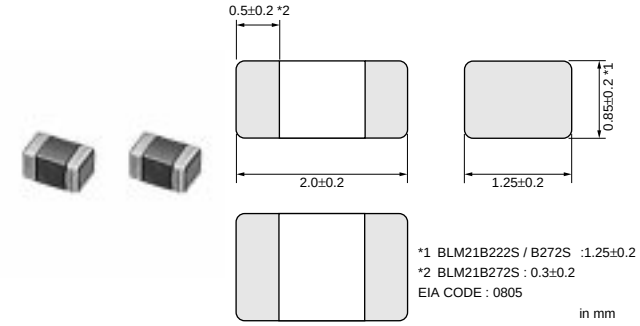
BLM21 Series(2012 Size)



Part Number	Impedance (at 100MHz) (ohm)	Rated Current (mA)	DC Resistance(max.) (ohm)	Operating Temperature Range (°C)
BLM21AG121SN1	120 ±25%	200	0.15	-55 to 125
BLM21AG151SN1	150 ±25%	200	0.15	-55 to 125
BLM21AG221SN1	220 ±25%	200	0.20	-55 to 125
BLM21AG331SN1	330 ±25%	200	0.25	-55 to 125
BLM21AG471SN1	470 ±25%	200	0.25	-55 to 125
BLM21AG601SN1	600 ±25%	200	0.30	-55 to 125
BLM21AG102SN1	1000 ±25%	200	0.45	-55 to 125
BLM21AH102SN1	1000 ±25%	200	0.45	-55 to 85
BLM21AJ401SN1	400 ±25%	200	0.85	-55 to 125
BLM21AJ601SN1	600 ±25%	200	1.10	-55 to 125
BLM21BB050SN1	5 ±25%	500	0.07	-55 to 125
BLM21BB600SN1	60 ±25%	200	0.20	-55 to 125
BLM21BB750SN1	75 ±25%	200	0.25	-55 to 125
BLM21BB121SN1	120 ±25%	200	0.25	-55 to 125
BLM21BB151SN1	150 ±25%	200	0.25	-55 to 125
BLM21BB201SN1	200 ±25%	200	0.35	-55 to 125
BLM21BB221SN1	220 ±25%	200	0.35	-55 to 125
BLM21BB331SN1	330 ±25%	200	0.40	-55 to 125
BLM21BB471SN1	470 ±25%	200	0.45	-55 to 125
BLM21BD121SN1	120 ±25%	200	0.25	-55 to 125
BLM21BD151SN1	150 ±25%	200	0.25	-55 to 125
BLM21BD221SN1	220 ±25%	200	0.25	-55 to 125
BLM21BD331SN1	330 ±25%	200	0.30	-55 to 125
BLM21BD421SN1	420 ±25%	200	0.30	-55 to 125
BLM21BD471SN1	470 ±25%	200	0.35	-55 to 125
BLM21BD601SN1	600 ±25%	200	0.35	-55 to 125
BLM21BD751SN1	750 ±25%	200	0.40	-55 to 125
BLM21BD102SN1	1000 ±25%	200	0.40	-55 to 125
BLM21BD152SN1	1500 ±25%	200	0.45	-55 to 125
BLM21BD182SN1	1800 ±25%	200	0.50	-55 to 125
BLM21BD222TN1	2200 ±25%	200	0.60	-55 to 125
BLM21BD222SN1	2250 (Typ.)	200	0.60	-55 to 125
BLM21BD272SN1	2700 ±25%	200	0.80	-55 to 125
BLM21PG220SN1	22 (Typ.)	6000	0.01	-55 to 125
BLM21PG300SN1	30 (Typ.)	3000	0.015	-55 to 125
BLM21PG600SN1	60 (Typ.)	3000	0.025	-55 to 125
BLM21PG221SN1	220 (Typ.)	2000	0.050	-55 to 125
BLM21PG331SN1	330 (Typ.)	1500	0.09	-55 to 125
BLM21RK121SN1	120 ±25%	200	0.15	-55 to 125
BLM21RK221SN1	220 ±25%	200	0.20	-55 to 125
BLM21RK471SN1	470 ±25%	200	0.25	-55 to 125
BLM21RK601SN1	600 ±25%	200	0.30	-55 to 125

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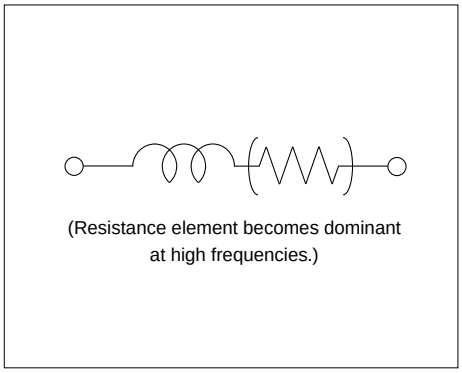
Part Number	Impedance (at 100MHz) (ohm)	Rated Current (mA)	DC Resistance(max.) (ohm)	Operating Temperature Range (°C)
BLM21RK102SN1	1000 ±25%	200	0.50	-55 to 125

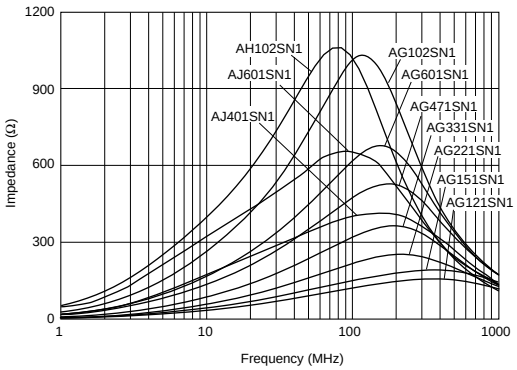
BLM21P series require derating above 85°C ambient. Please contact us for details.

■ Equivalent Cirucit



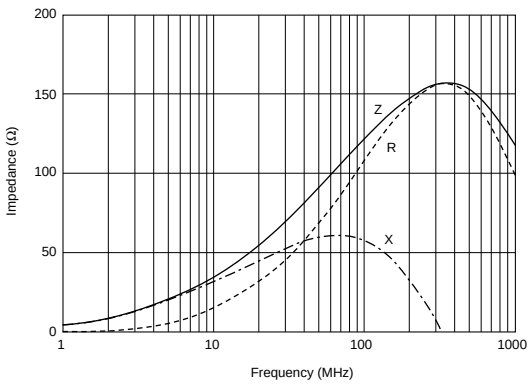
■ Impedance-Frequency (Typical)

BLM21A Series



■ Impedance-Frequency Characteristics

BLM21AG121SN1



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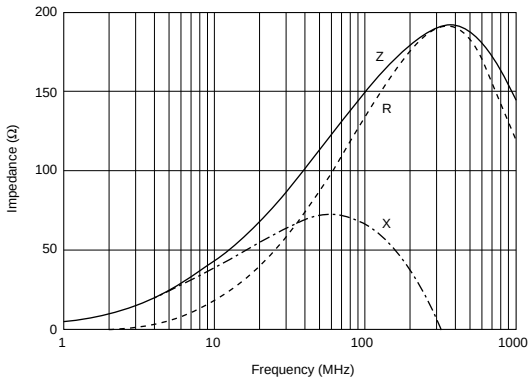

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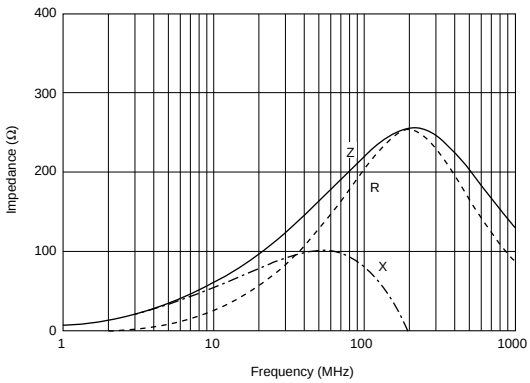

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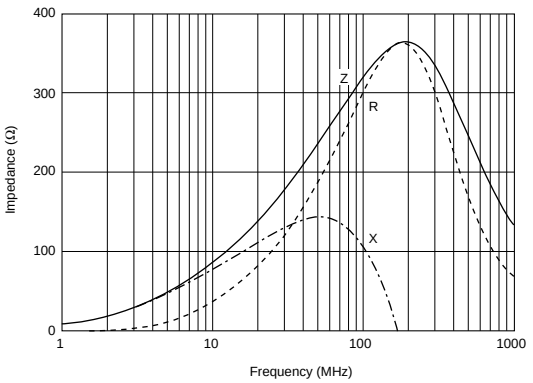

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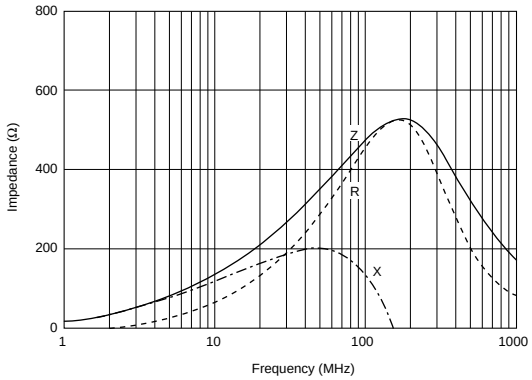
■ Impedance-Frequency Characteristics

BLM21AG471SN1



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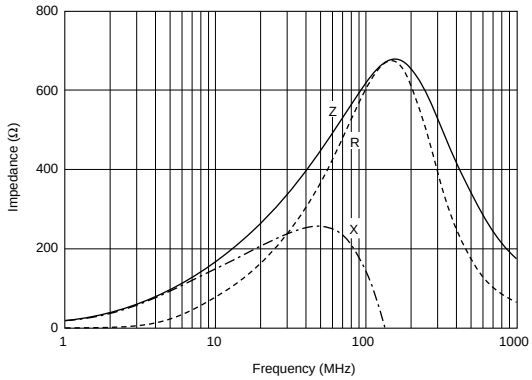

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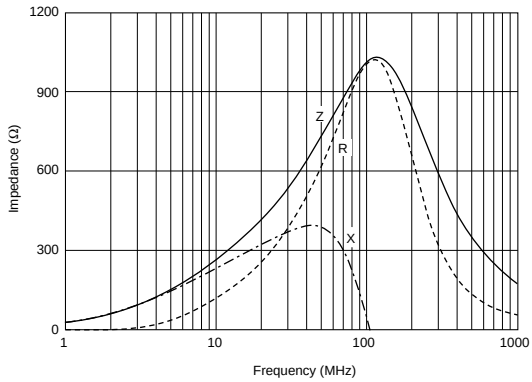

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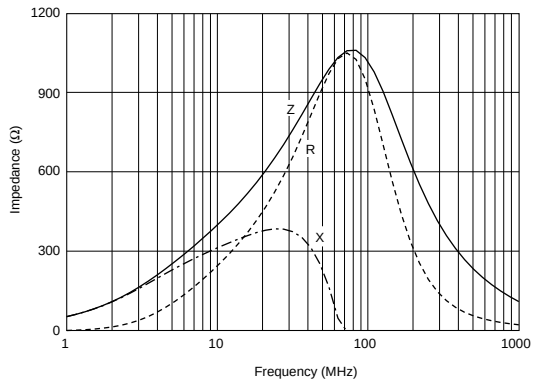

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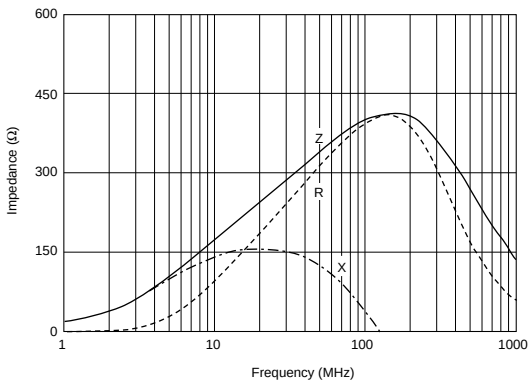

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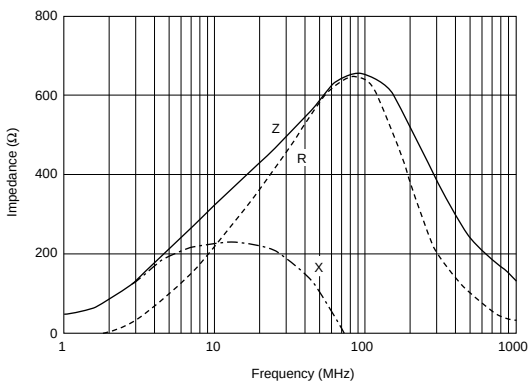
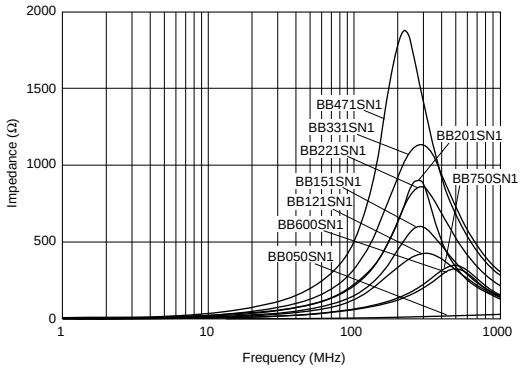
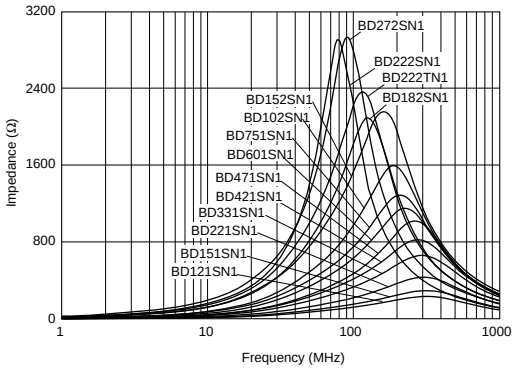


■ Impedance-Frequency (Typical)

BLM21BB_SN1



BLM21BD_SN1/TN1



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■ Impedance-Frequency Characteristics

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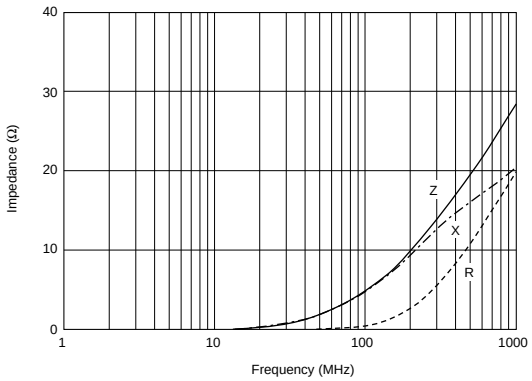

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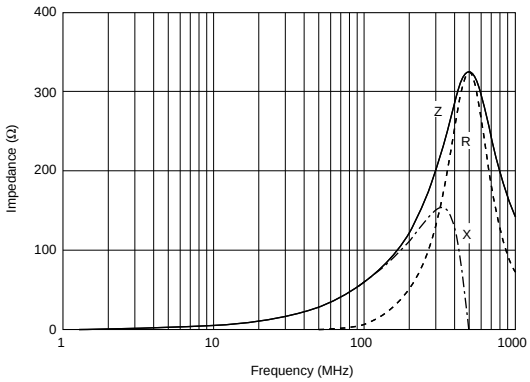

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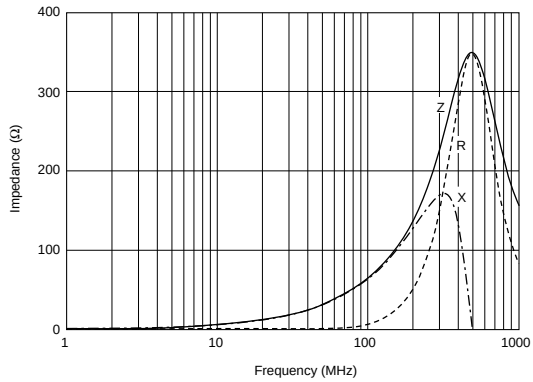

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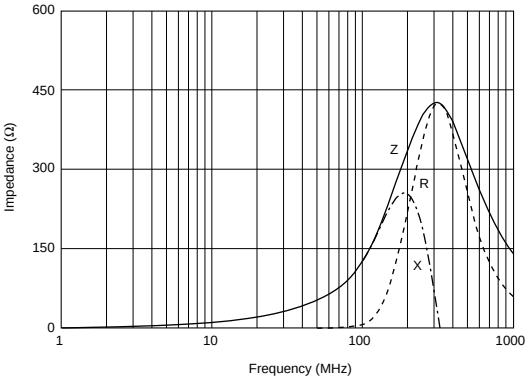

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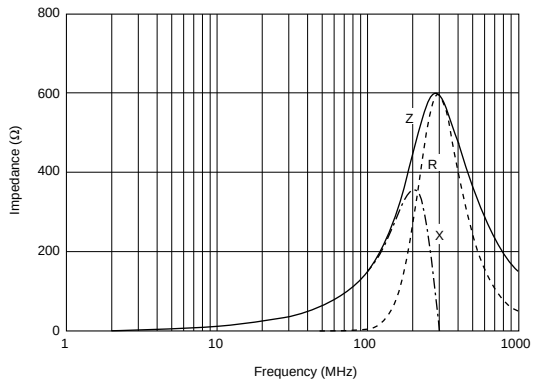

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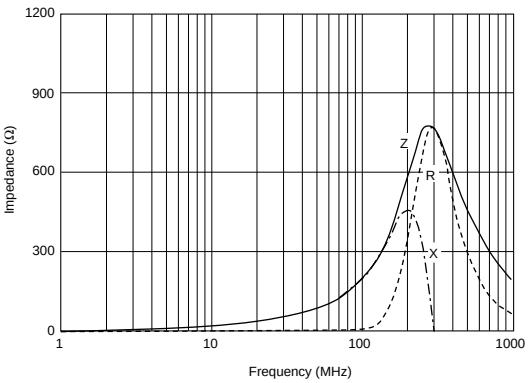

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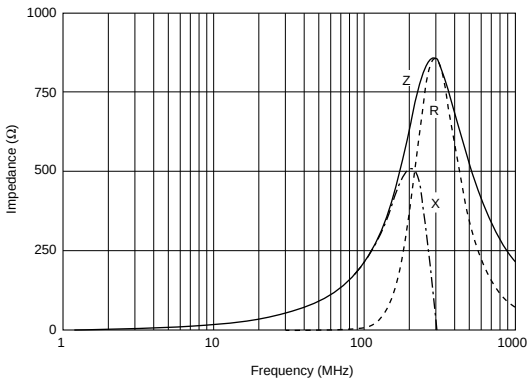

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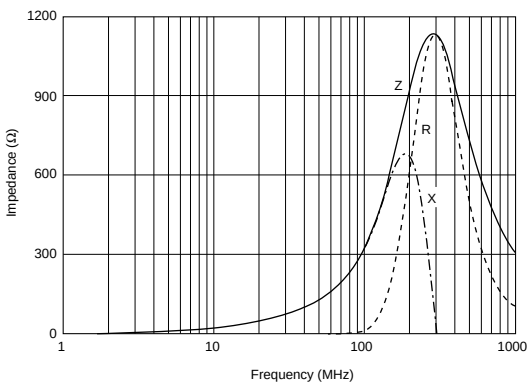

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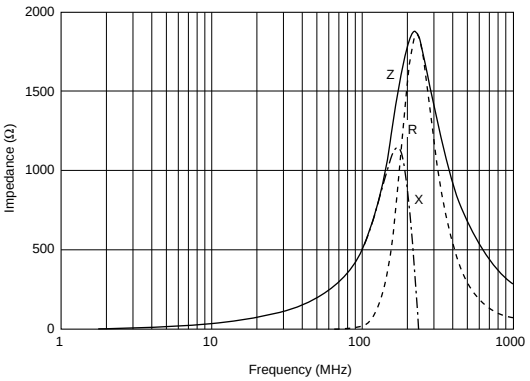
■ Impedance-Frequency Characteristics

BLM21BB471SN1



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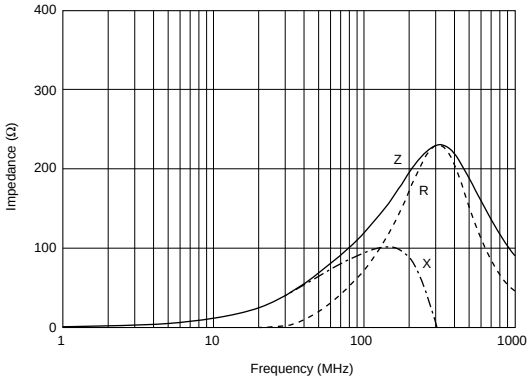

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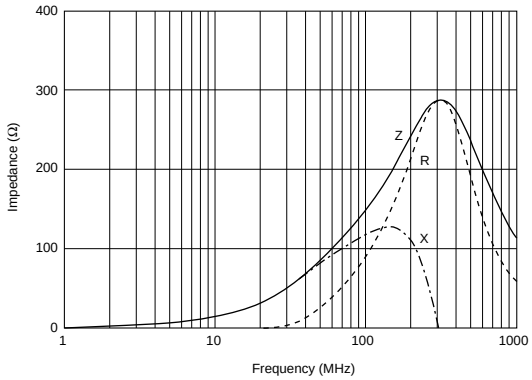

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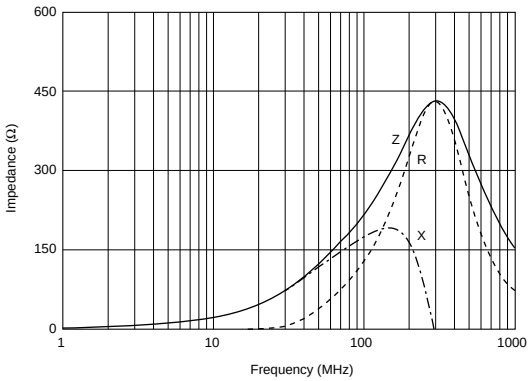

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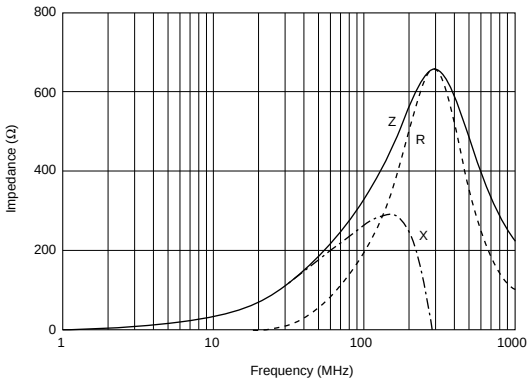

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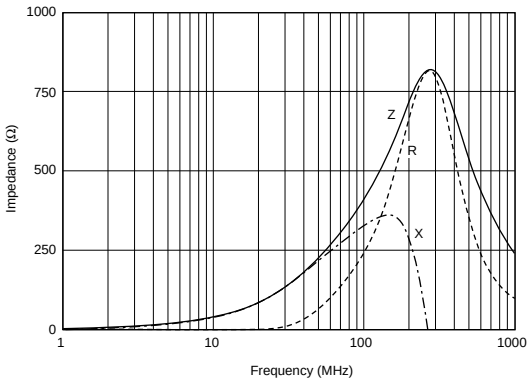

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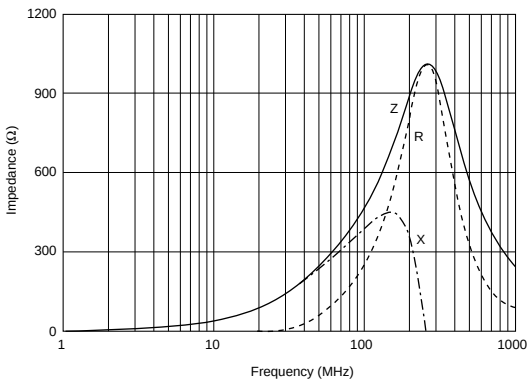

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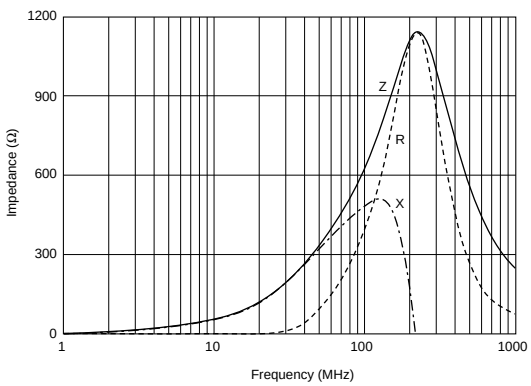

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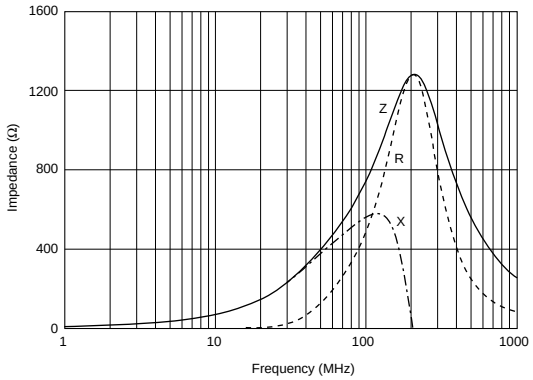
■ Impedance-Frequency Characteristics

BLM21BD751SN1



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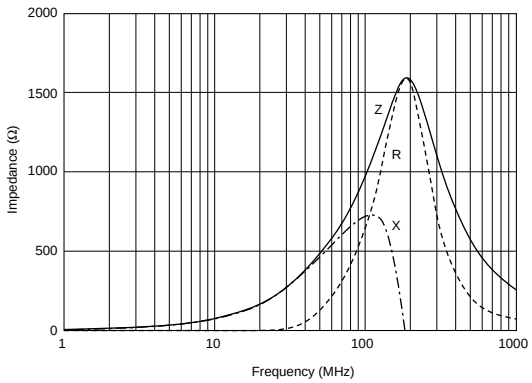

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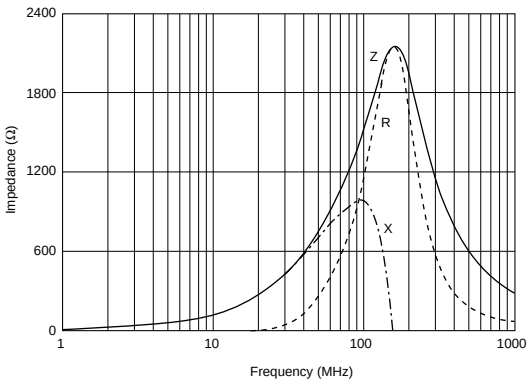

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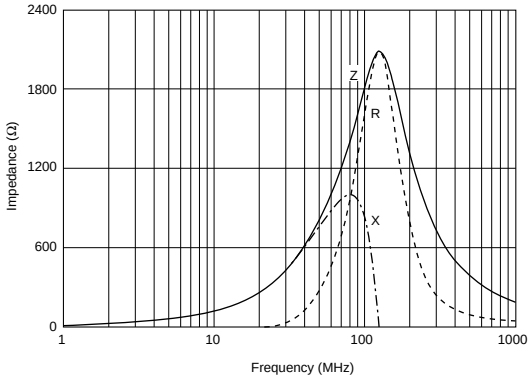

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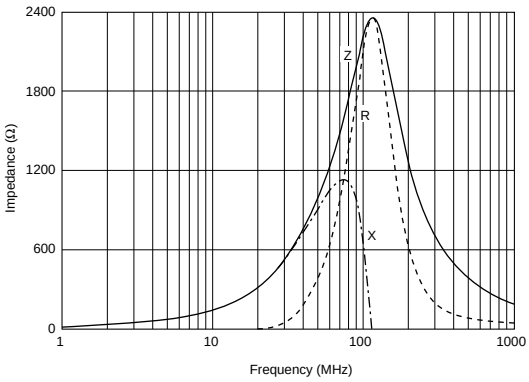

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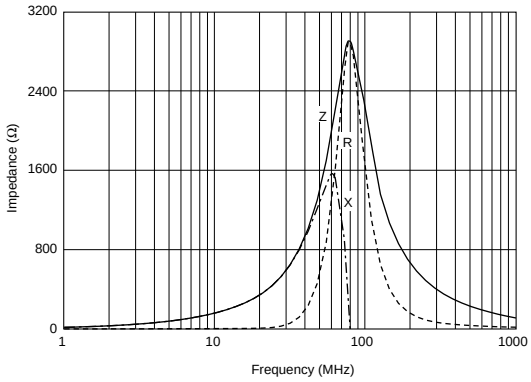

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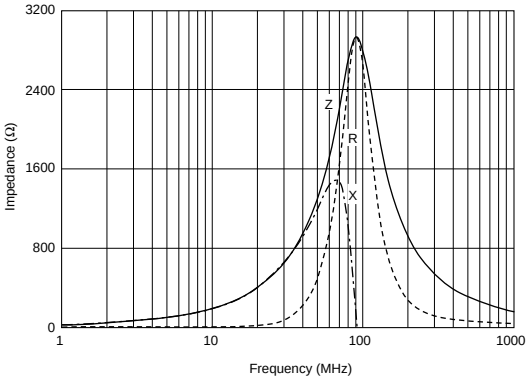
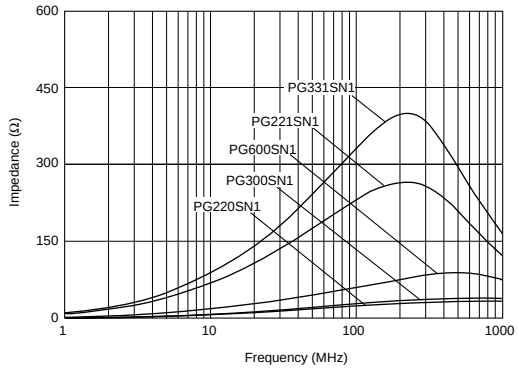


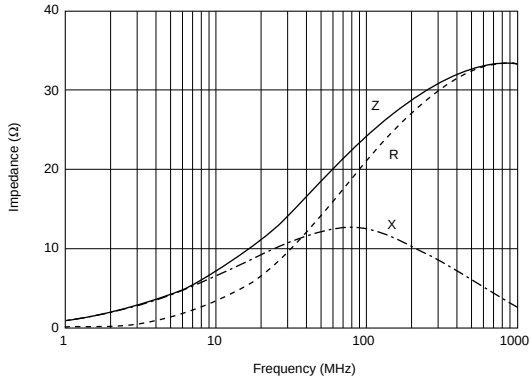
■ Impedance-Frequency (Typical)

BLM21P Series

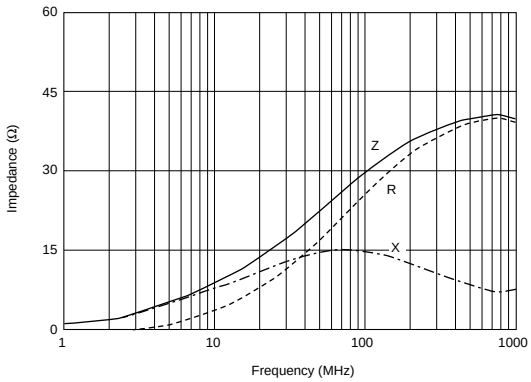


■ Impedance-Frequency Characteristics

BLM21PG220SN1



BLM21PG300SN1



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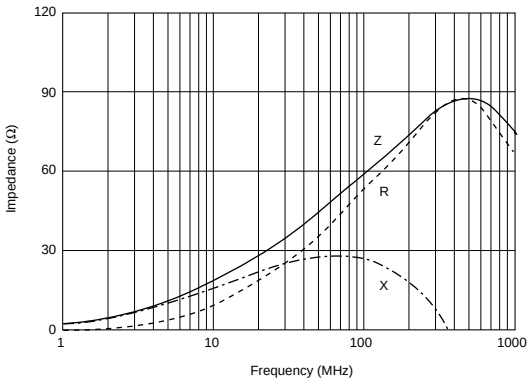

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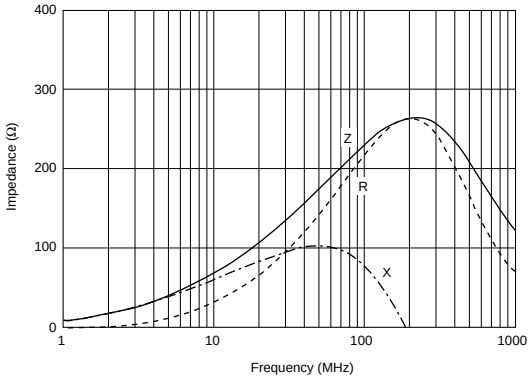

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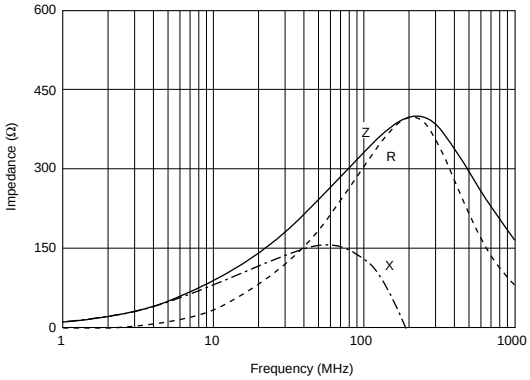

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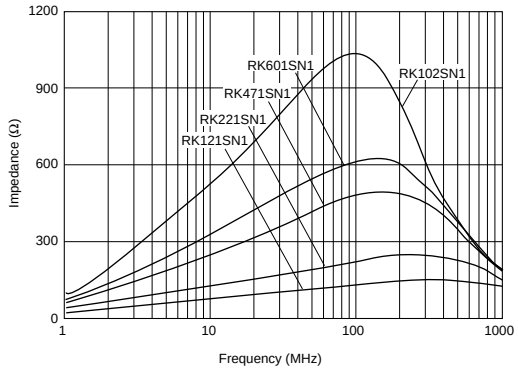
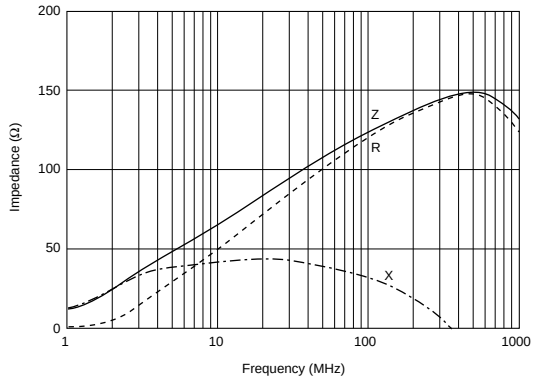
■ Impedance-Frequency (Typical)

BLM21R Series



■ Impedance-Frequency Characteristics

BLM21RK121SN1



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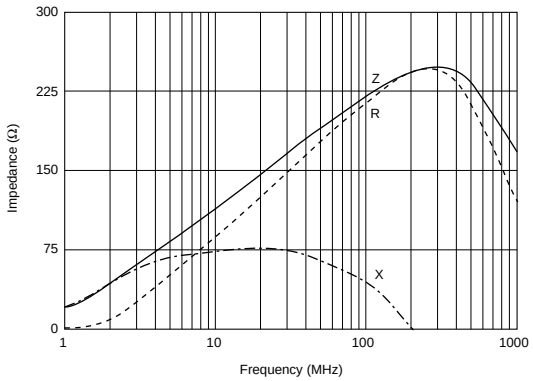

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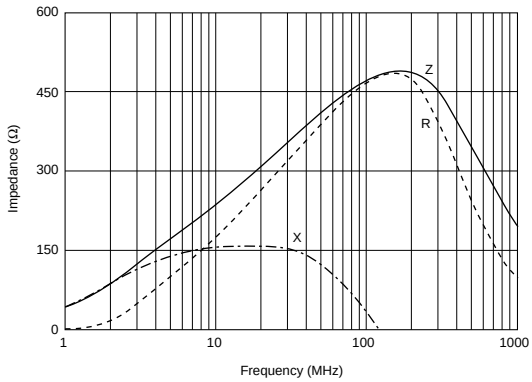

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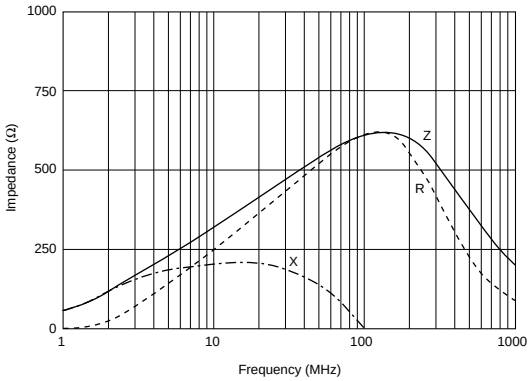
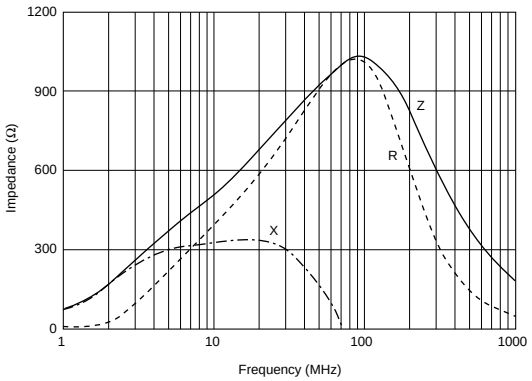


BLM21RK102SN1

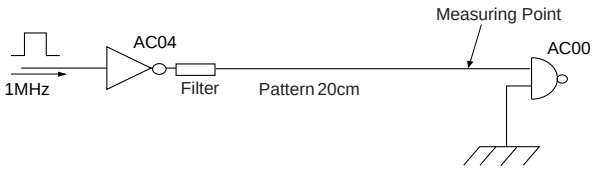


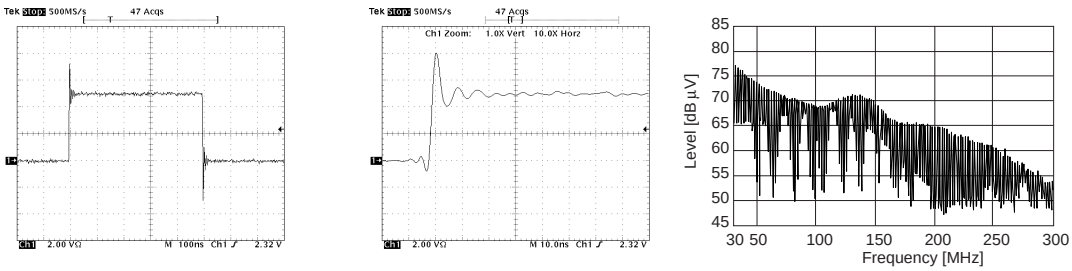
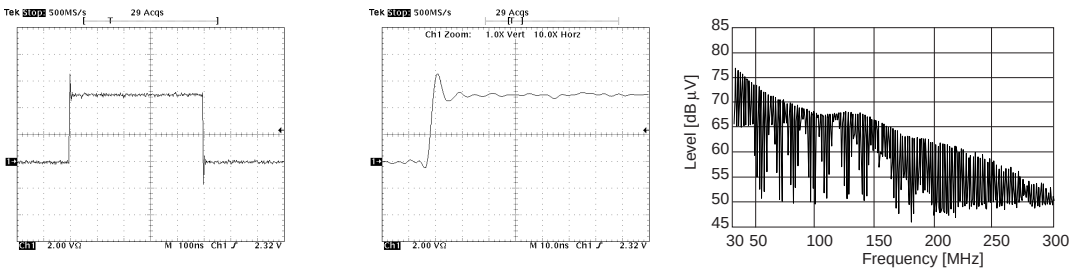
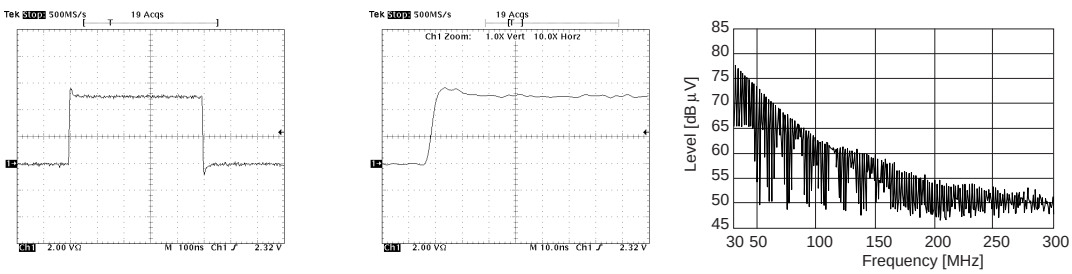
1

Noise Suppression Effect of BLM_R Series

■Waveform Distortion Suppressing Performance of BLM□□R Series

[Measuring Circuits]

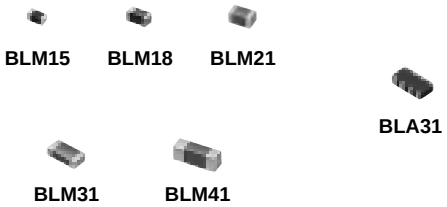


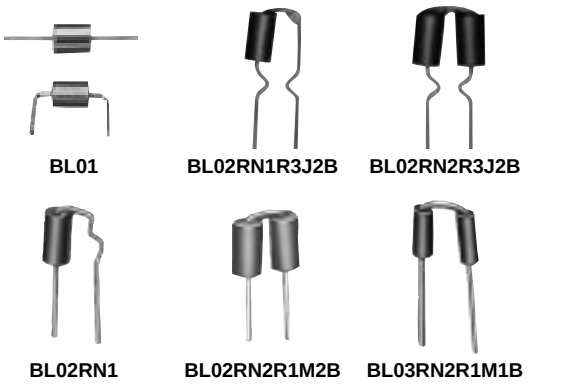
Type of Filter	EMI Suppression Effect / Description
Initial (No filter)	Signal waveform (100nsec/div, 2V/div) / Expand (10nsec/div, 2V/div) / Spectrum  Ringing is caused on the signal waveform Such ringing contains several hundred MHz harmonic components and generates noise.
Resister (47Ω) is used	Signal waveform (100nsec/div, 2V/div) / Expand (10nsec/div, 2V/div) / Spectrum  Comparing initial waveform, ringing is suppresed a little. However there still remains high level waveform distortion.
BLM18RK221SN1 (220Ω at 100MHz) is used	Signal waveform (100nsec/div, 2V/div) / Expand (10nsec/div, 2V/div) / Spectrum  BLM18R has excellent performance for noise suppression and waveform distortion suppression. BLM18R suppresses drastically not only spectrum level in more than 100MHz range but waveform distortion.

Outlines of EMI Suppression Filter (EMIFIL®) for DC Line

●Chip Ferrite Bead
●Ferrite Bead Inductor

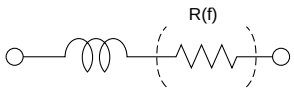
Chip Ferrite Bead ·····P.24–65
Ferrite Bead Inductor ·····P.129–130



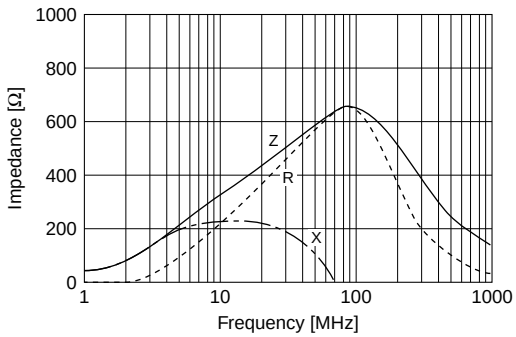


- Inductor type EMI suppression filters are effective for frequencies ranging from a few MHz to a few GHz. Inductor type filters are widely used as a low noise countermeasure, as well as a universal noise suppression component.
- The inductor type EMIFIL® produce a micro inductance in the low frequency range. At high frequencies, however, the resistive component of the inductor produces the primary impedance. When inserted in series in the noise producing circuit, the resistive impedance of the inductor prevents noise propagation.

[Equivalent Circuit]



[Impedance-Frequency Characteristics(typical)]



R : Real Part (Resistive Portion) X : Imaginary Part (Inductive Portion)

● Part Numbering (The structure of the "Global Part Numbers" that have been adopted since June 2001 and the meaning of each code are described herein. If you have any questions about details, inquire at your usual Murata sales office or distributor.)

Chip EMIFIL® Inductor Type

(Global Part Number) **BL** **M** **18** **AG** **102** **S** **N** **1** **D**
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶Product ID

Product ID	
BL	Chip Ferrite Beads

❷Type

Code	Type
A	Array Type
M	Monolithic Type
D	Monoblock Type

❸Dimension (L×W)

Code	Dimension (L×W)	EIA
15	1.00×0.50mm	0402
18	1.60×0.80mm	0603
21	2.00×1.25mm	0805
31	3.20×1.60mm	1206
32	3.20×2.50mm	1210
41	4.50×1.60mm	1806

❹Characteristics

Code	Characteristics
A□ *1	for General Use
B□ *2	for High-speed Signal Lines
P□ *3	for Power Supplies
RK	for Digital Interface
HG	for GHz Band General Use
HD	for GHz Band High-speed Signal Line

*1 For standard type, □ is expressed by "**G**".
*2 □ is expressed by "**A**", "**B**" or "**D**".
*3 □ is expressed by "**G**", "**M**", "**B**", "**F**".

❺Impedance

Expressed by three figures. The unit is in ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

❻Performance

Expressed by an alphabet.

Ex.)

Code	Performance
S	Sn Plating

❼Category

Code	Category
N	Standard Type
H	for Automotive Electoronics

❽Numbers of Circuit

Code	Numbers of Circuit
1	1Circuit
4	4Circuit
6	6Circuit
8	8Circuit

❾Packaging

Code	Packaging
K	Plastic Taping (ø330mm Reel)
L	Plastic Taping (ø180mm Reel)
B	Bulk
J	Paper Taping (ø330mm Reel)
D	Paper Taping (ø180mm Reel)
C	Bulk Case

BLM Series Notice (Soldering and Mounting)

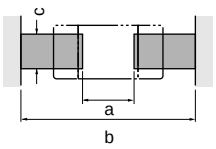
1. Standard Land Pattern Dimensions

Do not apply narrower pattern than listed above to BLM_P.

Narrow pattern can cause excessive heat or open circuit.

BLM Series
(Except BLM21P/31P/41P)

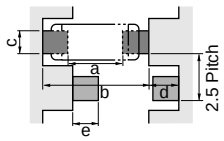
Land Pattern
Solder Resist



Type	Size (mm)				
	L	W	a	b	c
∗**BLM15** (Reflow)	1.0	0.5	0.4	1.2-1.4	0.5
BLM18 (Flow)	1.6	0.8	0.7	2.2-2.6	0.7
BLM18 (Reflow)	1.6	0.8	0.7	1.8-2.0	0.7
BLM21	2.0	1.25	1.2	3.0-4.0	1.0
BLM31	3.2	1.6	2.0	4.2-5.2	1.2
BLM41	4.5	1.6	3.0	5.5-6.5	1.2

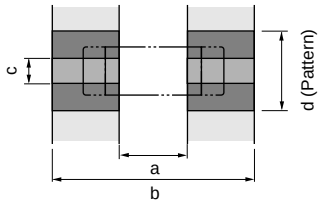
∗BLM15 is specially adapted for refiow soldering.

Flow Mounting in High Density for BLM31/41



Type	Size (mm)				
	a	b	c	d	e
BLM31	2.0	4.2-5.2	1.2	1.3	1.35
BLM41	3.0	5.5-6.5	1.2	1.8	1.5

BLM21P/31P/41P



Type	Rated Current (A)	Size (mm)					
		a	b	c	Land pad thickness and Dimension d		
					18μm	35μm	70μm
BLM21PG331SN1	1.5	1.2	3.0-4.0	1.0	1.0	1.0	1.00
BLM21PG221SN1	2				1.2	1.0	1.00
BLM21PG300SN1	3				2.4	1.2	1.00
BLM21PG600SN1							
BLM21PG220SN1	6				6.4	3.3	1.65
BLM31PG330SN1	6	2.0	4.5-5.2	1.2			
BLM31PG500SN1	3				2.4	1.2	1.20
BLM31PG121SN1							
BLM31PG391SN1	2				1.2	1.2	1.20
BLM31PG601SN1	1.5						
BLM41PF800SN1	1	3.0	5.5-6.5	1.2			
BLM41PG102SN1	1.5						
BLM41PG471SN1	2						
BLM41PG750SN1	3				2.4	1.2	1.20
BLM41PG181SN1							
BLM41PG600SN1	6				6.4	3.3	1.65

2. Solder Paste Printing and Adhesive Application

When reflow soldering the chip EMI suppression filter, the printing must be conducted in accordance with the following cream solder printing conditions. If too much solder is applied, the chip will prone to be damaged by mechanical and thermal stress from the PCB and may crack. In contrast, if too little solder is applied, there is the potential that the termination strength will be insufficient, creating the potential for detachment. Standard land dimensions should be used for resist and copper foil patterns.

When flow soldering the EMI suppression filter, apply the adhesive in accordance with the following conditions. If too much adhesive is applied, then it may overflow into the land or termination areas and yield poor solderability. In contrast, if insufficient adhesive is applied, or if the adhesive is not sufficiently hardened, then the chip may become detached during flow soldering process.

Continued on the following page.

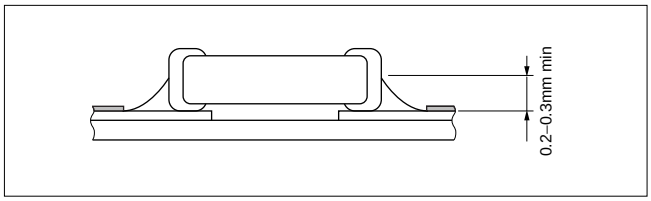
BLM Series Notice (Soldering and Mounting)

Continued from the preceding page.

(1) Solder Paste Printing

BLM Series

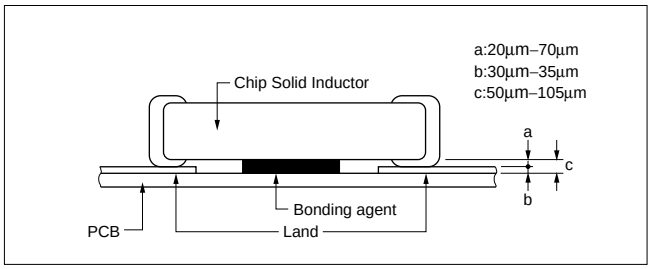
- Ensure that solder is applied smoothly to a minimum height of 0.2mm to 0.3mm at the end surface of the part.
- Coat the solder paste a thickness of 100µm to 200µm.



(2) Adhesive Application

BLM Series

- Coating amount is illustrated in the following diagram.



3. Standard Soldering Conditions

(1) SOLDERING METHODS

Use flow and reflow soldering methods only.

Use standard soldering conditions when soldering chip EMI suppression filters.

In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

- Ensure that solder is applied smoothly to a minimum height of 0.2mm to 0.3mm at the end surface of the part.
- Coat the solder paste a thickness of 100µm to 200µm.

(2) SOLDERING TEMPERATURE AND TIME

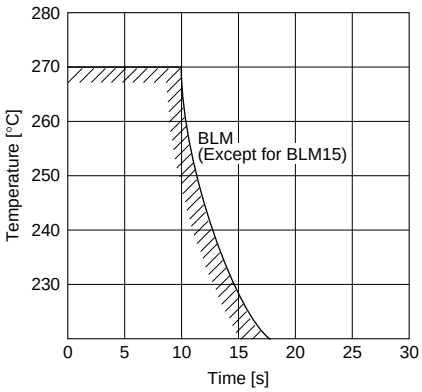
To prevent external electrode solder leaching and performance deterioration, solder within the temperature and time combinations illustrated by the slanted lines in the following graphs. If soldering is repeated, please note that the allowed time is the accumulated time.

Solder : H60A H63A solder(JIS Z 3238)

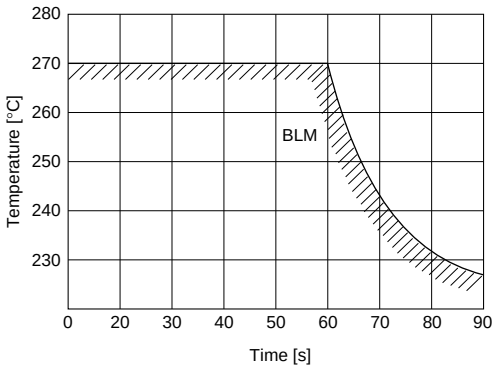
Flux :

- Use Rosin-based fulx(when using RA type solder, clean products sufficiently to avoid residual fulx.
- Do not use strong acidic fulx(with chlorine content exceeding 0.20wt%)
- Do not use water-soluble fulx.

Allowable Flow Soldering Temperature and Time



Allowable Reflow Soldering Temperature and Time



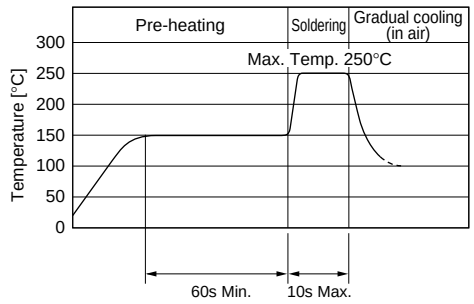
Continued on the following page.

BLM Series Notice (Soldering and Mounting)

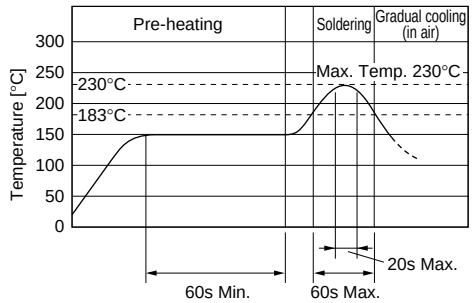
Continued from the preceding page.

(3) SOLDERING CONDITIONS

Flow Solder



Reflow Solder



(4) REWORKING WITH SOLDER IRON

The following conditions must be strictly followed when using a soldering iron.

Pre-heating	: 150°C 60 second Min.
Soldering iron power output	: 30W Max.
Temperature of soldering iron tip	: 280°C Max.
Soldering time	: 10 second Max.

Do not allow the tip of the soldering iron directly to contact the chip.
For additional methods of reworking with soldering iron, please contact Murata engineering.

4. Cleaning

Following conditions should be observed when cleaning chip EMI filter.

(1) Cleaning Temperature : 60degree C max. (40degree C max. for CFC alternatives and alcohol cleaning agents)

(2) Ultrasonic

Output : 20W/liter max.
Duration : 5 minutes max.
Frequency : 28kHz to 40kHz

(3) Cleaning agent

The following list of cleaning agents have been tested on the individual components. Evaluation of final assembly should be completed prior to production.

a) CFC alternatives and alcohol cleaning agents
Isopropyl alcohol (IPA)
HCFC-225

b) Aqueous cleaning agent
Surface active agent (Clean Thru 750H)
Hydrocarbon (Techno Cleaner 335)
High grade alcohol (Pine Alpha ST-100S)
Alkaline saponifier (Aqua Cleaner 240 -cleaner should be diluted within 20% using deionized water.)

(4) Ensure that flux residue is completely removed.
Component should be thoroughly dried after aqueous agent has been removed with deionized water.

(5) Some products may become slightly whitened.
However, product performance or usage is not affected.
For additional cleaning methods, please contact Murata engineering.