Discharge Current (@8/20 $\mu$ s)0.5 to 200 kA full range coverage, with UL, cUL,TUV, Approvals and RoHS, REACH compliant.

## 结构图 Structure

### 二极气体放电管 2-Electrode Gas Discharge Tube

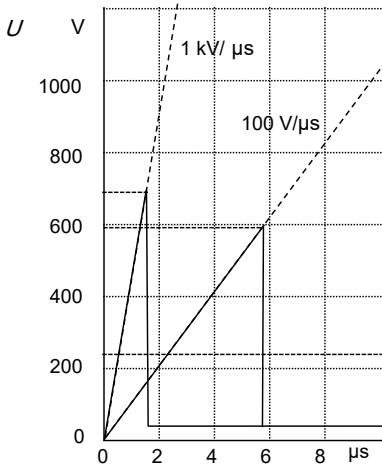


### 三极气体放电管 3-Electrode Gas Discharge Tube



## 击穿电压参考曲线 (参照230 VDC)

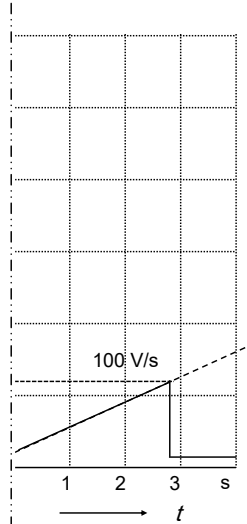
Performance Curve for Spark-over Voltage (Refer 230 VDC)



动态响应 Dynamic Response

冲击击穿电压 (100 V/ $\mu\text{s}$ , 1 kV/ $\mu\text{s}$ )

Impulse Spark-over Voltage (100 V/ $\mu\text{s}$ , 1 kV/ $\mu\text{s}$ )

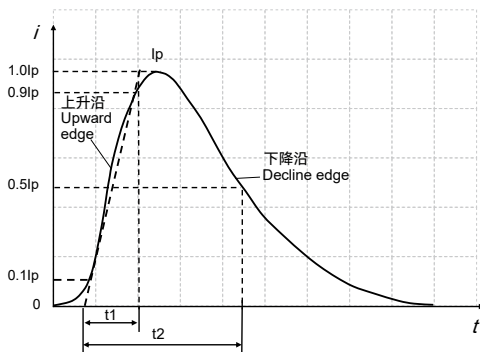


静态响应 Static Response

直流击穿电压(100 V/s) D.C. Spark-over Voltage(100 V/s)

## 冲击电流的参考曲线

Performance Curve for Impulse Discharge Current

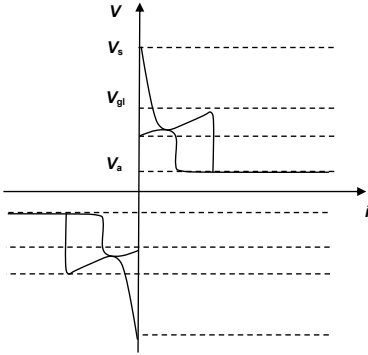


$I_p$ : 峰值电流 Peak current

$t_1$ : 上升时间微秒 Rise time in  $\mu\text{s}$

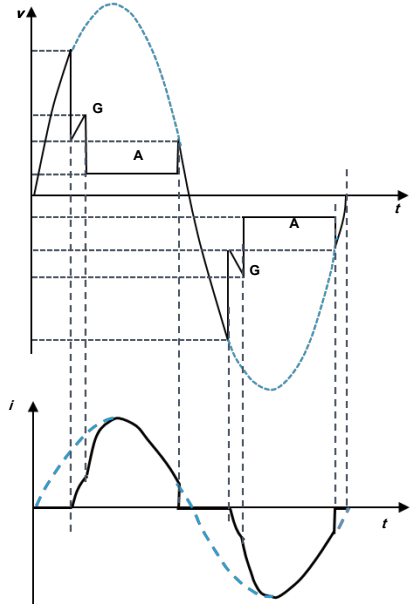
$t_2$ : 至半峰值的延迟时间微秒 Decay time to half value in  $\mu\text{s}$

# 电气特性 Electrical Characteristics



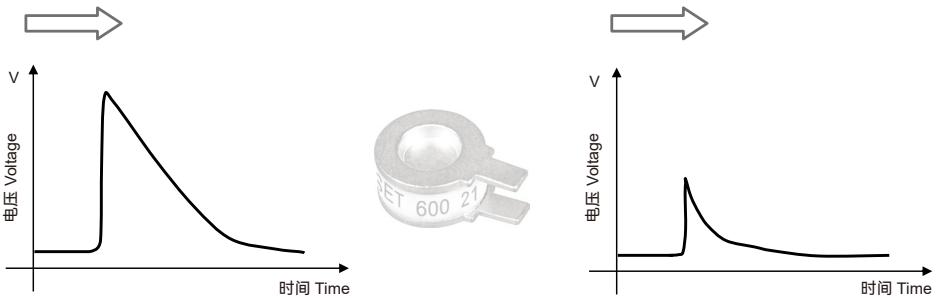
电压和电流之间的关系  
Relationship Between Current and Voltage for GDTs

- $V_s$  : 击穿电压 Spark-over Voltage
- $V_{gl}$  : 辉光电压 Glow Voltage
- $V_a$  : 弧光电压 Arc Voltage
- G : 辉光模式 Glow Mode
- A : 弧光模式 Arc Mode



电压和电流的时间变化模式  
Time Variation Patterns of Voltage and Current

# 工作原理 Operation Principle



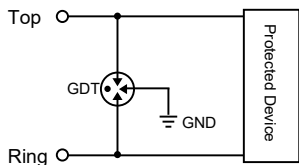
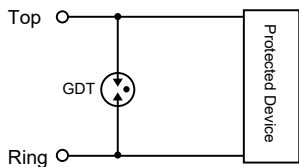
浪涌过电压  
Surge Over-Voltage

气体放电管  
GDT

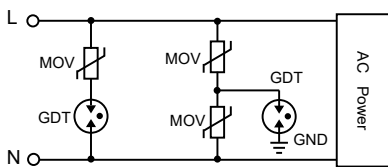
浪涌过电压  
Surge Over-Voltage

# 应用 Applications

## 信号线路保护 Signal Line Protection



## 电源保护 Power Protection



**安防监控**  
Security Monitoring  
GDT SX/TZ 系列 Series



**家电**  
Home Appliances  
GDT SE/SF 系列 Series



**新能源**  
New Energy  
GDT SE/SC 系列 Series





**通信**  
Communication  
GDT SX/SW/TZ/SE/SC/SP 系列 Series



**路灯照明**  
Street Lighting  
GDT SE/SF 系列 Series



**医疗**  
Medical  
GDT SN/TZ 系列 Series

图例 Images	系列 Series	尺寸 Dimensions (mm)	直流击穿电压 D.C. Spark-over Voltage @100V/s (V)	冲击放电电流 Impulse Discharge Current @8/20μs (kA)	绝缘电阻 Insulation Resistance (MΩ)	电容 Capacitance 0.5VDC @1MHz (pF)	安规认证 Agency Approvals
低通流型气体放电管 Low Surge GDTs							
	SW	3.2 × 2.5 × 2.5	70 ~ 600	1	> 1000	≤ 0.6	On-going
	SX	4.5 × 3.2 × 2.7	70 ~ 600	2	> 1000	≤ 0.6	
	SN	4.2 × 5.0 × 5.0	70 ~ 800	5	> 1000	≤ 1.0	
	SD	Φ5.0 × 5.0	70 ~ 800	5	> 1000	≤ 1.0	
	SS	4.2 × 6.2 × 6.2	70 ~ 800	5	> 1000	≤ 1.0	
中通流型气体放电管 Medium Surge GDTs							
	SF	Φ5.5 × 6.0	75 ~ 800	10	> 1000	≤ 1.0	
	SE	Φ8.0 × 6.0	75 ~ 800	20	> 1000	≤ 1.5	
	SM	Φ8.3 × 6.0	70 ~ 600	20	> 1000	≤ 1.5	
	SC	6.0 × 8.3 × 8.3	70 ~ 600	20	> 1000	≤ 1.5	On-going
	TZ	7.6 × 5.0 × 5.0	70 ~ 600	10	> 1000	≤ 1.0	
	TR	Φ8.0 × 10.0	70 ~ 600	20	> 1000	≤ 1.5	



# 技术参数 Specification

图例 Images	系列 Series	尺寸 Dimensions (mm)	直流击穿电压 D.C. Spark-over Voltage @100V/s (V)	冲击放电电流 Impulse Discharge Current @8/20μs (kA)	绝缘电阻 Insulation Resistance (MΩ)	电容 Capacitance 0.5VDC @1MHz (pF)	安规认证 Agency Approvals
高压型气体放电管 High Voltage Surge GDTs							
	SD	Φ5.0 × 5.0	1000 ~ 1500	5	> 1000	≤ 1.0	
	SS	4.2 × 6.2 × 6.2	1000 ~ 1200	5	> 1000	≤ 1.0	
	SM	Φ8.3 × 6.0	1000 ~ 1500	10	> 1000	≤ 1.5	
	SF	Φ5.5 × 6.0	1000 ~ 3600	3	> 1000	≤ 1.0	
	SE	Φ8.0 × 6.0	1000 ~ 3600	5	> 1000	≤ 1.5	
超高通流型气体放电管 Very High Surge GDTs							
	SPA	Φ11.8 × 16.0	350 ~ 2000	40	> 1000	≤ 5.0	
	SPB	Φ11.8 × 6.2	90 ~ 2000	20	> 1000	≤ 5.0	
	SPC	Φ11.8 × 4.2	90 ~ 1500	20	> 1000	≤ 5.0	On-going
	SPJ	Φ16.0 × 4.5	350 ~ 2500	40	> 1000	≤ 8.0	
	SPI	Φ16.0 × 8.0	350 ~ 1500	80	> 1000	≤ 7.0	

[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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40多个国家和地区的客户选择赛尔特品牌

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更新 Update: Jun 2, 2022

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