

Description

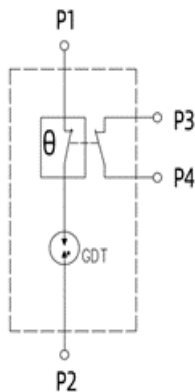
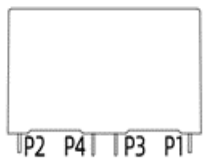


Thermally Protected Gas Discharge Tube (TGDT) is a gas discharge tube (GDT) combined with thermal protection. When GDT takes function and discharged for a certain number of times, the internal insulation performance decreases as well as the follow current interrupting ability, eventually leading to GDT short circuit failure. TGDT can make GDT disconnect from the circuit through thermal trip when the GDT degrades or short-circuit fails.

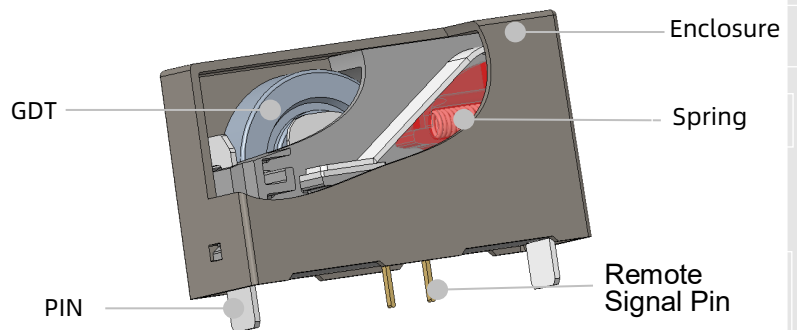
Thermally Protected Gas Discharge Tube (TGDT) is widely used for overvoltage protection in new energy equipment and communication equipment. It plays a big role in absorbing abnormal voltage and surge.

SETsafe | SETfuse's Thermally Protected Gas Discharge Tube TGDTxxM series are mainly composed of Gas Discharge Tubes (GDT), potting material, flame retardant case and metal accessories (thermal protection tripping device, pins). Nominal discharge current: 30 ~ 40 kA; maximum continuous operating voltage: 255 VAC; Certification: TUV, CE; complied with RoHS and REACH.

Schematics



Structure





Features

- High Reliability
- Small Size
- Failure Indication
- High Energy Capacity
- Sealing Material, Flame-retardant to V0 (UL 94)
- Comply with UL 1449 / IEC 61643-11

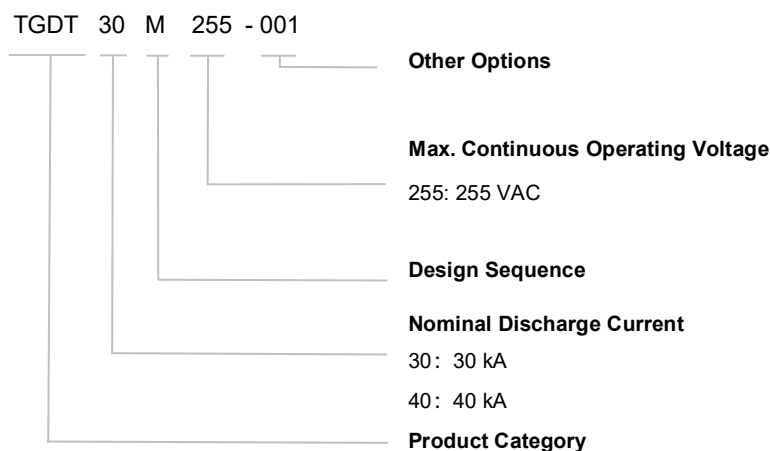
Applications

- Communication Equipment
- Security
- Industrial Control Equipment
- New Energy Equipment

Agency Information

Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe SETfuse	Category
	EN 61643-11	J50556562	Class I and Class II
	EN 61643-31	AN 50584980	Class I and Class II
环境	RoHS & REACH	符合	

Part Numbering System

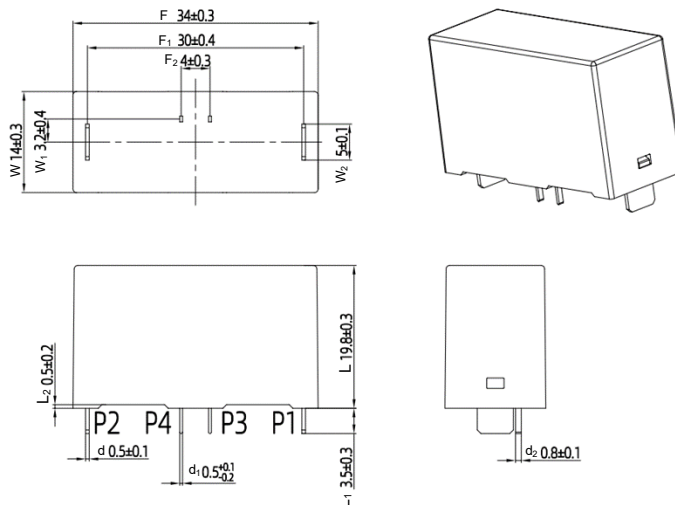


Note:

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 identification.

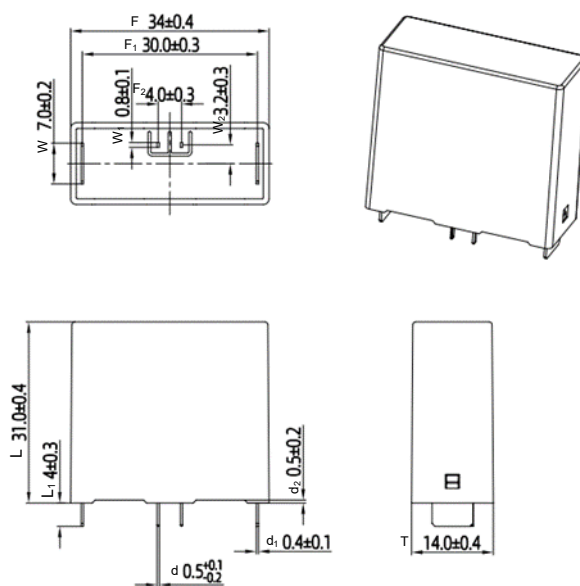
Thermally Protected Gas Discharge Tube (TGDT)

TGDTxxM Series



Remarks: Unit is mm
TGDT30M255

L	L ₁	L ₂	W	W ₁	W ₂
19.8 ± 0.3	3.5 ± 0.3	0.5 ± 0.2	14.0 ± 0.3	3.2 ± 0.4	5.0 ± 0.1
F	F ₁	F ₂	d	d ₁	d ₂
34.0 ± 0.3	30.0 ± 0.4	4.0 ± 0.3	0.5 ± 0.1	0.5 ± 0.1	0.8 ± 0.1



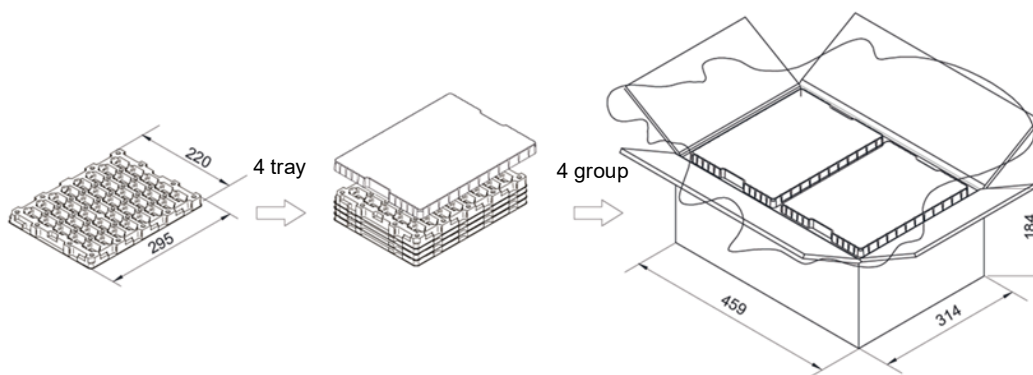
Remarks: Unit is mm
TGDT40M255

L	L ₁	T	W	W ₁	W ₂
31.0 ± 0.4	4.0 ± 0.3	14.0 ± 0.4	7.0 ± 0.2	0.8 ± 0.1	3.2 ± 0.3
F	F ₁	F ₂	d	d ₁	d ₂
34.0 ± 0.4	30.0 ± 0.4	4.0 ± 0.3	0.5 ± 0.1	0.4 ± 0.1	0.5 ± 0.2

Specifications

Features	Specifications	
Model	TGDT30M255	TGDT40M255
Maximum Continuous Operating Voltage (U_c)	255 VAC	255 VAC
DC Breakdown Voltage (V_s)	600 V (480 ~ 720 V)	600 V (480 ~ 720 V)
Impulse Breakdown Voltage (1 kv / μ s)	≤ 1500 V	≤ 2000 V
Rated Disconnect Continuity Value (I_{fi})	100A (255VAC)	100A (255VAC)
Nominal Discharge Current (8/20 μ s) (I_n)	30 kA	40 kA
Inrush Discharge Current(10/350 μ s) (I_{imp})	6 kA	8 kA
Voltage Protection Level (U_p)	1500 V	2000 V
Protected Mode	N - PE	
Alarm Mode	Remote Signal	
Maximum Overcurrent Protection	100A gL/gG	
Mounting	PCB	
Operating Temperature	(-40 ~ 105) °C	
Standard	IEC/EN 61643-11 Class I and Class II	

Packaging Information



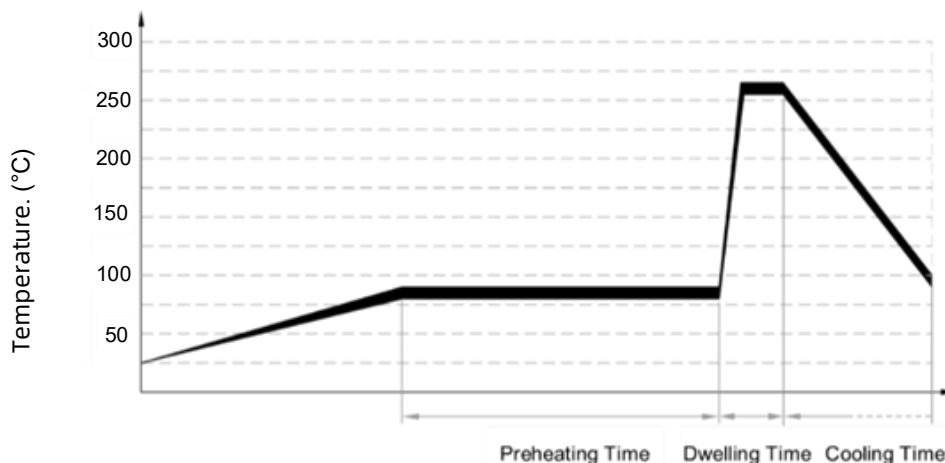
Unit: mm

Please contact us if you have special packaging requirements.

Item	Tray	Group	Carton
Dimensions (mm)	295 × 220	295 × 220 × 46	459 × 314 × 184
TGDT30M (PCS)	30	120	480
TGDT40M (PCS)	24	96	384

Wave Soldering Parameters (Reference)

This product can meet the wave soldering, pay attention to the product pins beyond the PCB pad length of not more than 3 mm, the preheating temperature control within 120 ° C, the wave temperature is less than 270 ° C, the time of tin ≤ 6 s. Soldering is recommended to increase the shield to reduce the product to absorb heat, the product over the crest of the addition of cooling facilities to make the temperature quickly down to room temperature. It is recommended to set up according to the following soldering curve:



Item	Temp. (°C)	Time (s)
Preheating	80 ~ 120	60 ~ 150
Dwelling	250 ~ 270	4 ~ 6

Recommended Hand-Soldering Parameters

Item	Condition
Iron Temperature	350 °C (Max.)
Soldering Time	4 seconds (Max.)
Distance between Soldering Point and the Bottom of Product	2 mm (Min.)

Patents

Name	Region	Category	Patent NO.
Gas Discharge Tubes with Thermal Protection	China	Utility Model	ZL2015201446842
A gas discharge tube module with thermal protection	China	Utility Model	ZL2019214168294

Glossary

Item	Description
V_s	<p>DC Breakdown Voltage</p> <p>The voltage at which the GDT transitions from the high impedance state to the on-state when a slowly increasing DC voltage of 100V/s is applied shall be within the claimed voltage range.</p> <p>— (IEC 61643-311)</p>
V_{IS}	<p>Impulse Breakdown Voltage</p> <p>The maximum value of the voltage between the two terminals of the GDT before the discharge current flows through the GDT when an impulse voltage of specified rate of rise and polarity is applied .</p> <p>— (IEC 61643-311)</p>
U_p	<p>Voltage protection level</p> <p>The large voltage expected between the SPD terminals due to the application of an inrush voltage of specified steepness and an inrush current of specified magnitude and waveform .</p> <p>— (IEC 61643-11)</p>
U_c	<p>Maximum Continuous Operating Voltage</p> <p>The maximum DC or AC voltage RMS that can be continuously applied to the SPD. — (IEC 61643-11)</p>
I_{imp}	<p>Inrush discharge current for Type I test</p> <p>I_{imp} is defined by three parameters: the peak current I_{peak}, the charge Q and the specific energy W/R. The current is defined in terms of the peak value of the current I_{peak}, the charge Q and the specific energy W/R.</p> <p>— (IEC 61643-11)</p>
I_n	<p>Nominal Discharge Current</p> <p>The peak value of the current flowing through the SPD has an 8/20 waveform current .— (IEC 61643-11)</p>
I_{fi}	<p>Rated disconnect current value</p> <p>The effective value at which the SPD is capable of disconnecting the continuity current.</p> <p>— (IEC 61643-11)</p>
MLV	<p>Measured Limiting Voltage</p> <p>The peak voltage presented across the SPD when a current pulse of 8/20 level flows in the SPD in a standard atmospheric pressure environment.</p> <p>— (IEC 61643-11)</p>



注意

Usage

1. the voltage continuously applied to the thermally protected gas discharge tubes shall not exceed their maximum continuous operating voltage U_c .
2. the atmospheric pressure is between 54 kPa and 106 kPa, corresponding to an altitude of +/- 500 m.
3. Do not touch the body or pins directly while energized to prevent electric shock.
4. Do not use polar solvents such as ketones, esters, benzene, halogenated hydrocarbons, etc. to clean the product to avoid damaging the encapsulation layer of the product.
5. The equipment to which this product is applied must be connected to earth with a reliable grounding wire.

Replacement

For safety reasons, thermally protected gas discharge tubes are non-repairable products and should be replaced with the same type and model of the same category.

Storage

Do not store TGDT at high temperature, high humidity or corrosive gas environment. To avoid reducing the solderability of the pins, please use them up within 1 year after receiving the goods.

Mechanical Stress

Do not take violent action such as knocking when assembling to avoid mechanical damage.