

CHIP EMIFIL®

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Chip EMIFIL® for Signal Line **NFM51R Series**

100dB/dec. (typ.) Damping Characteristics for High Speed Signal Line

The signal line chip EMIFL® NFM51R series consist of high performance EMI suppression filters.

They are designed for noise suppression in high speed digital circuits in which the signal harmonics are prone to becoming noise sources.

These filters achieve a 100dB/dec. (typ.) damping characteristic made possible by Murata's innovative circuit design. This makes these chips effective in applications where the signal and noise frequencies are close to each other.

■FEATURES

1. The filters suppress signal noise with little or no attenuation of the signal itself.
2. Murata's original internal structure design enables excellent noise suppression up to high frequencies (40dB at 1GHz typ.).
3. The NFM51R series is available in six different values of cutoff 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 circuits
- Suppression of noise in high speed processing circuits such as digital image signal processing circuits

■PART NUMBERING

(Please specify the part number when ordering.)

(Ex.) **NFM51R** **00P** **506**

① ② ③

- ① Type
- ② Class No.
- ③ Cut-off Frequencies

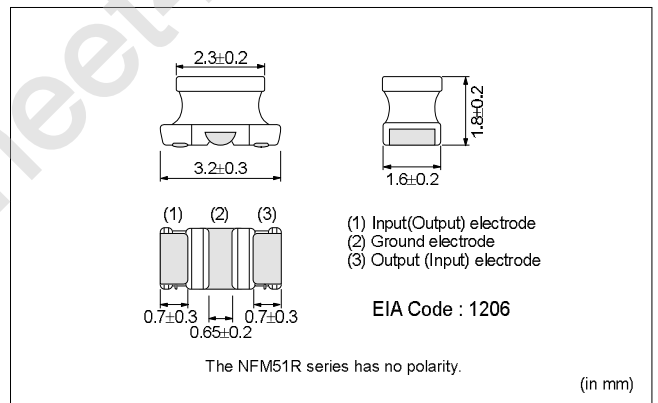
■SPECIFICATIONS

Part Number	Cut-off Frequency (MHz)	Attenuation (dB min.)										Rated Voltage (Vdc)	Rated Current (mA)	Operating Temp. Range (°C)
		10MHz	20MHz	50MHz	100MHz	150MHz	200MHz	300MHz	400MHz	500MHz	1GHz			
NFM51R00P106	10	*	5	25	25	-	25	-	-	30	30	25	200	-40 to +85
NFM51R00P206	20	-	*	5	25	-	25	-	-	30	30			
NFM51R00P506	50	-	-	*	10	-	30	-	-	30	30			
NFM51R10P107	100	-	-	-	*	-	5	-	-	20	30			
NFM51R10P157	150	-	-	-	-	*	-	10	20	30	30			
NFM51R20P207	200	-	-	-	-	-	*	-	-	10	30			
NFM51R30P307	300	-	-	-	-	-	-	*	-	5	15			
NFM51R30P407	400	-	-	-	-	-	-	-	*	-	10			
NFM51R30P507	500	-	-	-	-	-	-	-	-	*	10			

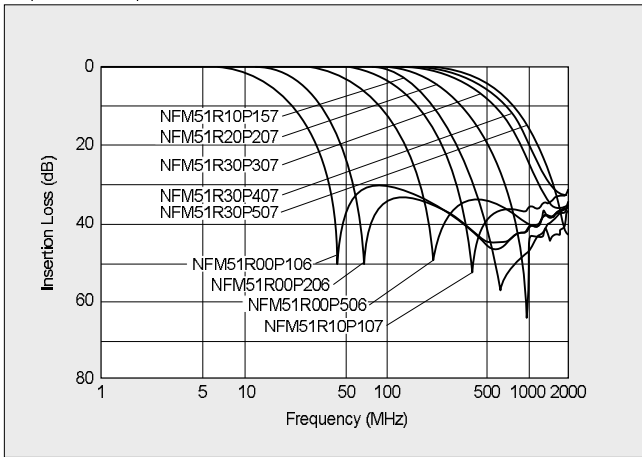
*6dB max.



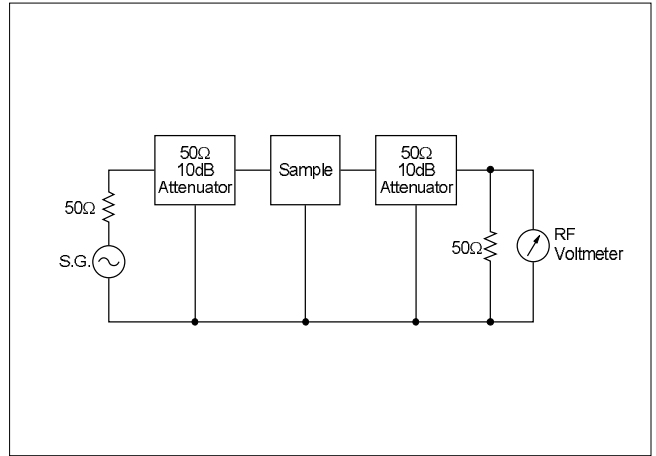
■DIMENSIONS



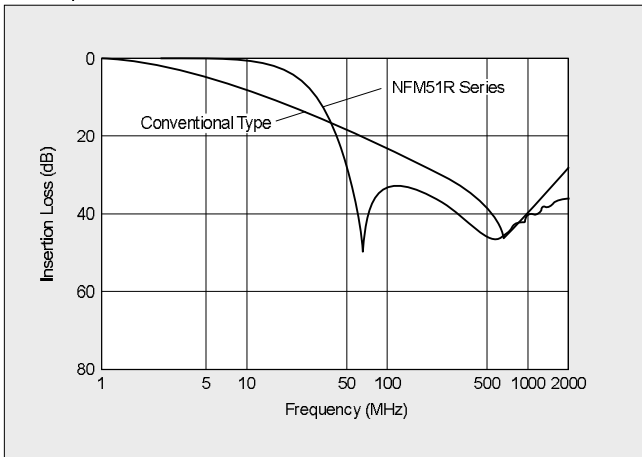
■ INSERTION LOSS CHARACTERISTICS
(TYPICAL)



■ INSERTION LOSS MEASURING CIRCUIT



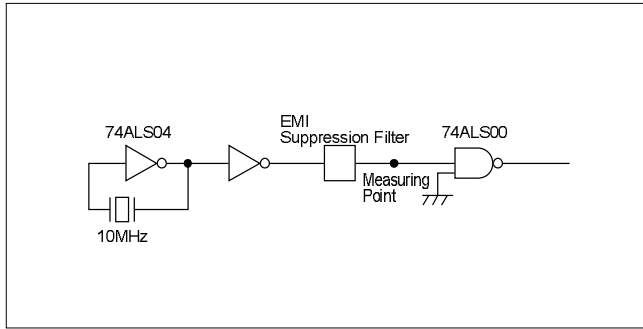
- Comparison with Conventional Chip EMIFIL®
NFM51R series can realize EMI suppression without reducing effective elements of the signal, because it has steep attenuation characteristics.



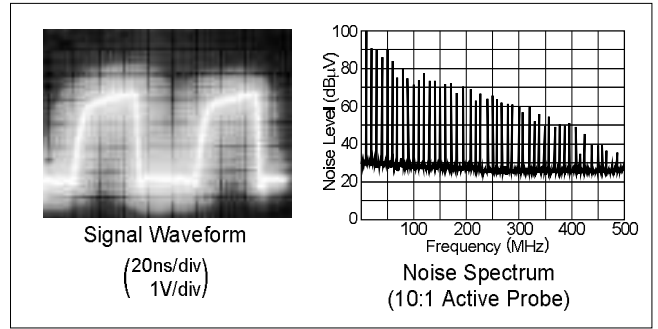
2

EXAMPLE OF EMI SUPPRESSION IN AN ACTUAL CIRCUIT

●Measuring Circuit



●Signal Waveform and Noise Spectrum before Filter Mounting



●Waveform Change and Noise Suppression Effect when Filter is Inserted

Type of Filter	Signal Wave Form (20ns · 1V/div)	EMI Suppression Effect	Description
NFM51R Series (Cut-off frequency 50MHz)			The NFM51R's steep attenuation characteristic means excellent EMI suppression without waveform cornering.
Conventional Chip Solid type EMI Filter (NFM41R 470pF)			3-terminal capacitors suppress signal frequencies as EMI frequencies so the signal waveform is distorted.
Filter Combined with Conventional LCs			Combinations of inductors and capacitors can yield a steep attenuation characteristic, but they require a great deal more mounting space. Moreover, at high frequencies the EMI suppression is less than that obtained by the NFM51R.

L : Chip Inductor
C : Chip Capacitor
(270pF)

2