

# On-Board Type (DC) EMI Suppression Filters (EMIFIL<sup>®</sup>)



## Chip EMIFIL<sup>®</sup> LC Combined Monolithic Type NFL18ST/NFL18SP/NFL21S Series

### NFL18ST Series

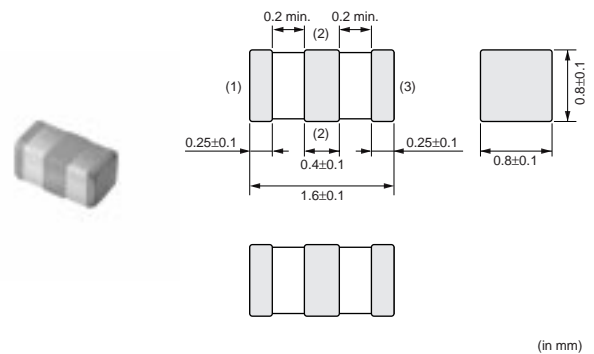
The NFL18ST series is an EMI suppression filter for high speed signal lines, achieving T-type structure in 1.6x0.8mm size with Murata's multilayer technology.

#### ■ Features

1. Ultra-small size in 1.6x0.8x0.8mm
2. Steep insertion loss characteristics realize excellent noise suppression and prevent distortion of signal waveform.
3. By minimizing stray capacitance of inductor, achieves high performance in noise suppression in high frequency range.
4. Five different values of cut off frequency are available, ranging from 100MHz up to 500MHz.
5. No polarity using the same structure on all the side electrode.

#### ■ Applications

Noise suppression for video signal lines (RGB lines) and high speed clock lines



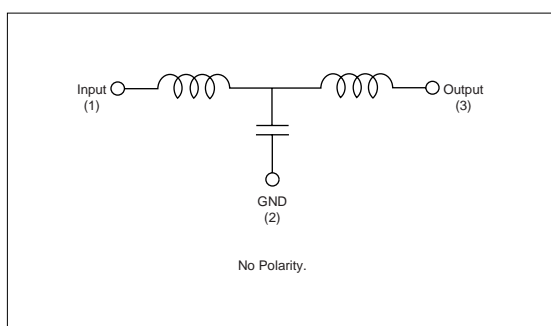
(in mm)

2

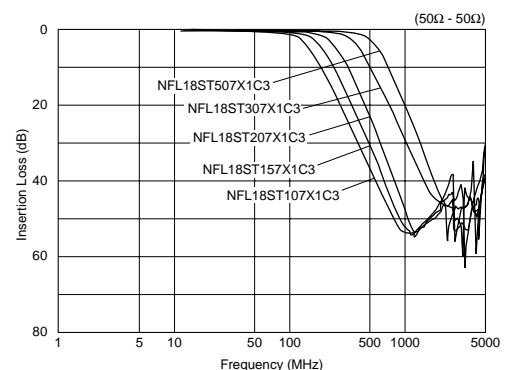
| Part Number           | Cut-off Frequency (MHz) | Capacitance (pF) | Inductance (nH) | Rated Voltage (Vdc) | Rated Current (mA) | Insulation Resistance (M ohm) | Operating Temperature Range (°C) |
|-----------------------|-------------------------|------------------|-----------------|---------------------|--------------------|-------------------------------|----------------------------------|
| <b>NFL18ST107X1C3</b> | 100                     | 40 +20%, -20%    | 175 +20%, -20%  | 16                  | 100                | 1000                          | -55 to 125                       |
| <b>NFL18ST157X1C3</b> | 150                     | 32 +20%, -20%    | 140 +20%, -20%  | 16                  | 100                | 1000                          | -55 to 125                       |
| <b>NFL18ST207X1C3</b> | 200                     | 25 +20%, -20%    | 110 +20%, -20%  | 16                  | 150                | 1000                          | -55 to 125                       |
| <b>NFL18ST307X1C3</b> | 300                     | 18 +20%, -20%    | 62 +20%, -20%   | 16                  | 200                | 1000                          | -55 to 125                       |
| <b>NFL18ST507X1C3</b> | 500                     | 10 +20%, -20%    | 43 +20%, -20%   | 16                  | 200                | 1000                          | -55 to 125                       |

Number of Circuits : 1

#### ■ Equivalent Circuit



#### ■ Insertion Loss Characteristics (Typical)

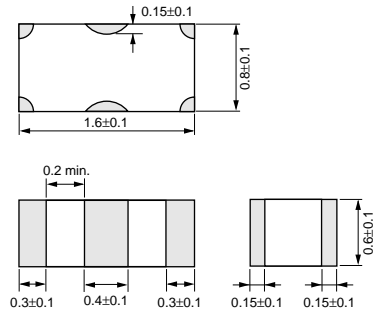


## NFL18SP Series

The chip "EMIFIL" NFL18SP series is an EMI suppression filter for high speed signal lines, achieving pi-type structure in 0603 size with Murata's multilayer technology.

### ■ Features

1. Ultra-small size in 1.6x0.8x0.6 mm
2. Achieves high performance in noise suppression over wide frequency range
3. Steep insertion loss characteristics realize excellent noise suppression and prevent distortion of signal waveform.
4. Line up 4 items of cut off frequency range from 150 to 500MHz



(in mm)

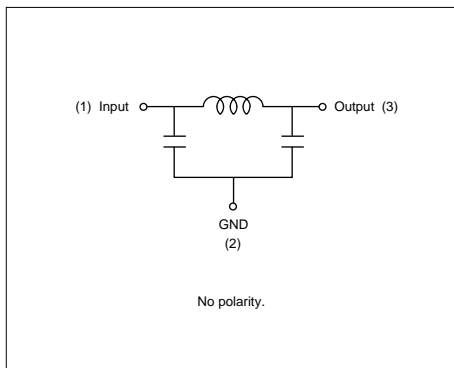
### ■ Applications

EMI suppression for digital signal line such as RGB and high speed clock lines

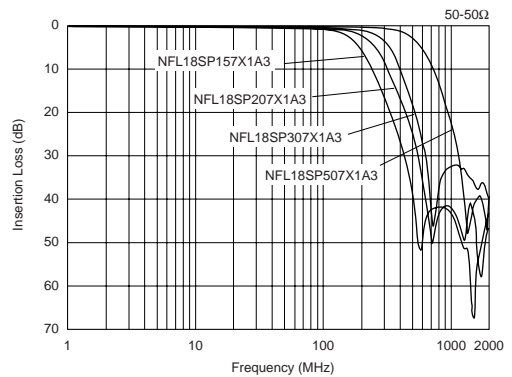
| Part Number    | Cut-off Frequency (MHz) | Capacitance (pF) | Inductance (nH) | Rated Voltage (Vdc) | Rated Current (mA) | Insulation Resistance (M ohm) | Operating Temperature Range (°C) |
|----------------|-------------------------|------------------|-----------------|---------------------|--------------------|-------------------------------|----------------------------------|
| NFL18SP157X1A3 | 150                     | 34 +20%, -20%    | 100 +20%, -20%  | 10                  | 100                | 1000                          | -55 to 125                       |
| NFL18SP207X1A3 | 200                     | 24 +20%, -20%    | 80 +20%, -20%   | 10                  | 100                | 1000                          | -55 to 125                       |
| NFL18SP307X1A3 | 300                     | 19 +20%, -20%    | 60 +20%, -20%   | 10                  | 100                | 1000                          | -55 to 125                       |
| NFL18SP507X1A3 | 500                     | 11 +20%, -20%    | 38 +20%, -20%   | 10                  | 100                | 1000                          | -55 to 125                       |

Number of Circuits : 1

### ■ Equivalent Circuit

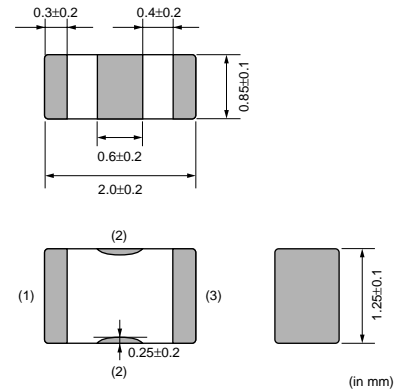


### ■ Insertion Loss Characteristics (Typical)



## NFL21S Series

The chip "EMIFIL" NFL21S series is a high performance EMI suppression filter in 2.0x1.25mm size for high speed signal lines by using Murata's processing technology.



### ■ Features

1. Suppresses noise with little attenuation of the signal itself due to its steep filtering characteristics.
2. Murata's original internal structure design enables excellent noise suppression up to high frequencies.
3. Available in nine different values of cut off frequency ranging from 10MHz up to 500MHz.

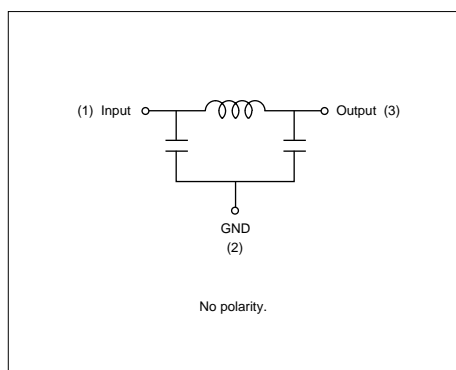
### ■ Applications

Suppression of high magnitude radiated noise generated by high speed digital circuits such as clock and RGB

| Part Number    | Cut-off Frequency (MHz) | Capacitance (pF) | Inductance (nH) | Rated Voltage (Vdc) | Rated Current (mA) | Insulation Resistance (M ohm) | Operating Temperature Range (°C) |
|----------------|-------------------------|------------------|-----------------|---------------------|--------------------|-------------------------------|----------------------------------|
| NFL21SP106X1C3 | 10                      | 670 +20%,-20%    | 680 +50%,-50%   | 16                  | 100                | 1000                          | -55 to 125                       |
| NFL21SP206X1C3 | 20                      | 240 +20%,-20%    | 700 +20%,-20%   | 16                  | 100                | 1000                          | -55 to 125                       |
| NFL21SP506X1C3 | 50                      | 84 +20%,-20%     | 305 +20%,-20%   | 16                  | 150                | 1000                          | -55 to 125                       |
| NFL21SP706X1C3 | 70                      | 76 +20%,-20%     | 185 +20%,-20%   | 16                  | 150                | 1000                          | -55 to 125                       |
| NFL21SP107X1C3 | 100                     | 44 +20%,-20%     | 135 +20%,-20%   | 16                  | 200                | 1000                          | -55 to 125                       |
| NFL21SP157X1C3 | 150                     | 28 +20%,-20%     | 128 +20%,-20%   | 16                  | 200                | 1000                          | -55 to 125                       |
| NFL21SP207X1C3 | 200                     | 22 +20%,-20%     | 72 +20%,-20%    | 16                  | 250                | 1000                          | -55 to 125                       |
| NFL21SP307X1C3 | 300                     | 19 +10%,-10%     | 45 +10%,-10%    | 16                  | 300                | 1000                          | -55 to 125                       |
| NFL21SP407X1C3 | 400                     | 16 +10%,-10%     | 34 +10%,-10%    | 16                  | 300                | 1000                          | -55 to 125                       |
| NFL21SP507X1C3 | 500                     | 12 +10%,-10%     | 31 +10%,-10%    | 16                  | 300                | 1000                          | -55 to 125                       |

Number of Circuits : 1

### ■ Equivalent Circuit



### ■ Insertion Loss Characteristics (Typical)

