NEW PRODUCT BRIEF

Bourns® Next-Generation 2-electrode Gas Discharge Tube

INTRODUCTION

Bourns' next generation surface mount 2-electrode gas discharge tube (GDT) achieves state-of-the-art performance, representing the latest in GDT technology. The next-generation series continues the Bourns legacy of quality, innovation and design in GDT overvoltage surge arrestors. This next-generation GDT provides significant improvements in protection from voltage transients caused by lightning and accidental contact with AC power lines. With improvements driven by computer modeling simulations, the Model GDT25 Series provides an enhanced level of voltage limiting during fast rising events, resulting in less stress on downstream components. In addition, the new series has superior current handling capabilities and a wide operating temperature range.

Bourns® next-generation series low capacitance and insertion loss make it an ideal solution for protection of high speed information and communication technology (ICT) equipment as well industrial communication. The next-generation series is RoHS compliant and UL recognized.

FEATURES

- -55 °C to + 125 °C operation
- Fast response time
- High surge current rating
- Low capacitance and insertion loss
- Stable performance throughout life
- UL recognized
- RoHS compliant*

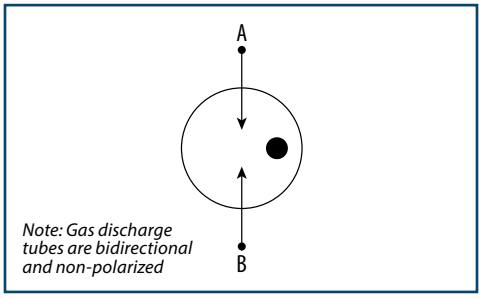
BENEFITS

- Long service life
- Supports high data rates
- Suitable for exposed circuits
- Enhanced voltage protection

APPLICATIONS

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

CIRCUIT DIAGRAM



Note: Gas discharge tubes are bidirectional and non-polarized

HOW TO ORDER

GDT 2 5 - xx - S1 - RP

Description
- GDT = Gas Discharge Tube - Next-Generation Series

Electrodes
- 2 = 2-Electrode

Size
- 5 = 5 mm Diameter

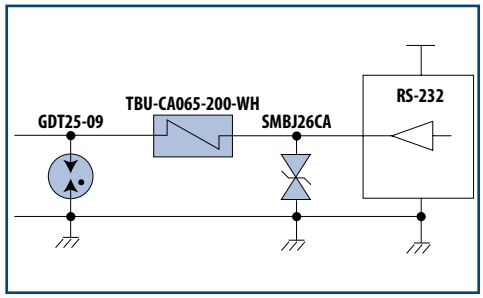
Voltage
- 07 = 75 V
- 09 = 90 V
- 35 = 350 V
- 60 = 600 V

Package Designator
- S1 = 5 x 4.1 mm SMD (Standard)

Packaging Options
- RP = Reel Pack (Standard)
- Blank = Cut Tape
- BK = Bulk

WHY FASTER IS BETTER

Gas tube devices are traditionally used as primary stage protectors in a multi-staged protection topology.



In the circuit diagram shown above, the next-generation model GDT25-09 gas tube is used in conjunction with a model SMBJ26CA TVS diode and a model TBU-CA065-200-WH high-speed protector (HSP) to protect a sensitive line driver in an environment with exposure to induced lightning transients.

When this circuit is exposed to a transient event, the TVS diode will clamp the voltage, preventing damage to the RS-232 transceiver. The TBU® device senses the excessive current flowing in the TVS diode and immediately transitions to high impedance, limiting power to the TVS diode. With the TBU® device safely disconnecting the TVS diode and RS-232 transceiver from the surge, the GDT will be triggered by the rising voltage to switch on, limiting the voltage applied to the TBU® device to a safe level.

In this example, the best-in-class impulse voltage rating on the next-generation model GDT25-09 provides excellent design margin against the 650 V voltage withstand rating of the TBU® High-Speed Protector.

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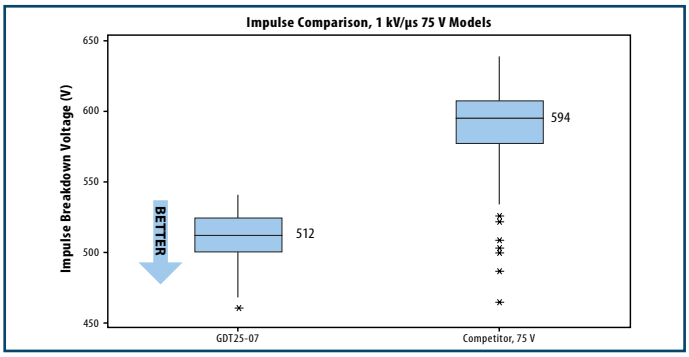
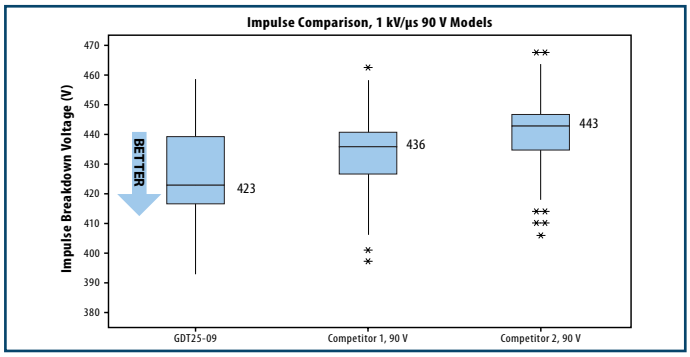
ELECTRICAL CHARACTERISTICS

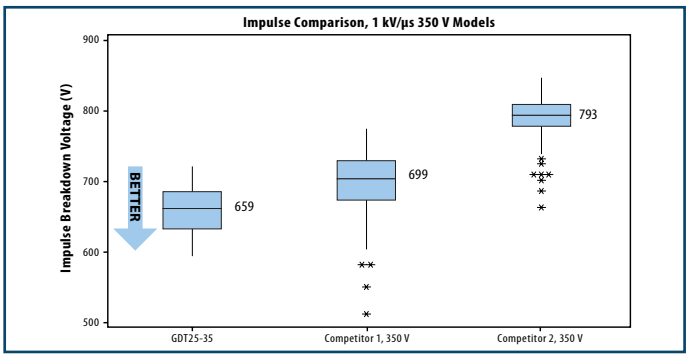
Part Number [10]	Device Specifications @ 25 °C [1] [7] [9]							
	DC Breakdown [6]			Impulse Breakdown [2]		Insulation Resistance	DC Holdover Voltage [4]	Capacitance
	100 V/S			100 V/µs	1000 V/µs	50 V_{dc} : -07 & -09 100 V_{dc} : -35 & -60		1 MHz
	20 %			99 %				
	Min.	Nom.	Max.	Max.		Min.	Max.	Max.
GDT25-07	60	75	90	350	600	2 GΩ [3]	< 150 ms @ 52 V_{dc}	0.6 pF
GDT25-09	72	90	108	350	500			
GDT25-35	280	350	420	650	800		< 150 ms @ 135 V_{dc}	
GDT25-60	480	600	720	1000	1100			

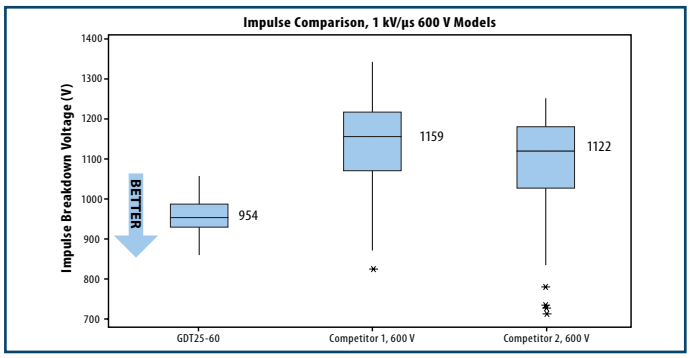
Other voltages available upon request.

Part Number [10]	Life Ratings					
	Impulse Discharge Current [3] [5] [8]				Nominal AC Discharge Current	AC Discharge Current
	8/20 µs	8/20 µs	10/1000 µs	10/350 µs	1 Sec. @ 50 - 60 Hz	11 Cycles @ 60 Hz
	1 Operation	10 Operations	100 A	1 Operation	10 Operations	1 Operation
GDT25-07	10 kA	7 kA	300 Operations	1 kA	7 Arms	20 Arms
GDT25-09						25 Arms
GDT25-35						20 Arms
GDT25-60						25 Arms









Notes:
(1) Initial device specifications
(2) Impulse Sparkover voltage is expressed as a maximum value, with a 99 % probability of measured values within limit.
(3) IR limits after Life Ratings > 100 MΩ
(4) Network applied per ITU K.12
(5) DC Sparkover limits after Life Ratings may exceed ±20 % but will continue to protect without venting per ITU-T K.12
(6) DC and Impulse Sparkover values are in ionized mode
(7) At delivery AQL 0.65 Level II, DIN ISO 285
(8) Test conducted in alternating polarity +-+-
(9) Specifications in accordance with ITU-T, K.12, IEC 61663-2 and IEC 61643-311
(10) Other voltages available upon request - please contact Bourns Customer Service for details

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