

# DESIGN NOTE

## Histogram Comparison Between Next-Generation Bourns® Model GDT35 Series and Legacy Bourns® Model 2036 Series Gas Discharge Tubes (GDTs)

### INTRODUCTION

Demonstrating the design advantages of the next-generation [Bourns® GDT35 Series](#), this Design Note provides histogram comparisons that illustrate various impulse voltage differences between multiple models of the Modl GDT35 Series and the legacy Bourns® 3-element [Model 2036 Gas Discharge Tube \(GDT\)](#) family.



Figure 1 | Bourns® Next-Generation Model GDT35 Series

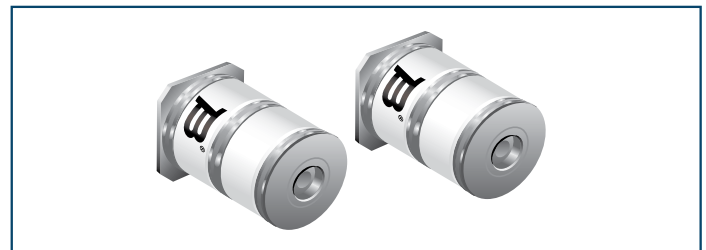
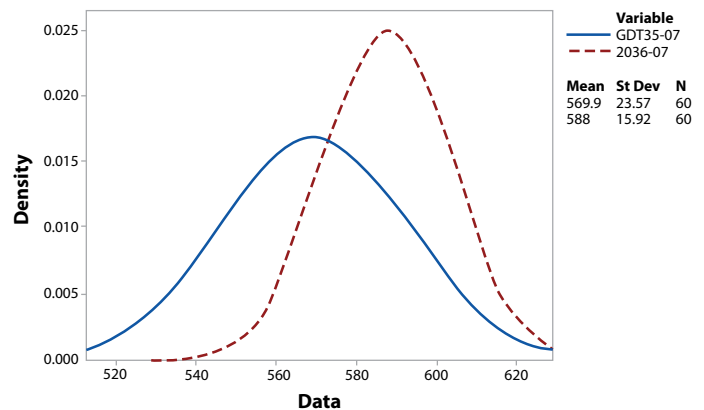


Figure 2 | Bourns® Model 2036 Gas Discharge Tube (GDT) Series

The data presented was gathered using impulse testing at 1 kV/ $\mu$ s on 60 different units across four different voltage ratings to represent the full range of each GDT model family from 70 V through 600 V. The histogram will show that at each voltage level, the Model GDT35 Series features lower impulse voltages compared to the Bourns® Model 2036 GDT Series devices.

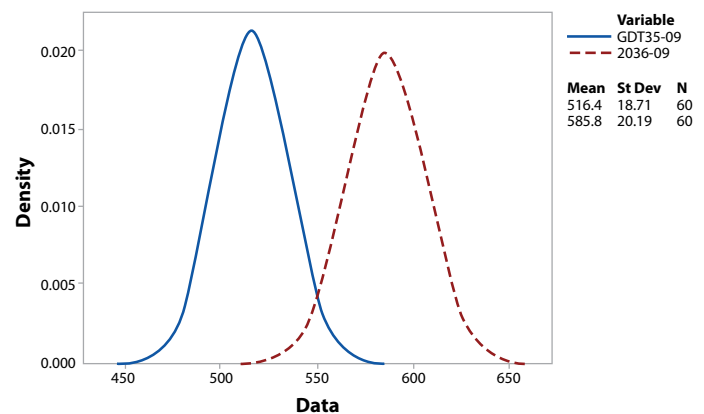
Comparing both model series 70 V components, the impulse sparkover voltage of the Model GDT35 is on average 20 V lower than the Bourns® legacy Model 2036 Series counterpart. Ninety-nine percent (99 %) of both GDT Series' population tested showed values below 650 V.

### Histogram of Model GDT35-07, 2036-07 Normal



A comparison of each model series' 90 V components shows that the impulse sparkover voltage of the Model GDT35 is on average 70 V lower than the Model 2036 Series counterpart. Ninety-nine percent (99 %) of the Model GDT35 parts tested had values below 575 V compared to the Model 2036 Series at 650 V.

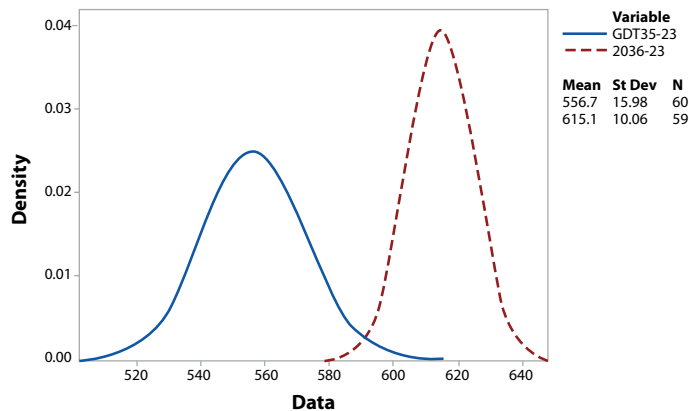
### Histogram of Model GDT35-09, 2036-09 Normal



## Histogram Comparison Between Next-Generation Bourns® Model GDT35 Series and Legacy Bourns® Model 2036 Series Gas Discharge Tubes (GDTs)

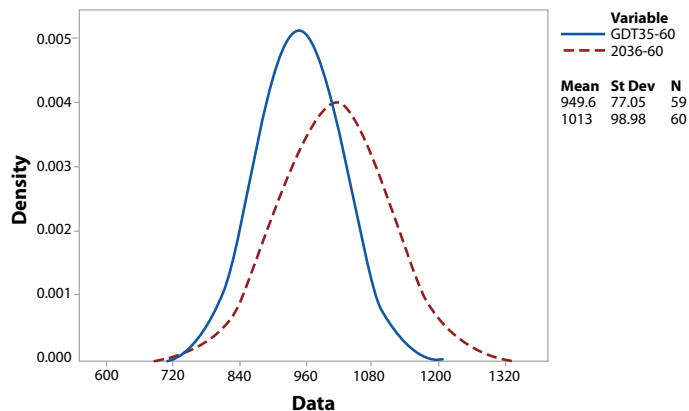
Evaluating both model series' 230 V components provided data that the impulse sparkover voltage of the Model GDT35 is on average 70 V lower than the legacy Model 2036 Series. Bourns' tests revealed that ninety-nine percent (99 %) of the Model GDT35 Series components tested had values below 615 V while the Model 2036 Series had values at 650 V.

**Histogram of Model GDT35-23, 2036-23 Normal**



The comparison of both series' 600 V components illustrates that the impulse sparkover voltage of the Model GDT35-60 is on average 30 V lower than its legacy Model 2036 Series counterpart. The data showed that ninety-nine percent (99 %) of the components tested had values below 1200 V while the Model 2036 Series model had a value of 1300 V.

**Histogram of Model GDT35-60, 2036-60 Normal**



As demonstrated above by the four representative voltage ratings (70 V, 90 V, 230 V, 600 V), each voltage rating in the next-generation Bourns® Model GDT35 Series delivers a lower impulse voltage compared to the traditional Bourns® Model 2036 Series.

Lower impulse voltage leads to less voltage let-through to the equipment, which results in improved protection for the application and helps to increase its reliability and maximize uptime.

Bourns next-generation GDTs offer designers a superior let-through protection solution that helps safeguard both sensitive equipment and its users.

[www.bourns.com](http://www.bourns.com)

**BOURNS®**

Americas: Tel +1-951 781-5500  
Email [americus@bourns.com](mailto:americus@bourns.com)

EMEA: Tel +36 88 885 877  
Email [eurocus@bourns.com](mailto:eurocus@bourns.com)

Asia-Pacific: Tel +886-2 256 241 17  
Email [asiacus@bourns.com](mailto:asiacus@bourns.com)