

## GDT25H

### Next-generation 2-Electrode Gas Discharge Tube Arrestor



\*RoHS COMPLIANT

#### Features

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

#### Applications

- Industrial control panels / MCCs
- HVAC
- EV charging
- BESS / BMS interfaces
- PV inverter and combiner DC input

#### Sustainability

- Small size reduces material use
- Corrosion-resistant for longevity
- ISO 14001, low-impact energy
- Responsibly sourced and produced

#### Product Overview

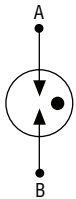
Bourns' new and improved next-generation surface mount 2-electrode GDT surge protection devices have been designed using Bourns' proprietary, advanced computer simulation techniques and offer industry-leading maximum impulse voltage limiting specifications in a small, environmentally rugged surface mount package.

The performance delivered in the Bourns® Model GDT25H 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.....	-55 °C to +125 °C
Operating Temperature Range.....	-55 °C to +125 °C
Climate Category (IEC 60068-1) .....	55 / 125 / 21
Moisture Sensitivity Level (MSL) .....	1
ESD Classification - HBM .....	N/A

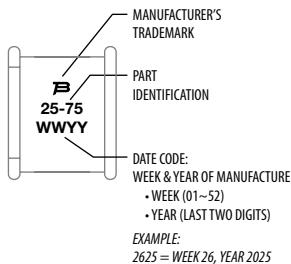
#### Circuit Diagram



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

#### Typical Part Marking

Represents total content. Layout may vary.



#### How to Order

Description	<b>GDT 2 5 H - 75 - S1 - RP</b>
GDT = Gas Discharge Tube - Next-generation Model	
Electrodes	2 = 2-Electrode
Size	5 = 5 mm Diameter
High Voltage	
Voltage	75 = 750 V
Package Designator	S1 = 5 x 4.4 mm SMD (Standard)
Packaging Options	RP = Reel Pack (Standard) BK = Bulk

#### Agency Recognition

Agency	Category	Agency File No.
UL	1449 5th Edition	<a href="#">E313168</a>

#### Contact Information

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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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### Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

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

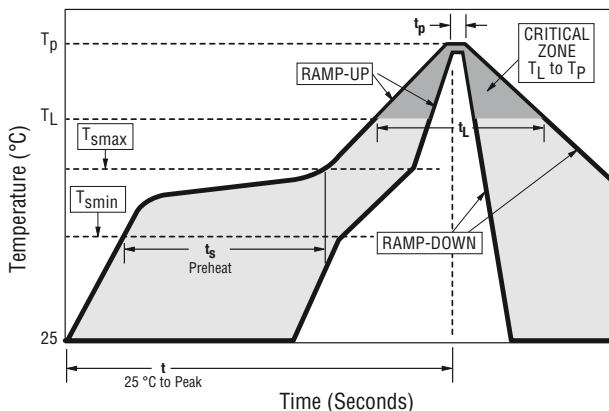
Bourns Part No.	Device Specifications (1)							
	DC Sparkover Voltage $\pm 20\%$ (2) (3) (4)	Impulse Sparkover Voltage (2) (5)		Insulation Resistance (IR) (6)	Glow Voltage	Arc Voltage	Glow to Arc Transition Current	DC Holdover Voltage (8)
	100 V/s	100 V/s	1 kV/ $\mu\text{s}$	(7)	10 mA	> 1 A		< 150 ms
GDT25H-75	750 V	1250 V	1400 V	> 2 G $\Omega$	~ 70 V	~ 5 V	< 1 A	< 0.6 pF

Bourns Part No.	Life Ratings (9)					
	Max. Surge Current	Nominal Impulse Discharge Current			Nominal AC Discharge Current	
	8/20 $\mu\text{s}$	8/20 $\mu\text{s}$	10/350 $\mu\text{s}$	10/1000 $\mu\text{s}$	11 Cycles @ 60 Hz	1 Second
GDT25H-75	10 kA 1 Operation	5 kA 10 Operations	1 kA 1 Operation	100 A 300 Operations	20 Arms 1 Operation	7 Arms 10 Operations

#### Notes:

- (1) At delivery AQL 0.65 Level II, DIN ISO 2859.
- (2) DC and Impulse Sparkover values are in ionized mode @  $25^\circ\text{C}$ .
- (3) Bourns recommends reflowing surface mount devices per IPC/ JEDEC J-STD-020 rev. D.
- (4) 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.
- (5) Impulse Sparkover voltage is expressed as a maximum value, with a 99 % probability of measured values within limit.
- (6) IR limits after Life Ratings > 100 M $\Omega$ .
- (7) IR Test Voltage: 100 V
- (8) Network applied (per ITU-T K.12 Edition 9.0, Section 7).
- (9) 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).

### Soldering Parameters - Reflow Soldering



#### 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.

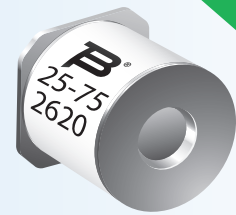
Reflow Condition		Pb-free Assembly
Preheat	Temperature Min. ( $T_{S(\min)}$ )	150 $^\circ\text{C}$
	Temperature Max. ( $T_{S(\max)}$ )	200 $^\circ\text{C}$
	Time (Min. to Max.) ( $T_S$ )	60 – 120 seconds
Average Ramp-up Rate (Liquidus Temperature ( $T_L$ ) to Peak)		3 $^\circ\text{C}$ / second max.
$T_{S(\max)}$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

### Soldering Parameters - Hand Soldering

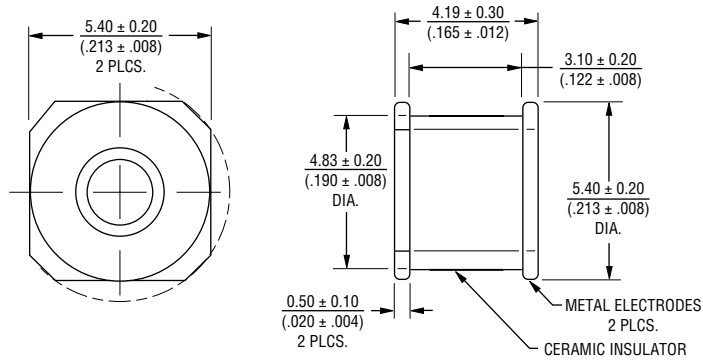
Solder Iron Temperature ..... 350  $^\circ\text{C} \pm 5^\circ\text{C}$   
Heating Time ..... 5 seconds max.

Specifications are subject to change without notice.  
Users should verify actual device performance in their specific applications.

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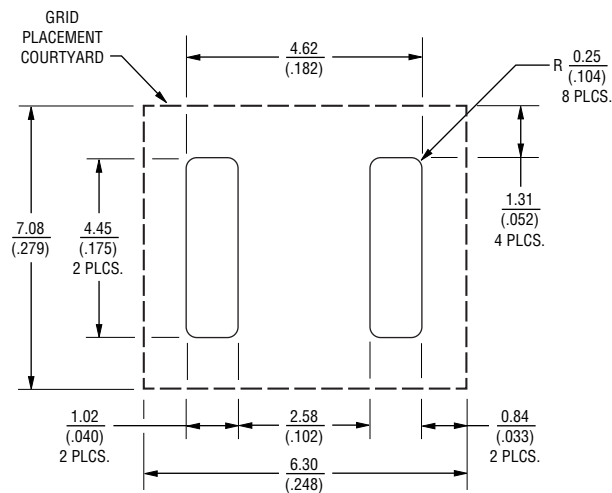


## Product Dimensions



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

## Recommended Pad Layout



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

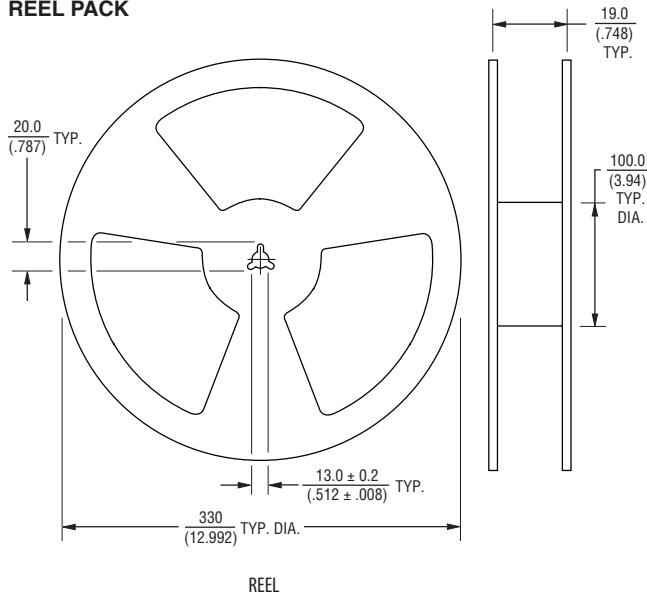
Note: Recommended PCB land pattern in compliance with IPC-7351.



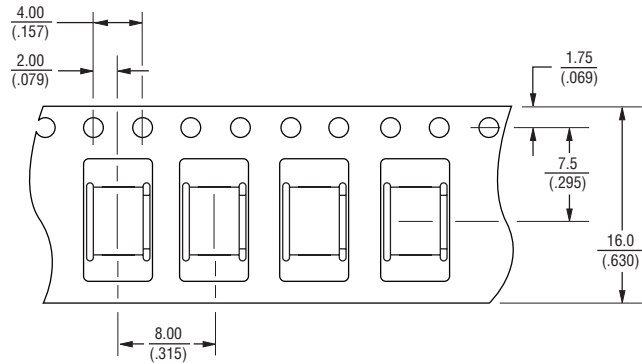
### Packaging Specifications

Model	Standard Packaging Quantity			
	Bulk (Bag)	Box	Reel	Cut Tape
GDT25H-BK	250 pcs.	1000 pcs.		
GDT25H-RP			1500	

#### REEL PACK



Reel is 330 mm in diameter and 19 mm wide.



TAPE

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

TOLERANCES (EXCEPT WHERE NOTED): X.X  $\frac{\pm 0.3}{(\pm .012)}$

X.XX  $\frac{\pm 0.15}{(\pm .006)}$

DEGREES  $\pm 1^\circ$

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