



## Features

- Patented multi-stage protection
- Balanced TRIGARD® GDT
- Self-resetting sneak current protection with Bourns® TBU® Electronic Current Limiter (ECL)
- Overcurrent and overvoltage protection
- Fast response to transients



This series is currently available but not recommended for new designs.

## 2470 Series 5-Pin TBU® Surge Protector

Bourns® 2470 Series 5-Pin TBU® Protector is a new generation of telecommunications protector designed for protection of sensitive high-speed network data circuits. Bourns® 2470 Series 5-Pin TBU® Protector integrates four advanced technologies: Our proprietary advanced balanced TRIGARD® GDT, precision matched Metal Oxide Varistors (MOVs), a patented Switch-Grade Fail-Short mechanism, and our patented Transient Blocking Unit (TBU®) device that protects the circuit by rapidly switching to a blocking state. These technologies are combined to provide robust overvoltage and fast, resettable sneak-current protection with extremely low surge let-through. Additionally, the 2470 Series has very low loss characteristics making it the ultimate choice for protection of sensitive, high speed communication lines.

### Characteristics

Test Methods per IEEE C62.31, UL 497, CSA C22.2, Telcordia GR 1361 and applicable sections of Telcordia GR 974.

DC Breakdown <sup>1</sup> .....		300-400 V
AC Breakdown <sup>1</sup> .....	60 Hz .....	300-400 V
Impulse Breakdown .....	100 V/ $\mu$ s .....	600 V
	1000 V/ $\mu$ s .....	650 V
Insulation Resistance .....	100 Vdc .....	> 1 G $\Omega$
Insertion Loss .....	100 MHz .....	< 1 dB over frequency range <sup>2</sup>
Return Loss .....	100 MHz .....	< 10 dB over frequency range <sup>2</sup>
Capacitance Line to Line .....	1 MHz .....	12 pF typical
Capacitance Line to Ground .....	1 MHz .....	23 pF typical
Line Resistance (Line In - Line Out) .....		12 ohms typical
V <sub>reset</sub> .....		< 14 V typical <sup>3</sup>
Impulse Reset <sup>4</sup> .....	52 V, 260 mA .....	< 10 ms <sup>5</sup>
	135 V, 200 mA .....	< 10 ms <sup>5</sup>
	150 V, 200 mA .....	< 150 ms <sup>5</sup>
Impulse Life Characteristics (Per Side, Simultaneously) .....	100 A, 10/1000 $\mu$ s .....	> 3000 operations <sup>6</sup>
	300 A, 10/1000 $\mu$ s .....	> 1000 operations <sup>6</sup>
	500 A, 10/1000 $\mu$ s .....	> 1000 operations <sup>7</sup>
	2,000 A, 10/250 $\mu$ s .....	> 100 operations <sup>6</sup>
	5,000 A, 20/100 $\mu$ s .....	> 10 operations <sup>6</sup>
	20,000 A, 8/20 $\mu$ s .....	> 1 operation
AC Life Characteristics .....	0.5 A rms continuous .....	> 30 seconds
	1 A rms, 1 second, 600 ft. cable .....	> 60 operations
	1 A rms, 1 second, 1 mile cable .....	> 60 operations
	10 A rms, 1 second .....	> 20 operations
	200 A rms, 11 cycles .....	1 operation <sup>8</sup>
120 A rms, 0.1 second .....	1 operation	
<b>Life Test Criteria</b>		
Insulation Resistance Throughout the Life Test .....		100 megohms
Life Test Failures .....		0.0 %
Failures During Environmental Cycling w/surges .....		0.0 %
Fail-Short (Vented or Non-vented Gas Tube) .....		> 30 Arms, simultaneously
Storage and Operating Temperature .....		-55 to +85 °C

### Notes:

The 2470 Series protectors are not to be used over powered spans.

<sup>1</sup> Line to Line voltage is approximately 1.8 times the stated Line to Ground breakdown voltage.

<sup>2</sup> See insertion and return loss charts on page 2.

<sup>3</sup> Designers should note that deliberate DC bias such as sealing current or remote powering can hold the TBU® device in a blocking state after a fault has passed.

<sup>4</sup> Network applied.

<sup>5</sup> Surpasses Telcordia GR 974.

<sup>6</sup> Exceeds Telcordia GR 1361.

<sup>7</sup> RUS PE-80.

<sup>8</sup> Protector may short to ground.




**WARNING Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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## Features (Continued)

- High current handling
- Switch-Grade Fail-Short
-  UL Listed per UL 497 (File: E53117)

## Applications

- Telecommunications
- Data communications
- High-speed network compatible, i.e. ADSL2+, VDSL2 and beyond

# 2470 Series 5-Pin TBU® Surge Protector

# BOURNS®

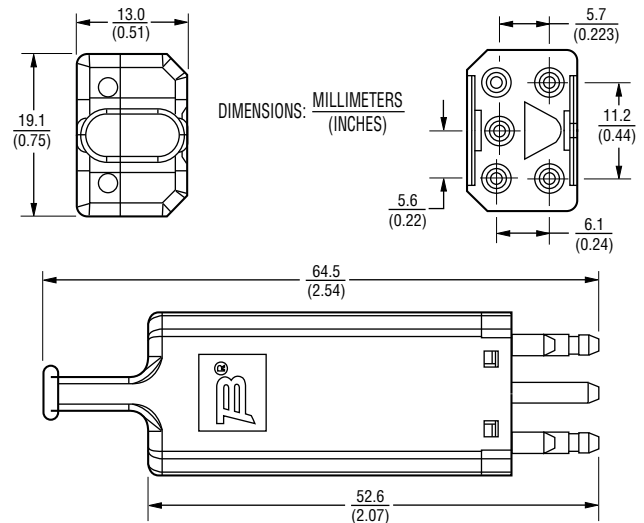
### How to Order

2470 - 4 x(x) - G - xx - x(x)

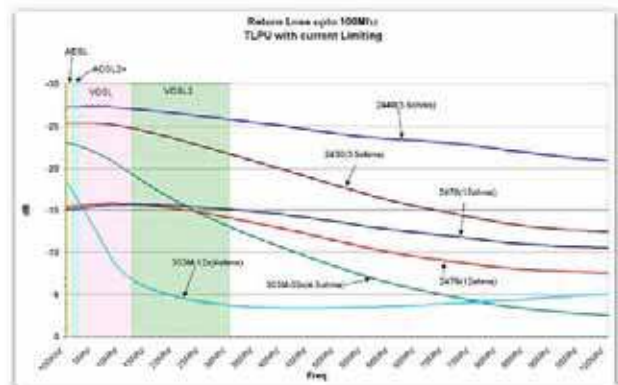
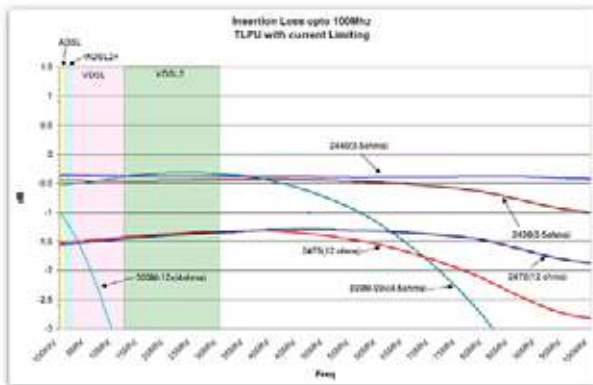
- Model Number Designator \_\_\_\_\_
- Housing Color/Circuit Type \_\_\_\_\_
- 1 = Black/Standard
  - 3 = Red/Special
  - 6 = Blue/Standard
  - 7 = Violet
  - 9 = Orange/Standard Service (Non-Bridgelifter)
  - 10 = Yellow/Standard
- Pin Plating \_\_\_\_\_
- G = Gold-plated
- Protector Type \_\_\_\_\_
- Blank = Multi-Stage Protector (MSP®)
  - BC = Balanced Capacitance Multi-Stage Protector (MSP®)\*
- Special Options \_\_\_\_\_
- S = Sealed Case
  - ST = Sealed Case and Test Points
  - T = Test Points

\* For use on DSL systems that require balanced capacitance of  $\leq 1$  pF.

### Product Dimensions



### Loss Characteristics for 5-Pin Protector Groups with Current Limiting Devices



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