

# On-Board Type (DC) EMI Suppression Filters (EMIFIL®)



## Chip EMIFIL® Capacitor Type NFM18C/NFM21C/NFM3DC/NFM41C Series

### NFM18C Series

The NFM18CC series is a 1.6x0.8mm EMI suppression filter for signal lines which has a 3-terminal structure using Murata's multilayer technology.

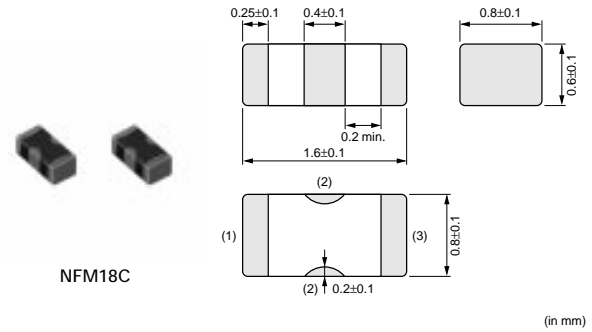
#### ■ Features

1. Ultra small size in 1.6x0.8x0.6mm enable high density mounting.
2. 3-terminal structure with low residual inductance (ESL)\* characteristics achieves large insertion loss characteristics even in high frequency area.
3. The NFM18cc series covers capacitance range from 22 to 22000pF.

\* Not exceeding one-tenth of monolithic ceramic capacitors (2-terminal).

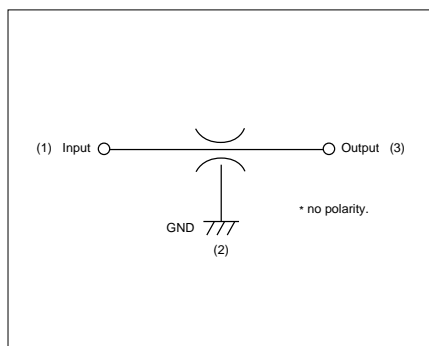
#### ■ Applications

1. EMI suppression of circuit for insertion loss in quantity.
2. Noise suppression up to GHz.

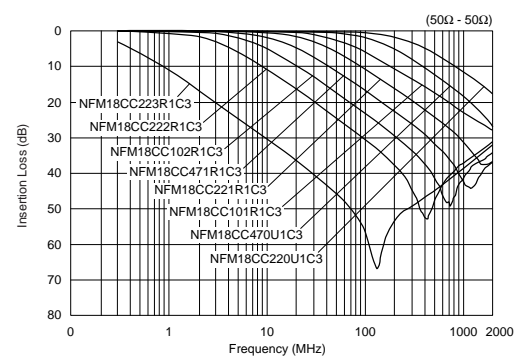


| Part Number    | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (mA) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range (°C) |
|----------------|------------------|---------------------|--------------------|--------------------------------------|----------------------------------|
| NFM18CC220U1C3 | 22 +20%, -20%    | 16                  | 300                | 1000                                 | -55 to +125                      |
| NFM18CC470U1C3 | 47 +20%, -20%    | 16                  | 300                | 1000                                 | -55 to +125                      |
| NFM18CC101R1C3 | 100 +20%, -20%   | 16                  | 300                | 1000                                 | -55 to +125                      |
| NFM18CC221R1C3 | 220 +20%, -20%   | 16                  | 300                | 1000                                 | -55 to +125                      |
| NFM18CC471R1C3 | 470 +20%, -20%   | 16                  | 300                | 1000                                 | -55 to +125                      |
| NFM18CC102R1C3 | 1000 +20%, -20%  | 16                  | 300                | 1000                                 | -55 to +125                      |
| NFM18CC222R1C3 | 2200 +20%, -20%  | 16                  | 300                | 1000                                 | -55 to +125                      |
| NFM18CC223R1C3 | 22000 +20%, -20% | 16                  | 1000               | 1000                                 | -55 to +125                      |

#### ■ Equivalent Circuit



#### ■ Insertion Loss Characteristics (Typical)

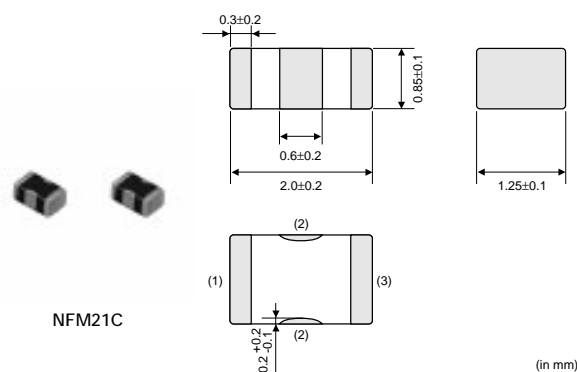


## NFM21C Series

The chip "EMIFIL" NFM21C series is a chip type 3-terminal EMI suppression filter. It can reduce residual inductance to an extremely low level making it excellent for noise suppression at high frequencies.

### ■ Features

1. Small and low profile of 2.0x1.25x0.85mm (NFM21C) enables high density mounting.
2. 3-terminal structure enables high performance in high frequency range.
3. Uses original electrode structure which realizes excellent solderability.
4. An electrostatic capacitance range of 22 to 22000pF enables suppression of noise at specific frequencies.

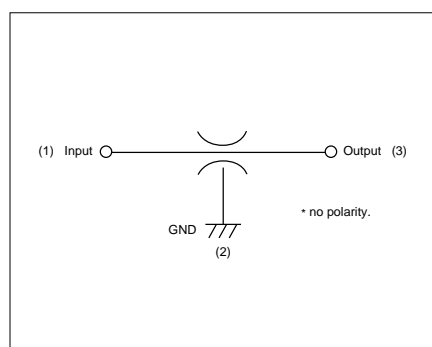


### ■ Applications

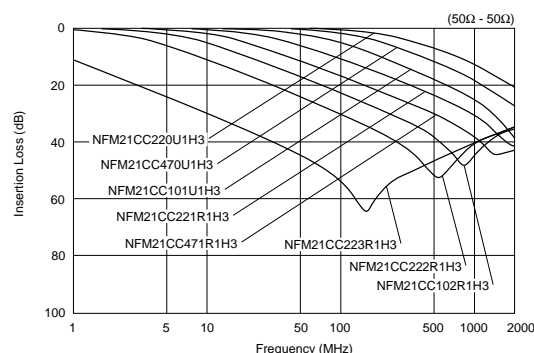
1. PCs and peripherals which emit high amount of noises
2. Compact size equipment such as PDA, PC card and mobile telecommunications equipment
3. Severe EMI suppression and high impedance circuits such as digital circuits

| Part Number    | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (mA) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range (°C) |
|----------------|------------------|---------------------|--------------------|--------------------------------------|----------------------------------|
| NFM21CC220U1H3 | 22 +20%, -20%    | 50                  | 300                | 1000                                 | -55 to +125                      |
| NFM21CC470U1H3 | 47 +20%, -20%    | 50                  | 300                | 1000                                 | -55 to +125                      |
| NFM21CC101U1H3 | 100 +20%, -20%   | 50                  | 300                | 1000                                 | -55 to +125                      |
| NFM21CC221R1H3 | 220 +20%, -20%   | 50                  | 300                | 1000                                 | -55 to +125                      |
| NFM21CC471R1H3 | 470 +20%, -20%   | 50                  | 300                | 1000                                 | -55 to +125                      |
| NFM21CC102R1H3 | 1000 +20%, -20%  | 50                  | 300                | 1000                                 | -55 to +125                      |
| NFM21CC222R1H3 | 2200 +20%, -20%  | 50                  | 300                | 1000                                 | -55 to +125                      |
| NFM21CC223R1H3 | 22000 +20%, -20% | 50                  | 2000               | 1000                                 | -55 to +125                      |

### ■ Equivalent Circuit



### ■ Insertion Loss Characteristics (Typical)



## NFM3DC Series

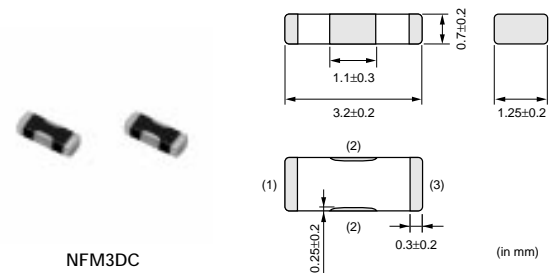
The chip "EMIFIL" NFM3DC series is a chip type 3-terminal EMI suppression filter. It can reduce residual inductance to an extremely low level making it excellent for noise suppression at high frequencies.

### ■ Feature

An electrostatic capacitance range of 22 to 22,000pF enables suppression of noise at specific frequencies.

### ■ Application

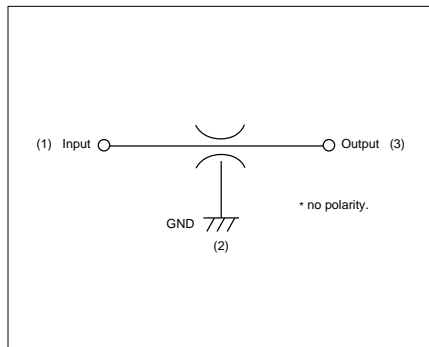
High noise radiation and high impedance circuits such as digital circuits



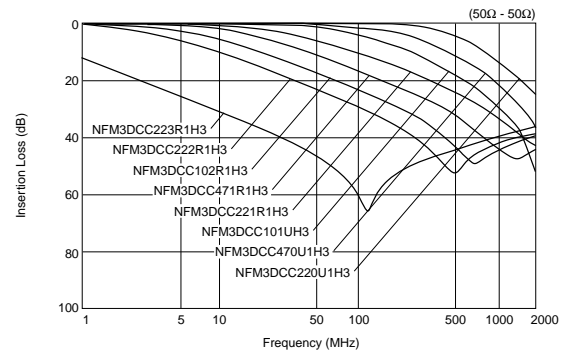
NFM3DC

| Part Number    | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (mA) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range (°C) |
|----------------|------------------|---------------------|--------------------|--------------------------------------|----------------------------------|
| NFM3DCC220U1H3 | 22 +50%, -20%    | 50                  | 300                | 1000                                 | -55 to +125                      |
| NFM3DCC470U1H3 | 47 +50%, -20%    | 50                  | 300                | 1000                                 | -55 to +125                      |
| NFM3DCC101U1H3 | 100 +50%, -20%   | 50                  | 300                | 1000                                 | -55 to +125                      |
| NFM3DCC221R1H3 | 220 +50%, -20%   | 50                  | 300                | 1000                                 | -55 to +125                      |
| NFM3DCC471R1H3 | 470 +50%, -20%   | 50                  | 300                | 1000                                 | -55 to +125                      |
| NFM3DCC102R1H3 | 1000 +50%, -20%  | 50                  | 300                | 1000                                 | -55 to +125                      |
| NFM3DCC222R1H3 | 2200 +50%, -20%  | 50                  | 300                | 1000                                 | -55 to +125                      |
| NFM3DCC223R1H3 | 22000 +50%, -20% | 50                  | 300                | 1000                                 | -55 to +125                      |

### ■ Equivalent Circuit



### ■ Insertion Loss Characteristics (Typical)



## NFM41C Series

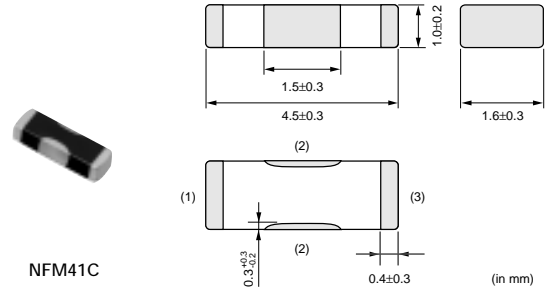
The chip "EMIFIL" NFM41C series is a chip type 3-terminal EMI suppression filter. It can reduce residual inductance to an extremely low level making it excellent for noise suppression at high frequencies.

### ■ Features

An electrostatic capacitance range of 22 to 22,000pF enables suppression of noise at specific frequencies.

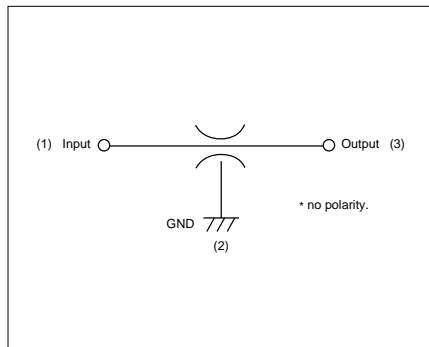
### ■ Applications

High noise radiation and high impedance circuits such as digital circuits



| Part Number    | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (mA) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range (°C) |
|----------------|------------------|---------------------|--------------------|--------------------------------------|----------------------------------|
| NFM41CC220U2A3 | 22 +50%, -20%    | 100                 | 300                | 10000                                | -55 to +125                      |
| NFM41CC470U2A3 | 47 +50%, -20%    | 100                 | 300                | 10000                                | -55 to +125                      |
| NFM41CC101U2A3 | 100 +50%, -20%   | 100                 | 300                | 10000                                | -55 to +125                      |
| NFM41CC221U2A3 | 220 +50%, -20%   | 100                 | 300                | 10000                                | -55 to +125                      |
| NFM41CC471R2A3 | 470 +50%, -20%   | 100                 | 300                | 10000                                | -55 to +125                      |
| NFM41CC102R2A3 | 1000 +50%, -20%  | 100                 | 300                | 10000                                | -55 to +125                      |
| NFM41CC222R2A3 | 2200 +50%, -20%  | 100                 | 300                | 10000                                | -55 to +125                      |
| NFM41CC223R2A3 | 22000 +50%, -20% | 100                 | 300                | 10000                                | -55 to +125                      |

### ■ Equivalent Circuit



### ■ Insertion Loss Characteristics (Typical)

