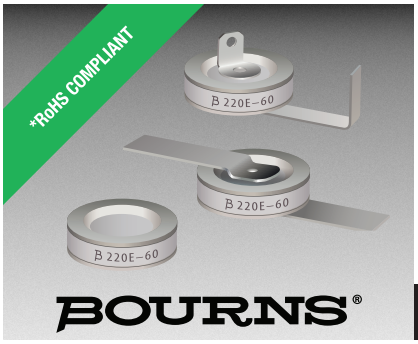


Features

- 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

- Surge Protective Devices (SPDs)
- Power systems
- Industrial equipment

GDT220E Series - High Energy Gas Discharge Tube Arrestor

General Information

The Model GDT220E Series are UL recognized GDT devices rated at 60 kA maximum on an 8/20 µs waveform, providing a volume and space-saving solution for high density and space-restricted applications. This device is available in various lead shapes to fit a variety of configuration requirements.

Product Characteristics

Storage Temperature Range	-55 °C to +105 °C
Operating Temperature Range	-55 °C to +105 °C
Climate Category *(IEC 60068-1)*	55 / 105 / 21
Moisture Sensitivity Level (MSL)	1
ESD Classification - HBM	N/A

How to Order

GDT 2 20 E - xx - A - BX

Description
GDT = Gas Discharge Tube - Next-Generation Series

Electrodes
2 = 2-Electrode

Size
20 = 20 mm Diameter

Sub-series Designator
E = High Energy GDT

Voltage

15 = 150 V	35 = 350 V	47 = 470 V	80 = 800 V
23 = 230 V	40 = 400 V	50 = 500 V	100 = 1000 V
30 = 300 V	42 = 420 V	60 = 600 V	

Terminal Designator**
A = Leadless (Standard)
T1 = Two Side Terminals Type 1
T2 = Two Side Terminals Type 2

Packaging Options
BX = Box (Standard)

**Special terminals upon request

BOURNS®

Asia-Pacific: Tel: +886-2 2562-4117 • Email: asiacus@bourns.com
EMEA: Tel: +36 88 885 877 • Email: eurocus@bourns.com
The Americas: Tel: +1-951 781-5500 • Email: americus@bourns.com
www.bourns.com

Additional Information

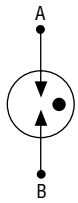
Click these links for more information:

PRODUCT SELECTOR | TECHNICAL LIBRARY | INVENTORY | SAMPLES | CONTACT

Agency Recognition

Agency	Category	Agency File No.
UL	1449-4	E313168

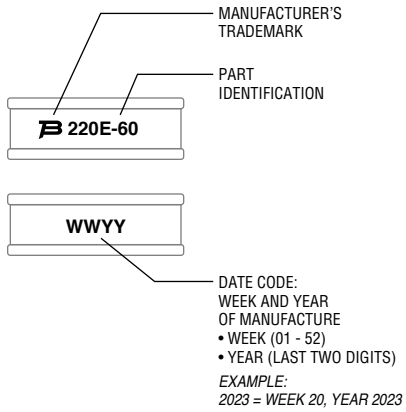
Circuit Diagram



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

Typical Part Marking

Represents total content. Layout may vary.



Packaging Specifications

Model	Quantity per Box
GDT220E-xx-A	800
GDT220E-xx-T1	800
GDT220E-xx-T2	1280

Electrical Characteristics

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

Bourns Part No.	Device Specifications									
	DC Breakdown Voltage ±20 %	Maximum Impulse Breakdown Voltage	Maximum Impulse Discharge Current (8/20 μs)		Maximum Impulse Discharge Current (10/350 μs)	TOV 1200 V 0.2 S	Maximum Follow-On Current @ 50/60 Hz	MCOV @ 50/60 Hz	Minimum Insulation Resistance[1]	Breakdown Time
	100~2000 V/s	1.2/50 μs 6 kV	1 time	10 times	1 time					
GDT220E-15	150 V	1100 V	60 kA	40 kA	12.5 kA	300 A	N/A	N/A	1 GΩ	<100 ns
GDT220E-23	230 V	1100 V						52 V		
GDT220E-30	300 V	1100 V						95 V		
GDT220E-35	350 V	1100 V								
GDT220E-40	400 V	1200 V					50 A	130 V		
GDT220E-42	420 V	1200 V						150 V		
GDT220E-47	470 V	1300 V						175 V		
GDT220E-50	500 V	1300 V					100 A	220 V		
GDT220E-60	600 V	1300 V						255 V		
GDT220E-80	800 V	1400 V								
GDT220E-100	1000 V	1500 V								

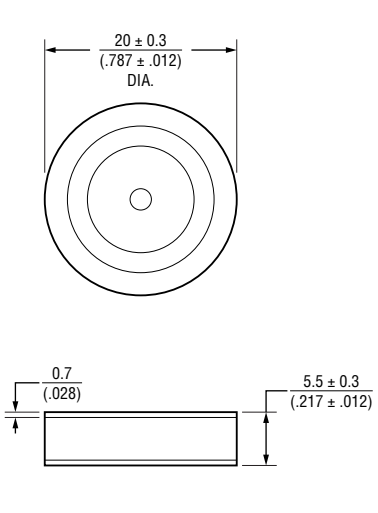
Notes:

(1) IR Test Voltage: 50 V for GDT220E-15,
100 V for GDT220E-23 through GDT, 220E-40,
250 V for GDT220E-42 through GDT220E-100.

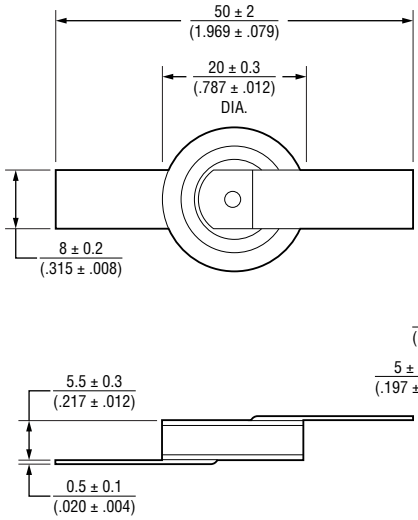
- At delivery AQL 0.65 Level II, DIN ISO 2859.
- DC and Impulse Sparkover values are in ionized mode @ 25 °C.
- Bourns recommends reflowing surface mount devices per IPC/JEDEC J-STD-020 rev. D.
- Impulse Sparkover voltage is expressed as a maximum value, with a 99 % probability of measured values within limit.
- IR limits after Life Ratings > 100 MΩ.
- Network applied (per *ITU-T K.12 Edition 9.0, Section 7*).
- 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

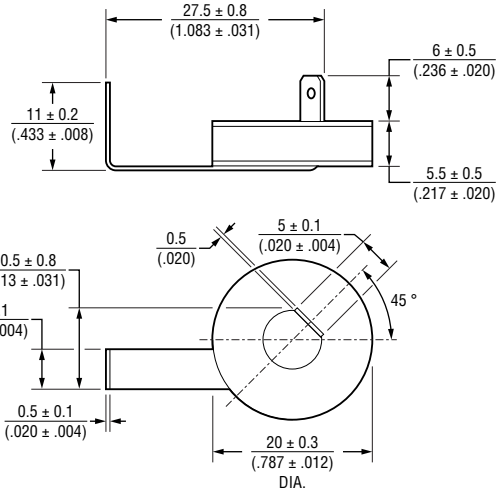
GDT220E-xx-A



GDT220E-xx-T1



GDT220E-xx-T2



DIMENSIONS: MM / (INCHES)

REV. A 08/23

Legal Disclaimer Notice

BOURNS®

This legal disclaimer applies to purchasers and users of Bourns® products manufactured by or on behalf of Bourns, Inc. and its affiliates (collectively, "Bourns").

Unless otherwise expressly indicated in writing, Bourns® products and data sheets relating thereto are subject to change without notice. Users should check for and obtain the latest relevant information and verify that such information is current and complete before placing orders for Bourns® products.

The characteristics and parameters of a Bourns® product set forth in its data sheet are based on laboratory conditions, and statements regarding the suitability of products for certain "typical" applications are based on Bourns' knowledge of typical requirements in generic applications. Bourns assumes that "typical" applications include failsafe/backup features to address critical risks to users and are designed to allow rework of Bourns® product to avoid scrap of a device solely due to malfunctioning Bourns® product. The characteristics and parameters of a Bourns® product in a user application may vary from the data sheet characteristics and parameters due to (i) the combination of the Bourns® product with other components in the user's application, or (ii) the environment of the user application itself. The characteristics and parameters of a Bourns® product also can and do vary in different applications and actual performance may vary over time. Thus, users should always verify the actual performance of the Bourns® product in their specific devices and applications and make their own independent judgments regarding the suitability of Bourns® product and the amount of additional test margin to design into their device or application to compensate for differences between laboratory and real-world conditions.

Unless Bourns has explicitly designated an individual Bourns® product as meeting the requirements of a particular industry standard (e.g., IATF 16949) or a particular qualification (e.g., UL listed or recognized), Bourns is not responsible for any failure of an individual Bourns® product to meet the requirements of such industry standard or particular qualification even if such industry standard or qualification is a "state of art". Users of Bourns® products are responsible for ensuring compliance with safety-related requirements and standards applicable to their devices or applications.

Bourns® products are not recommended, authorized or intended for use in applications where failure or malfunction may result in personal injury, death, or severe property or environmental damage, such as without limitation nuclear, life-critical medical and certain automotive and aviation applications. Except as set forth in the bullet points below or unless expressly and specifically approved in writing on a case-by-case basis by an authorized Bourns' representative, use of any Bourns® products in such unauthorized high-risk applications is at the user's sole risk.

- Bourns considers implantable/invasive devices and devices/procedures designed as life-supporting or life-sustaining by the U.S. Food and Drug Administration or equivalent organizations outside of the United States as "life-critical" medical applications. Bourns expressly identifies those Bourns® standard products that are suitable for use in typical medical applications that are not life-critical in its publication entitled "Bourns Medical Grade Component Guide."

- Bourns expressly identifies those Bourns® standard products that are suitable for use in typical automotive applications associated with any Automate Safety Integrity Level (ASIL) in its publication entitled "Bourns Automotive Grade Component Guide." Bourns' designation of Bourns® product as compliant with the AEC-Q standard does not by itself mean that Bourns has approved such product for use in an automotive application.

- Bourns expressly identifies Bourns® standard products that are suitable for use in the typical aviation applications/systems requiring System Design Assurance Level (RTCA DO-254 DAL) of C, D or E in its publication entitled "Bourns Civilian Aerospace/Aviation Grade Component Guide." Bourns does not test its products for compliance with United States Federal Aviation Administration standards or any other generally equivalent governmental organization standard applicable to products designed or manufactured for use in aviation applications. Use of Bourns® standard components in aviation applications associated with RTCA DO-254 DAL A or B without proper approval noted above shall be at the user's sole risk.

- Bourns will review and authorize on a case-by-case basis the use of Bourns® standard products which are at least AEC-Q compliant in space-related civil applications (rockets, satellites) with a negotiated cross-waiver and indemnity agreement.

The use and level of testing applicable to Bourns® custom products shall be negotiated on a case-by-case basis by Bourns and the user for which such Bourns® custom products are specially designed. Absent a written agreement between Bourns and the user regarding the use and level of such testing, the above provisions applicable to Bourns® standard products shall also apply to such Bourns® custom products.

Use of Bourns® products or Bourns' technology in military/defense applications must be reviewed with Bourns for compliance with applicable export control laws and embargoes. Users shall not sell, transfer, export or re-export (which includes transfers within a country) any Bourns® products or technology or technical data for use in activities which involve the design, development, production, use or stockpiling of nuclear, chemical or biological weapons or missiles, nor shall they use Bourns® products or technology or technical data in any facility which engages in activities relating to such devices. Further, Bourns® products and Bourns' technology and technical data may not under any circumstance be exported or re-exported to countries subject to international sanctions or embargoes. Bourns® products and technology may not, without prior authorization from Bourns and/or the Government of a country where such product/technology is designed and/or manufactured, be resold, transferred, or re-exported (including within the same country) to any party not eligible to receive commodities, software, and technical data originating in such country.

To the maximum extent permitted by applicable law, Bourns disclaims (i) any and all liability for special, punitive, consequential, incidental or indirect damages or lost revenues or lost profits, and (ii) any and all implied warranties (those not based on parameters specified in Bourns' data sheets and/or specifications), including implied warranties of fitness for particular purpose, non-infringement and merchantability.

For your convenience, copies of this Legal Disclaimer Notice with German, Spanish, Japanese, Traditional Chinese and Simplified Chinese bilingual versions are available at:

Web Page: https://www.bourns.com/legal/disclaimers-terms-and-policies
PDF: https://www.bourns.com/docs/Legal/disclaimer.pdf