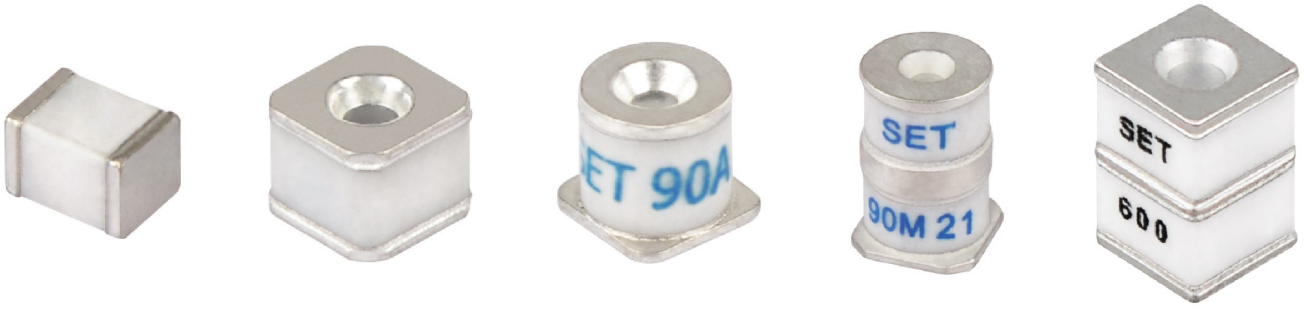
Gas Discharge Tube

SMD Type

GDT

- Small Size
- Fast Response
- Low Capacitance
- High Current Rating
- High Insulation Resistance
- Stable Performance Over Surface Life
- RoHS & REACH Compliant

Please refer to the datasheet of each series.



https://setsafe.com/Products/Over-Voltage-Protection/Gas-Discharge-Tube-GDT/SMD-Type.html

2026

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Providing Total Solution for High Standard Safety Circuit Protection

Gas Discharge Tube（GDT）

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases.

Gas Discharge Tube (GDT) are widely used in overvoltage protection of signals, power supplies and various ports.

SETsafe | SETfuse's Gas Discharge Tube products have a voltage of 70 ~ 4500 V, a flow (@8/20 μs) 0.5 ~ 200 kA, a full range of safety certifications including: UL, cUL, TUV, and meet the RoHS, REACH requirements.

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Catalogue

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2 Glossary 3

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4 Product Series 6

Description, Feature, Applications, Structure Diagrams, Electrical Characteristics, Reference Curve for Spark-over Voltage, Curve for Impulse Discharge Current, Application Example, Recommended

4.1 SZxxxx-SMD series 11

4.2 SWxxxx-SMD series 14

4.3 SXxxxx-SMD series 17

4.4 SYxxxx-SMD series 20

4.5 SNxxxx-SMD series 23

4.6 SUxxxx-SMD series 26

4.7 SSxxxx-SMD series 29

4.8 SDxxxx-SMD series 32

4.9 SExxxx-SMD series 35

4.10 SKxxxx-SMD series 38

4.11 SCxxxx-SMD series 41

4.12 SFxxxx-SMD series 44

4.13 TSxxxx-SMD series 47

4.14 TZxxxx-SMD series 50

4.15 TYxxxx-SMD series 53

4.16 TRxxxx-SMD series 56

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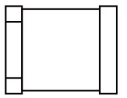
Gas Discharge Tube (GDT) Features & Model List Overview

DC Spark-over Voltage (V) \ Model	11	14	17	20	23	26	29	32	35
4500	○	○	○	○	○	○	○	○	SE (-SMD)
4000	○	○	○	○	○	○	○	○	SE (-SMD)
3600	○	○	○	○	○	○	○	○	SE (-SMD)
3000	○	○	○	○	○	○	○	○	SE (-SMD)
2500	○	○	○	○	○	○	○	○	SE (-SMD)
2000	○	○	○	○	○	○	○	○	SE (-SMD)
1500	○	○	○	○	○	○	○	○	SE (-SMD)
1200	○	○	○	○	○	○	○	○	SE (-SMD)
1000	○	○	○	○	○	○	○	○	SE (-SMD)
800	○	SW (-SMD)	SX (-SMD)	SY (-SMD)	SN (-SMD)	SU (-SMD)	SS (-SMD)	SD (-SMD)	SE (-SMD)
600	○	SW (-SMD)	SX (-SMD)	SY (-SMD)	SN (-SMD)	SU (-SMD)	SS (-SMD)	SD (-SMD)	SE (-SMD)
470	○	SW (-SMD)	SX (-SMD)	SY (-SMD)	SN (-SMD)	SU (-SMD)	SS (-SMD)	SD (-SMD)	SE (-SMD)
420	○	SW (-SMD)	SX (-SMD)	SY (-SMD)	SN (-SMD)	SU (-SMD)	SS (-SMD)	SD (-SMD)	SE (-SMD)
400	SZ (-SMD)	SW (-SMD)	SX (-SMD)	SY (-SMD)	SN (-SMD)	○	○	○	○
350	○	SW (-SMD)	SX (-SMD)	SY (-SMD)	SN (-SMD)	SU (-SMD)	SS (-SMD)	SD (-SMD)	SE (-SMD)
300	SZ (-SMD)	SW (-SMD)	SX (-SMD)	SY (-SMD)	SN (-SMD)	○	○	○	○
250	○	○	○	○	○	SU (-SMD)	SS (-SMD)	SD (-SMD)	SE (-SMD)
230	SZ (-SMD)	SW (-SMD)	SX (-SMD)	SY (-SMD)	SN (-SMD)	SU (-SMD)	SS (-SMD)	SD (-SMD)	SE (-SMD)
200	SZ (-SMD)	SW (-SMD)	SX (-SMD)	SY (-SMD)	SN (-SMD)	○	○	○	○
150	SZ (-SMD)	SW (-SMD)	SX (-SMD)	SY (-SMD)	SN (-SMD)	SU (-SMD)	SS (-SMD)	SD (-SMD)	SE (-SMD)
90	SZ (-SMD)	SW (-SMD)	SX (-SMD)	SY (-SMD)	SN (-SMD)	SU (-SMD)	SS (-SMD)	SD (-SMD)	SE (-SMD)
75	○	SW (-SMD)	SX (-SMD)	SY (-SMD)	SN (-SMD)	○	SS (-SMD)	SD (-SMD)	SE (-SMD)
70	○	○	○	○	SN (-SMD)	○	SS (-SMD)	SD (-SMD)	SE (-SMD)
Size (mm)	3.2 × 1.6 × 1.6	3.2 × 2.5 × 2.5	4.5 × 3.2 × 2.7	4.0 x 3.5 x 3.5	4.2 × 5.0 × 5.0	5.0 × 5.4 × 5.4	4.2 x 6.2 × 6.2	5.0 × 5.4 × 5.4	6.0 × 8.3 × 8.3
I_n (8/20 μs) (kA) Impulse Discharge Current	0.5	1	1 / 2	3	5	5 / 10	5	5	5 / 10 / 20
Product Structure									
					SMD				

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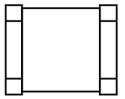
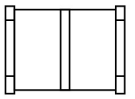
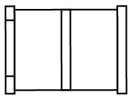
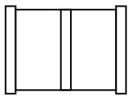
Gas Discharge Tube (GDT) Features & Model List Overview

DC Spark-over Voltage (V) \ Model	38	41	44	47	50	53	56
4500	○	○	SF (-SMD)	○	○	○	○
4000	○	○	SF (-SMD)	○	○	○	○
3600	○	○	SF (-SMD)	○	○	○	○
3000	○	○	SF (-SMD)	○	○	○	○
2500	○	○	SF (-SMD)	○	○	○	○
2000	○	○	SF (-SMD)	○	○	○	○
1500	○	○	SF (-SMD)	○	○	○	○
1200	○	○	SF (-SMD)	○	○	○	○
1000	SK (-SMD)	○	SF (-SMD)	○	○	○	○
800	SK (-SMD)	SC (-SMD)	SF (-SMD)	○	○	○	○
600	SK (-SMD)	SC (-SMD)	SF (-SMD)	TS (-SMD)	TZ (-SMD)	TY (-SMD)	TR (-SMD)
470	○	SC (-SMD)	SF (-SMD)	TS (-SMD)	TZ (-SMD)	○	TR (-SMD)
420	SK (-SMD)	SC (-SMD)	SF (-SMD)	TS (-SMD)	TZ (-SMD)	TY (-SMD)	TR (-SMD)
400	○	○	○	○	○	○	○
350	SK (-SMD)	SC (-SMD)	SF (-SMD)	○	TZ (-SMD)	TY (-SMD)	TR (-SMD)
300	○	○	○	TS (-SMD)	○	○	○
250	○	SC (-SMD)	SF (-SMD)	○	○	TY (-SMD)	○
230	○	SC (-SMD)	SF (-SMD)	TS (-SMD)	TZ (-SMD)	TY (-SMD)	TR (-SMD)
200	○	○	○	TS (-SMD)	TZ (-SMD)	○	○
150	○	SC (-SMD)	SF (-SMD)	TS (-SMD)	TZ (-SMD)	○	TR (-SMD)
90	SK (-SMD)	SC (-SMD)	SF (-SMD)	TS (-SMD)	TZ (-SMD)	○	TR (-SMD)
75	○	SC (-SMD)	SF (-SMD)	○	TZ (-SMD)	○	○
70	○	SC (-SMD)	SF (-SMD)	○	○	○	○
Size (mm)	Φ8.0 × 2.2	6.0 × 8.3 × 8.3	6.0 × 6.0 × 6.0	6.8 x 3.5 x 3.5	7.6 × 5.0 × 5.0	7.8 x 5.0 x 5.0	10.0 x 8.3 x 8.3
I_n (8/20 μs) (kA) Impulse Discharge Current	10 / 20	20	3 / 5 / 10	3	5 / 10	5	10 / 20
Product Structure							
				SMD			

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Glossary

Item	Description
V_s	**D.C.Spark-over Voltage** The voltage at which the GDT sparks over with slowly increasing d.c. voltage. — (IEC 61643-311)
V	**Impulse Spark-over Voltage** The highest Voltage which appears across the terminals of a GDT in the period between the application of an impulse of given wave-shape and the time when current begins to flow. — (ITU-T K.12)
V_a	**Arc Voltage** Voltage drop across the GDT during arc current flow. — (IEC 61643-311)
V_{gl}	**Glow Voltage** The peak value of the voltage drop across the GDT when a glow-current is flowing, It is sometimes called the glow mode voltage. — (ITU-T K.12)
8/20 μs	**8/20 Current Impulse** Current impulse with a nominal virtual front time of 8 μs and a nominal time to half-value of 20 μs. — (IEC 61643-11)
10/350 μs	**10/350 Current Impulse** Current impulse with a nominal virtual front time of 10 μs and a nominal time to half-value of 350 μs. — (IEC 61643-11)
1.2/50 μs	**1.2/50 Voltage Impulse** Voltage impulse with a nominal virtual front time of 1.2 μs and a nominal time to half-value of 50 μs. — (IEC 61643-11)
I	**Alternating Discharge Current** The r.m.s. value of an approximately sinusoidal alternating current passing through the gas discharge tube. — (ITU-T K.12)
I_n	**Nominal Discharge Current** Crest value of the current through the GDT having a current waveshape of 8/20 μs. — (IEC 61643-11)
I_{max}	**Maximum Discharge Current** Crest value of a current through the GDT having an 8/20 μs waveshape and magnitude according to the manufacturers specification. I_{max} is equal to or greater than I_n. — (IEC 61643-11)

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I_{imp}	**Impulse Discharge Current** Crest value of a discharge current through the SPD with specified charge transfer Q and specified energy W/R in the specified time. — (IEC 61643-11)
U_p	**Voltage Protection Level** Maximum voltage to be expected at the SPD terminals due to an impulse stress with defined voltage steepness and an impulse stress with a discharge current with given amplitude and waveshape. — (GB 18802.11、IEC 61643-11)
U_C	**maximum r.m.s. voltage** Which may be continuously applied to the SPD's mode of protection. — (IEC 61643-11)
I_f	**follow current** Peak current supplied by the electrical power system and flowing through the SPD after a discharge current impulse. — (IEC 61643-11)
class I	**class I tests** Tests carried out with the impulse discharge current Iimp, with an 8/20 current impulse with a crest value equal to the crest value of Iimp, and with a 1.2/50 voltage impulse. — (IEC 61643-11)
class II	**class II tests** Tests carried out with the nominal discharge current I_n, and the 1.2/50μs voltage impulse. — (IEC 61643-11)

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ATTENTION

Usage

1. Do not operate GDT in power supply networks, whose maximum operation voltage exceeds the minimum spark-overvoltage of the GDT.
2. The GDT may become hot in the event of longer periods of current stress (burn risk). In the event of overload the connectors may fail or the component may be destroyed.
3. If the contacts of GDT are defective, current load can cause sparks and loud noises.
4. When air pressure is from 55 kPa to 106 kPa. The relative altitude shall be +5000 m to –500 m.

Replacement

The GDT is a non-repairable product. For safety sake, please use equivalent GDT for replacement.

Storage

The packaged GDT should be placed in a dry, ventilation and non-corrosive environment.

Installation Position

Do not install the GDT in a touchable position.

Mechanical Stress

Do not take violent action such as knocking when assembling, to avoid product failure.

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GDT
Gas Discharge Tube

Description

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases. Gas discharge tubes (GDT) are widely used in overvoltage protection of signals, power supplies and various ports. SETsafe | SETfuse's gas discharge tube products have a voltage of 70 ~ 4500 V, a flow (@8/20 μs) 0.5 ~ 200 kA, a full range of safety certifications including: UL, cUL, TUV, and meet the RoHS, REACH requirements.

Features

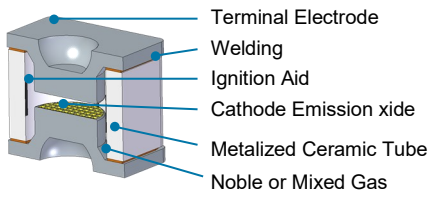
- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

Applications

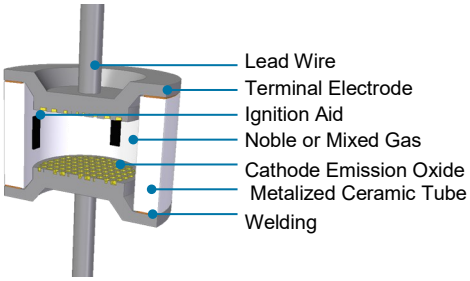
- WLAN XDSL
- CATV
- MDF
- Ethernet
- BTS (Base Station)
- Power Supply
- Antenna and RF
- Consumer Electronics
- Class Ⅰ Class Ⅱ and SPD
- N-PE Mode Protection In AC Power

Structure

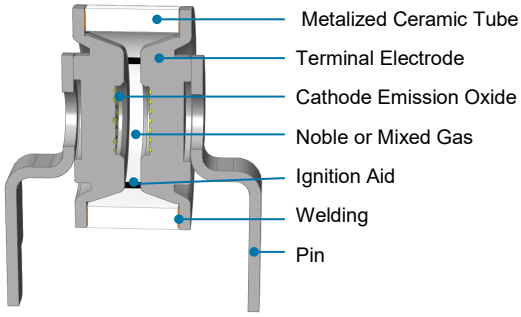
SMD Type



DIP Type



High Surge Type



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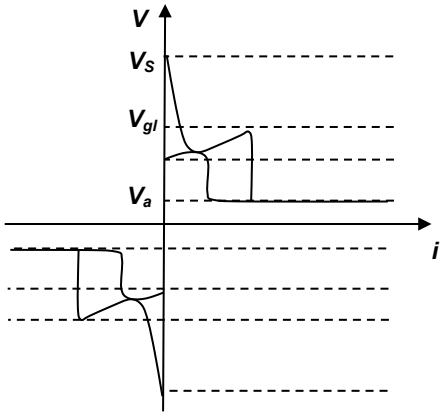
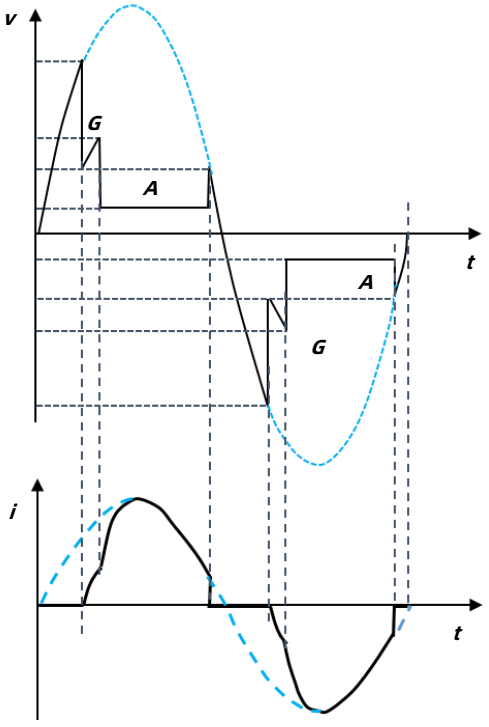
Electrical Characteristics



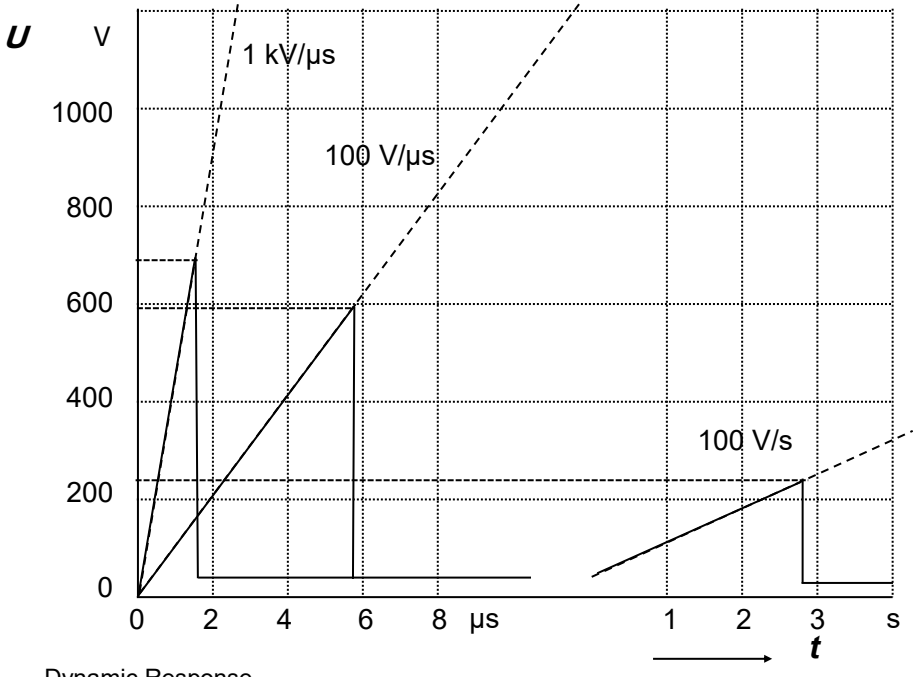
Relationship between Current and Voltage



Time Variation Patterns of Voltage and Current

V_s : Spark-over Voltage
Vgl: Glow Voltage
Va : Arc Voltage
G : Glow Mode
A : Arc Mode

Reference Curve for Spark-over Voltage (Refer to 230 VDC)



Dynamic Response
Impulse Spark-over Voltage
(100 V/μs,1 kV/μs)

Static Response
D.C. Spark-over Voltage (100 V/s)

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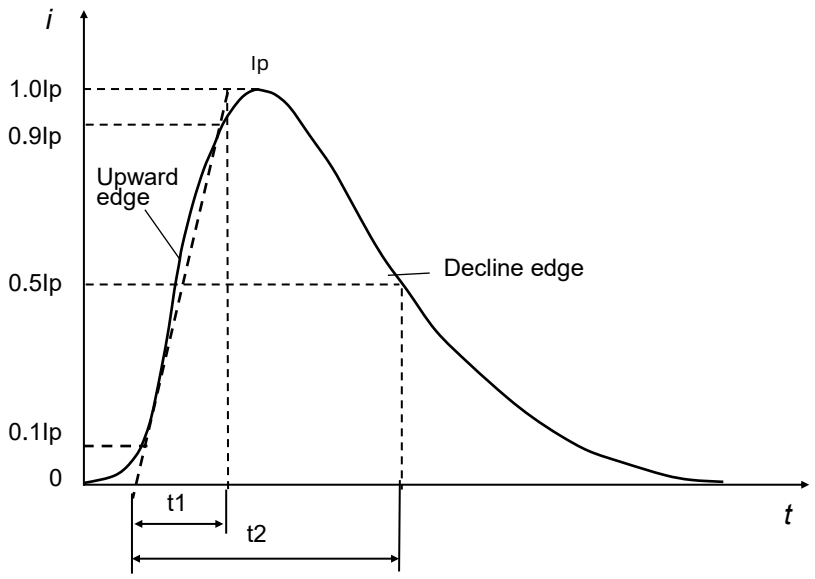
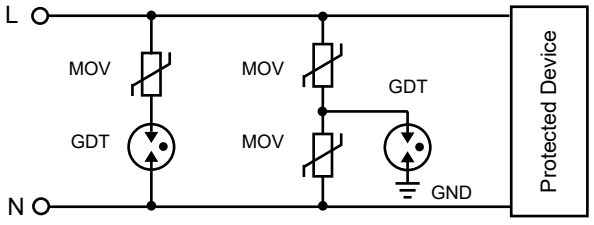
Curve for Impulse Discharge Current (For Reference Only)



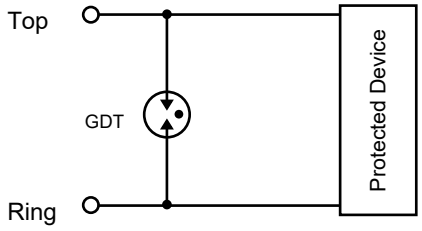
I_p: Peak current
t_1: Rise time in μs
t_2: Delay time to half value in μs

Application Example (For Reference Only)

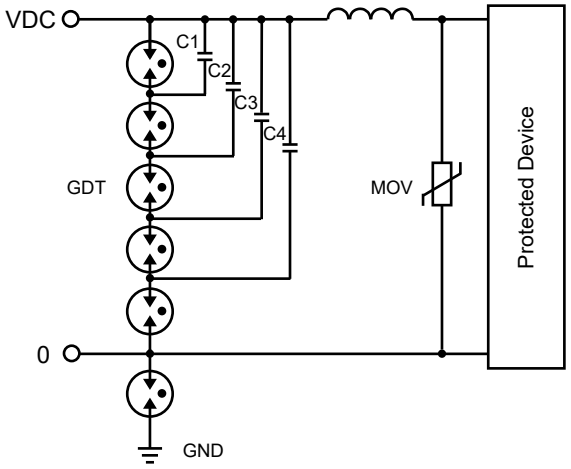
AC Power Protection



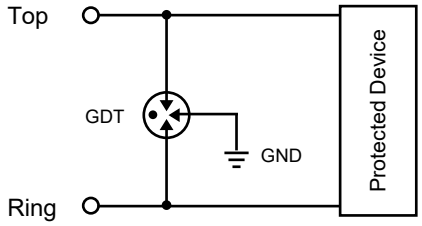
2-Electrod GDT Signal Circuit Protection



DC Power Protection



3-Electrod GDT Signal Circuit Protection



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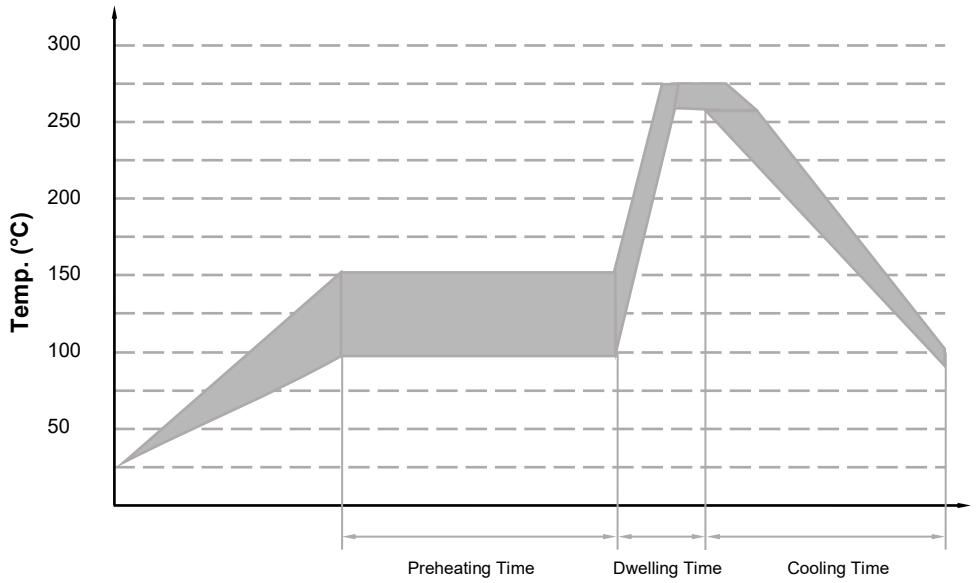
Recommended Hand-soldering Parameters (For Reference Only)

Items	Condition
Soldering Iron Temperature	350 °C (Max.)
Soldering Time	4 s (Max.)
Space between soldering point and product body	According to the guidance method

Wave Soldering Parameters (For Reference Only)



Item	Temp. (°C)	Time (s)
Preheating	90 to 150	< 150
Dwelling	255 to 280	3 to 10

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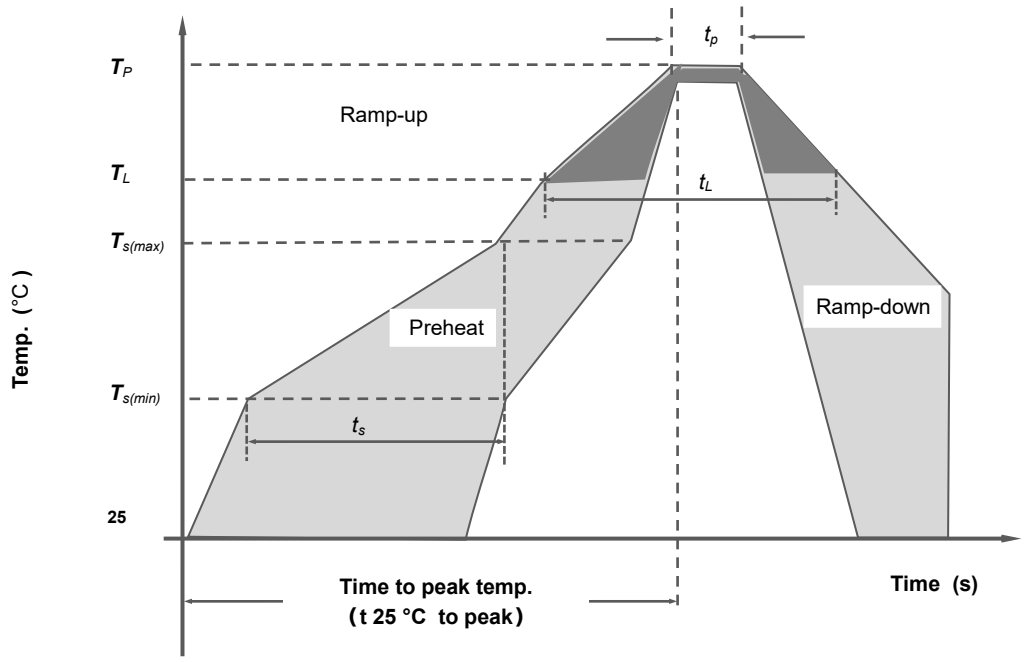
Reflow Soldering Parameters (For Reference Only)



Reflow Condition		Pb-Free Assembly
Preheat	Temp. Min $T_{s(min)}$	150 °C
	Temp. Max $T_{s(max)}$	200 °C
	Time (Min to Max) t_s	(60 to 180) s
Average ramp up rate (Liquidus Temp. (T_L) to peak)		3 °C / second max
$T_{s\ (max)}$ to T_L Ramp-up Rate		5 °C / second max
Reflow	Temp. (T_L) (Liquidus)	217 °C
	Temp. (t_L)	(60 to 150) s
Peak Temp. (T_P)		(255 to 260) °C
Time within 5 °C of actual peak Temp. (t_P)		(10 to 30) s
Ramp-down Rate		6 °C / second max
Time 25 °C to peak Temp. (T_P)		8 minutes max
Do not exceed		260 °C

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Description

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases.

Features

- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

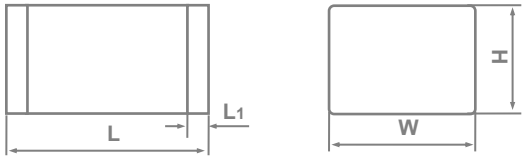
Agency Information

Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
	UL497B	E513446

Applications

- POE
- Ethernet

Dimensions (mm)



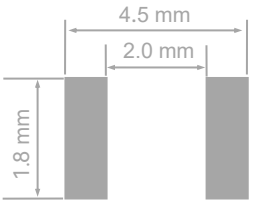
L	W	H	L_1
3.2 ± 0.3	1.6 ± 0.2	1.6 ± 0.2	0.3 ± 0.2

Part Numbering System

SZ 401 Z - SMD

- SMD: Lead Type (L: Lead wire, Brank: without Lead Wire, SMD)
- Z: Impulse Discharge Current (Z: 0.5 kA,)
- 401: D.C.Spark-over Voltage (100 V/s) (401: 40×10^1)
- SZ: Series: SZ (3.2 × 1.6 × 1.6 mm)

Recommendation Pad Size (mm)



Reminder:
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Specifications

Model	D.C. Spark-over Voltage @100 V/s	Tolerance of V_s	Impulse Spark-over Voltage @1 kV/μs	Arc Voltage @0.5 A	Impulse Discharge Current @8/20 μs	Alternating Discharge Current @50Hz 1 s	Insulation Resistance		Capacitance 0.5 VDC @ 1MHz	Agency Approvals	
	Vs	*Vs*	*V*	*Va*	*In*	*I*	*VDC*	*IR*	*C*	®	TUV
	V	V	V	V	kA	A (r.m.s.)	V	GΩ	(pF)	UL497B	TUV
SZ091Z - SMD	90	63 ~ 118	≤ 900	≈ 8	0.5	0.5	50	≥ 1	≤ 0.5	●	○
SZ151Z - SMD	150	105 ~ 195	≤ 900	≈ 10	0.5	0.5	50	≥ 1	≤ 0.5	●	○
SZ201Z - SMD	200	140 ~ 280	≤ 900	≈ 10	0.5	0.5	100	≥ 1	≤ 0.5	●	○
SZ231Z - SMD	230	161 ~ 300	≤ 1000	≈ 10	0.5	0.5	100	≥ 1	≤ 0.5	●	○
SZ301Z - SMD	300	210 ~ 390	≤ 1100	≈ 12	0.5	0.5	100	≥ 1	≤ 0.5	●	○
SZ401Z - SMD	400	280 ~ 520	≤ 1200	≈ 12	0.5	0.5	100	≥ 1	≤ 0.5	●	○

Note:
1. The above parameters based on ITU - T K12 & IEC61643.311 standards.
2. "●" means GDT has gained the certification. "○" means GDT is no certification.
3. Operating Temperature -40 °C ~ +125 °C .

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Packaging Information

Tape & Reel (SMD)

Item	Reel	Inner Box	Carton
Dimensions (mm)	Φ178 × 16.5	200 × 200 × 30	440 × 250 × 230
Quantity (PCS)	3000	3000	60000
Notes: Packaging dimensions and quantity are for reference only.			

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Description

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases.

Features

- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

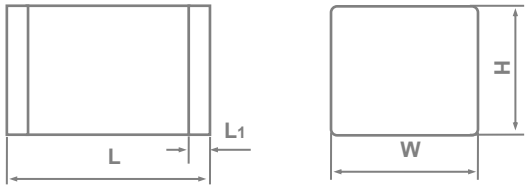
Agency Information

Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
	UL497B	E513446
	UL1449	E322662

Applications

- Power supply
- Security Equipment
- POE
- Ethernet

Dimensions (mm)



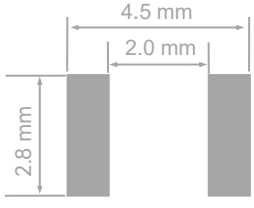
L	W	H	L_1
3.2 ± 0.3	2.5 ± 0.2	2.5 ± 0.2	0.4

Part Numbering System

SW 601 Y - SMD

- SMD: Lead Type (L: Lead wire, Brank: without Lead Wire, SMD)
- Y: Impulse Discharge Current (Y: 1 kA,)
- 601: D.C.Spark-over Voltage (100 V/s) (601: 60×10^1)
- SW: Series: SW (3.2 × 2.5 × 2.5 mm)

Recommendation Pad Size (mm)



Reminder:
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Specifications

Model	D.C. Spark-over Voltage @100 V/s	Tolerance of V_s	Impulse Spark-over Voltage @1 kV/μs	Arc Voltage @0.5 A	Impulse Discharge Current @8/20 μs	Alternating Discharge Current @50Hz 1 s	Insulation Resistance		Capacitance 0.5 VDC @ 1MHz	Agency Approvals		
	Vs	*Vs*	*V*	*Va*	*In*	*I*	*VDC*	*IR*	*C*			
	V	V	V	V	kA	A (r.m.s.)	V	GΩ	(pF)	UL497B	UL1449	TUV
SW075Y - SMD	75	57 ~ 93	≤ 650	≈ 8	1	1	25	≥ 1	≤ 0.6	●	○	○
SW091Y - SMD	90	72 ~ 108	≤ 600	≈ 8	1	1	50	≥ 1	≤ 0.6	●	○	○
SW151Y - SMD	150	120 ~ 180	≤ 600	≈ 10	1	1	50	≥ 1	≤ 0.6	●	○	○
SW201Y - SMD	200	160 ~ 240	≤ 700	≈ 12	1	1	100	≥ 1	≤ 0.6	●	○	○
SW231Y - SMD	230	184 ~ 276	≤ 700	≈ 12	1	1	100	≥ 1	≤ 0.6	●	○	○
SW301Y - SMD	300	240 ~ 360	≤ 800	≈ 12	1	1	100	≥ 1	≤ 0.6	●	○	○
SW351Y - SMD	350	280 ~ 420	≤ 1000	≈ 12	1	1	100	≥ 1	≤ 0.6	●	○	○
SW401Y - SMD	400	320 ~ 480	≤ 1000	≈ 12	1	1	100	≥ 1	≤ 0.6	●	○	○
SW421Y - SMD	420	336 ~ 504	≤ 1000	≈ 15	1	1	100	≥ 1	≤ 0.6	●	○	○
SW471Y - SMD	470	376 ~ 564	≤ 1200	≈ 15	1	1	100	≥ 1	≤ 0.6	●	○	○
SW601Y - SMD	600	480 ~ 720	≤ 1400	≈ 15	1	1	100	≥ 1	≤ 0.6	●	○	○
SW801Y - SMD	800	640 ~ 960	≤ 1600	≈ 15	1	1	100	≥ 1	≤ 0.6	○	●	○

Note:
1. The above parameters based on ITU - T K12 & IEC61643.311 standards.
2. "●" means GDT has gained the certification, "○" means GDT is no certification.
3. Operating Temperature -40 °C ~ +125 °C .

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Packaging Information

Tape & Reel (SMD)

Item	Reel	Inner Box	Carton
Dimensions (mm)	Φ330 × 16.5	340 × 340 × 40	360 × 360 × 360
Quantity (PCS)	2500	5000	40000
Notes: Packaging dimensions and quantity are for reference only.			

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GDT
Gas Discharge Tube

SX(-SMD) Series

Description

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases.

Features

- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

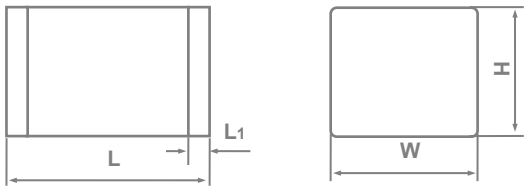
Agency Information

Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
	UL497B	E513446
	TUV	No.B1072210003 Rev03

Applications

- Power supply
- Security Equipment
- POE
- Ethernet

Dimensions (mm)



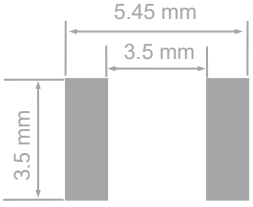
L	W	H	L_1
4.5 ± 0.3	3.2 ± 0.3	2.7 ± 0.2	0.4

Part Numbering System

SX 601 X - SMD

- SMD: Lead Type (L: Lead wire, Brank: without Lead Wire, SMD)
- X: Impulse Discharge Current (Y: 1 kA, X: 2 kA,)
- 601: D.C.Spark-over Voltage (100 V/s) (601: 60×10^1)
- SX: Series: SX (4.5 × 3.2 × 2.7 mm)

Recommendation Pad Size (mm)



Reminder:
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Specifications

Model	D.C. Spark-over Voltage @100 V/s	Tolerance of V_s	Impulse Spark-over Voltage @1 kV/μs	Arc Voltage @0.5 A	Impulse Discharge Current @8/20 μs	Alternating Discharge Current @50Hz 1 s	Insulation Resistance		Capacitance 0.5 VDC @ 1MHz	Agency Approvals	
	Vs	*Vs*	*V*	*Va*	*In*	*I*	*VDC*	*IR*	*C*		
	V	V	V	V	kA	A (r.m.s.)	V	GΩ	(pF)	UL497B	TUV
SX075Y - SMD	75	57 ~ 93	≤ 650	≈8	1	1	25	≥ 1	≤ 0.6	●	●
SX091Y - SMD	90	72 ~ 108	≤ 600	≈8	1	1	50	≥ 1	≤ 0.6	●	●
SX151Y - SMD	150	120 ~ 180	≤ 600	≈ 10	1	1	50	≥ 1	≤ 0.6	●	●
SX201Y - SMD	200	160 ~ 240	≤ 700	≈ 12	1	1	100	≥ 1	≤ 0.6	●	●
SX231Y - SMD	230	184 ~ 280	≤ 700	≈ 12	1	1	100	≥ 1	≤ 0.6	●	●
SX301Y - SMD	300	240 ~ 360	≤ 800	≈ 12	1	1	100	≥ 1	≤ 0.6	●	●
SX401Y - SMD	400	320 ~ 480	≤ 1000	≈ 15	1	1	100	≥ 1	≤ 0.6	●	●
SX421Y - SMD	420	336 ~ 504	≤ 1000	≈ 15	1	1	100	≥ 1	≤ 0.6	●	●
SX471Y - SMD	470	376 ~ 564	≤ 12000	≈ 15	1	1	100	≥ 1	≤ 0.6	●	●
SX601Y - SMD	600	480 ~ 720	≤ 1400	≈ 15	1	1	25	≥ 1	≤ 0.6	●	●
SX801Y - SMD	800	640 ~ 960	≤ 1600	≈ 15	1	1	100	≥ 1	≤ 0.6	○	●
SX075X - SMD	75	57 ~ 93	≤ 650	≈8	2	2	25	≥ 1	≤ 0.6	●	●
SX091X - SMD	90	72 ~ 108	≤ 600	≈8	2	2	50	≥ 1	≤ 0.6	●	●
SX151X - SMD	150	120 ~ 180	≤ 600	≈ 10	2	2	100	≥ 1	≤ 0.6	●	●
SX201X - SMD	200	160 ~ 240	≤ 700	≈ 12	2	2	100	≥ 1	≤ 0.6	●	●
SX231X - SMD	230	184 ~ 280	≤ 700	≈ 12	2	2	100	≥ 1	≤ 0.6	●	●
SX301X - SMD	300	240 ~ 360	≤ 800	≈ 12	2	2	100	≥ 1	≤ 0.6	●	●
SX401X - SMD	400	320 ~ 480	≤ 1000	≈ 15	2	2	100	≥ 1	≤ 0.6	●	●
SX421X - SMD	420	336 ~ 504	≤ 1000	≈ 15	2	2	100	≥ 1	≤ 0.6	●	●
SX471X - SMD	470	376 ~ 564	≤ 1200	≈ 15	2	2	100	≥ 1	≤ 0.6	●	●
SX601X - SMD	600	480 ~ 720	≤ 1400	≈ 15	2	2	100	≥ 1	≤ 0.6	●	●
SX801X - SMD	800	640 ~ 960	≤ 1600	≈ 15	2	2	100	≥ 1	≤ 0.6	○	●

Note:
1. The above parameters based on ITU - T K12 & IEC61643.311 standards.
2. "●" means GDT has gained the certification. "○" means GDT is no certification.
3. Operating Temperature -40 °C ~ +125 °C .

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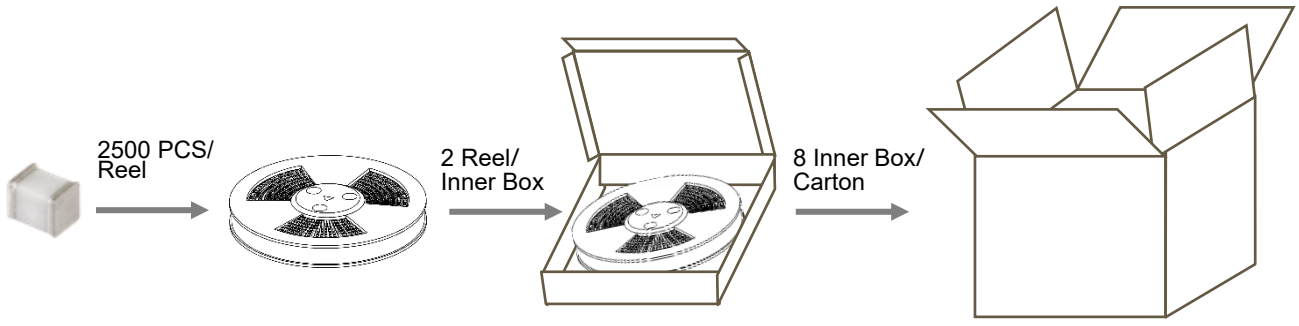
Packaging Information

Tape & Reel (SMD)

Item	Reel	Inner Box	Carton
Dimensions (mm)	Φ330 × 16.5	340 × 340 × 40	360 × 360 × 360
Quantity (PCS)	2500	5000	40000
Notes: Packaging dimensions and quantity are for reference only.			



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GDT
Gas Discharge Tube

SY(-SMD) Series

Description

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases.

Features

- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

Applications

- Power supply
- Security Equipment
- POE
- Ethernet

Part Numbering System

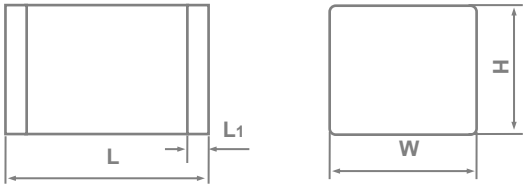
SY 601 T - SMD

- SMD: Lead Type (L: Lead wire, Brank: without Lead Wire, SMD)
- T: Impulse Discharge Current (T: 3 kA,)
- 601: D.C.Spark-over Voltage (100 V/s) (601: 60×10^1)
- SY: Series: SY (4.0 × 3.5 × 3. 5 mm)

Agency Information

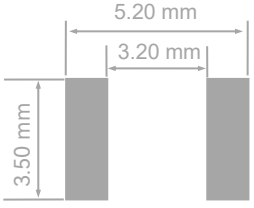
Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
	UL497B	On-going

Dimensions (mm)



L	W	H	L_1
4.0 ± 0.3	3.5 ± 0.3	3.5 ± 0.2	0.4

Recommendation Pad Size (mm)



Reminder:
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Specifications

Model	D.C. Spark-over Voltage @100 V/s	Tolerance of V_s	Impulse Spark-over Voltage @1 kV/μs	Arc Voltage @0.5 A	Impulse Discharge Current @8/20 μs	Alternating Discharge Current @50Hz 1 s	Insulation Resistance		Capacitance 0.5 VDC @ 1MHz	Agency Approvals	
	Vs	*Vs*	*V*	*Va*	*In*	*I*	*VDC*	*IR*	*C*	®	TUV
	V	V	V	V	kA	A (r.m.s.)	V	GΩ	(pF)	UL497B	TUV
SY075T - SMD	75	57 ~ 93	≤ 650	≈8	3	2	25	≥ 1	≤ 0.8	○	○
SY091T - SMD	90	72 ~ 108	≤ 600	≈8	3	2	50	≥ 1	≤ 0.8	○	○
SY151T - SMD	150	120 ~ 180	≤ 600	≈ 10	3	2	100	≥ 1	≤ 0.8	○	○
SY201T - SMD	200	160 ~ 240	≤ 700	≈ 12	3	2	100	≥ 1	≤ 0.8	○	○
SY231T - SMD	230	184 ~ 280	≤ 700	≈ 12	3	2	100	≥ 1	≤ 0.8	○	○
SY301T - SMD	300	240 ~ 360	≤ 800	≈ 12	3	2	100	≥ 1	≤ 0.8	○	○
SY401T - SMD	400	320 ~ 480	≤ 1000	≈ 12	3	2	100	≥ 1	≤ 0.8	○	○
SY421T - SMD	420	336 ~ 504	≤ 850	≈ 12	3	2	100	≥ 1	≤ 0.8	○	○
SY471T - SMD	470	376 ~ 564	≤ 1200	≈ 15	3	2	100	≥ 1	≤ 0.8	○	○
SY601T - SMD	600	480 ~ 720	≤ 1200	≈ 15	3	2	100	≥ 1	≤ 0.8	○	○
SY801T - SMD	800	640 ~ 960	≤ 1600	≈ 15	3	2	100	≥ 1	≤ 0.8	○	○

Note:

1. The above parameters based on ITU - T K12 & IEC61643.311 standards.
2. "●" means GDT has gained the certification, "○" means GDT is no certification.
3. .Operating Temperature -40 °C ~ +125 °C.

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Packaging Information

Tape & Reel (SMD)

Item	Reel	Inner Box	Carton
Dimensions (mm)	Φ330 × 16.5	340 × 340 × 40	360 × 360 × 360
Quantity (PCS)	2500	5000	40000
Notes: Packaging dimensions and quantity are for reference only.			

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GDT
Gas Discharge Tube

SN(-SMD) Series

Description

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases.

Features

- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

Applications

- New Energy
- Power supply
- Irrigation System

Part Numbering System

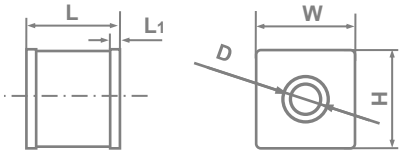
SN 601 A - SMD

- SMD: Lead Type (L: Lead wire, Brank: without Lead Wire, SMD)
- A: Impulse Discharge Current (A: 5 kA)
- 601: D.C.Spark-over Voltage (100 V/s) (601: 60×10^1)
- SN: Series: SN (4.2 × 5.0 × 5.0 mm)

Agency Information

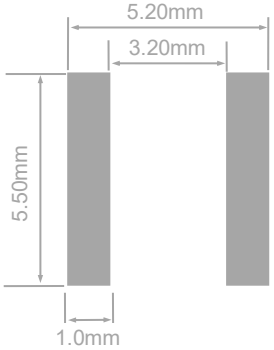
Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
	UL497B	E513446

Dimensions (mm)



L	W	H	D	L_1
4.2 ± 0.3	5.0 ± 0.2	5.0 ± 0.2	Φ1.4	0.5

Recommendation Pad Size (mm)



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Specifications

Model	D.C. Spark-over Voltage @100 V/s	Tolerance of V_s	Impulse Spark-over Voltage @1 kV/μs	Arc Voltage @0.5 A	Impulse Discharge Current @8/20 μs	Alternating Discharge Current @50Hz 1 s	Insulation Resistance		Capacitance 0.5 VDC @ 1MHz	Agency Approvals	
	Vs	*Vs*	*V*	*Va*	*In*	*I*	*VDC*	*IR*	*C*		
	V	V	V	V	kA	A (r.m.s.)	V	GΩ	(pF)	UL497B	TUV
SN071A - SMD	70	52 ~ 88	≤ 650	≈ 8	5	5	25	≥ 1	≤ 1.0	●	○
SN075A - SMD	75	57 ~ 93	≤ 650	≈ 8	5	5	25	≥ 1	≤ 1.0	●	○
SN091A - SMD	90	72 ~ 108	≤ 600	≈ 8	5	5	50	≥ 1	≤ 1.0	●	○
SN151A - SMD	150	120 ~ 180	≤ 600	≈ 10	5	5	50	≥ 1	≤ 1.0	●	○
SN201A - SMD	200	160 ~ 240	≤ 700	≈ 12	5	5	100	≥ 1	≤ 1.0	●	○
SN231A - SMD	230	184 ~ 276	≤ 700	≈ 12	5	5	100	≥ 1	≤ 1.0	●	○
SN301A - SMD	300	240 ~ 360	≤ 800	≈ 12	5	5	100	≥ 1	≤ 1.0	●	○
SN351A - SMD	350	280 ~ 420	≤ 1000	≈ 12	5	5	100	≥ 1	≤ 1.0	●	○
SN401A - SMD	400	320 ~ 480	≤ 1000	≈ 12	5	5	100	≥ 1	≤ 1.0	●	○
SN421A - SMD	420	336 ~ 504	≤ 1000	≈ 15	5	5	100	≥ 1	≤ 1.0	●	○
SN471A - SMD	470	376 ~ 564	≤ 1200	≈ 15	5	5	100	≥ 1	≤ 1.0	●	○
SN601A - SMD	600	480 ~ 720	≤ 1400	≈ 15	5	5	100	≥ 1	≤ 1.0	●	○
SN801A - SMD	800	640 ~ 960	≤ 1600	≈ 15	5	5	100	≥ 1	≤ 1.0	●	○

Note:
1. The above parameters based on ITU - T K12 & IEC61643.311 standards.
2. "●" means GDT has gained the certification. "○" means GDT is no certification.
3. Operating Temperature -40 °C ~ +125 °C.

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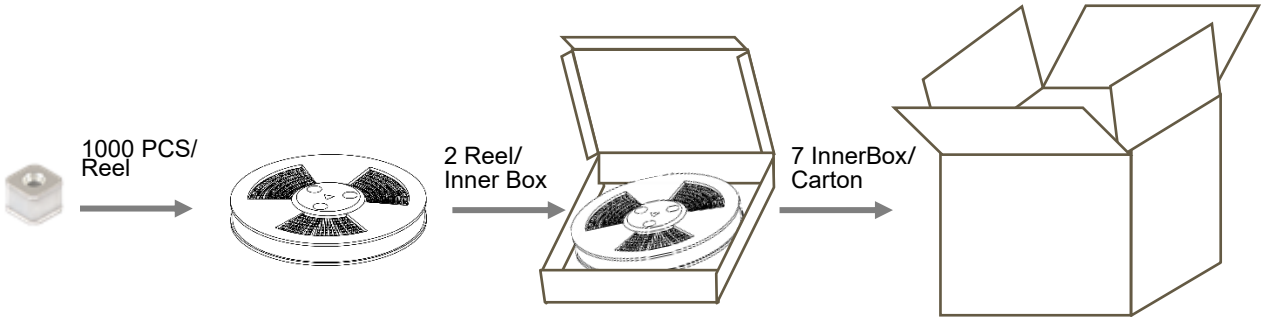
Packaging Information

Tape & Reel (SMD)

Item	Reel	Inner Box	Carton
Dimensions (mm)	Φ330 × 20.5	340 × 340 × 40	360 × 360 × 360
Quantity (PCS)	1000	2000	14000
Notes: Packaging dimensions and quantity are for reference only.			



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Description

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases.

Features

- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

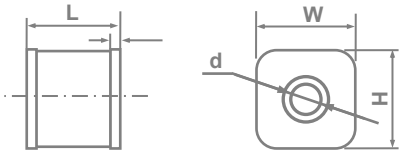
Agency Information

Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
	UL497B	E513446

Applications

- New Energy
- Power supply

Dimensions (mm)



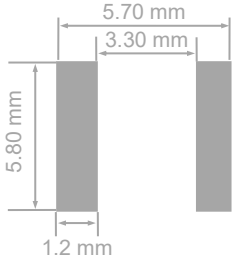
L	W	H	d	L_1
5.0 ± 0.3	5.4 ± 0.2	5.4 ± 0.2	Φ1.4	0.5

Part Numbering System

SU 601 A - SMD

- Lead Type (L: Lead wire, Brank: without Lead Wire, SMD)
- Impulse Discharge Current (A: 5 kA, M: 10 kA)
- D.C.Spark-over Voltage (100 V/s) (601: 60 × 10^1)
- Series: SU (5.0 × 5.4 × 5.4 mm)

Recommendation Pad Size (mm)



Reminder:
Part numbering system in the datasheet is only for selecting correct parameter and product features. Before placing order, please contact us for specifications and use the part number and product code in the specifications to place order to ensure the part is correct. Product code is the unique indentification.

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Specifications

Model	D.C. Spark-over Voltage @100 V/s	Tolerance of V_s	Impulse Spark-over Voltage @1 kV/μs	Arc Voltage @0.5 A	Impulse Discharge Current @8/20 μs	Alternating Discharge Current @50Hz 1 s	Insulation Resistance		Capacitance 0.5 VDC @ 1MHz	Agency Approvals	
	Vs	*Vs*	*V*	*Va*	*In*	*I*	*VDC*	*IR*	*C*		
	V	V	V	V	kA	A (r.m.s.)	V	GΩ	(pF)	UL497B	TUV
SU091A - SMD	90	72 ~ 108	≤ 600	≈ 8	5	5	50	≥ 1	≤ 1.0	○	○
SU151A - SMD	150	120 ~ 180	≤ 600	≈ 10	5	5	50	≥ 1	≤ 1.0	○	○
SU231A - SMD	230	184 ~ 276	≤ 700	≈ 12	5	5	100	≥ 1	≤ 1.0	○	○
SU251A - SMD	250	200 ~ 300	≤ 700	≈ 12	5	5	100	≥ 1	≤ 1.0	○	○
SU351A - SMD	350	280 ~ 420	≤ 1000	≈ 12	5	5	100	≥ 1	≤ 1.0	○	○
SU421A - SMD	420	336 ~ 504	≤ 1000	≈ 15	5	5	100	≥ 1	≤ 1.0	○	○
SU471A - SMD	470	376 ~ 564	≤ 1000	≈ 15	5	5	100	≥ 1	≤ 1.0	○	○
SU601A - SMD	600	480 ~ 720	≤ 1400	≈ 15	5	5	100	≥ 1	≤ 1.0	○	○
SU801A - SMD	800	640 ~ 960	≤ 1600	≈ 15	5	5	100	≥ 1	≤ 1.0	○	○
SU091M - SMD	90	72 ~ 108	≤ 600	≈ 8	10	5	50	≥ 1	≤ 1.0	○	○
SU151M - SMD	150	120 ~ 180	≤ 600	≈ 10	10	5	50	≥ 1	≤ 1.0	○	○
SU231M - SMD	230	184 ~ 276	≤ 700	≈ 12	10	5	100	≥ 1	≤ 1.0	○	○
SU251M - SMD	250	200 ~ 300	≤ 700	≈ 12	10	5	100	≥ 1	≤ 1.0	○	○
SU351M - SMD	350	280 ~ 420	≤ 1000	≈ 12	10	5	100	≥ 1	≤ 1.0	○	○
SU421M - SMD	420	336 ~ 504	≤ 1000	≈ 15	10	5	100	≥ 1	≤ 1.0	○	○
SU471M - SMD	470	376 ~ 564	≤ 1000	≈ 15	10	5	100	≥ 1	≤ 1.0	○	○
SU601M - SMD	600	480 ~ 720	≤ 1400	≈ 15	10	5	100	≥ 1	≤ 1.0	○	○
SU801M - SMD	800	640 ~ 960	≤ 1600	≈ 15	10	5	100	≥ 1	≤ 1.0	○	○

Note:
1. The above parameters based on ITU - T K12 & IEC61643.311 standards.
2. "●" means GDT has gained the certification.
   "○" means GDT is no certification.

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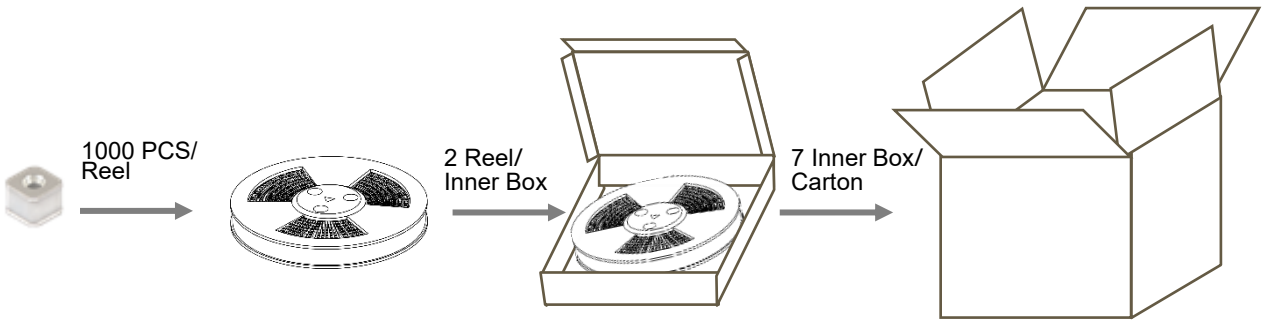
Packaging Information

Tape & Reel (SMD)

Item	Reel	Inner Box	Carton
Dimensions (mm)	Φ330 × 20.5	340 × 340 × 40	360 × 360 × 360
Quantity (PCS)	1000	2000	14000
Notes: Packaging dimensions and quantity are for reference only.			



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Description

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases.

Features

- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

Agency Information

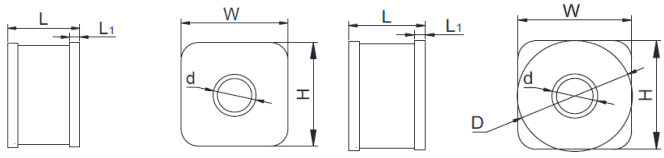
Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
	UL497B	E513446

Applications

- New Energy
- Power supply

Dimensions (mm)

"F" Type "C" Type



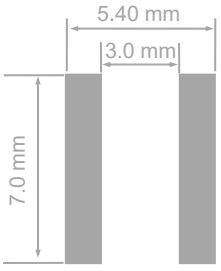
L	W	H	D	L_1	d
4.2 ± 0.3	6.2 ± 0.2	6.2 ± 0.2	Φ6.2 ± 0.2	0.6	Φ2.5

Part Numbering System

SS 601 A - SMD

- Lead Type (L: Lead wire, Brank: without Lead Wire, SMD)
- Impulse Discharge Current (A: 5 kA)
- D.C.Spark-over Voltage (100 V/s) (601: 60×10^1)
- Series: SS (4.2 × 6.2 × 6.2 mm)

Recommendation Pad Size (mm)



Reminder:
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Specifications

Model	D.C. Spark-over Voltage @100 V/s	Tolerance of V_s	Impulse Spark-over Voltage @1 kV/μs	Arc Voltage @0.5 A	Impulse Discharge Current @8/20 μs	Alternating Discharge Current @50Hz 1 s	Insulation Resistance		Capacitance 0.5 VDC @ 1MHz	Agency Approvals	
	Vs	*Vs*	*V*	*Va*	*In*	*I*	*VDC*	*IR*	*C*		
	V	V	V	V	kA	A (r.m.s.)	V	GΩ	(pF)	UL497B	TUV
SS071A - SMD	70	52 ~ 88	≤ 650	≈ 8	5	5	25	≥ 1	≤ 1.0	●	○
SS075A - SMD	75	57 ~ 93	≤ 650	≈ 8	5	5	25	≥ 1	≤ 1.0	●	○
SS091A - SMD	90	72 ~ 108	≤ 600	≈ 8	5	5	50	≥ 1	≤ 1.0	●	○
SS151A - SMD	150	120 ~ 180	≤ 600	≈ 10	5	5	50	≥ 1	≤ 1.0	●	○
SS201A - SMD	200	160 ~ 240	≤ 700	≈ 12	5	5	100	≥ 1	≤ 1.0	●	○
SS231A - SMD	230	184 ~ 276	≤ 700	≈ 12	5	5	100	≥ 1	≤ 1.0	●	○
SS301A - SMD	300	240 ~ 360	≤ 800	≈ 12	5	5	100	≥ 1	≤ 1.0	●	○
SS351A - SMD	350	280 ~ 420	≤ 1000	≈ 12	5	5	100	≥ 1	≤ 1.0	●	○
SS421A - SMD	420	336 ~ 504	≤ 1000	≈ 15	5	5	100	≥ 1	≤ 1.0	●	○
SS601A - SMD	600	480 ~ 720	≤ 1400	≈ 15	5	5	100	≥ 1	≤ 1.0	●	○
SS801A - SMD	800	640 ~ 960	≤ 1600	≈ 15	5	5	100	≥ 1	≤ 1.0	●	○

Note:

1. The above parameters based on ITU - T K12 & IEC61643.311 standards.
2. "●" means GDT has gained the certification."○" means GDT is no certification.
3. Operating Temperature -40 °C ~ +125 °C .

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Packaging Information

Tape & Reel (SMD)

Item	Reel	Inner Box	Carton
Dimensions (mm)	Φ330 × 20.5	340 × 340 × 40	360 × 360 × 360
Quantity (PCS)	800	1600	11200
Notes: Packaging dimensions and quantity are for reference only.			

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Description

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases.

Features

- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

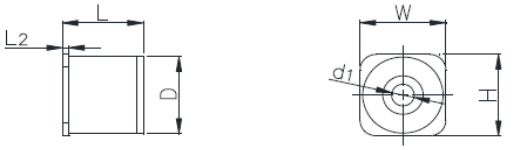
Agency Information

Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
	UL497B	E513446

Applications

- Telecom Equipment
- New Energy
- Power supply
- Irrigation System

Dimensions (mm)



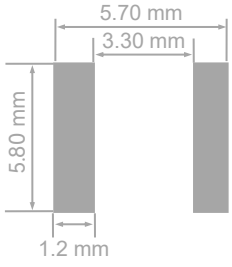
L	W	H	D	L_2	d
5.0 ± 0.3	5.3 ± 0.2	5.3 ± 0.2	Φ5.0 ± 0.2	0.5 ± 0.2	Φ1.4

Part Numbering System

SD 091 A - SMD

- SMD — Lead Type (L: Lead wire, Brank: without Lead Wire, SMD)
- A — Impulse Discharge Current (A: 5 kA)
- 091 — D.C.Spark-over Voltage (100 V/s) (091: 9×10^1)
- SD — Series: SD (Φ5.0 × 5.0 mm)

Recommendation Pad Size (mm)



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Specifications

Model	D.C. Spark-over Voltage @100 V/s	Tolerance of V_s	Impulse Spark-over Voltage @1 kV/μs	Arc Voltage @0.5 A	Impulse Discharge Current @8/20 μs	Alternating Discharge Current @50Hz 1 s	Insulation Resistance		Capacitance 0.5 VDC @ 1MHz	Agency Approvals	
	Vs	*Vs*	*V*	*Va*	*In*	*I*	*VDC*	*IR*	*C*		
	V	V	V	V	kA	A (r.m.s.)	V	GΩ	(pF)	UL497B	TUV
SD071A - SMD	70	52 ~ 88	≤ 650	≈ 8	5	5	25	≥ 1	≤ 1.0	●	○
SD075A - SMD	75	57 ~ 93	≤ 650	≈ 8	5	5	25	≥ 1	≤ 1.0	●	○
SD091A - SMD	90	72 ~ 108	≤ 600	≈ 8	5	5	50	≥ 1	≤ 1.0	●	○
SD151A - SMD	150	120 ~ 180	≤ 600	≈ 10	5	5	50	≥ 1	≤ 1.0	●	○
SD231A - SMD	230	184 ~ 276	≤ 700	≈ 12	5	5	100	≥ 1	≤ 1.0	●	○
SD251A - SMD	250	200 ~ 300	≤ 800	≈ 12	5	5	100	≥ 1	≤ 1.0	●	○
SD351A - SMD	350	280 ~ 420	≤ 1000	≈ 12	5	5	100	≥ 1	≤ 1.0	●	○
SD421A - SMD	420	336 ~ 504	≤ 1000	≈ 15	5	5	100	≥ 1	≤ 1.0	●	○
SD471A - SMD	470	376 ~ 564	≤ 1200	≈ 15	5	5	100	≥ 1	≤ 1.0	●	○
SD601A - SMD	600	480 ~ 720	≤ 1400	≈ 15	5	5	100	≥ 1	≤ 1.0	●	○
SD801A - SMD	800	640 ~ 960	≤ 1600	≈ 15	5	5	100	≥ 1	≤ 1.0	●	○

Note:

1. The above parameters based on ITU - T K12 & IEC61643.311 standards.
2. "●" means GDT has gained the certification. "○" means GDT is no certification.
3. Operating Temperature -40 °C ~ +125 °C .

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Packaging Information

Tape & Reel (SMD)

Item	Reel	Inner Box	Carton
Dimensions (mm)	Φ330 × 20.5	340 × 340 × 40	360 × 360 × 360
Quantity (PCS)	1000	2000	14000
Notes: Packaging dimensions and quantity are for reference only.			

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Description

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases.

Features

- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

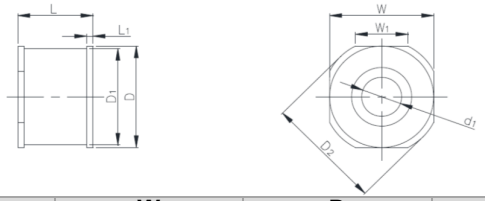
Agency Information

Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
	UL1449	E322662
	UL497B	E513446
	TUV	No.B1072210003 Rev03

Applications

- Telecom Equipment
- New Energy
- Power supply

Dimensions (mm)



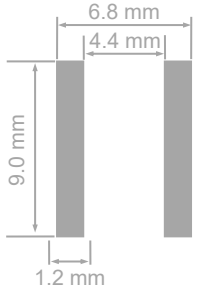
L	W	D	D_1
6.0 ± 0.3	8.3 ± 0.3	Φ8.3 ± 0.3	Φ7.9 ± 0.3
L_1	W_1	D_2	d_1
0.5	4.2	Φ9.3 ± 0.3	3.2

Part Numbering System

SE 601 H - SMD

- SMD: Lead Type (L: Lead wire, Brank: without Lead Wire, SMD)
- H: Impulse Discharge Current (A: 5 kA, M: 10 kA, H: 20 kA)
- 601: D.C.Spark-over Voltage (100 V/s) (601: 60×10^1)
- SE: Series: SM (Φ9.3 × 6 mm)

Recommendation Pad Size (mm)



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Specifications

Model	D.C. Spark-over Voltage @100 V/s	Tolerance of V_s	Impulse Spark-over Voltage @1 kV/μs	Arc Voltage @0.5 A	Impulse Discharge Current @8/20 μs	Alternating Discharge Current @50Hz 1 s	Insulation Resistance		Capacitance 0.5 VDC @ 1MHz	Agency Approvals		
	Vs	*Vs*	*V*	*Va*	*In*	*I*	*VDC*	*IR*	*C*			
	V	V	V	V	kA	A (r.m.s.)	V	GΩ	(pF)	UL497B	UL1449	TUV
SE075M - SMD	75	57~ 93	≤ 650	≈ 8	10	10	25	≥ 1	≤ 1.5	●	N/A	●
SE091M - SMD	90	72 ~ 108	≤ 600	≈ 8	10	10	50	≥ 1	≤ 1.5	●	N/A	●
SE151M - SMD	150	120 ~ 180	≤ 600	≈ 10	10	10	50	≥ 1	≤ 1.5	●	N/A	●
SE231M - SMD	230	184 ~ 276	≤ 700	≈ 12	10	10	100	≥ 1	≤ 1.5	●	N/A	●
SE251M - SMD	250	200 ~ 300	≤ 700	≈ 12	10	10	100	≥ 1	≤ 1.5	●	N/A	●
SE351M - SMD	350	280 ~ 420	≤ 1000	≈ 12	10	10	100	≥ 1	≤ 1.5	●	N/A	●
SE421M - SMD	420	336 ~ 504	≤ 1000	≈ 15	10	10	100	≥ 1	≤ 1.5	●	N/A	●
SE471M - SMD	470	376 ~ 564	≤ 1200	≈ 15	10	10	100	≥ 1	≤ 1.5	●	N/A	●
SE601M - SMD	600	480 ~ 720	≤ 1400	≈ 15	10	10	100	≥ 1	≤ 1.5	●	N/A	●
SE801M - SMD	800	640 ~ 960	≤ 1600	≈ 15	10	10	100	≥ 1	≤ 1.5	●	N/A	●
SE102M - SMD	1000	800 ~ 1200	≤ 2000	≈ 18	10	10	100	≥ 1	≤ 1.5	N/A	●	●
SE152M - SMD	1500	1200 ~ 1800	≤ 2800	≈ 18	10	10	100	≥ 1	≤ 1.5	N/A	●	●
SE202M - SMD	2000	1600 ~ 2400	≤ 4000	≈ 18	10	10	100	≥ 1	≤ 1.5	N/A	●	●
SE075H - SMD	75	57~ 93	≤ 650	≈ 8	20	20	25	≥ 1	≤ 1.5	●	N/A	●
SE091H - SMD	90	72 ~ 108	≤ 600	≈ 8	20	20	50	≥ 1	≤ 1.5	●	●	●
SE151H - SMD	150	120 ~ 180	≤ 600	≈ 10	20	20	50	≥ 1	≤ 1.5	●	N/A	●
SE231H - SMD	230	184 ~ 276	≤ 700	≈ 12	20	20	100	≥ 1	≤ 1.5	●	N/A	●
SE251H - SMD	250	200 ~ 300	≤ 700	≈ 12	20	20	100	≥ 1	≤ 1.5	●	N/A	●
SE351H - SMD	350	280 ~ 420	≤ 1000	≈ 12	20	20	100	≥ 1	≤ 1.5	●	N/A	●
SE421H - SMD	420	336 ~ 504	≤ 1000	≈ 12	20	20	100	≥ 1	≤ 1.5	●	N/A	●
SE471H - SMD	470	376 ~ 564	≤ 1200	≈ 12	20	20	100	≥ 1	≤ 1.5	●	N/A	●
SE601H - SMD	600	480 ~ 720	≤ 1400	≈ 15	20	20	100	≥ 1	≤ 1.5	●	●	●
SE801H - SMD	800	640 ~ 960	≤ 1600	≈ 15	20	20	100	≥ 1	≤ 1.5	●	●	●
SE202A - SMD	2000	1600 ~ 2400	≤ 4000	≈ 18	5	3	100	≥ 1	≤ 1.5	N/A	○	●
SE252A - SMD	2500	2000 ~ 3000	≤ 4000	≈ 20	5	3	100	≥ 1	≤ 1.5	N/A	●	●
SE302A - SMD	3000	2400 ~ 3600	≤ 4500	≈ 20	5	3	100	≥ 1	≤ 1.5	N/A	●	●
SE362A - SMD	3600	2880 ~ 4320	≤ 5000	≈ 20	5	3	100	≥ 1	≤ 1.5	N/A	●	●
SE402A - SMD	4000	3200 ~ 4800	≤ 5500	≈ 20	5	3	100	≥ 1	≤ 1.5	N/A	○	●
SE452A - SMD	4500	3600 ~ 5400	≤ 6000	≈ 20	5	3	100	≥ 1	≤ 1.5	N/A	○	●

Note:
1. The above parameters based on ITU - T K12 & IEC61643.311 standards.
2. "●" means GDT has gained the certification. "○" means GDT is no certification.
3. Operating Temperature -40 °C ~ +125 °C .

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Packaging Information

Tape & Reel (SMD)

Item	Reel	Inner Box	Carton
Dimensions (mm)	Φ330 × 20.5	340 × 340 × 40	360 × 360 × 360
Quantity (PCS)	600	1200	8400
Notes: Packaging dimensions and quantity are for reference only.			

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Description

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases.

Features

- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

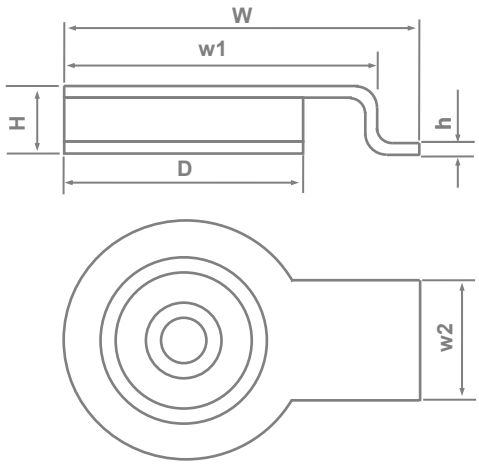
Agency Information

Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
®	UL497B	On-going

Applications

- Telecom Equipment
- Power supply

Dimensions (mm)



D	H	h	W	w_1	w_2
Φ8.0 ± 0.2	2.2 ± 0.3	0.4 ± 0.15	10.5 ± 0.3	9.5 ± 0.3	2.5 ± 0.2

Part Numbering System

SK 601 M - SMD

- SMD: Lead Type (L: Lead wire, Brank: without Lead Wire, SMD)
- M: Impulse Discharge Current (M: 10 kA, H: 20 kA)
- 601: D.C.Spark-over Voltage (100 V/s) (601: 60×10^1)
- SK: Series: SK (Φ8.0 × 2.2 mm)

Reminder:
Part numbering system in the datasheet is only for selecting correct parameter and product features. Before placing order, please contact us for specifications and use the part number and product code in the specifications to place order to ensure the part is correct. Product code is the unique indentification.

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Specifications

Model	D.C. Spark-over Voltage @100 V/s	Tolerance of V_s	Impulse Spark-over Voltage @1 kV/μs	Arc Voltage @0.5 A	Impulse Discharge Current @8/20 μs	Alternating Discharge Current @50Hz 1 s	Insulation Resistance		Capacitance 0.5 VDC @ 1MHz	Agency Approvals	
	Vs	*Vs*	*V*	*Va*	*In*	*I*	*VDC*	*IR*	*C*		
	V	V	V	V	kA	A (r.m.s.)	V	GΩ	(pF)	UL497B	TUV
SK091M - SMD	90	63 ~ 118	≤ 600	≈ 8	10	5	50	≥ 1	≤ 1.5	○	○
SK351M - SMD	350	280 ~ 420	≤ 800	≈ 12	10	5	100	≥ 1	≤ 1.5	○	○
SK421M - SMD	420	336 ~ 504	≤ 1000	≈ 15	10	5	100	≥ 1	≤ 1.5	○	○
SK601M - SMD	600	480 ~ 720	≤ 1400	≈ 15	10	5	100	≥ 1	≤ 1.5	○	○
SK801M - SMD	800	640 ~ 960	≤ 1600	≈ 15	10	5	100	≥ 1	≤ 1.5	○	○
SK102M - SMD	1000	800 ~ 1200	≤ 2000	≈ 18	10	5	100	≥ 1	≤ 1.5	○	○
SK091H - SMD	90	63 ~ 118	≤ 600	≈ 8	20	5	50	≥ 1	≤ 1.5	○	○
SK351H - SMD	350	280 ~ 420	≤ 800	≈ 12	20	5	100	≥ 1	≤ 1.5	○	○
SK421H - SMD	420	336 ~ 504	≤ 1000	≈ 15	20	5	100	≥ 1	≤ 1.5	○	○
SK601H - SMD	600	480 ~ 720	≤ 1400	≈ 15	20	5	100	≥ 1	≤ 1.5	○	○
SK801H - SMD	800	640 ~ 960	≤ 1600	≈ 15	20	5	100	≥ 1	≤ 1.5	○	○

Note:
1. The above parameters based on ITU - T K12 & IEC61643.311 standards.
2. "●" means GDT has gained the certification. "○" means GDT is no certification.
3. Operating Temperature -40 °C ~ +125 °C .

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Packaging Information

Tape & Reel (SMD)

Item	Reel	Inner Box	Carton
Dimensions (mm)	Φ330 × 20.5	200 × 200 × 30	440 × 250 × 230
Quantity (PCS)	1000	2000	14000
Notes: Packaging dimensions and quantity are for reference only.			

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Description

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases.

Features

- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

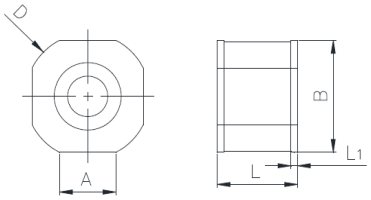
Agency Information

Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
	UL497B	E513446

Applications

- Telecom Equipment
- New Energy
- Power supply

Dimensions (mm)



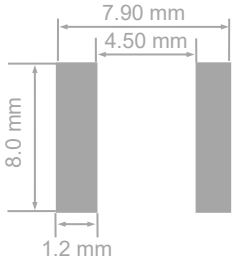
D	H	W	L_1	A
Φ9.3 ± 0.2	8.3 ± 0.2	6.0 ± 0.5	0.5 ± 0.1	4.2 ± 0.2

Part Numbering System

SC 601 H - SMD

- Lead Type (L: Lead wire, Brank: without Lead Wire, SMD)
- Impulse Discharge Current (H: 20 kA)
- D.C.Spark-over Voltage (100 V/s) (601: 60×10^1)
- Series: SC (6.0 × 8.3 × 8.3 mm)

Recommendation Pad Size (mm)



Reminder:
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Specifications

Model	D.C. Spark-over Voltage @100 V/s	Tolerance of V_s	Impulse Spark-over Voltage @1 kV/μs	Arc Voltage @0.5 A	Impulse Discharge Current @8/20 μs	Alternating Discharge Current @50Hz 1 s	Insulation Resistance		Capacitance 0.5 VDC @ 1MHz	Agency Approvals	
	Vs	*Vs*	*V*	*Va*	*In*	*I*	*VDC*	*IR*	*C*	®	TUV
	V	V	V	V	kA	A (r.m.s.)	V	GΩ	(pF)	UL497B	TUV
SC071H - SMD	70	52 ~ 88	≤ 650	≈ 8	20	20	25	≥ 1	≤ 1.5	●	○
SC075H - SMD	75	57 ~ 93	≤ 650	≈ 8	20	20	25	≥ 1	≤ 1.5	●	○
SC091H - SMD	90	72 ~ 108	≤ 600	≈8	20	20	50	≥ 1	≤ 1.5	●	○
SC151H - SMD	150	120 ~ 180	≤ 600	≈10	20	20	50	≥ 1	≤ 1.5	●	○
SC231H - SMD	230	184 ~ 276	≤ 700	≈12	20	20	100	≥ 1	≤ 1.5	●	○
SC251H - SMD	250	200 ~ 300	≤ 700	≈12	20	20	100	≥ 1	≤ 1.5	●	○
SC351H - SMD	350	280 ~ 420	≤ 1000	≈12	20	20	100	≥ 1	≤ 1.5	●	○
SC421H - SMD	420	366 ~ 504	≤ 1000	≈15	20	20	100	≥ 1	≤ 1.5	●	○
SC471H - SMD	470	376 ~ 564	≤ 1200	≈15	20	20	100	≥ 1	≤ 1.5	●	○
SC601H - SMD	600	480 ~ 720	≤ 1400	≈15	20	20	100	≥ 1	≤ 1.5	●	○
SC801H - SMD	800	640 ~ 960	≤ 1600	≈ 15	20	20	100	≥ 1	≤ 1.5	●	○

Note:

1. The above parameters based on ITU - T K12 & IEC61643.311 standards.
2. "●" means GDT has gained the certification. "○" means GDT is no certification.
3. Operating Temperature -40 °C ~ +125 °C .

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Packaging Information

Tape & Reel (SMD)

Item	Reel	Inner Box	Carton
Dimensions (mm)	Φ330 × 20.5	340 × 340 × 40	360 × 360 × 360
Quantity (PCS)	600	1200	8400
Notes: Packaging dimensions and quantity are for reference only.			

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Description

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases.

Features

- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

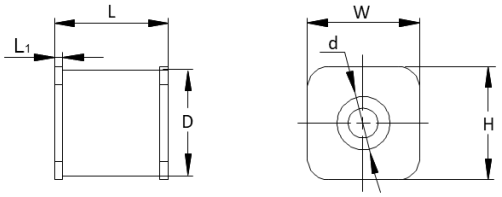
Agency Information

Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
	UL1449	E322662
	UL497B	E513446
	TUV	No.B1072210003 Rev03

Applications

- Telecom Equipment CATV
- New Energy
- Power supply
- Irrigation Equipment

Dimensions (mm)



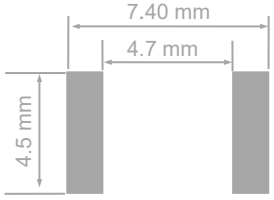
L	W	H	D	L_1	d
6.0 ± 0.4	6.0 ± 0.2	6.0 ± 0.2	Φ1.8	0.5	Φ2.5

Part Numbering System

SF 601 A - SMD

- SMD: Lead Type (L: Lead wire, Brank: without Lead Wire, SMD)
- A: Impulse Discharge Current (T: 3 kA, A: 5 kA, M: 10 kA)
- 601: D.C.Spark-over Voltage (100 V/s) (601: 60×10^1)
- SF: Series: SF (Φ 5.5× 6.0 mm)

Recommendation Pad Size (mm)



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Specifications

Model	D.C. Spark-over Voltage @100 V/s	Tolerance of V_s	Impulse Spark-over Voltage @1 kV/μs	Arc Voltage @0.5 A	Impulse Discharge Current @8/20 μs	Alternating Discharge Current @50Hz 1 s	Insulation Resistance		Capacitance 0.5 VDC @ 1MHz	Agency Approvals		
	Vs	*Vs*	*V*	*Va*	*In*	*I*	*VDC*	*IR*	*C*			
	V	V	V	V	kA	A (r.m.s.)	V	GΩ	(pF)	UL497B	UL1449	TUV
SF075A - SMD	75	57 ~ 93	≤ 650	≈ 8	5	5	50	≥ 1	≤ 1.0	●	N/A	●
SF091A - SMD	90	72 ~ 108	≤ 600	≈ 8	5	5	50	≥ 1	≤ 1.0	●	N/A	●
SF151A - SMD	150	120 ~ 180	≤ 600	≈ 10	5	5	50	≥ 1	≤ 1.0	●	N/A	●
SF231A - SMD	230	184 ~ 276	≤ 700	≈ 12	5	5	100	≥ 1	≤ 1.0	●	N/A	●
SF251A - SMD	250	200 ~ 300	≤ 700	≈ 12	5	5	100	≥ 1	≤ 1.0	●	N/A	●
SF351A - SMD	350	280 ~ 420	≤ 1000	≈ 12	5	5	100	≥ 1	≤ 1.0	●	N/A	●
SF421A - SMD	420	336 ~ 504	≤ 1000	≈ 15	5	5	100	≥ 1	≤ 1.0	●	N/A	●
SF471A - SMD	470	376 ~ 564	≤ 1200	≈ 15	5	5	100	≥ 1	≤ 1.0	●	N/A	●
SF601A - SMD	600	480 ~ 720	≤ 1400	≈ 15	5	5	100	≥ 1	≤ 1.0	●	N/A	●
SF801A - SMD	800	640 ~ 960	≤ 1600	≈ 15	5	5	100	≥ 1	≤ 1.0	●	N/A	●
SF102A - SMD	1000	800 ~ 1200	≤ 2000	≈ 18	5	5	100	≥ 1	≤ 1.0	N/A	○	●
SF152A - SMD	1500	1200 ~ 1800	≤ 2800	≈ 18	5	3	100	≥ 1	≤ 1.0	N/A	○	●
SF075M - SMD	75	57 ~ 93	≤ 650	≈ 8	10	5	25	≥ 1	≤ 1.0	●	N/A	●
SF091M - SMD	90	72 ~ 108	≤ 600	≈ 8	10	5	50	≥ 1	≤ 1.0	●	N/A	●
SF151M - SMD	150	120 ~ 180	≤ 600	≈ 10	10	5	50	≥ 1	≤ 1.0	●	N/A	●
SF231M - SMD	230	184 ~ 276	≤ 700	≈ 12	10	5	100	≥ 1	≤ 1.0	●	N/A	●
SF251M - SMD	250	200 ~ 300	≤ 700	≈ 12	10	5	100	≥ 1	≤ 1.0	●	N/A	●
SF351M - SMD	350	280 ~ 420	≤ 1000	≈ 12	10	5	100	≥ 1	≤ 1.0	●	N/A	●
SF421M - SMD	420	336 ~ 504	≤ 1000	≈ 15	10	5	100	≥ 1	≤ 1.0	●	N/A	●
SF471M - SMD	470	376 ~ 564	≤ 1200	≈ 15	10	5	100	≥ 1	≤ 1.0	●	N/A	●
SF601M - SMD	600	480 ~ 720	≤ 1400	≈ 15	10	5	100	≥ 1	≤ 1.0	●	N/A	●
SF801M - SMD	800	640 ~ 960	≤ 1600	≈ 15	10	5	100	≥ 1	≤ 1.0	●	N/A	●
SF202T - SMD	2000	1600 ~ 2400	≤ 4000	≈ 18	3	3	100	≥ 1	≤ 1.0	●	●	●
SF252T - SMD	2500	2000 ~ 3000	≤ 4000	≈ 20	3	3	100	≥ 1	≤ 1.0	N/A	●	●
SF302T - SMD	3000	2400 ~ 3600	≤ 4500	≈ 20	3	3	100	≥ 1	≤ 1.0	N/A	●	●
SF362T - SMD	3600	2880 ~ 4320	≤ 5000	≈ 20	3	3	100	≥ 1	≤ 1.0	N/A	●	●
SF402T - SMD	4000	3200 ~ 4800	≤ 5500	≈ 20	3	3	100	≥ 1	≤ 1.0	N/A	○	●
SF452T - SMD	4500	3600 ~ 5400	≤ 6000	≈ 20	3	3	100	≥ 1	≤ 1.0	N/A	○	●

Note:
1. The above parameters based on ITU - T K12 & IEC61643.311 standards.
2. "●" means GDT has gained the certification. "○" means GDT is no certification.
3. Operating Temperature -40 °C ~ +125 °C

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Packaging Information

Tape & Reel (SMD)

Item	Reel	Inner Box	Carton
Dimensions (mm)	Φ330 × 20.5	340 × 340 × 40	360 × 360 × 360
Quantity (PCS)	700	1400	9800
Notes: Packaging dimensions and quantity are for reference only.			

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Description

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases.

Features

- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

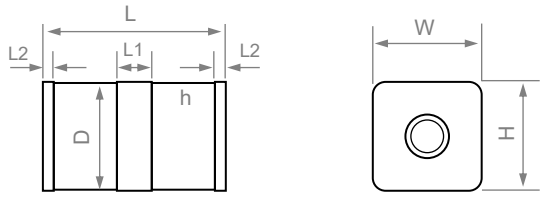
Agency Information

Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
	UL497B	On-going

Applications

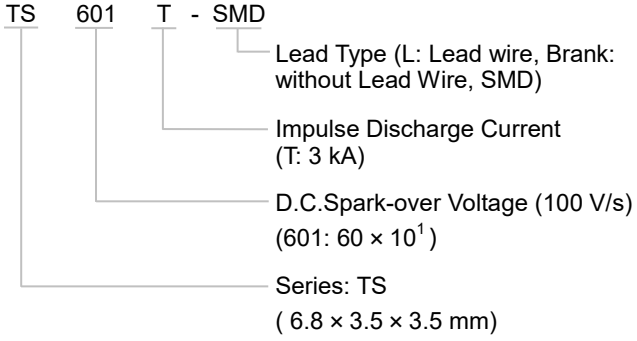
- Telecom Equipment
- Power supply
- Security Equipment
- POE
- Ethernet

Dimensions (mm)

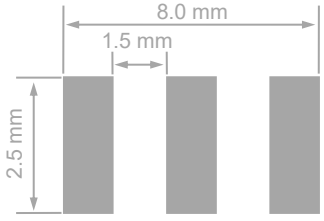


L	W	H	D	L1	L2
6.8 ± 0.3	3.5± 0.2	3.5 ± 0.2	Φ3.5 ± 0.2	1.2 ± 0.2	0.4 ± 0.2

Part Numbering System



Recommendation Pad Size (mm)



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Specifications

Model	D.C. Spark-over Voltage @100 V/s	Tolerance of V_s	Impulse Spark-over Voltage @1 kV/μs	Arc Voltage @0.5 A	Impulse Discharge Current @8/20 μs	Alternating Discharge Current @50Hz 1 s	Insulation Resistance		Capacitance 0.5 VDC @ 1MHz	Agency Approvals	
	Vs	*Vs*	*V*	*Va*	*In*	*I*	*VDC*	*IR*	*C*		
	V	V	V	V	kA	A (r.m.s.)	V	GΩ	(pF)	UL497B	TUV
TS091T - SMD	90	63 ~ 117	≤ 600	≈ 8	3	3	50	≥ 1	≤ 1.0	○	○
TS151T - SMD	150	120 ~ 180	≤ 650	≈ 10	3	3	50	≥ 1	≤ 1.0	○	○
TS231T - SMD	230	184 ~ 276	≤ 700	≈ 12	3	3	100	≥ 1	≤ 1.0	○	○
TS251T - SMD	250	200 ~ 300	≤ 700	≈ 12	3	3	100	≥ 1	≤ 1.0	○	○
TS351T - SMD	350	280 ~ 420	≤ 1000	≈ 12	3	3	100	≥ 1	≤ 1.0	○	○
TS421T - SMD	420	336 ~ 504	≤ 1000	≈ 15	3	3	100	≥ 1	≤ 1.0	○	○
TS471T - SMD	470	376 ~ 564	≤ 1200	≈ 15	3	3	100	≥ 1	≤ 1.0	○	○
TS601T - SMD	600	480 ~ 720	≤ 1400	≈ 15	3	3	100	≥ 1	≤ 1.0	○	○

Note:

1. The above parameters based on ITU - T K12 & IEC61643.311 standards.
2. "●" means GDT has gained the certification. "○" means GDT is no certification.
3. Operating Temperature -40 °C ~ +125 °C .

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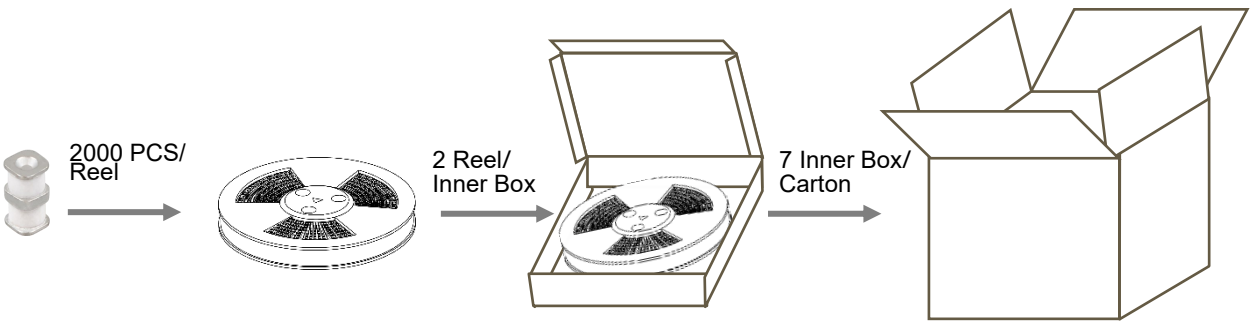
Packaging Information

Tape & Reel (SMD)

Item	Reel	Inner Box	Carton
Dimensions (mm)	Φ330 × 20.5	340 × 340 × 40	360 × 360 × 360
Quantity (PCS)	2000	4000	28000
Notes: Packaging dimensions and quantity are for reference only.			



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Description

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases.

Features

- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

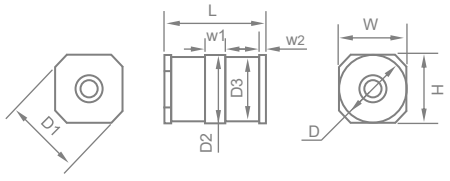
Agency Information

Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
	UL497B	E513446
	TUV	No.B1072210003 Rev03

Applications

- Telecom Equipment
- Power supply
- Security Equipment
- POE
- Ethernet

Dimensions (mm)



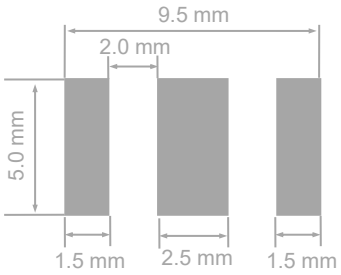
L	W	H	D	D_1
7.6 ± 0.3	5.0 ± 0.2	5.0 ± 0.2	Φ5.0 ± 0.2	Φ6.0
w_1	**w_2**	**D_2**	**D_3**	
1.5	0.5	Φ5.0 ± 0.2	Φ4.7 ± 0.2	

Part Numbering System

TZ 091 A - SMD

- SMD: Lead Type (L: Lead wire, Brank: without Lead Wire, SMD)
- A: Impulse Discharge Current (A: 5 kA, M: 10 kA)
- 091: D.C.Spark-over Voltage (100 V/s) (091: 9×10^1)
- TZ: Series: TZ (Φ5.0 × 7.6 mm)

Recommendation Pad Size (mm)



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Specifications

Model	D.C. Spark-over Voltage @100 V/s	Tolerance of V_s	Impulse Spark-over Voltage @1 kV/μs	Arc Voltage @0.5 A	Impulse Discharge Current @8/20 μs	Alternating Discharge Current @50Hz 1 s	Insulation Resistance		Capacitance 0.5 VDC @ 1MHz	Agency Approvals	
	Vs	*Vs*	*V*	*Va*	*In*	*I*	*VDC*	*IR*	*C*	®	TUV
	V	V	V	V	kA	A (r.m.s.)	V	GΩ	(pF)	UL497B	TUV
TZ071A - SMD	70	52 ~ 88	≤ 650	≈ 8	5	5	25	≥ 1	≤ 1.0	●	●
TZ075A - SMD	75	57 ~ 93	≤ 650	≈ 8	5	5	25	≥ 1	≤ 1.0	●	●
TZ091A - SMD	90	72 ~ 108	≤ 600	≈ 8	5	5	50	≥ 1	≤ 1.0	●	●
TZ151A - SMD	150	120 ~ 180	≤ 600	≈ 10	5	5	50	≥ 1	≤ 1.0	●	●
TZ231A - SMD	230	184 ~ 276	≤ 700	≈ 12	5	5	100	≥ 1	≤ 1.0	●	●
TZ251A - SMD	250	200 ~ 300	≤ 700	≈ 12	5	5	100	≥ 1	≤ 1.0	●	●
TZ351A - SMD	350	280 ~ 420	≤ 1000	≈ 12	5	5	100	≥ 1	≤ 1.0	●	●
TZ421A - SMD	420	336 ~ 504	≤ 1000	≈ 15	5	5	100	≥ 1	≤ 1.0	●	●
TZ471A - SMD	470	376 ~ 564	≤ 1200	≈ 15	5	5	100	≥ 1	≤ 1.0	●	●
TZ601A - SMD	600	480 ~ 720	≤ 1400	≈ 15	5	5	100	≥ 1	≤ 1.0	●	●
TZ071M - SMD	70	52 ~ 88	≤ 650	≈ 8	10	10	25	≥ 1	≤ 1.0	●	●
TZ075M - SMD	75	57 ~ 93	≤ 650	≈ 8	10	10	25	≥ 1	≤ 1.0	●	●
TZ091M - SMD	90	72 ~ 108	≤ 600	≈ 8	10	10	50	≥ 1	≤ 1.0	●	●
TZ151M - SMD	150	120 ~ 180	≤ 600	≈ 10	10	10	50	≥ 1	≤ 1.0	●	●
TZ231M - SMD	230	184 ~ 276	≤ 700	≈ 12	10	10	100	≥ 1	≤ 1.0	●	●
TZ251M - SMD	250	200 ~ 300	≤ 700	≈ 12	10	10	100	≥ 1	≤ 1.0	●	●
TZ351M - SMD	350	280 ~ 420	≤ 1000	≈ 12	10	10	100	≥ 1	≤ 1.0	●	●
TZ421M - SMD	420	336 ~ 504	≤ 1000	≈ 15	10	10	100	≥ 1	≤ 1.0	●	●
TZ471M - SMD	470	376 ~ 564	≤ 1200	≈ 15	10	10	100	≥ 1	≤ 1.0	●	●
TZ601M - SMD	600	480 ~ 720	≤ 1400	≈ 15	10	10	100	≥ 1	≤ 1.0	●	●

Note:
1. The above parameters based on ITU - T K12 & IEC61643.311 standards.
2. "●" means GDT has gained the certification.
3. Operating Temperature -40 °C ~ +125 °C .

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Packaging Information

Tape & Reel (SMD)

Item	Reel	Inner Box	Carton
Dimensions (mm)	Φ330 × 20.5	340 × 340 × 40	360 × 360 × 360
Quantity (PCS)	1000	2000	14000
Notes: Packaging dimensions and quantity are for reference only.			

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Description

Gas Discharge Tube (GDT) is a single-gap or multi-gap switching overvoltage protection device. Under normal circumstances, the GDT is in a high-impedance state; when suffer a surge, the GDT will change from a high-impedance state to a low-impedance state, and release the surge energy to the ground, reducing the residual voltage of the circuit, thereby protecting the equipment circuit or protect the human body from the hazards of transient overvoltage. GDT is formed by high-temperature sealing of metal electrodes, metallized ceramics, inert gas or other mixed gases.

Features

- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

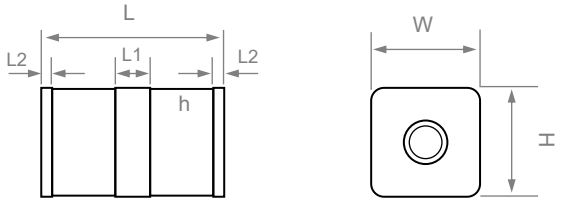
Agency Information

Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
	UL497B	On-going

Applications

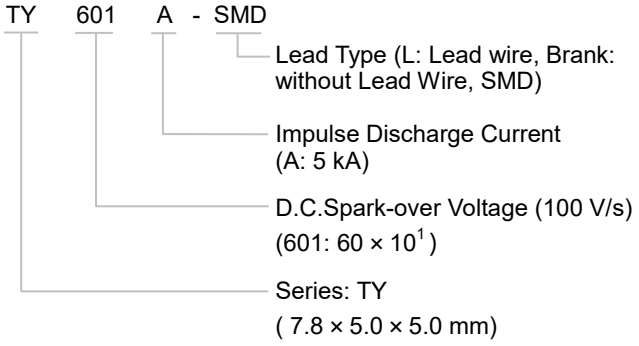
- Power supply
- Security Equipment
- DC Power supply (12VVDC 24 VDC)

Dimensions (mm)

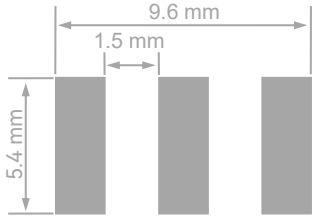


L	W	H	L1	L2
7.8 ± 0.3	5.0 ± 0.2	5.0 ± 0.2	1.6 ± 0.2	0.5 ± 0.2

Part Numbering System



Recommendation Pad Size (mm)



Reminder:
Part numbering system in the datasheet is only for selecting correct parameter and product features. Before placing order, please contact us for specifications and use the part number and product code in the specifications to place order to ensure the part is correct. Product code is the unique indentification.

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Specifications

Model	D.C. Spark-over Voltage @100 V/s	Tolerance of V_s	Impulse Spark-over Voltage @1 kV/μs	Arc Voltage @0.5 A	Impulse Discharge Current @8/20 μs	Alternating Discharge Current @50Hz 1 s	Insulation Resistance		Capacitance 0.5 VDC @ 1MHz	Agency Approvals	
	Vs	*Vs*	*V*	*Va*	*In*	*I*	*VDC*	*IR*	*C*		
	V	V	V	V	kA	A (r.m.s.)	V	GΩ	(pF)	UL497B	TUV
TY231A - SMD	230	160 ~ 300	≤ 700	> 20	5	1	100	≥ 1	≤ 1.5	○	N/A
TY251A - SMD	250	175 ~ 325	≤ 700	> 20	5	1	100	≥ 1	≤ 1.5	○	N/A
TY351A - SMD	350	245 ~ 445	≤ 1000	> 30	5	1	100	≥ 1	≤ 1.5	○	N/A
TY421A - SMD	420	294 ~ 546	≤ 1000	> 35	5	1	100	≥ 1	≤ 1.5	○	N/A
TY601A - SMD	600	420 ~ 780	≤ 1400	> 35	5	1	100	≥ 1	≤ 1.5	○	N/A

Note:
1. The above parameters based on ITU - T K12 & IEC61643.311 standards.
2. "●" means GDT has gained the certification. "○" means GDT is no certification.
3. Operating Temperature -40 °C ~ +125 °C .

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Features

- Fast Response
- Stable Performance Over Surface Life
- High Current Rating
- Low Capacitance
- High Insulation Resistance
- RoHS & REACH Compliant

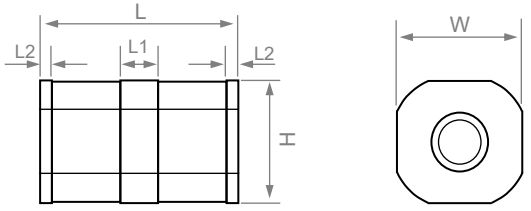
Agency Information

Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
	UL497B	E513446

Applications

- Telecom Equipment
- New Energy
- Power supply

Dimensions (mm)



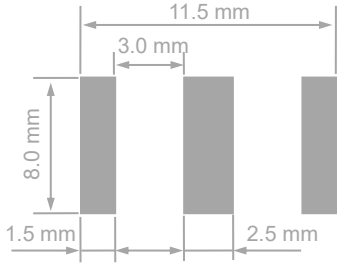
L	W	H	L1	L2
10.0 ± 0.5	8.3 ± 0.3	8.3 ± 0.3	1.5 ± 0.2	0.5 ± 0.2

Part Numbering System

TR 601 M - SMD

- Lead Type (L: Lead wire, Brank: without Lead Wire, SMD)
- Impulse Discharge Current (M: 10 kA, H: 20 kA)
- D.C.Spark-over Voltage (100 V/s) (601: 60×10^1)
- Series: TR (10.0 × 8.3 × 8.3 mm)

Recommendation Pad Size (mm)



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	Vs	*Vs*	*V*	*Va*	*In*	*I*	*VDC*	*IR*	*C*		
	V	V	V	V	kA	A (r.m.s.)	V	GΩ	(pF)	UL497B	TUV
TR091M - SMD	90	72 ~ 108	≤ 600	≈ 8	10	10	50	≥ 1	≤ 1.0	●	○
TR151M - SMD	150	120 ~ 180	≤ 600	≈ 10	10	10	50	≥ 1	≤ 1.0	●	○
TR231M - SMD	230	184 ~ 276	≤ 700	≈ 12	10	10	100	≥ 1	≤ 1.0	●	○
TR251M - SMD	250	200 ~ 300	≤ 700	≈ 12	10	10	100	≥ 1	≤ 1.0	●	○
TR351M - SMD	350	280 ~ 420	≤ 1000	≈ 12	10	10	100	≥ 1	≤ 1.0	●	○
TR421M - SMD	420	336 ~ 504	≤ 1000	≈ 15	10	10	100	≥ 1	≤ 1.0	●	○
TR471M - SMD	470	376 ~ 564	≤ 1200	≈ 15	10	10	100	≥ 1	≤ 1.0	●	○
TR601M - SMD	600	480 ~ 720	≤ 1400	≈ 15	10	10	100	≥ 1	≤ 1.0	●	○
TR075H - SMD	75	57~ 93	≤ 650	≈ 8	20	10	50	≥ 1	≤ 1.0	●	○
TR091H - SMD	90	72 ~ 108	≤ 600	≈ 8	20	20	50	≥ 1	≤ 1.0	●	○
TR151H - SMD	150	120 ~ 180	≤ 600	≈ 10	20	20	50	≥ 1	≤ 1.0	●	○
TR231H - SMD	230	184 ~ 276	≤ 700	≈ 12	20	20	100	≥ 1	≤ 1.0	●	○
TR251H - SMD	250	200 ~ 300	≤ 700	≈ 12	20	10	100	≥ 1	≤ 1.0	●	○
TR351H - SMD	350	280 ~ 420	≤ 1000	≈ 12	20	20	100	≥ 1	≤ 1.0	●	○
TR421H - SMD	420	336 ~ 504	≤ 1000	≈ 15	20	20	100	≥ 1	≤ 1.0	●	○
TR471H - SMD	470	376 ~ 564	≤ 1200	≈ 15	20	20	100	≥ 1	≤ 1.0	●	○
TR601H - SMD	600	480 ~ 720	≤ 1400	≈ 15	20	20	100	≥ 1	≤ 1.0	●	○

Note:
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Packaging Information

Tape & Reel (SMD)

Item	Reel	Inner Box	Carton
Dimensions (mm)	Φ330 × 20.5	340 × 340 × 40	360 × 360 × 360
Quantity (PCS)	500	500	4000
Notes: Packaging dimensions and quantity are for reference only.			

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