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

murata

Chip Ferrite Beads Part Numbering

Chip Ferrite Beads

(Part Number)

BL	M	18	AG	102	S	N	1	D

●Product ID

Product ID	
BL	Chip Ferrite Beads

●Type

Code	Type
A	Array Type
M	Monolithic Type

●Dimensions (LXW)

Code	Dimensions (LXW)	EIA
03	0.6X0.3mm	0201
15	1.0X0.5mm	0402
18	1.6X0.8mm	0603
2A	2.0X1.0mm	0804
21	2.0X1.25mm	0805
31	3.2X1.6mm	1206
41	4.5X1.6mm	1806

●Impedance

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.

●Performance

Expressed by a letter.

Ex.)

Code	Performance
S/T	Sn Plating
A	Au Plating

●Category

Code	Category
N	Standard Type
H	For Automotive

●Number of Circuits

Code	Number of Circuits
1	1 Circuit
4	4 Circuits

●Characteristics/Applications

Code *1	Characteristics/Applications	Series
AG	for General Use	BLM03/BLM15/BLM18/BLM21/BLM31/BLA2A/BLA31
TG		BLM18
BA	for High-speed Signal Lines	BLM18
BB		BLM15/BLM18/BLM21/BLA2A
BD		BLM15/BLM18/BLM21/BLA2A/BLA31
PG	for Power Supplies	BLM15/BLM18/BLM21/BLM31/BLM41
RK	for Digital Interface	BLM18/BLM21
HG	for GHz Band General Use	BLM15/BLM18
EG	for GHz Band General Use (Low DC Resistance type)	
HB	for GHz Band High-speed Signal Line	BLM18
HD		BLM15/BLM18
HK	for GHz Band Digital Interface	BLM18
GG	for High-GHz Band General Use	BLM18

*1 Frequency characteristics vary with each code.

●Packaging

Code	Packaging	Series
K	Plastic Taping (ø330mm Reel)	BLM31/BLM41/BLM21 *1
L	Plastic Taping (ø180mm Reel)	
B	Bulk	All series
J	Paper Taping (ø330mm Reel)	BLM15/BLM18/BLM21*2 /BLA31
D	Paper Taping (ø180mm Reel)	BLM03/BLM15/BLM18/BLM21*2 /BLA2A/BLA31
C	Bulk Case	BLM15/BLM18

*1 BLM21BD222SN1/BLM21BD272SN1 only.
*2 Except BLM21BD222SN1/BLM21BD272SN1

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

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Chip Ferrite Bead **BLM** Series

1

Essential for Noise Suppression in High Speed Signal Lines and DC Power Lines

The chip ferrite bead BLM series comprises ferrite beads in the shape of a chip. This ferrite bead generates a high impedance which at high frequencies mainly consists of a resistance element. The BLM series is effective in circuits without stable ground lines because the BLM series does not need a connection to ground.

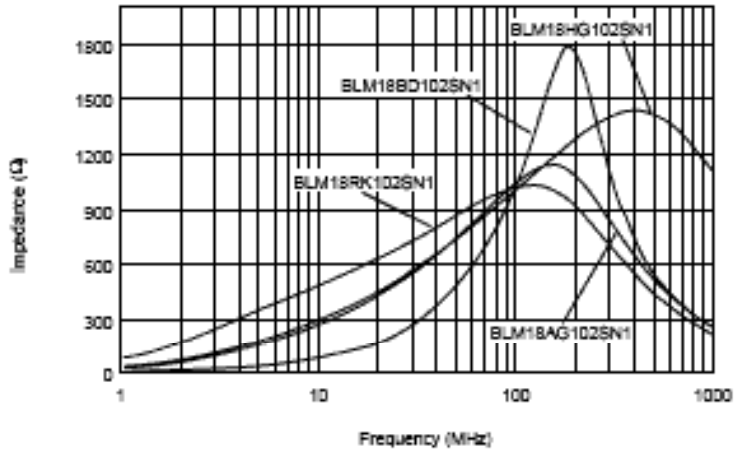
Chip sizes of 0.6x0.3, 1.0x0.5, 1.6x0.8, 2.0x1.25, 3.2x1.6 and 4.5x1.6mm are cataloged. (The BLA series of array type chip ferrite beads is also cataloged.)
The nickel barrier structure of the external electrodes provides excellent solder heat resistance.

■Features

The BLM series comprises the R series (for digital interface), the A series (for standard), the B series (for high speed signal), the P series (for large current), and the H/E/G series (for GHz range noise suppression).

1. BLM□□R series – For Digital Interface
   The BLM-R series can be used in Digital Interface. Resistance of BLM-R series especially grows in the lower frequency range. Therefore BLM-R series is less effective for digital signal waveform at low frequency range and can suppress the ringing.
2. BLM□□A/T series – For Standard
   The BLM-A series generates an impedance from the relatively low frequencies. Therefore the BLM-A series is effective in noise suppression in the wide frequency range (30MHz – several hundred MHz).
3. BLM□□B series – For High Speed Signal
   The BLM-B series can minimize attenuation of the signal waveform due to its sharp impedance characteristics. Various impedances are available to match signal frequency.
4. BLM□□P series – For Large Current
   The BLM-P series can be used in high current circuits due to its low DC resistance. It can match power lines to a maximum of 6A DC (BLM41P).
5. BLM□□H/E/G series – For GHz Range Noise Suppression
   The BLM□□H/E/G series has a modified internal electrode structure that minimizes stray capacitance and increases the effective frequency range.

[Impedance Characteristics]



■Impedance Map

Impedance (Ω) at 100MHz

	For Standard **BLM□□A/T**				For High Speed Signal **BLM□□B**			For Digital Interface **BLM□□R**		For Large Current **BLM□□P** ( )=Rated Current					GHz Range Noise Suppression Type **BLM15H/E**	GHz Range Noise Suppression Type **BLM18H/E/G**
mm	0603	1005	1608	2012	1005	1608	2012	1608	2012	1005	1608	2012	3216	4516	1005	1608
EIA Code	0201	0402	0603	0805	0402	0603	0805	0603	0805	0402	0603	0805	1206	1806	0402	0603
2700							2700									
2500						2500										
2250							2250									
2200						2200	2200									
1800					1800	1800	1800								1800	
1500						1500	1500									
1000		1000	1000	1000	1000	1000	1000	1000	1000					1000 (1.5A)	1000	1000
750							750									
600		600	600	600	600	600	600	600	600				600 (1.5A)		600	600
470			470	470	470	470	470	470	470					470 (2A)		470
420						420	420									
400				400												
390													390 (2A)			390
330			330	330		330	330					330 (1.5A)				330
240	240															
220		220	220	220	220	220	220	220	220			220 (2A)			220	220
200							200									
180											180 (1.5A)			180 (3A)		
150			150	150		150	150									
140						140										
120	120	120	120	120	120	120	120	120	120		120 (2A)		120 (3A)		120	120
100																100
80														80 (1A)		
75					75	75	75							75 (3A)		
70	70	70														
60						60	60				60 (0.5A)	60 (3A)		60 (6A)		
50													50 (3A)			
47					47	47										
33											33 (3A)		33 (6A)			
30											30 (1A)	30 (3A)				
22					22	22						22 (6A)				
10	10	10			10	10				10 (1A)						
5					5	5	5									

■BLM Series

Size (EIA Code)	Type		Part Number	Impedance (Ω)		Rated Current (mA)
				at 100MHz	at 1GHz	
0201	For Standard		**BLM03AG100SN1**	10 (Typ.)	-	500
			BLM03AG700SN1	70 (Typ.)	-	200
			BLM03AG121SN1	120±25%	-	200
			BLM03AG241SN1	240±25%	-	100
0402	For Standard		**BLM15AG100SN1**	10 (Typ.)	-	1000
			BLM15AG700SN1	70 (Typ.)	-	500
			BLM15AG121SN1	120±25%	-	
			BLM15AG221SN1	220±25%	-	300
			BLM15AG601SN1	600±25%	-	
			BLM15AG102SN1	1000±25%	-	200
			BLM15AG601AN1	600±25%	140 (Typ.)	300
			BLM15AG102AN1	1000±25%	300 (Typ.)	200
	For High Speed Signal (Sharp impedance characteristics)		**BLM15BB050SN1**	5±25%	-	500
			BLM15BB100SN1	10±25%	-	300
			BLM15BB220SN1	22±25%	-	
			BLM15BB470SN1	47±25%	-	
			BLM15BB750SN1	75±25%	-	
			BLM15BB121SN1	120±25%	-	
			BLM15BB221SN1	220±25%	-	200
			BLM15BD750SN1	75±25%	-	300
			BLM15BD121SN1	120±25%	-	
			BLM15BD221SN1	220±25%	-	
			BLM15BD471SN1	470±25%	-	200
			BLM15BD601SN1	600±25%	-	
			BLM15BD102SN1	1000±25%	-	
			BLM15BD182SN1	1800±25%	-	100
	For Large Current		**BLM15PG100SN1**	10 (Typ.)	-	1000
	GHz Range	For Standard	**BLM15HG601SN1**	600±25%	1000±40%	300
			BLM15HG102SN1	1000±25%	1400±40%	250
		For High Speed Signal	**BLM15HD601SN1**	600±25%	1400±40%	300
			BLM15HD102SN1	1000±25%	2000±40%	250
			BLM15HD182SN1	1800±25%	2700±40%	200
		For Standard (Low DC Resistance Type)	**BLM15EG121SN1**	120±25%	145 (Typ.)	1500*
			BLM15EG221SN1	220±25%	270 (Typ.)	700*
0603	For Standard		**BLM18AG121SN1**	120±25%	-	200
			BLM18AG151SN1	150±25%	-	
			BLM18AG221SN1	220±25%	-	
			BLM18AG331SN1	330±25%	-	
			BLM18AG471SN1	470±25%	-	
			BLM18AG601SN1	600±25%	-	
			BLM18AG102SN1	1000±25%	-	100
	For High Speed Signal (Sharp impedance characteristics)		**BLM18BA050SN1**	5±25%	-	500
			BLM18BB050SN1		-	700
			BLM18BA100SN1	10±25%	-	500
			BLM18BB100SN1		-	
			BLM18BA220SN1	22±25%	-	
			BLM18BB220SN1		-	
			BLM18BA470SN1	47±25%	-	300
			BLM18BB470SN1		-	500
			BLM18BB600SN1	60±25%	-	200
			BLM18BA750SN1	75±25%	-	300
			BLM18BB750SN1		-	200
			BLM18BA121SN1	120±25%	-	200
			BLM18BB121SN1		-	
			BLM18BD121SN1		-	
			BLM18BB141SN1	140±25%	-	

* Please see P.58 "Derating of Rated Current".

Continued on the following page.

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Size (EIA Code)	Type		Part Number	Impedance (Ω)		Rated Current (mA)
				at 100MHz	at 1GHz	
0603	For High Speed Signal (Sharp impedance characteristics)		**BLM18BB151SN1**	150±25%	-	200
			BLM18BD151SN1		-	
			BLM18BB221SN1	220±25%	-	
			BLM18BD221SN1		-	
			BLM18BB331SN1	330±25%	-	
			BLM18BD331SN1		-	
			BLM18BD421SN1	420±25%	-	
			BLM18BB471SN1	470±25%	-	50
			BLM18BD471SN1		-	200
			BLM18BD601SN1	600±25%	-	200
			BLM18BD102SN1	1000±25%	-	100
			BLM18BD152SN1	1500±25%	-	50
			BLM18BD182SN1	1800±25%	-	
			BLM18BD222SN1	2200±25%	-	
			BLM18BD252SN1	2500±25%	-	
	For Digital Interface		**BLM18RK121SN1**	120±25%	-	200
			BLM18RK221SN1	220±25%	-	
			BLM18RK471SN1	470±25%	-	
			BLM18RK601SN1	600±25%	-	
			BLM18RK102SN1	1000±25%	-	
	For Large Current		**BLM18PG300SN1**	30 (Typ.)	-	1000
			BLM18PG330SN1	33±25%	-	3000*
			BLM18PG600SN1	60 (Typ.)	-	500
			BLM18PG121SN1	120±25%	-	2000*
			BLM18PG181SN1	180±25%	-	1500*
	GHz Range	For Standard	**BLM18HG471SN1**	470±25%	600 (Typ.)	200
			BLM18HG601SN1	600±25%	700 (Typ.)	
			BLM18HG102SN1	1000±25%	1000 (Typ.)	100
		For High Speed Signal	**BLM18HB121SN1**	120±25%	500±40%	200
			BLM18HB221SN1	220±25%	1100±40%	100
			BLM18HB331SN1	330±25%	1600±40%	50
			BLM18HD471SN1	470±25%	1000 (Typ.)	100
			BLM18HD601SN1	600±25%	1200 (Typ.)	
			BLM18HD102SN1	1000±25%	1700 (Typ.)	50
		For Digital Interface	**BLM18HK331SN1**	330±25%	400±40%	200
			BLM18HK471SN1	470±25%	600±40%	
			BLM18HK601SN1	600±25%	700±40%	100
			BLM18HK102SN1	1000±25%	1200±40%	50
		For Standard (Low DC Resistance Type)	**BLM18EG101TN1**	100±25%	140 (Typ.)	2000*
			BLM18EG121SN1	120±25%	145 (Typ.)	2000*
			BLM18EG221TN1	220±25%	300 (Typ.)	1000
			BLM18EG331TN1	330±25%	450 (Typ.)	500
			BLM18EG391TN1	390±25%	520 (Typ.)	500
			BLM18EG471SN1	470±25%	550 (Typ.)	500
			BLM18EG601SN1	600±25%	700 (Typ.)	500
			BLM18GG471SN1	470±25%	1800±30%	100
0805	For Standard		**BLM21AG121SN1**	120±25%	-	200
			BLM21AG151SN1	150±25%	-	
			BLM21AG221SN1	220±25%	-	
			BLM21AG331SN1	330±25%	-	
			BLM21AG471SN1	470±25%	-	
			BLM21AG601SN1	600±25%	-	
			BLM21AG102SN1	1000±25%	-	

* Please see P.53 "Derating of Rated Current".

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Size (inches)	Type	Part Number	Impedance (Ω)		Rated Current (mA)
			at 100MHz	at 1GHz	
0805	For High Speed Signal (Sharp impedance characteristics)	**BLM21BB050SN1**	5±25%	-	500
		BLM21BB600SN1	60±25%	-	200
		BLM21BB750SN1	75±25%	-	
		BLM21BB121SN1	120±25%	-	
		BLM21BD121SN1		-	
		BLM21BB151SN1	150±25%	-	
		BLM21BD151SN1		-	
		BLM21BB201SN1	200±25%	-	
		BLM21BB221SN1	220±25%	-	
		BLM21BD221SN1		-	
		BLM21BB331SN1	330±25%	-	
		BLM21BD331SN1		-	
		BLM21BD421SN1	420±25%	-	
		BLM21BB471SN1	470±25%	-	
		BLM21BD471SN1		-	
		BLM21BD601SN1	600±25%	-	
		BLM21BD751SN1	750±25%	-	
		BLM21BD102SN1	1000±25%	-	
		BLM21BD152SN1	1500±25%	-	
		BLM21BD182SN1	1800±25%	-	
		BLM21BD222SN1	2250 (Typ.)	-	
		BLM21BD222TN1	2200±25%	-	
		BLM21BD272SN1	2700±25%	-	
	For Digital Interface	**BLM21RK121SN1**	120±25%	-	200
		BLM21RK221SN1	220±25%	-	
		BLM21RK471SN1	470±25%	-	
		BLM21RK601SN1	600±25%	-	
		BLM21RK102SN1	1000±25%	-	
	For Large Current	**BLM21PG220SN1**	22±25%	-	6000*
		BLM21PG300SN1	30 (Typ.)	-	3000*
		BLM21PG600SN1	60±25%	-	
		BLM21PG221SN1	220±25%	-	2000*
		BLM21PG331SN1	330±25%	-	1500*
1206	For Large Current	**BLM31PG330SN1**	33±25%	-	6000*
		BLM31PG500SN1	50 (Typ.)	-	3000*
		BLM31PG121SN1	120±25%	-	
		BLM31PG391SN1	390±25%	-	2000*
		BLM31PG601SN1	600±25%	-	1500*
1806	For Large Current	**BLM41PG600SN1**	60 (Typ.)	-	6000*
		BLM41PG750SN1	75 (Typ.)	-	3000*
		BLM41PG181SN1	180±25%	-	3000*
		BLM41PG471SN1	470±25%	-	2000*
		BLM41PG102SN1	1000±25%	-	1500*

* Please see P.53 "Derating of Rated Current".

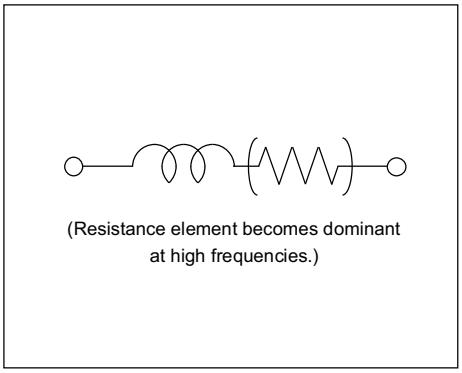
On-Board Type (DC) EMI Suppression Filters (EMIFIL®)

Chip Ferrite Beads BLM03/BLM15/BLM18/BLM21/BLM31/BLM41 Series

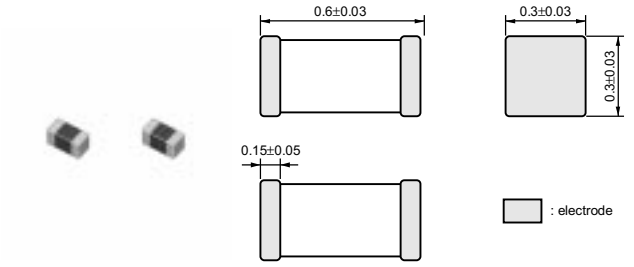
■ Features (BLM_A Series)

The chip ferrite bead BLM series comprises ferrite beads in the shape of a chip. This ferrite bead generates a high impedance which at high frequency mainly consists of a resistance element. The BLM series is effective in circuits without stable ground lines because the BLM series does not need a connection to ground.
The nickel barrier structure of the external electrodes provides excellent solder heat resistance.
BLM_A series generates an impedance from the relatively low frequencies. Therefore BLM_A series is effective in noise suppression in a wide frequency range (30MHz - several hundred MHz).
The small size of BLM03 series (0.6x0.3mm) is suitable for noise suppression in small equipment such as PA modules for cellular phones.

■ Equivalent Circuit



BLM03A Series (0201 Size)

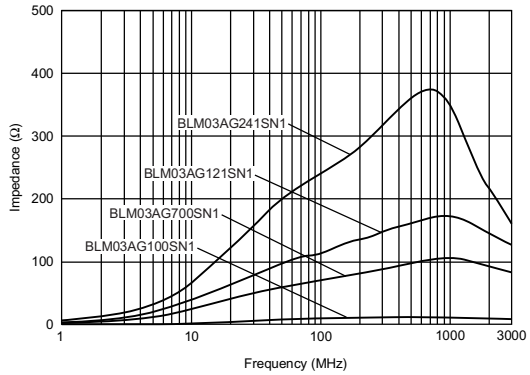


(in mm)

Part Number	Impedance (at 100MHz/20°C) (ohm)	Rated Current (mA)	DC Resistance (max.) (ohm)	Operating Temperature Range (°C)
BLM03AG100SN1	10 (Typ.)	500	0.1	-55 to +125
BLM03AG700SN1	70 (Typ.)	200	0.5	-55 to +125
BLM03AG121SN1	120 ±25%	200	0.8	-55 to +125
BLM03AG241SN1	240 ±25%	100	1.0	-55 to +125

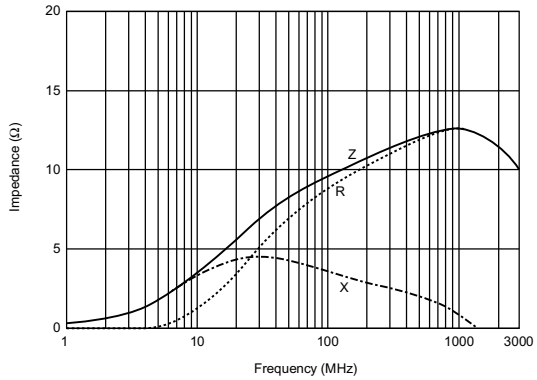
■ Impedance-Frequency (Typical)

BLM03 Series

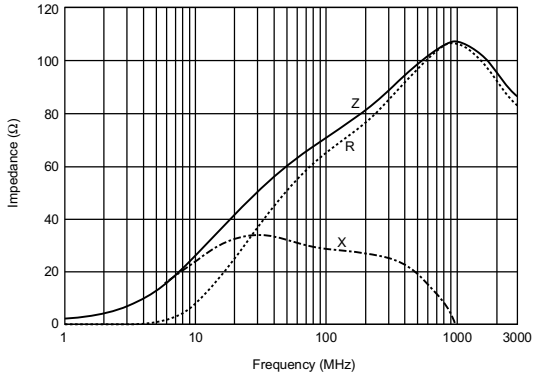


■ Impedance-Frequency Characteristics

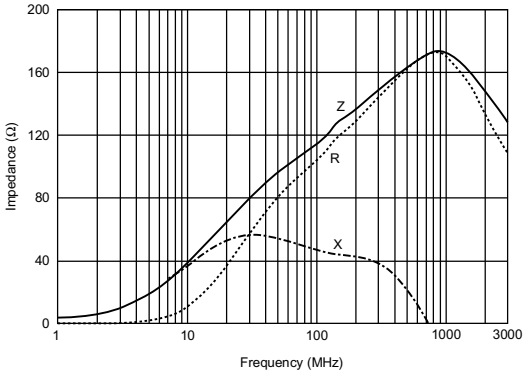
BLM03AG100SN1



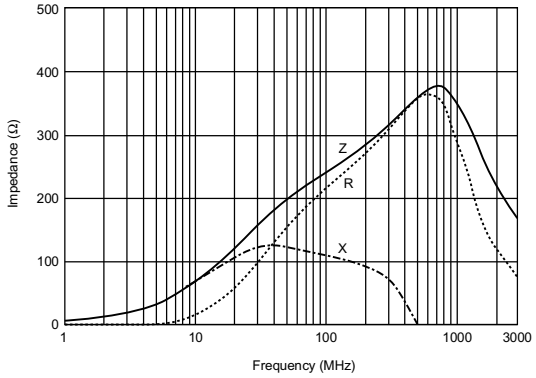
BLM03AG700SN1



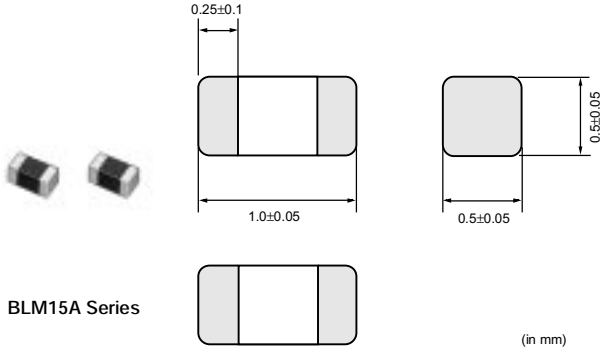
BLM03AG121SN1



BLM03AG241SN1



BLM15A Series (0402 Size)



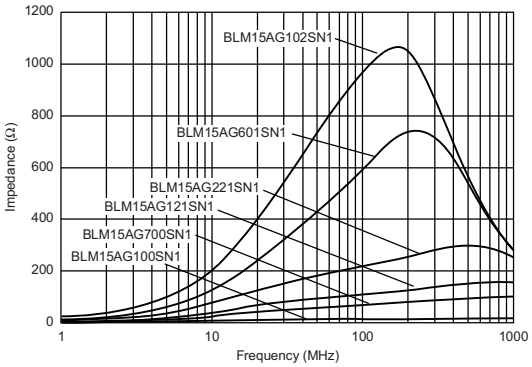
BLM15A Series

(in mm)

Part Number	Impedance (at 100MHz/20°C) (ohm)	Rated Current (mA)	DC Resistance (max.) (ohm)	Operating Temperature Range (°C)
BLM15AG100SN1	10 (Typ.)	1000	0.05	-55 to +125
BLM15AG700SN1	70 (Typ.)	500	0.15	-55 to +125
BLM15AG121SN1	120 ±25%	500	0.25	-55 to +125
BLM15AG221SN1	220 ±25%	300	0.35	-55 to +125
BLM15AG601SN1	600 ±25%	300	0.6	-55 to +125
BLM15AG102SN1	1000 ±25%	200	1.0	-55 to +125

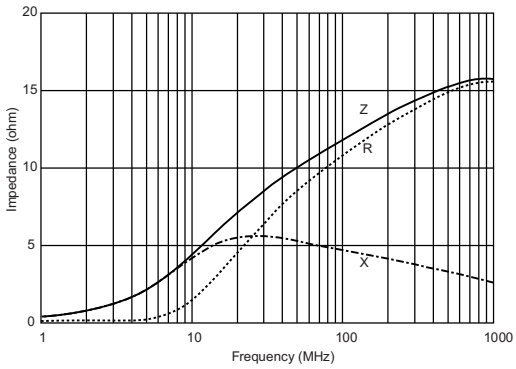
■ Impedance-Frequency (Typical)

BLM15A Series

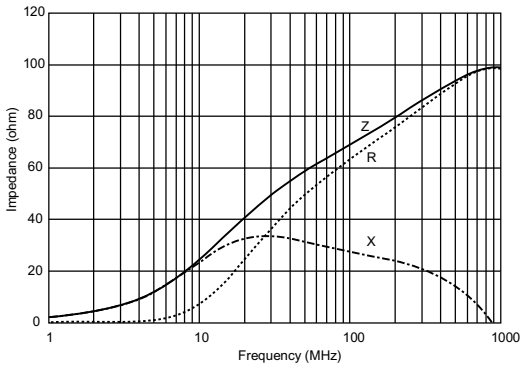


■ Impedance-Frequency Characteristics

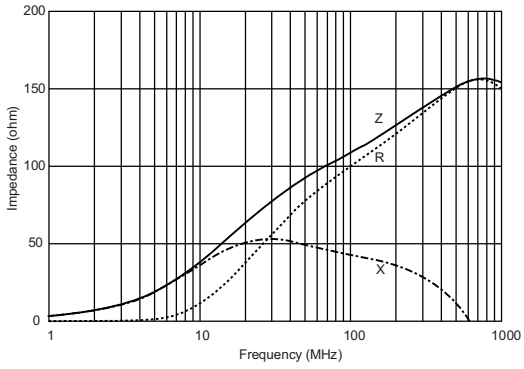
BLM15AG100SN1



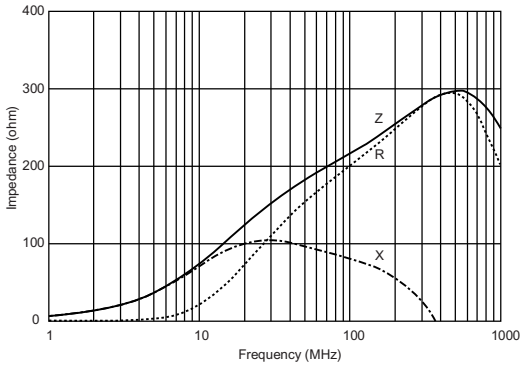
BLM15AG700SN1



BLM15AG121SN1



BLM15AG221SN1



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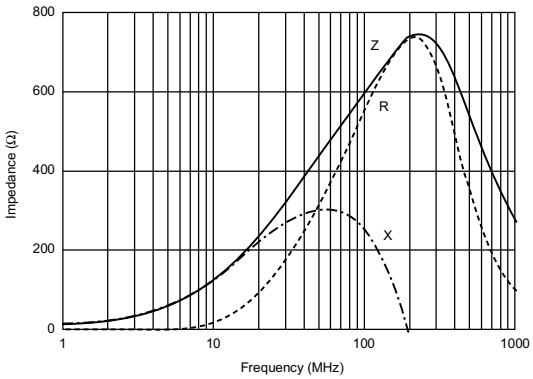
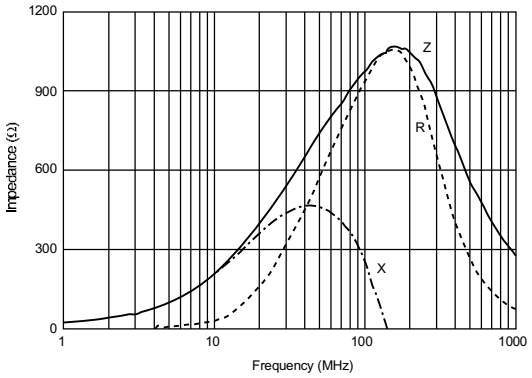
■ Impedance-Frequency Characteristics

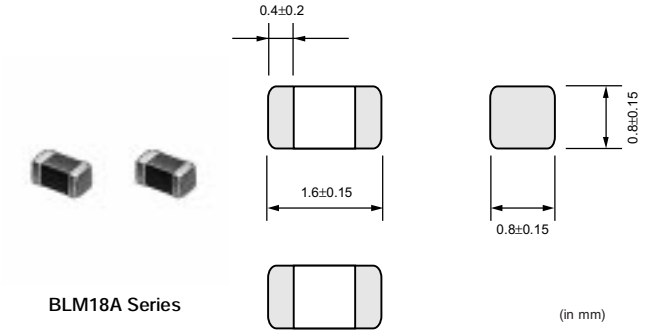
BLM15AG601SN1



BLM15AG102SN1



BLM18A Series (0603 Size)



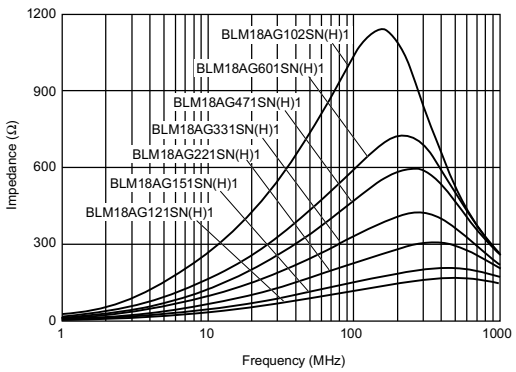
BLM18A Series

(in mm)

Part Number	Impedance (at 100MHz/20°C) (ohm)	Rated Current (mA)	DC Resistance (max.) (ohm)	Operating Temperature Range (°C)
BLM18AG121SN1	120 ±25%	200	0.20	-55 to +125
BLM18AG151SN1	150 ±25%	200	0.25	-55 to +125
BLM18AG221SN1	220 ±25%	200	0.30	-55 to +125
BLM18AG331SN1	330 ±25%	200	0.45	-55 to +125
BLM18AG471SN1	470 ±25%	200	0.50	-55 to +125
BLM18AG601SN1	600 ±25%	200	0.50	-55 to +125
BLM18AG102SN1	1000 ±25%	100	0.70	-55 to +125

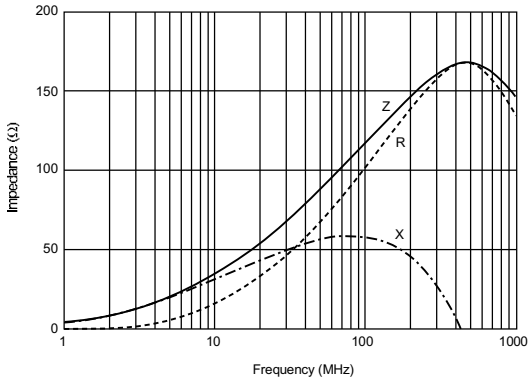
■ Impedance-Frequency (Typical)

BLM18A Series

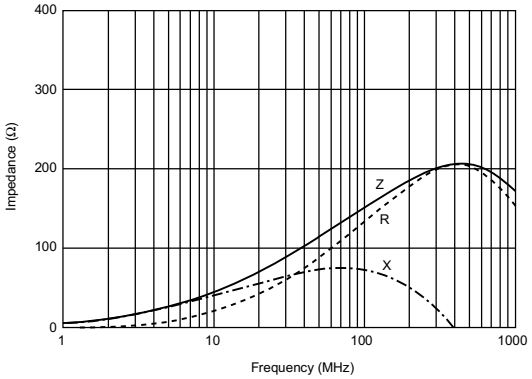


■ Impedance-Frequency Characteristics

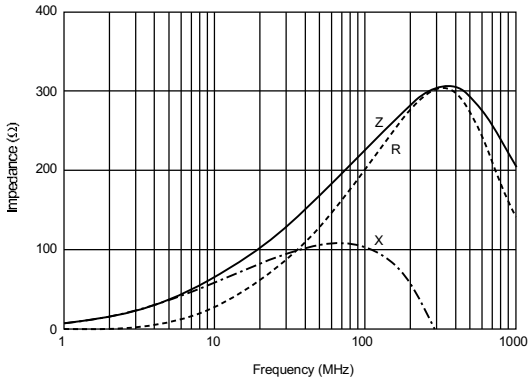
BLM18AG121SN1



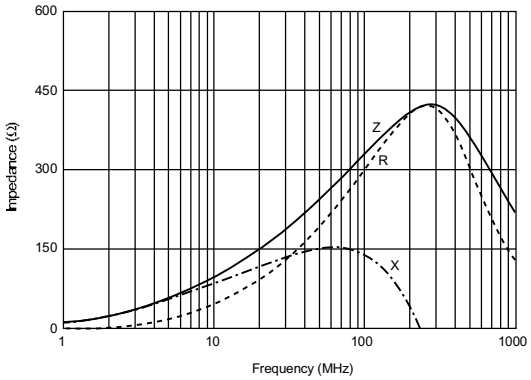
BLM18AG151SN1



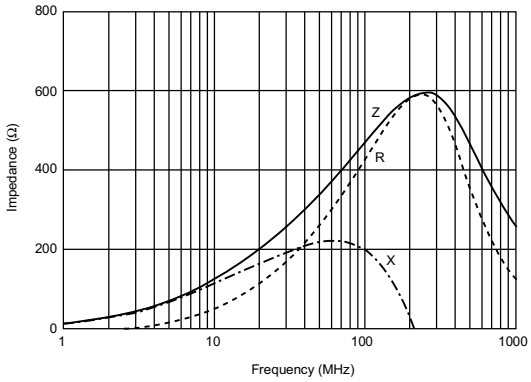
BLM18AG221SN1



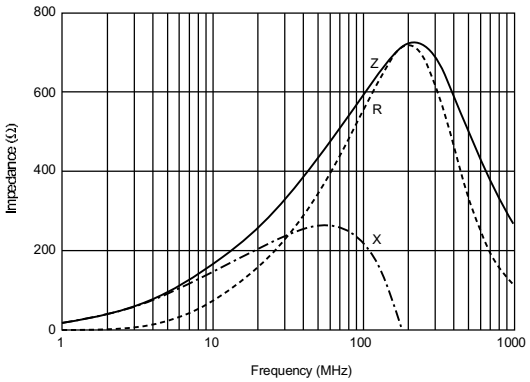
BLM18AG331SN1



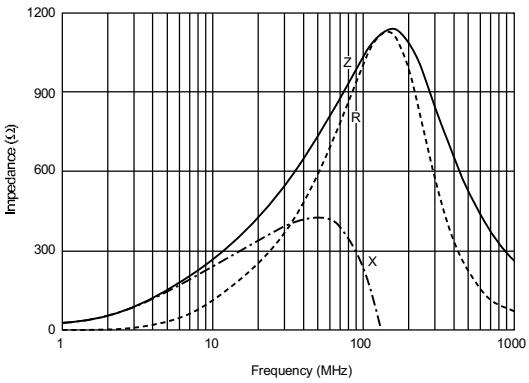
BLM18AG471SN1



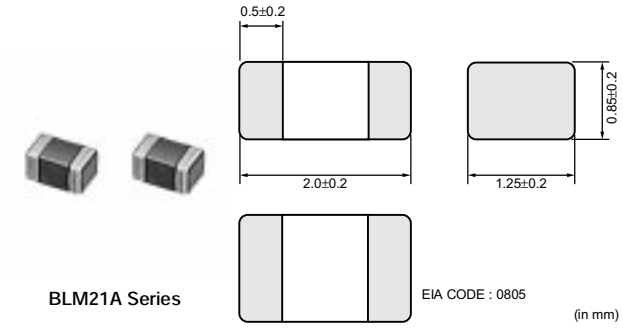
BLM18AG601SN1



BLM18AG102SN1



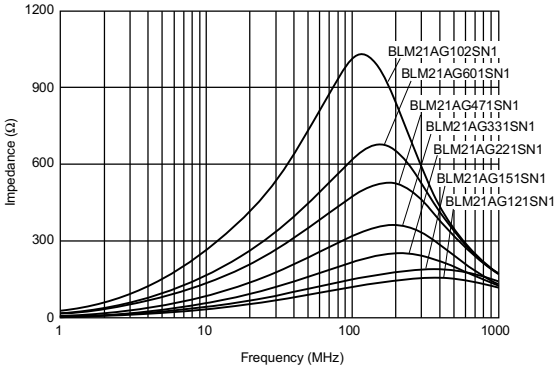
BLM21A Series (0805 Size)



Part Number	Impedance (at 100MHz/20°C) (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

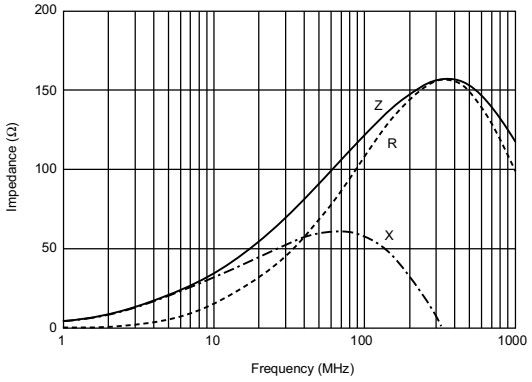
■ Impedance-Frequency (Typical)

BLM21A Series

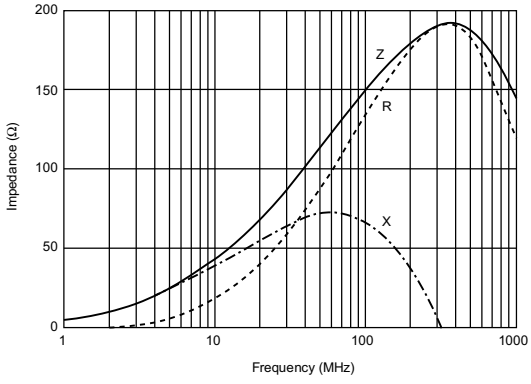


■ Impedance-Frequency Characteristics

BLM21AG121SN1



BLM21AG151SN1



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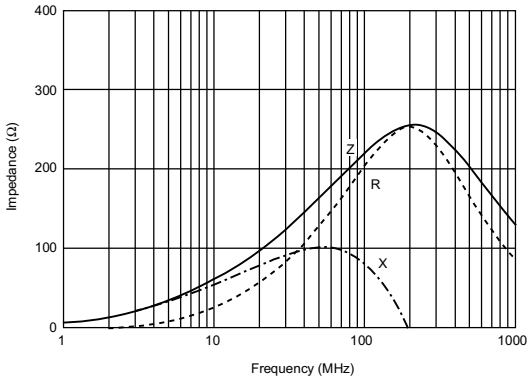
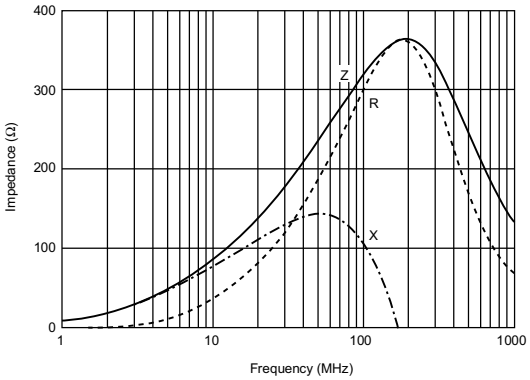
■ Impedance-Frequency Characteristics

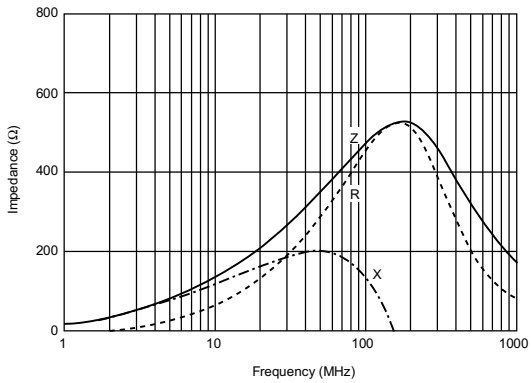
BLM21AG221SN1



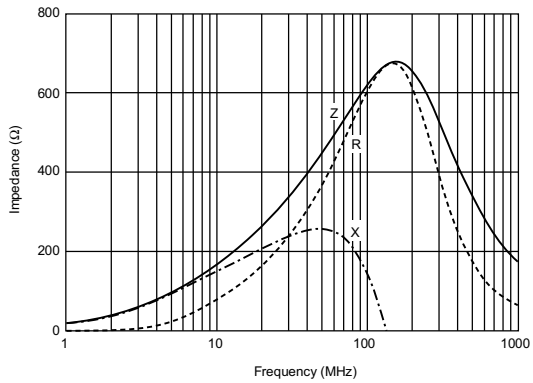
BLM21AG331SN1



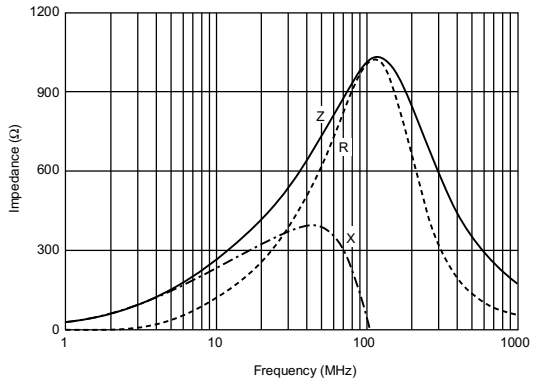
BLM21AG471SN1



BLM21AG601SN1



BLM21AG102SN1



Chip EMI Suppression Filter Design Kits

●EKEMBL15C (Chip Ferrite Beads 0402 Size)

No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degree C)	Rated Current (mA)	DC Resistance (Ω) max.
1	**BLM15AG100SN1**	20	10Ω (Typ.)	1000	0.05
2	**BLM15AG700SN1**	20	70Ω (Typ.)	500	0.15
3	**BLM15AG121SN1**	20	120Ω±25%	500	0.25
4	**BLM15AG221SN1**	20	220Ω±25%	300	0.35
5	**BLM15AG601SN1**	20	600Ω±25%	300	0.60
6	**BLM15AG102SN1**	20	1000Ω±25%	200	1.00
7	**BLM15BB050SN1**	20	5Ω±25%	500	0.08
8	**BLM15BB100SN1**	20	10Ω±25%	300	0.10
9	**BLM15BB220SN1**	20	22Ω±25%	300	0.20
10	**BLM15BB470SN1**	20	47Ω±25%	300	0.35
11	**BLM15BB750SN1**	20	75Ω±25%	300	0.40
12	**BLM15BB121SN1**	20	120Ω±25%	300	0.55
13	**BLM15BB221SN1**	20	220Ω±25%	200	0.80
14	**BLM15BD471SN1**	20	470Ω±25%	200	0.60
15	**BLM15BD601SN1**	20	600Ω±25%	200	0.65
16	**BLM15BD102SN1**	20	1000Ω±25%	200	0.90

●EKEMBL18A (Chip Ferrite Beads 0603 Size/ for Large-current P Type)

No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degree C)	Rated Current (mA)	DC Resistance (Ω) max.
1	**BLM18AG121SN1**	20	120Ω±25%	200	0.20
2	**BLM18AG221SN1**	20	220Ω±25%	200	0.30
3	**BLM18AG471SN1**	20	470Ω±25%	200	0.50
4	**BLM18AG601SN1**	20	600Ω±25%	200	0.50
5	**BLM18AG102SN1**	20	1000Ω±25%	100	0.70
6	**BLM18BA050SN1**	20	5Ω±25%	500	0.20
7	**BLM18BA100SN1**	20	10Ω±25%	500	0.25
8	**BLM18BA220SN1**	20	22Ω±25%	500	0.35
9	**BLM18BA470SN1**	20	47Ω±25%	300	0.55
10	**BLM18BA750SN1**	20	75Ω±25%	300	0.70
11	**BLM18BA121SN1**	20	120Ω±25%	200	0.90
12	**BLM18BB100SN1**	20	10Ω±25%	500	0.15
13	**BLM18BB220SN1**	20	22Ω±25%	500	0.25
14	**BLM18BB470SN1**	20	47Ω±25%	500	0.30
15	**BLM18BB600SN1**	20	60Ω±25%	200	0.35
16	**BLM18BB121SN1**	20	120Ω±25%	200	0.50
17	**BLM18BB221SN1**	20	220Ω±25%	200	0.65
18	**BLM18BB471SN1**	20	470Ω±25%	50	1.00
19	**BLM18BD121SN1**	20	120Ω±25%	200	0.40

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Chip EMI Suppression Filter Design Kits

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No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degree C)	Rated Current (mA)	DC Resistance (Ω) max.
20	**BLM18BD221SN1**	20	220Ω±25%	200	0.45
21	**BLM18BD471SN1**	20	470Ω±25%	200	0.55
22	**BLM18BD601SN1**	20	600Ω±25%	200	0.65
23	**BLM18BD102SN1**	20	1000Ω±25%	100	0.85
24	**BLM18BD182SN1**	20	1800Ω±25%	50	1.50
25	**BLM18BD252SN1**	20	2500Ω±25%	50	1.50
26	**BLM18HG471SN1**	20	470Ω±25%	200	0.85
27	**BLM18HG601SN1**	20	600Ω±25%	200	1.00
28	**BLM18HG102SN1**	20	1000Ω±25%	100	1.60
29	**BLM18HD471SN1**	20	470Ω±25%	100	1.20
30	**BLM18HD601SN1**	20	600Ω±25%	100	1.50
31	**BLM18HD102SN1**	20	1000Ω±25%	50	1.80
32	**BLM18PG330SN1**	20	33Ω±25%	3000	0.025
33	**BLM18PG121SN1**	20	120Ω±25%	2000	0.05
34	**BLM18PG181SN1**	20	180Ω±25%	1500	0.09
35	**BLM21PG221SN1**	20	220Ω (Typ.)	2000	0.05
36	**BLM21PG331SN1**	20	330Ω (Typ.)	1500	0.09
37	**BLM31PG121SN1**	20	120Ω (Typ.)	3000	0.025
38	**BLM31PG391SN1**	20	390Ω (Typ.)	2000	0.05
39	**BLM31PG601SN1**	20	600Ω (Typ.)	1500	0.09
40	**BLM41PG181SN1**	20	180Ω (Typ.)	3000	0.025
41	**BLM41PG471SN1**	20	470Ω (Typ.)	2000	0.05
42	**BLM41PG102SN1**	20	1000Ω (Typ.)	1500	0.09
43	**BLM18RK121SN1**	20	120Ω±25%	200	0.25
44	**BLM18RK221SN1**	20	220Ω±25%	200	0.3
45	**BLM18RK471SN1**	20	470Ω±25%	200	0.5
46	**BLM18RK601SN1**	20	600Ω±25%	200	0.6
47	**BLM18RK102SN1**	20	1000Ω±25%	200	0.8
48	**BLM18HK471SN1**	20	470Ω±25%	200	0.7
49	**BLM18HK601SN1**	20	600Ω±25%	100	0.9
50	**BLM18HK102SN1**	20	1000Ω±25%	50	1.5

●EKEMBL21B (Chip Ferrite Beads 0805 Size)

No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degree C)	Rated Current (mA)	DC Resistance (Ω) max.
1	**BLM21AG121SN1**	20	120Ω±25%	200	0.15
2	**BLM21AG221SN1**	20	220Ω±25%	200	0.20
3	**BLM21AG471SN1**	20	470Ω±25%	200	0.25
4	**BLM21AG601SN1**	20	600Ω±25%	200	0.30
5	**BLM21AG102SN1**	20	1000Ω±25%	200	0.45
6	**BLM21BB600SN1**	20	60Ω±25%	200	0.20
7	**BLM21BB750SN1**	20	75Ω±25%	200	0.25
8	**BLM21BB121SN1**	20	120Ω±25%	200	0.25
9	**BLM21BB221SN1**	20	220Ω±25%	200	0.35
10	**BLM21BB471SN1**	20	470Ω±25%	200	0.45
11	**BLM21BD121SN1**	20	120Ω±25%	200	0.25
12	**BLM21BD221SN1**	20	220Ω±25%	200	0.25
13	**BLM21BD471SN1**	20	470Ω±25%	200	0.35
14	**BLM21BD601SN1**	20	600Ω±25%	200	0.35
15	**BLM21BD102SN1**	20	1000Ω±25%	200	0.40
16	**BLM21BD182SN1**	20	1800Ω±25%	200	0.50
17	**BLM21BD222SN1**	20	2250Ω (Typ.)	200	0.60

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Chip EMI Suppression Filter Design Kits

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No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degree C)	Rated Current (mA)	DC Resistance (Ω) max.
18	**BLM21BD222TN1**	20	2200Ω±25%	200	0.60
19	**BLM21BD272SN1**	20	2700Ω±25%	200	0.80

●EKEMFL18B (Chip EMIFIL LC Combined Type)

No.	Part Number	Quantity (pcs.)	Cut off Frequency	Rated Voltage	Rated Current	Insulation Resistance (MΩ min.)	DC Resistance max.
1	**NFL18ST107X1C3**	20	100MHz	16 V	100mA	1000	4.5Ω
2	**NFL18ST157X1C3**	20	150MHz	16 V	100mA	1000	4.0Ω
3	**NFL18ST207X1C3**	20	200MHz	16 V	150mA	1000	3.5Ω
4	**NFL18ST307X1C3**	20	300MHz	16 V	200mA	1000	1.8Ω
5	**NFL18ST507X1C3**	20	500MHz	16 V	200mA	1000	1.5Ω
6	**NFL18SP157X1A3**	20	150MHz	10 V	100mA	1000	3.0Ω
7	**NFL18SP207X1A3**	20	200MHz	10 V	100mA	1000	3.0Ω
8	**NFL18SP307X1A3**	20	300MHz	10 V	100mA	1000	3.0Ω
9	**NFL18SP507X1A3**	20	500MHz	10 V	100mA	1000	2.0Ω
10	**NFL21SP206X1C3**	20	20MHz	16 V	100mA	1000	8.5Ω
11	**NFL21SP506X1C3**	20	50MHz	16 V	150mA	1000	3.5Ω
12	**NFL21SP706X1C3**	20	70MHz	16 V	150mA	1000	3.0Ω
13	**NFL21SP107X1C3**	20	100MHz	16 V	200mA	1000	2.0Ω
14	**NFL21SP157X1C3**	20	150MHz	16 V	200mA	1000	2.0Ω
15	**NFL21SP207X1C3**	20	200MHz	16 V	250mA	1000	1.5Ω
16	**NFL21SP307X1C3**	20	300MHz	16 V	300mA	1000	1.2Ω
17	**NFL21SP407X1C3**	20	400MHz	16 V	300mA	1000	1.2Ω
18	**NFL21SP507X1C3**	20	500MHz	16 V	300mA	1000	1.2Ω

No.	Part Number	Quantity (pcs.)	Cut off Frequency	Attenuation (dB min.)										Rated Current	Rated Voltage
				10MHz	20MHz	50MHz	100MHz	150MHz	200MHz	300MHz	400MHz	500MHz	1GHz		
19	**NFW31SP106X1E4**	20	10MHz	6dB max	5	25	25	-	25	-	-	30	30	200mA	25V
20	**NFW31SP206X1E4**	20	20MHz	-	6dB max	5	25	-	25	-	-	30	30	200mA	25V
21	**NFW31SP506X1E4**	20	50MHz	-	-	6dB max	10	-	30	-	-	30	30	200mA	25V
22	**NFW31SP107X1E4**	20	100MHz	-	-	-	6dB max	-	5	-	-	20	30	200mA	25V
23	**NFW31SP157X1E4**	20	150MHz	-	-	-	-	6dB max	-	10	20	30	30	200mA	25V
24	**NFW31SP207X1E4**	20	200MHz	-	-	-	-	-	6dB max	-	-	10	30	200mA	25V
25	**NFW31SP307X1E4**	20	300MHz	-	-	-	-	-	-	6dB max	-	5	15	200mA	25V
26	**NFW31SP407X1E4**	20	400MHz	-	-	-	-	-	-	-	6dB max	-	10	200mA	25V
27	**NFW31SP507X1E4**	20	500MHz	-	-	-	-	-	-	-	-	6dB max	10	200mA	25V

●EKEMFA31B (Chip EMIFIL Capacitor Array Type/ Capacitor Type/ LC Combined Type)

No.	Part Number	Quantity (pcs.)	Capacitance	Rated Voltage	Rated Current	Insulation Resistance (MΩ min.)
1	**NFA31CC220S1E4**	20	22pF±20%	25 V	200mA	1000
2	**NFA31CC470S1E4**	20	47pF±20%	25 V	200mA	1000
3	**NFA31CC101S1E4**	20	100pF±20%	25 V	200mA	1000
4	**NFA31CC221S1E4**	20	220pF±20%	25 V	200mA	1000
5	**NFA31CC471R1E4**	20	470pF±20%	25 V	200mA	1000
6	**NFA31CC102R1E4**	20	1000pF±20%	25 V	200mA	1000
7	**NFA31CC222R1E4**	20	2200pF±20%	25 V	200mA	1000
8	**NFA31CC223R1C4**	20	22000pF±20%	16 V	200mA	1000
9	**NFA31GD1006R84**	20	10pF±20%	6 V	50mA	1000
10	**NFA31GD1004704**	20	10pF±20%	6 V	20mA	1000
11	**NFA31GD1001014**	20	10pF±20%	6 V	15mA	1000
12	**NFA31GD4706R84**	20	47pF±20%	6 V	50mA	1000

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Chip EMI Suppression Filter Design Kits

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●EKEMFA31B (Chip EMIFIL Capacitor Array Type/ Capacitor Type/ LC Combined Type)

No.	Part Number	Quantity (pcs.)	Capacitance	Rated Voltage	Rated Current	Insulation Resistance (MΩ min.)
13	**NFA31GD4704704**	20	47pF±20%	6 V	20mA	1000
14	**NFA31GD4701014**	20	47pF±20%	6 V	15mA	1000
15	**NFA31GD1016R84**	20	100pF±20%	6 V	50mA	1000
16	**NFA31GD1014704**	20	100pF±20%	6 V	20mA	1000
17	**NFA31GD1011014**	20	100pF±20%	6 V	15mA	1000

●EKEMDL21D (Chip Common Mode Choke Coils)

No.	Part Number	Quantity (pcs.)	Common Mode Impedance typ. (at 100MHz, 20 degree C)	Rated Voltage	Rated Current	Insulation Resistance (MΩ min.)
1	**DLW21HN670SQ2**	10	67Ω (Typ.)	50V	330mA	10
2	**DLW21HN900SQ2**	10	90Ω (Typ.)	50V	330mA	10
3	**DLW21HN121SQ2**	10	120Ω (Typ.)	50V	280mA	10
4	**DLW21HN181SQ2**	10	180Ω (Typ.)	50V	250mA	10
5	**DLW21SN670SQ2**	10	67Ω (Typ.)	50V	400mA	10
6	**DLW21SN900SQ2**	10	90Ω (Typ.)	50V	330mA	10
7	**DLW21SN121SQ2**	10	120Ω (Typ.)	50V	370mA	10
8	**DLW21SN181SQ2**	10	180Ω (Typ.)	50V	330mA	10
9	**DLW21SN261SQ2**	10	260Ω (Typ.)	50V	300mA	10
10	**DLW21SN371SQ2**	10	370Ω (Typ.)	50V	280mA	10
11	**DLW31SN900SQ2**	10	90Ω (Typ.)	50V	370mA	10
12	**DLW31SN161SQ2**	10	160Ω (Typ.)	50V	340mA	10
13	**DLW31SN261SQ2**	10	260Ω (Typ.)	50V	310mA	10
14	**DLW31SN601SQ2**	10	600Ω (Typ.)	50V	260mA	10
15	**DLW31SN102SQ2**	10	1000Ω (Typ.)	50V	230mA	10
16	**DLW31SN222SQ2**	10	2200Ω (Typ.)	50V	200mA	10
17	**DLW5AHN402SQ2**	5	4000Ω (Typ.)	50V	200mA	10
18	**DLW5BSN302SQ2**	5	3000Ω (Typ.)	50V	500mA	10
19	**DLW5BSN152SQ2**	5	1500Ω (Typ.)	50V	1000mA	10
20	**DLW5BSN102SQ2**	5	1000Ω (Typ.)	50V	1500mA	10
21	**DLW5BSN351SQ2**	5	350Ω (Typ.)	50V	2000mA	10
22	**DLW5BSN191SQ2**	5	190Ω (Typ.)	50V	5000mA	10
23	**DLP11SN900SL2**	10	90Ω (Typ.)	5V	160mA	100
24	**DLP11SN121SL2**	10	120Ω (Typ.)	5V	140mA	100
25	**DLP11SN161SL2**	10	160Ω (Typ.)	5V	120mA	100
26	**DLP11SN201SL2**	10	200Ω (Typ.)	5V	130mA	100
27	**DLP31DN900ML4**	10	90Ω±20%	10V	160mA	100
28	**DLP31DN131ML4**	10	130Ω±20%	10V	120mA	100
29	**DLP31DN201ML4**	10	200Ω±20%	10V	100mA	100
30	**DLP31DN321ML4**	10	320Ω±20%	10V	80mA	100
31	**DLP31DN441ML4**	10	440Ω±20%	10V	70mA	100

●EKEMNFMPB

No.	Part Number	Quantity (pcs.)	Capacitance	Rated Voltage	Rated Current	Insulation Resistance (MΩ min.)
1	**NFM18PC104R1C3**	20	0.1μF±20%	16 V	2A	1000
2	**NFM18PC105R0J3**	20	1μF±20%	6.3 V	2A	500
3	**NFM21PC104R1E3**	20	0.1μF±20%	25 V	2A	1000
4	**NFM21PC224R1C3**	20	0.22μF±20%	16 V	2A	1000
5	**NFM21PC474R1C3**	20	0.47μF±20%	16 V	2A	1000
6	**NFM21PC105B1A3**	20	1μF±20%	10 V	4A	500

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Chip EMI Suppression Filter Design Kits

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No.	Part Number	Quantity (pcs.)	Capacitance	Rated Voltage	Rated Current	Insulation Resistance (MΩ min.)
7	**NFM21PC105B1C3**	20	1μF±20%	16 V	4A	500
8	**NFE31PT152Z1E9**	20	1500pF +50/-20%	25 V	6A	1000
9	**NFE31PT222Z1E9**	20	2200pF±50%	25 V	6A	1000
10	**NFE61PT102E1H9**	20	1000pF +80/-20%	50 V	2A	1000
11	**NFE61PT472C1H9**	20	4700pF +80/-20%	50 V	2A	1000
12	**NFM41PC204F1H3**	20	0.2μF +80/-20%	50 V	2A	1000
13	**NFM41PC155B1E3**	20	1.5μF±20%	25 V	6A	300

●EKEMNFMCA

No.	Part Number	Quantity (pcs.)	Capacitance	Rated Voltage	Rated Current	Insulation Resistance (MΩ min.)
1	**NFM18CC220U1C3**	20	22pF±20%	16 V	400mA	1000
2	**NFM18CC470U1C3**	20	47pF±20%	16 V	400mA	1000
3	**NFM18CC101R1C3**	20	100pF±20%	16 V	500mA	1000
4	**NFM18CC221R1C3**	20	220pF±20%	16 V	500mA	1000
5	**NFM18CC471R1C3**	20	470pF±20%	16 V	500mA	1000
6	**NFM18CC102R1C3**	20	1000pF±20%	16 V	600mA	1000
7	**NFM18CC222R1C3**	20	2200pF±20%	16 V	700mA	1000
8	**NFM18CC223R1C3**	20	22000pF±20%	16 V	1000mA	1000
9	**NFM21CC220U1H3**	20	22pF±20%	50 V	700mA	1000
10	**NFM21CC470U1H3**	20	47pF±20%	50 V	700mA	1000
11	**NFM21CC101U1H3**	20	100pF±20%	50 V	700mA	1000
12	**NFM21CC221R1H3**	20	220pF±20%	50 V	700mA	1000
13	**NFM21CC471R1H3**	20	470pF±20%	50 V	1000mA	1000
14	**NFM21CC102R1H3**	20	1000pF±20%	50 V	1000mA	1000
15	**NFM21CC222R1H3**	20	2200pF±20%	50 V	1000mA	1000
16	**NFM21CC223R1H3**	20	22000pF±20%	50 V	2000mA	1000