Features

- Fast response time
- Wide temperature range
- High surge current rating
- Low capacitance and insertion loss
- Stable performance throughout life
- Small surface mount package
- RoHS compliant*

Applications

- Set top boxes
- Industrial communications
- HVAC controls
- xDSL, POTS, G.Fast
- Antennae

GDT21 Series – Next-generation 2-Electrode Gas Discharge Tube Arrestor

General Information

Bourns' new chip size surface mount 2-electrode GDT surge protection devices offer maximum impulse voltage limiting specifications in a very small, surface mount package. The performance delivered in the Bourns® GDT21 Series helps to significantly heighten protection against induced voltage transients such as lightning and AC induction. Plus, the enhanced level of protection with tighter voltage limiting provided during fast-rising events will reduce stress on downstream components compared to current GDT designs in the same application.

Product Characteristics

Storage Temperature Range	-40 °C to +105 °C
Operating Temperature Range	-40 °C to +105 °C
Climate Category *(IEC 60068-1)*	40 / 105 / 21
Moisture Sensitivity Level (MSL)	1
ESD Classification - HBM	N/A

How to Order

GDT 2 1 - xx - S1 - RP

Description
GDT = Gas Discharge Tube - Next-Generation Series

Electrodes
2 = 2-Electrode

Size
1 = 3.2 mm L x 1.6 mm W x 1.6 mm H

Voltage
15 = 150 V
20 = 200 V
40 = 400 V
42 = 420 V
50 = 500 V
60 = 600 V

Package Designator
S1 = 3.2 mm L x 1.6 mm W x 1.6 mm H SMD (Standard)

Packaging
RP = Reel Pack (Standard)

Additional Information

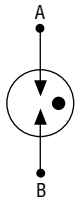
Click these links for more information:

PRODUCT SELECTOR | TECHNICAL LIBRARY | INVENTORY | SAMPLES | CONTACT

Agency Recognition

Agency	Category	Agency File No.
UL	497B - 4th Edition	E313168

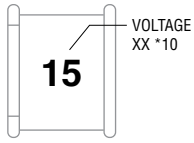
Circuit Diagram



Note: Gas discharge tubes are bidirectional and non-polarized.

Typical Part Marking

Represents total content. Layout may vary.



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WARNING
Cancer and Reproductive Harm
www.P65Warnings.ca.gov

*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.

Electrical Characteristics

Test Methods per ITU-T K.12, IEEE C62.31

Bourns Part No.	Device Specifications (1)		
	DC Sparkover Voltage ±30 % (2) (3)	Insulation Resistance (IR) (4)	Capacitance
	100 V/s		1 MHz
GDT21-15	150 V	> 100 MΩ	< 0.3 pF
GDT21-20	200 V		
GDT21-40	400 V		
GDT21-42	420 V		
GDT21-50	500 V		
GDT21-60	600 V		

Bourns Part No.	Life Ratings (5)			
	Nominal Impulse Discharge Current			Nominal AC Discharge Current
	8/20 µs	Impulse Life 8/20 µs, 100 A	10/700 µs	1 Second @ 50 Hz
GDT21-15	500 A 10 Operations (5 per polarity)	300 times	6 kV R= 40 Ω 10 times	0.5 Arms 10 Operations
GDT21-20				
GDT21-40				
GDT21-42				
GDT21-50				
GDT21-60				

Notes:

(1) At delivery AQL 0.65 Level II, DIN ISO 2859.

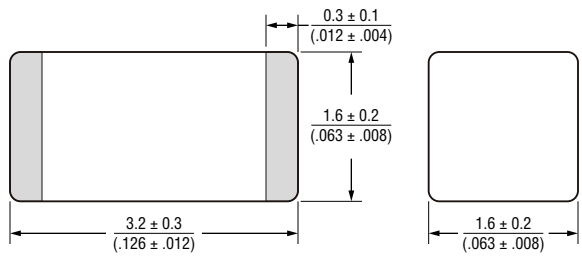
(2) Bourns recommends reflowing surface mount devices per *IPC/JEDEC J-STD-020 rev. D*.

(3) Surface mount GDTs may exhibit a temporary increase in the DC Sparkover Voltage after the solder reflow process. The DC Sparkover Voltage will recover within 24 hours. There is no quality defect nor change in protection levels during the temporary increase in DC Sparkover Voltage.

(4) IR Test Voltage: 50 V for GDT21-15, 100 V for GDT21-200 to GDT21-40, 250 V for GDT21-42 and GDT21-60

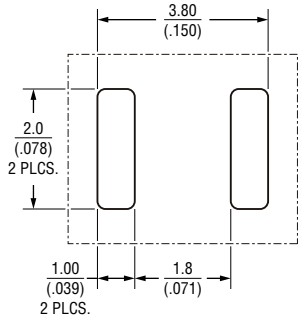
(5) DC Sparkover Voltage limits after Life Ratings may exceed +20 % but will continue to protect without venting (per *ITU-T K.12 Edition 9.0, Section 6*, where applicable).

Product Dimensions



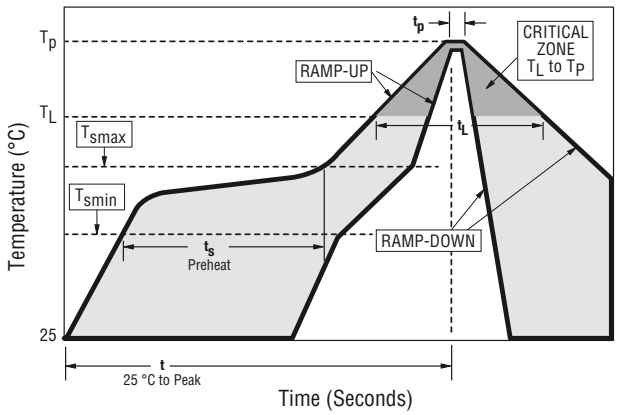
DIMENSIONS: MM (INCHES)

Recommended Pad Layout



DIMENSIONS: MM (INCHES)

Soldering Parameters - Reflow Soldering



Reflow Condition		Pb-free Assembly
Preheat	Temperature Min. ($T_{S(min)}$)	150 °C
	Temperature Max. ($T_{S(max)}$)	200 °C
	Time (Min. to Max.) (T_S)	60 – 120 seconds
Average Ramp-up Rate (Liquidus Temperature (T_L) to Peak)		3 °C / second max.
$T_{S(max)}$ to T_L - Ramp-up Rate		5 °C / second max.
Reflow	Temperature (T_L) (Liquidus)	217 °C
	Temperature (T_L)	60 – 150 seconds
Peak Temperature (T_p)		260 +0/-5 °C
Time within 5 °C of Actual Peak Temperature (T_p)		10 – 30 seconds
Ramp-down rate		6 °C / second max.
Time from 25 °C to Peak Temperature (T_p)		8 minutes max.
Do not Exceed		260 ° C

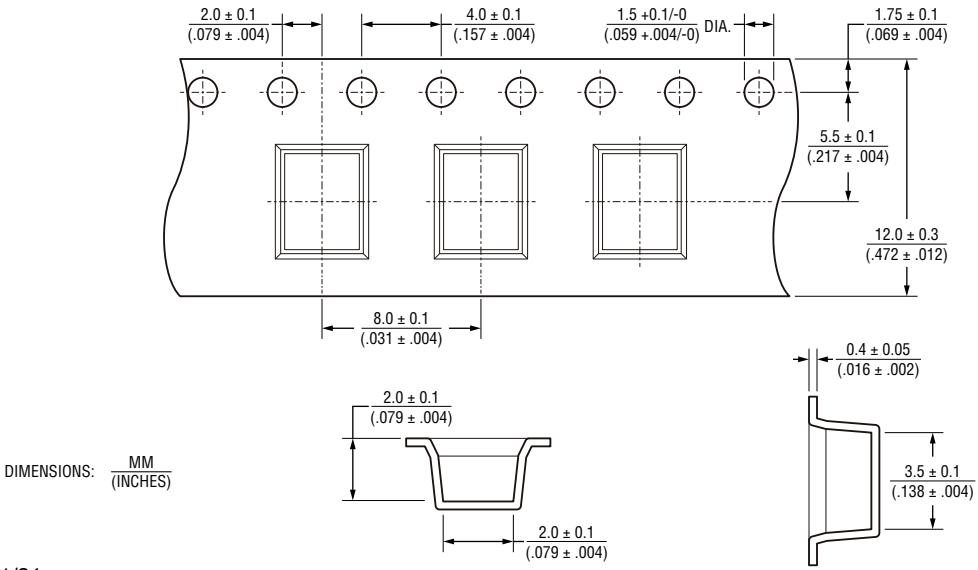
Notes:

Bourns recommends reflowing surface mount devices per *IPC/JEDEC J-STD-020 rev D.*

Surface mounted components (SMD) may exhibit a temporary increase in the DC Sparkover Voltage after the solder reflow process. The components should recover within 24 hours. There is no quality defect nor change in protection levels during the temporary change in DC Sparkover Voltage.

Packaging Specifications

Model	Standard Packaging Quantity			
	Bulk (Bag)	Box	Reel	Cut Tape
GDT21-RP	N/A	9000	3000	N/A



DIMENSIONS: MM / (INCHES)

REV. 1 – 11/24

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