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Noise Suppression Products/EMIFIL &gt; EMIFIL(SMD) &gt; Inductor Type

**Specification**

Part Number	BLM41A151S
Impedance (at 100MHz)	150ohm $\pm$ 25%
Rated Current	200mA
DC Resistance(max.)	0.50ohm
Min. of Operating Temp.	-55°C
Max. of Operating Temp.	125°C
Length	4.5mm
Width	1.6mm
Thickness	1.6mm
Number of Circuit	1
EIA	1806
Maximum Signal Frequency	
Weight	0.06g (Typ.)

**Details**

-  Appearance
-  Dimension
-  Z-f Characteristics(Typ.)
-  Z-f of Main Items
-  Features
-  Equivalent Circuit
-  Mounting
-  Packaging
-  Notice (storage and operating condition)
-  Caution (rating)
-  Caution (soldering and mounting)

**Minimum Quantity**

180mm Paper Tape	
180mm Plastic Tape	2500
330mm Paper Tape	
330mm Plastic Tape	8000
Bulk Case	
Bulk(Bag)	1000
Flat Pack	
335Reel	
Magazine	
Box	

Product specifications in this catalog are as of Fed. '00, and are subject to change or obsolescence without notice.

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CAUTION (soldering and mounting)

Mounting density

Give special attention when mounting products close to other product that radiate heat. The excessive heat by other products may cause deterioration of insulation resistance and excessive heat at this product, resulting in the fire.

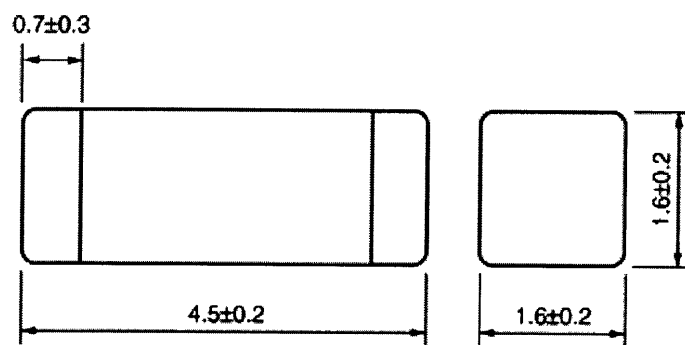
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Noise Suppression Products/EMIFIL EMIFIL(SMD) Inductor Type



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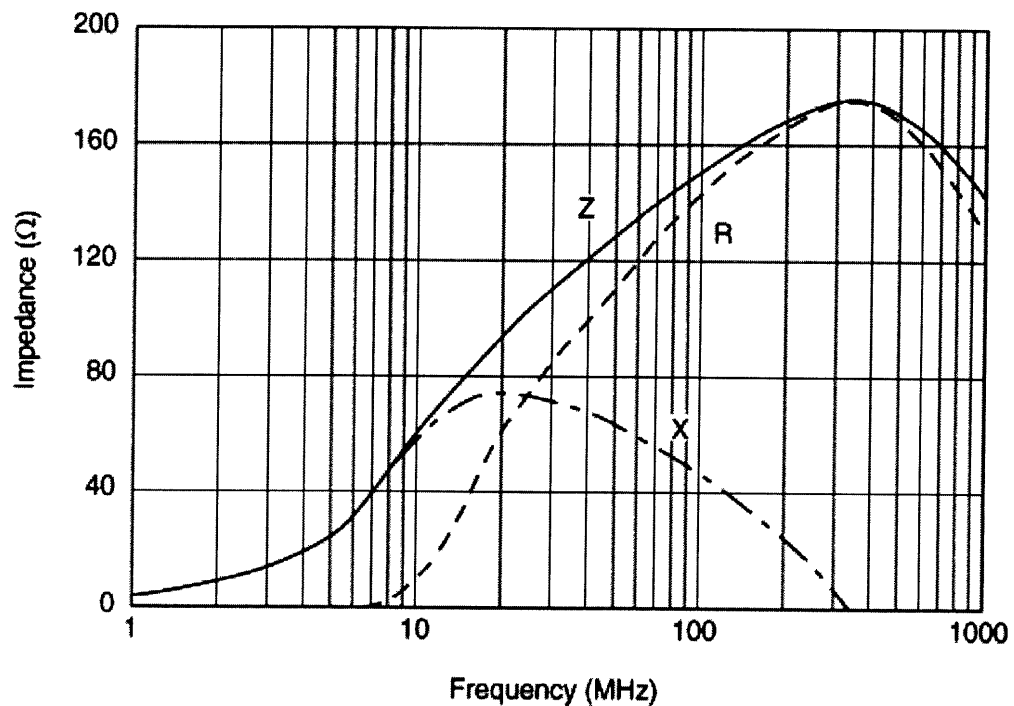
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Noise Suppression Products/EMIFIL EMIFIL(SMD) Inductor Type



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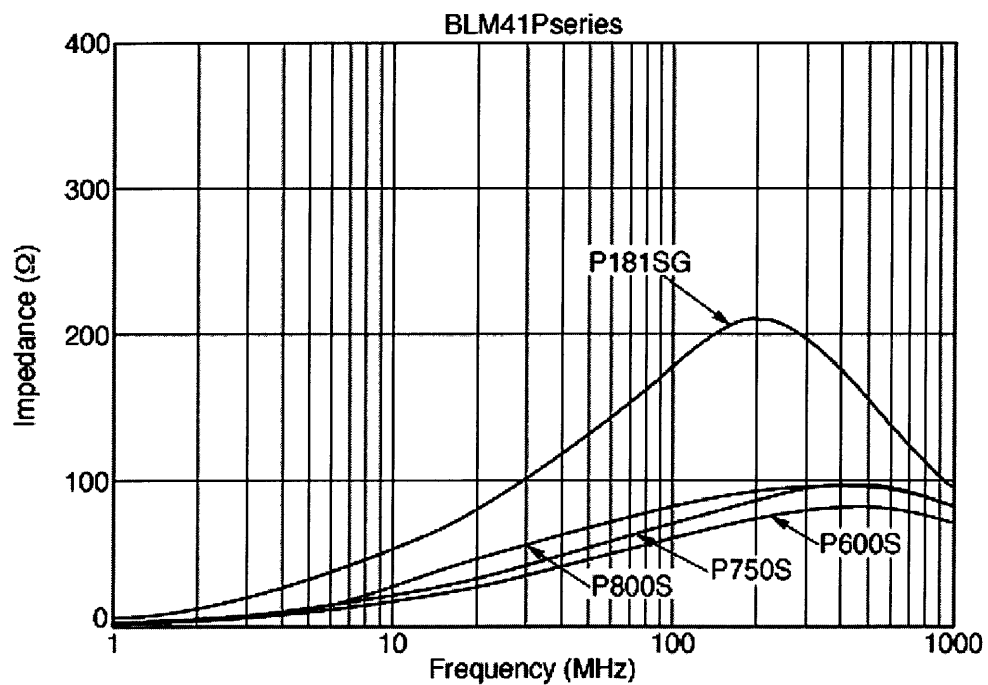
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Noise Suppression Products/EMIFIL EMIFIL(SMD) Inductor Type



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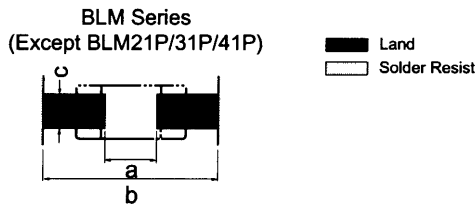
The chip ferrite bead BLM series comprises ferrite bead inductors in the shape of a chip. This inductor generates a high impedance which at high frequencies mainly consists of a resistance element. The BLM series is effective in circuits without stable ground lines because the BLM series does not need a connection to ground. The BLM series comprises the R series (for Digital Interface), the A series (general), the B series (for high freq. signal), and the P series (high current).

The nickel barrier structure of the external electrodes provides excellent solder heat resistance. Both flow and reflow soldering methods can be employed.

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).

## 1. Standard Land Pattern Dimensions

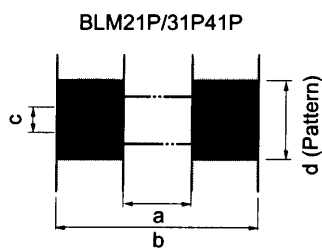
The capacitor type chip EMI suppression filters (NFM/NFA series) suppress noise by conducting the high-frequency noise element to ground. Therefore, to obtain maximum performance from these filters, the ground pattern should be made as large as possible during the PCB design stage. As shown below, one side of the PCB is used for chip mounting, and the other is used for grounding. Small diameter feedthrough holes are then used to connect the grounds on each side of the PCB. This reduces the high-frequency impedance of the grounding and maximizes the filter's performance.



Type	Dimension (mm)				
	L	W	a	b	c
*BLM10 (Reflow)	1.0	0.5	0.4	1.2-1.4	0.5
BLM11 (Flow)	1.6	0.8	0.7	2.2-2.6	0.7
BLM11 (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

\*BLM10 is specially adapted for reflow soldering.

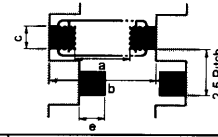
Do not apply narrower pattern than listed above to BLM\_\_P.  
Narrow pattern can cause excessive heat or open circuit.



Type	Rated Current (A)	Size(mm)			Land pad thickness and Dimension d		
		a	b	c			
					18μm	35μm	70μm
BLM21P331SG	1.5	1.2	3.0-4.0	1.0	1.0	1.0	1.00
BLM21P221SG	2				1.2	1.0	1.00
BLM21P300S/ BLM21P600SG	3				2.4	1.2	1.00
BLM21P220SG	6				6.4	3.3	1.65
BLM31P330SG	6	2.0	4.5-5.2	1.2	2.4	1.2	1.20
BLM31P500S/ BLM31P121SG	3				2.4	1.2	1.20
BLM31P391SG	2				1.2	1.2	1.20
BLM31P601SG	1.5				1.2	1.2	1.20
BLM41P800S	1	3.0	5.5-6.5	1.2	2.4	1.2	1.20
BLM41P102SG	1.5				6.4	3.3	1.65
BLM41P471SG	2				2.4	1.2	1.20
BLM41P750S/ BLM41P181SG	3				6.4	3.3	1.65
BLM41P600S	6						

• Please contact us if using thinner land pad than 18μm.

Flow mounting in high density for BLM31/41



Type	Dimension(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

## 2. Solder Paste Printing and Adhesive Application

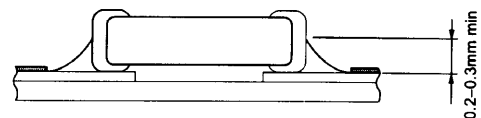
When reflow soldering the chip EMI suppression filter, the printing must be conducted in accordance with the following cream solder printing conditions. If too much solder is applied, the chip will prone to be damaged by mechanical and thermal stress from the PCB and may crack. In contrast, if too little 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.

### Solder Paste Printing

#### BLM Series

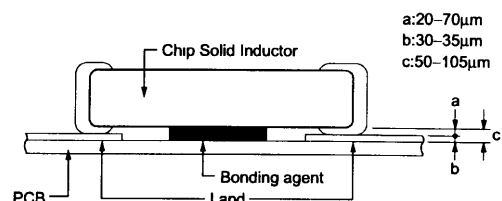
- Ensure that solder is applied smoothly to a minimum height of 0.2mm to 0.3mm at the end surface of the part.
- Coat the solder paste a thickness of 100μm to 200μm.



### Adhesive Application

#### BLM Series

- Coating amount is illustrated in the following diagram.



### 3. Standard Soldering Conditions

#### SOLDERING METHODS

Use flow and reflow soldering methods only.

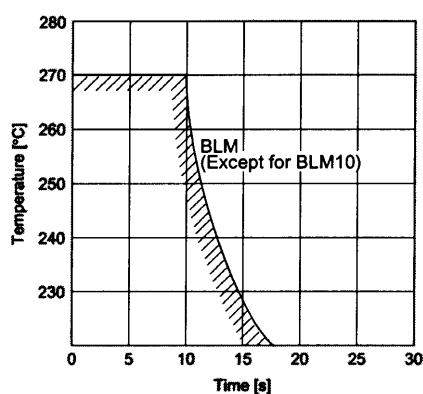
Use standard soldering conditions when soldering chip EMI suppression filters.

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

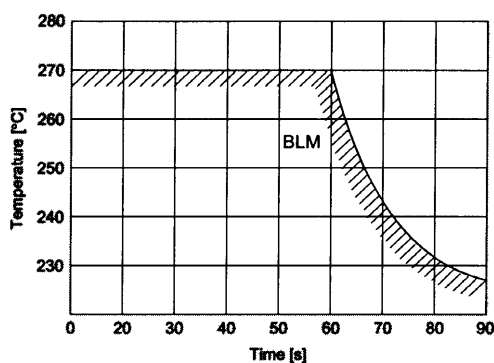
#### SOLDERING TEMPERATURE AND TIME

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.

**Allowable Flow Soldering Temperature and Time**



**Allowable Reflow Soldering Temperature and Time**



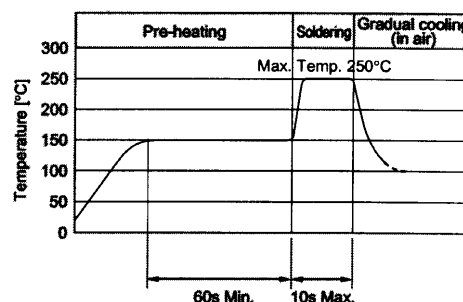
Solder: H60A H63A solder(JIS Z 3238)

Flux :

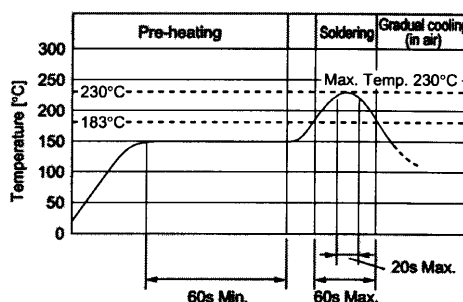
- Use Rosin-based flux(when using RA type solder, clean products sufficiently to avoid residual flux.
- Do not use strong acidic flux(with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

### SOLDERING CONDITIONS

#### Flow Solder



#### Reflow Solder



### REWORKING WITH SOLDER IRON

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

Soldering iron power output : 30W Max.

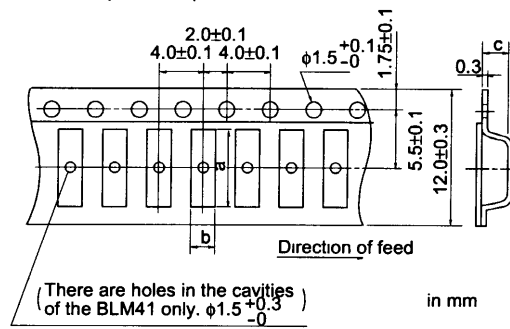
Temperature of soldering iron tip : 280°C Max.

Soldering time : 10 second Max.

Do not allow the tip of the soldering iron directly contact the chip.

For additional methods of reworking with soldering iron, please contact Murata engineering.

12mm width plastic tape



Part Number	Cavity Size			Minimum QTY.	
	a	b	c	φ180mm	φ330mm
BLM41	4.8	1.9	1.75	2500	8000
NFM41R/4516R NFM4516P	4.8	1.8	1.1	4000	-
NFM61R/61RH	7.2	1.9	1.75	2500	8000
VFM41R	4.8	1.8	1.35	2500	-

Notice (storage and operating condition)

< 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.  
Do not clean PLM250, PLW3216S series. In case of cleaning, please contact Murata engineering.
  - 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)\*  
\*VFM41R,VCM11R/21R series cannot be cleaned with high grade alcohol type aqueous cleaning agent.  
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.

< OPERATING ENVIRONMENT >

Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

< STORAGE AND HANDLING REQUIREMENTS >

1. Storage Period  
Products which inspected in Murata over 12 months ago should be examined and used, which can be confirmed with inspection No. marked on the container.  
Solderability should be checked if this period is exceeded. (NFM41P/46P, VCM series should be used within 6 months.)
2. Storage conditions
  - a) Storage temperature : -10degree C to 40degree C  
Relative humidity : 30% to 70%  
Avoid sudden changes in temperature and humidity.
  - b) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

CAUTION (rating)

Rated Current/Rated Voltage/Operating Temperature  
Do not use products beyond the rated current, the  
rated voltage and the operating temperature range,  
or, a fire may result due to the deterioration of  
the insulation resistance, excessive heat, etc.