

**Multipurpose Power Line RFI Filter for Emission Control and High-Noise Industrial Environments**

# S Series



**UL Recognized  
CSA Certified  
VDE Approved**



## S Series

The S series filters combine Tyco Electronics successful line-to-ground interference rejection filters with additional circuitry designed to reduce line-to-line noise and transients.

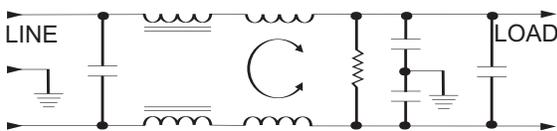
These filters feature an N = 2 (“L”) line-to-ground impedance to common mode noise and an N = 3 (“Pi”) differential mode impedance line-to-line. This series is designed for use when equipment impedance at RF frequencies is high.

These filters will better protect equipment from malfunctions due to conducted interference coming into the equipment from the line, especially line-to-line noise and transients. They will also provide needed noise suppression to allow most equipment (including switch-mode power supplies) to meet FCC specifications for conducted emissions.

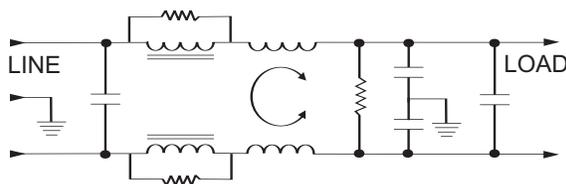
The S series is also effective to control emissions in equipment using SCR and T<sup>2</sup>L circuits, for compliance with FCC Part 15, Subpart J, and EN55022, Level A, down to 150kHz.

## Electrical Schematics

### 3A, 6A, 10A



### 20A



Resistor location for reference only.

## Specifications

<b>Maximum leakage current, each line-to-ground</b>	
@ 120 VAC 60 Hz:	.4 mA
@ 250 VAC 50 Hz:	.7 mA
<b>Hipot rating (one minute):</b>	
line-to-ground	2250 VDC
line-to-line	1450 VDC
<b>Operating frequency:</b>	50/60 Hz
<b>Rated voltage (max.):</b>	250 VAC
<b>Rated current:</b>	
3VS	3A
6VS	6A
10VS	10A
20VS	20A

### Minimum insertion loss in dB:

Line-to-ground in 50 ohm circuit

Current Rating	Frequency—MHz							
	.15	.5	1	2	5	10	20	30
3A	15	27	35	40	32	44	47	47
6A	15	27	35	40	32	44	47	47
10A	15	27	35	40	32	44	47	47
20A	15	30	38	38	32	43	42	40

Line-to-line in 50 ohm circuit

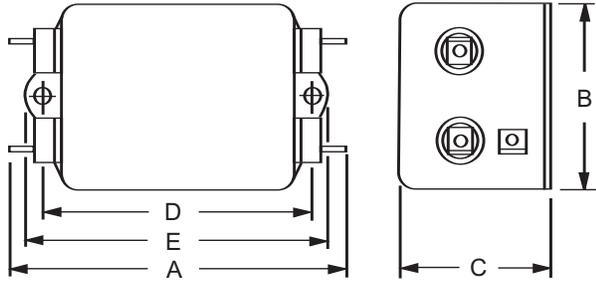
Current Rating	Frequency—MHz							
	.15	.3	.5	1	2	5	10	30
3A	35	50	65	65	65	60	50	45
6A	35	50	65	65	65	60	45	48
10A	35	50	65	65	65	60	50	45
20A	35	50	65	65	65	60	45	48

**Multipurpose Power Line RFI Filter for Emission Control  
and High-Noise Industrial Environments (Continued)**

# S Series

## Case Styles

3A, 6A, 10A

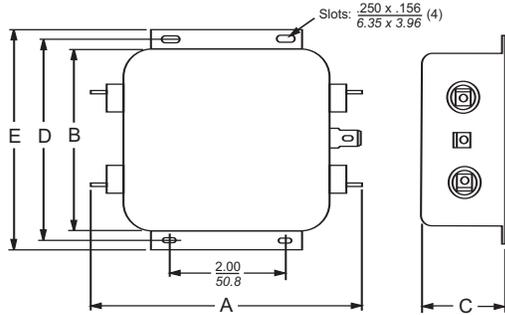


Typical dimensions:

Terminals: .250 [6.35] (5)  
Slot: .07 x .16 [1.8 x 3.8]

Holes: .07 [1.8] Dia. (4)  
Mounting holes: .188 [4.78] Dia. (2)

20VS1

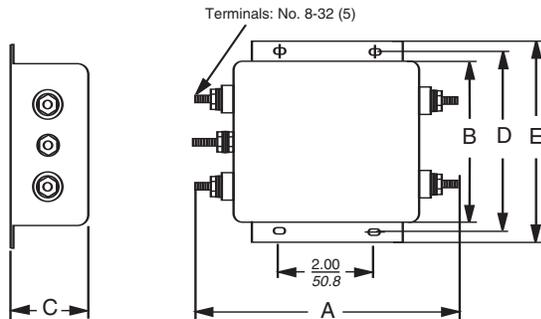


Typical dimensions:

Terminals: .250 [6.35] (5)  
Slot: .07 x .16 [1.8 x 4.1]

Holes: .07 [1.8] Dia. (4)  
Mounting holes: .25 x .156 [6.35 x 3.96] Dia. (4)

20VS6



Typical dimensions:

Mounting holes: .25 x .156 [6.35 x 3.96] Dia. (4) Torque 18 ± 2 in.lb

## Case Dimensions

Part No.	A (max)	B (max)	C (max)	D $\pm .015$ $\pm .38$	E (max)
3VS1	<b>3.36</b> <i>85.3</i>	<b>1.82</b> <i>46.2</i>	<b>1.16</b> <i>29.5</i>	<b>2.375</b> <i>60.33</i>	<b>2.78</b> <i>70.6</i>
6VS1	<b>3.86</b> <i>98.0</i>	<b>2.08</b> <i>52.8</i>	<b>1.53</b> <i>38.9</i>	<b>2.938</b> <i>74.63</i>	<b>3.34</b> <i>84.8</i>
10VS1	<b>3.86</b> <i>98.0</i>	<b>2.08</b> <i>52.8</i>	<b>1.53</b> <i>38.9</i>	<b>2.938</b> <i>74.63</i>	<b>3.34</b> <i>84.8</i>
20VS1	<b>5.23</b> <i>132.8</i>	<b>3.38</b> <i>85.9</i>	<b>1.53</b> <i>38.9</i>	<b>3.75</b> <i>95.25</i>	<b>4.20</b> <i>106.7</i>
20VS6	<b>5.34</b> <i>135.6</i>	<b>3.38</b> <i>85.9</i>	<b>1.53</b> <i>38.9</i>	<b>3.75</b> <i>95.25</i>	<b>4.20</b> <i>106.7</i>

## Part Numbers

3VS1 6VS1	10VS1 20VS1 20VS6
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