



## Features

- UL listed dataline protector per UL 497B standard
- Signal transmission is not interrupted when exchanging modules
- Two-stage protection circuit limits the transients associated with gas discharge tubes and diodes
- Complies with UL 497B, and IEC 61643-21, category D1/C1/C2/C3
- Pluggable surge protection for DIN-Rail mounting
- Impulse current capacity up to 2.5 kA, 10/350  $\mu$ s

## 2510 Series Data and Signal Surge Protective Device

### General Information

The Bourns® Model 2510 Series is a Data and Signal Surge Protective Device (SPD) designed to protect datalines, providing surge protection for 1-pair lines or 2 single lines with common reference potential in the data, signal and communication systems.

### Additional Information

Click these links for more information:



### Electrical Characteristics

Characteristic		2510-2L1-xx				
		5	12	24	48	110
Compliance		UL 497B; IEC 61643-21				
Nominal Voltage (VDC)	$U_n$	5	12	24	48	110
Max. Continuous Operating Voltage (VDC/VAC)	$U_c$	6/4.2	15/10.6	33/23.3	54/38.1	170/120
C2 Nominal Discharge Current (8/20 $\mu$ s) per Line	$I_n$	10 kA				
C2 Max. Discharge Current (8/20 $\mu$ s) per Line	$I_{max}$	20 kA				
D1 Lightning Impulse Current (10/350 $\mu$ s) per Line	$I_{imp}$	2.5 kA				
Voltage Protection Level (V)	L-L@ $I_n$ , C2 (8/20 $\mu$ s) $U_p$	$\leq 30$	$\leq 45$	$\leq 55$	$\leq 100$	$\leq 300$
	L-PG@ $I_n$ , C2 (8/20 $\mu$ s) $U_p$	$\leq 30$	$\leq 45$	$\leq 55$	$\leq 100$	$\leq 300$
Nominal Current	$I_L$	1 A				
Cut-off Frequency	$f_G$	100 MHz				
Series Impedance per Line		0.68 Ohm				
Protection Line		1-pair or 2 single lines				

### Agency Recognition

Agency	Category	Agency File No.
	UL 497B	E153537

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\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

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## Applications

- RS-232, RS-422 and RS-485 interfaces
- Telecommunications
- Low voltage alarm circuits
- High-frequency transmission systems
- Analog/digital communications

## 2510 Series Data and Signal Surge Protective Device

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### Electrical Characteristics (continued)

Characteristic		2510-2L2-xx				
		5	12	24	48	110
Compliance		UL 497B; IEC 61643-21				
Nominal Voltage (VDC)	$U_n$	5	12	24	48	110
Max. Continuous Operating Voltage (VDC/VAC)	$U_c$	6/4.2	15/10.6	33/23.3	54/38.1	170/120
C2 Nominal Discharge Current (8/20 $\mu$ s) per Line	$I_n$	10 kA				
C2 Max. Discharge Current (8/20 $\mu$ s) per Line	$I_{max}$	20 kA				
D1 Lightning Impulse Current (10/350 $\mu$ s) per Line	$I_{imp}$	2.5 kA				
Voltage Protection Level (V)	L-L@ $I_n$ , C2 (8/20 $\mu$ s) $U_p$	$\leq 30$	$\leq 45$	$\leq 55$	$\leq 100$	$\leq 300$
	L-PG@ $I_n$ , C2 (8/20 $\mu$ s) $U_p$	$\leq 500$	$\leq 500$	$\leq 500$	$\leq 500$	$\leq 500$
Nominal Current	$I_L$	1 A				
Cut-off Frequency	$f_G$	100 MHz				
Series Impedance per Line		0.68 Ohm				
Protection Line		1-pair or 2 single lines				

Characteristic		2510-2L3-xx				
		5	12	24	48	110
Compliance		UL 497B; IEC 61643-21				
Nominal Voltage (VDC)	$U_n$	5	12	24	48	110
Max. Continuous Operating Voltage (VDC/VAC)	$U_c$	6/4.2	15/10.6	33/23.3	54/38.1	170/120
C2 Nominal Discharge Current (8/20 $\mu$ s) per Line	$I_n$	10 kA				
C2 Max. Discharge Current (8/20 $\mu$ s) per Line	$I_{max}$	20 kA				
D1 Lightning Impulse Current (10/350 $\mu$ s) per Line	$I_{imp}$	2.5 kA				
Voltage Protection Level (V)	L-L/L-PG@ $I_n$ , C2 (8/20 $\mu$ s) $U_p$	$\leq 30$	$\leq 45$	$\leq 55$	$\leq 100$	$\leq 300$
	PG-SG@ $I_n$ , C2 (8/20 $\mu$ s) $U_p$	$\leq 500$	$\leq 500$	$\leq 500$	$\leq 500$	$\leq 500$
Nominal Current	$I_L$	1 A				
Cut-off Frequency	$f_G$	100 MHz				
Series Impedance per Line		0.68 Ohm				
Protection Line		1-pair + shield				

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# 2510 Series Data and Signal Surge Protective Device

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## Electrical Characteristics (continued)

Characteristic		2510-2L4-xx				
		5	12	24	48	110
Compliance		UL 497B; IEC 61643-21				
Nominal Voltage (VDC)	$U_n$	5	12	24	48	110
Max. Continuous Operating Voltage (VDC/VAC)	$U_c$	6/4.2	15/10.6	33/23.3	54/38.1	170/120
C2 Nominal Discharge Current (8/20 $\mu$ s) per Line	$I_n$	10 kA				
C2 Max. Discharge Current (8/20 $\mu$ s) per Line	$I_{max}$	20 kA				
D1 Lightning Impulse Current (10/350 $\mu$ s) per Line	$I_{imp}$	2.5 kA				
Voltage Protection Level (V)	L-L@ $I_n$ , C2 (8/20 $\mu$ s) $U_p$	$\leq 30$	$\leq 45$	$\leq 55$	$\leq 100$	$\leq 300$
	L-PG/PG-SG@ $I_n$ , C2 (8/20 $\mu$ s) $U_p$	$\leq 500$	$\leq 500$	$\leq 500$	$\leq 500$	$\leq 500$
Nominal Current	$I_L$	1 A				
Cut-off Frequency	$f_G$	100 MHz				
Series Impedance per Line		0.68 Ohm				
Protection Line		1-pair + shield				

Characteristic		2510-2L5-xx			
		12	24	48	110
Compliance		UL 497B; IEC 61643-21			
Nominal Voltage (VDC)	$U_n$	12	24	48	110
Max. Continuous Operating Voltage (VDC/VAC)	$U_c$	15/10.6	33/23.3	54/38.1	170/120
C2 Nominal Discharge Current (8/20 $\mu$ s) per Line	$I_n$	10 kA			
C2 Max. Discharge Current (8/20 $\mu$ s) per Line	$I_{max}$	20 kA			
D1 Lightning Impulse Current (10/350 $\mu$ s) per Line	$I_{imp}$	2.5 kA			
Voltage Protection Level (V)	L-L@ $I_n$ , C2 (8/20 $\mu$ s) $U_p$	$\leq 25$	$\leq 50$	$\leq 100$	$\leq 260$
	L-PG@ $I_n$ , C2 (8/20 $\mu$ s) $U_p$	$\leq 750$	$\leq 750$	$\leq 750$	$\leq 750$
Nominal Current	$I_L$	1 A			
Cut-off Frequency	$f_G$	2 MHz			
Series Impedance per Line		1.36 Ohm			
Protection Line		1-pair or 2 single lines			

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## 2510 Series Data and Signal Surge Protective Device

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### Electrical Characteristics (continued)

Characteristic		2510-2L6-xx			
		5	12	24	48
Compliance		UL 497B; IEC 61643-21			
Nominal Voltage (VDC)	$U_n$	5	12	24	48
Max. Continuous Operating Voltage (VDC/VAC)	$U_c$	6/4.2	15/10.6	33/23.3	54/38.1
C2 Nominal Discharge Current (8/20 $\mu$ s) per Line	$I_n$	L-L: 300 A, L-G: 10 kA			
C2 Max. Discharge Current (8/20 $\mu$ s) per Line	$I_{max}$	L-L: 500A, L-G: 20 kA			
D1 Lightning Impulse Current (10/350 $\mu$ s) per Line	$I_{imp}$	2.5 kA			
Voltage Protection Level (V)	L-L@ $I_n$ , C2 (8/20 $\mu$ s) $U_p$	$\leq 30$	$\leq 45$	$\leq 55$	$\leq 100$
	L-PG@ $I_n$ , C2 (8/20 $\mu$ s) $U_p$	$\leq 500$	$\leq 500$	$\leq 500$	$\leq 500$
Nominal Current	$I_L$	2 A			
Cut-off Frequency	$f_G$	100 MHz			
Series Impedance per Line		0 Ohm			
Protection Line		1-pair or 2 single lines			

### General Characteristics

Characteristic	2510-2Lx-xx
Mounting	35 mm DIN-Rail in accordance with EN 50022/DIN46277-3
Type of Connection IN/OUT	screw/screw
Dimensions (mm)	90 x 12 x 74
Operating Temperature Range	-40 °C ~ +85 °C
Enclosure Material	Thermoplastic, extinguishing degree, UL 94V-0

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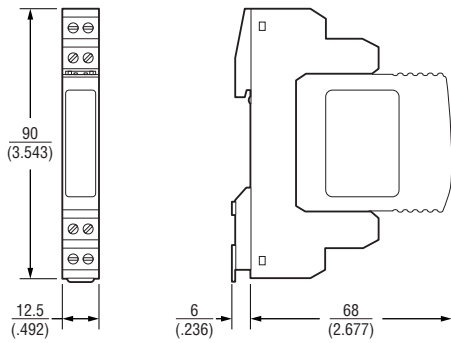
# 2510 Series Data and Signal Surge Protective Device

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## Standards Compliance

IEC 61643-21 ..... Category D1/C1/C2/C3  
 UL497B  
 IEEE C62.41  
 RoHS ..... RoHS Directive 2015/863, Mar 31, 2015 and Annex

## Product Dimensions



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

## How to Order

**2510 - 2L n - xxx**

Model Designator \_\_\_\_\_  
 2510 = Data and Signal SPD

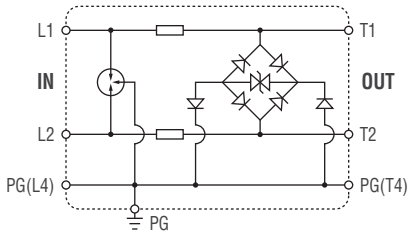
Number of Datalines \_\_\_\_\_  
 2L = 1-Pair or 2 Single Lines

Circuit Configuration (Refer to Product Schematics) \_\_\_\_\_  
 1 = Circuit Type 1  
 2 = Circuit Type 2  
 3 = Circuit Type 3  
 4 = Circuit Type 4  
 5 = Circuit Type 5  
 6 = Circuit Type 6

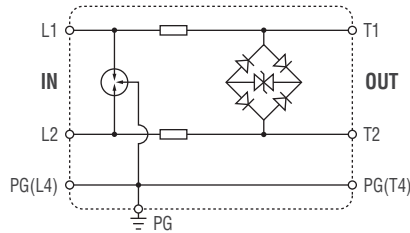
Nominal Voltage \_\_\_\_\_  
 05 = 5 VDC  
 12 = 12 VDC  
 24 = 24 VDC  
 48 = 48 VDC  
 110 = 110 VDC

## Product Schematics

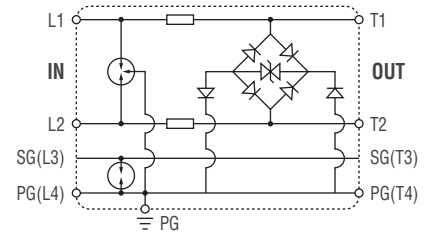
**Circuit Type 1**



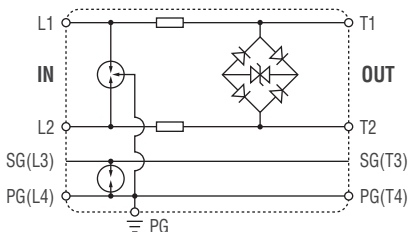
**Circuit Type 2**



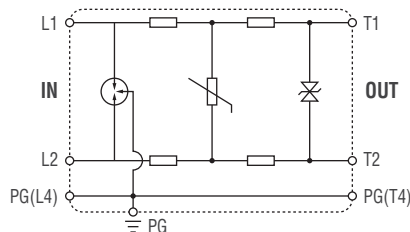
**Circuit Type 3**



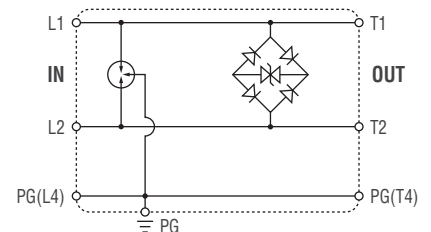
**Circuit Type 4**



**Circuit Type 5**



**Circuit Type 6**



PG: Protective Grounding  
 SG: Shield Grounding

REV. 11/23

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