



## Features

- Fast acting
- Balanced
- Stable breakdown throughout life
- Designed to operate with TBU® devices
- RoHS compliant\* versions available

## Applications

- Telecommunications
- Industrial electronics
- Avionics

# 2020 T-Series - Fast Acting 3-Electrode Miniature GDT

## Characteristics

Test Methods per ITU-T K.12, IEEE C62.31 and IEC 61643-311 GDT standards.

Characteristic	Model No.		
	2020-15T	2020-23T	2020-42T
Initial DC Sparkover (100 V/s) Typical	150 V	230 V	420 V
Minimum DC Sparkover (100 V/s) Throughout Service Life	60 V	180 V	360 V
Maximum Impulse Sparkover <sup>(1)</sup> (5 kV/μs) Throughout Service Life	500 V	650 V	850 V

<sup>(1)</sup> Impulse Sparkover voltage is defined as typical values of distribution.

Impulse Transverse Delay .....	1000 V/μs .....	< 75 ns
Insulation Resistance (IR) .....	50 V / 100 V .....	> 10 <sup>9</sup> Ω
Glow Voltage .....	10 mA .....	~ 70 V
Arc Voltage .....	>1 A .....	~ 10 V
Glow-Arc Transition Current .....		< 0.5 A
Capacitance .....	1 MHz .....	< 2 pF
DC Holdover Voltage (Network Applied per ITU-T K.12)		
2020-15T .....	52 V .....	< 150 ms
2020-23T .....	80 V .....	< 150 ms
2020-42T .....	135 V .....	< 150 ms
Service Life <sup>(2)</sup> .....	8/20 μs, 10 kA .....	1 operation
	10/1000 μs, 1 kV, 200 A .....	100 operations <sup>(3)</sup>
	2/10 μs, 6 kV, 2000 A .....	10 operations <sup>(3)</sup>
	10/700 μs, 6 kV, 300 A .....	50 operations <sup>(3)</sup>
	8/20 μs, 500 A, 1.2/50 μs, 500 V .....	150 operations <sup>(3)</sup>
	600 V, 10 Arms, 0.2 sec .....	10 operations
	600 Vrms, 0.5 A - 60 A .....	Fail-Short activates <sup>(4)</sup>
	230 Vrms, 0.5 A-25 A .....	Fail-Short activates <sup>(4)</sup>
Operating Temperature Range .....		-40 °C to +90 °C
Storage Temperature Range .....		-55 °C to +90 °C
Moisture Sensitivity Level .....		1
ESD Classification (HBM) .....		6

### Notes:

- <sup>(2)</sup> The rated discharge current is the total current equally divided between each line to ground.
- <sup>(3)</sup> Surge polarity should be reversed between consecutive surges (+,-,+,-)
- <sup>(4)</sup> Applies only to GDT with optional Fail-Short. GDT operates and will survive with Fail-Short activation.
- At delivery AQL 0.65 Level II, DIN ISO 2859.
- Models with the optional Fail-Short assembly activate at low temperature (215 °C – 217 °C) when required. These models are designed to be soldered either manually or using a selective soldering process that does not exceed 210 °C, below the temperature that the Fail-Short assembly would activate.



**WARNING Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

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\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

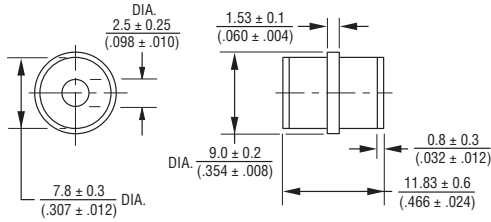
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# 2020 T-Series - Fast Acting 3-Electrode Miniature GDT

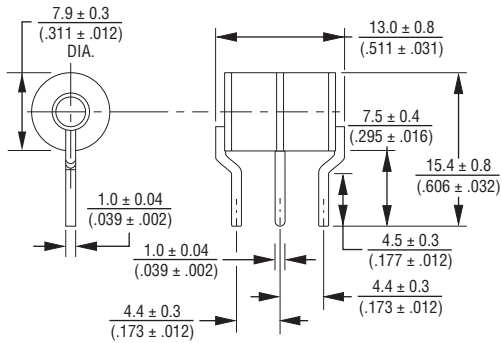
**BOURNS®**

Product Dimensions (additional lead form configurations available upon request)

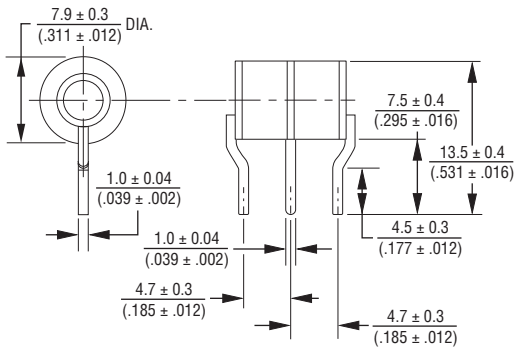
**2020-xxT-A1**



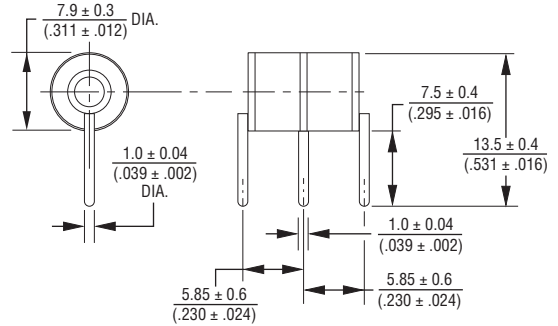
**2020-xxT-C2**



**2020-xxT-C3**

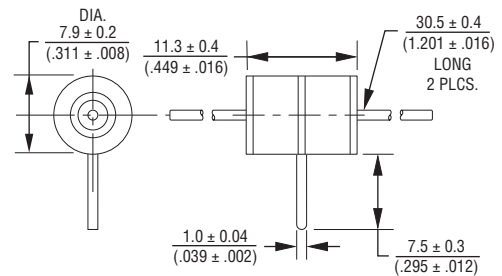


**2020-xxT-C4**

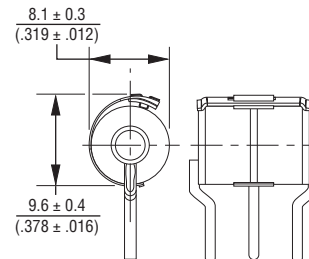


**2020-xxT-C**

$1.0 \pm 0.08$  mm ( $.039 \pm .003$  in.) dia. lead wire



**FAIL-SHORT CONFIGURATION  
2020-xxT-C2F SHOWN**



DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

UNITS WITH LEADS ARE BASED ON THE 2020-xxT-A1 BODY.

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# 2020 T-Series - Fast Acting 3-Electrode Miniature GDT

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## How to Order

**2020 - xxT - x x F LF**

**Model Number Designator** \_\_\_\_\_

**Voltage** (Divided by 10) \_\_\_\_\_

15 = 150 V  
23 = 230 V  
42 = 420 V

**Leads** \_\_\_\_\_

A = None/Cassette Applications  
C = 1 mm Dia. Leads/Through-hole

**Lead Shape** \_\_\_\_\_  
(See Product Dimension Drawings)

**Fail-Short Option** \_\_\_\_\_

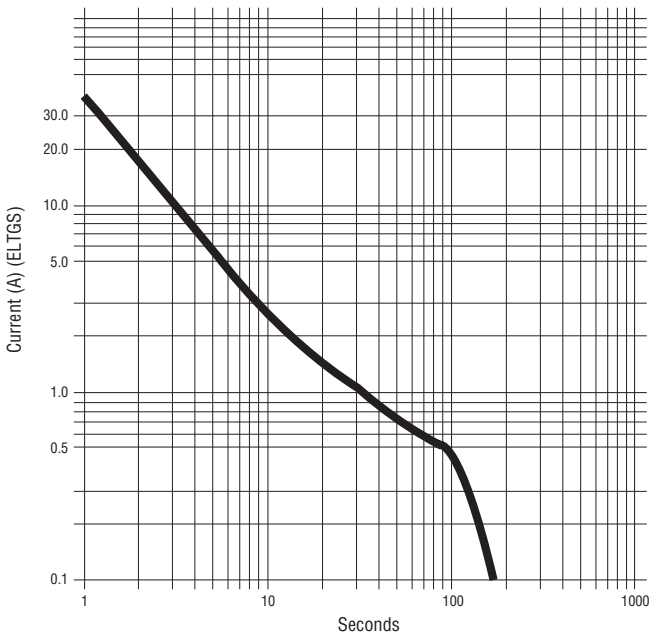
Blank = Standard Product  
F = With Fail-Short Mechanism

**RoHS Compliant Option** \_\_\_\_\_

Blank = Standard Product  
LF = RoHS Compliant Product

Model 2020-xxT ships in standard bulk pack, 100 pcs./tray.

## Switch-Grade Fail-Short Device Shorting Curve



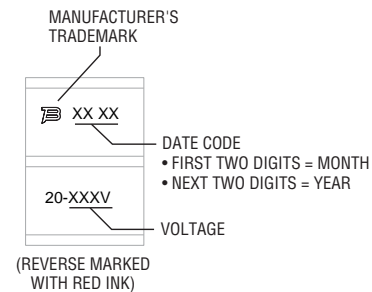
ELTGS = Each Line to Ground Simultaneously

**NOTE:** When using a GDT fail-short device, it is imperative that all components associated and connected to the GDT with failsafe be tested in their respective completely integrated environment (finished product) to ensure desired operation.

## Packaging Specifications

Model	Standard Packaging Quantity		
	Bulk (Bag)	Tray	Box
2020-xxT-A1	250		1000
2020-xxT-C		100	1000
2020-xxT-C2		100	1000
2020-xxT-C3		100	1000
2020-xxT-C4		100	1000

## Typical Part Marking



## Applications

Port Protection	GDT Device P/N	TBU® Device P/N
CanBus	2020-23T	<a href="#">TBU-CA065-100-WH</a>
RS232	2020-23T	<a href="#">TBU-CA065-200-WH</a>
RS422	2020-23T	<a href="#">TBU-CA065-200-WH</a>
RS485	2020-23T	<a href="#">TBU-CA065-200-WH</a>
RS485	2020-42T	<a href="#">TBU-CA065-200-WH</a>
SDI	2020-23T	<a href="#">TBU-CA065-100-WH</a>
VDSL	2020-15T	<a href="#">TBU-CA065-500-WH</a>

REV. K 09/19

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