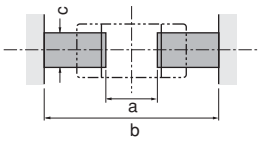
1. Standard Land Pattern Dimensions

Land Pattern + Solder Resist
Land Pattern Solder Resist
(in mm)

BLE32 BLM02 BLM03 BLM15 BLM18 BLM21 BLM31 BLM41

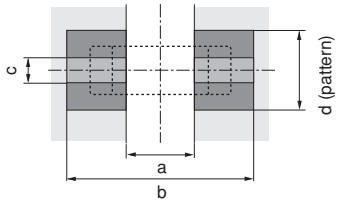
●Reflow and Flow
BLM Series



Type	Soldering	a	b	c
BLM02	Reflow	0.16-0.2	0.4-0.56	0.2-0.23
BLM03	Reflow	0.2-0.3	0.6-0.9	0.3
BLM15	Reflow	0.4	1.2-1.4	0.5
BLM18	Flow (except 18G)	0.7	2.2-2.6	0.7
	Reflow		1.8-2.0	
BLM21	Flow/ Reflow	1.2	3.0-4.0	1.0

• Except for BLM03PG·PX·EB/15AX·PD·PG·PX/ 18PG·KG·SG/21PG. And BLM02/03/15/18G is specially adapted for reflow soldering.

BLE32PN·BLM□□AX/P/K/S/E

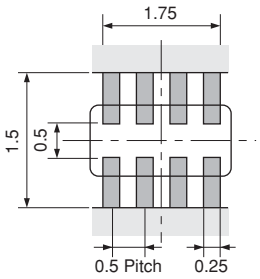


Type	Rated Current (A)	Soldering	a	b	c	Land Pad Thickness and Dimension d 18μm	35μm	70μm
BLE32PN	10	Flow/ Reflow	1.9	3.6	2.7	-	4.0 (Temperature 85°C or less)	-
						-	8.0 (Temperature 125°C or less)	-
BLM03AX BLM03P□ BLM03EB	0.9max.	Reflow	0.2-0.3	0.6-0.9	0.3	0.3	0.3	0.3
	1.8max.					1.2	0.7	0.3
BLM15AX BLM15PD BLM15PG BLM15PX	1.5max.	Reflow	0.4	1.2-1.4	0.5	0.5	0.5	0.5
	2.2max.					1.2	0.7	0.5
	3.0max.					2.4	1.2	0.5
BLM18PG BLM18KG BLM18SG	0.5-1.5	Flow/ Reflow	0.7	Flow 2.2-2.6 Reflow 1.8-2.0	0.7	0.7	0.7	0.7
	1.7-2.5					1.2	0.7	0.7
	3-4					2.4	1.2	0.7
	5-6					6.4	3.3	1.65
BLM21PG	1.5		1.2	3.0-4.0	1.0	1.0	1.0	1.0
	2					1.2	1.0	1.0
	3-4					2.4	1.2	1.0
	6					6.4	3.3	1.65
BLM31PG	1.5-2		2.0	4.2-5.2	1.2	1.2	1.2	1.2
	3.5					2.4	1.2	1.2
	6					6.4	3.3	1.65
BLM41PG	1.5-2		3.0	5.5-6.5		1.2	1.2	1.2
	3.5					2.4	1.2	1.2
	6					6.4	3.3	1.65

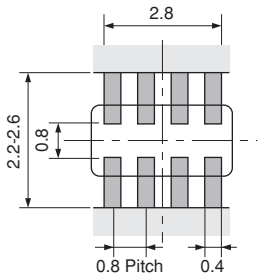
• About land pad thickness of BLE32PN, please note the upper limit of the temperature.
• Do not apply narrower pattern than listed above to BLM□□AX/P/K/S. Narrow pattern can cause excessive heat or open circuit.

BLA2A BLA31

●Reflow Soldering
BLA2A



●Reflow and Flow
BLA31

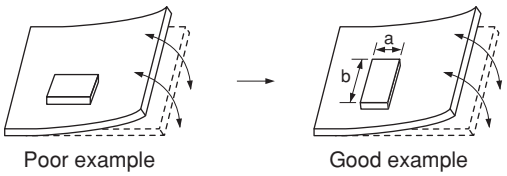


• If there are high amounts of self-heating on pattern, the contact points of PCB and part may become damaged.

● PCB Warping

PCB should be designed so that products are not subjected to the mechanical stress caused by warping the board.

Products should be located in the sideways direction (Length: a<b) to the mechanical stress.

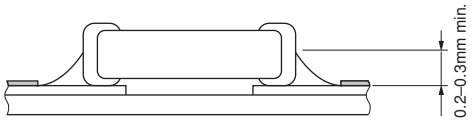
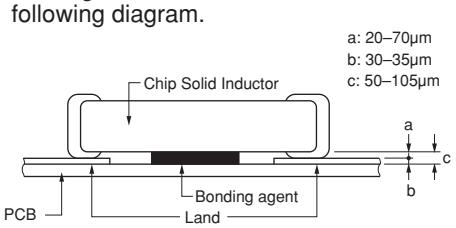
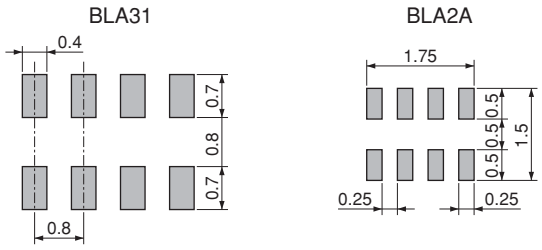
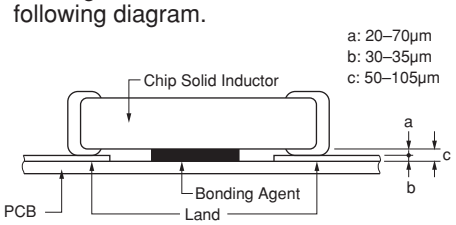


2. Solder Paste Printing and Adhesive Application

When reflow soldering the chip ferrite beads and bead inductor the printing must be conducted in accordance with the following cream solder printing conditions.
If too much solder is applied, the chip will be prone to damage by mechanical and thermal stress from the PCB and may crack.
Standard land dimensions should be used for resist and copper foil patterns.

When flow soldering the chip ferrite beads and bead inductor 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.

(in mm)

Series	Solder Paste Printing	Adhesive Application
BLM **BLE**	●Ensure that solder is applied smoothly to a minimum height of 0.2mm to 0.3mm at the end surface of the part. ●Guideline of solder paste thickness: 50-80μm: BLM02 100-150μm: BLM03 100-200μm: BLM15/18/21/31/41/BLE32 	■BLM18/21/31/41 Series (Except for BLM18G Series) Coating amount is illustrated in the following diagram. 
BLA	●Guideline of solder paste thickness: 100-150μm: BLA2A 150-200μm: BLA31 	■BLA31 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 ferrite beads and bead inductor.
In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products. If using BLA series with Sn-Zn based solder, please contact Murata in advance.

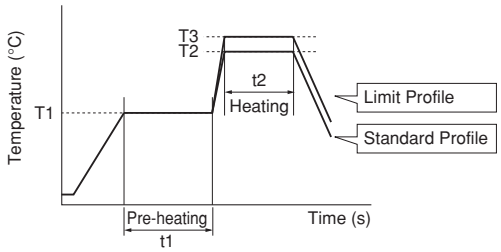
Flux:

- Use Rosin-based flux.
  In case of using RA type solder, products should be cleaned completely with no residual flux.
- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

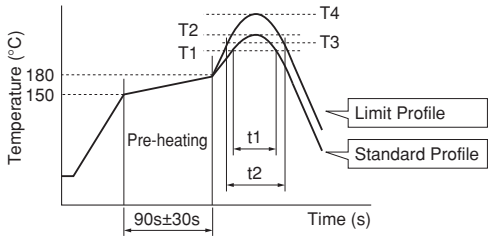
(2) Soldering Profile

●Flow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)



Series	Pre-heating		Standard Profile			Limit Profile		
			Heating		Cycle of Flow	Heating		Cycle of Flow
	Temp. (T1)	Time. (t1)	Temp. (T2)	Time. (t2)		Temp. (T3)	Time. (t2)	
BLM (Except for **BLM02/03/15/18G**) **BLE** **BLA31**	150°C	60s min.	250°C	4 to 6s	2 times max.	265±3°C	5s max.	2 times max.

●Reflow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)



Series	Standard Profile				Limit Profile			
	Heating		Peak Temperature (T2)	Cycle of Reflow	Heating		Peak Temperature (T4)	Cycle of Reflow
	Temp. (T1)	Time. (t1)			Temp. (T3)	Time. (t2)		
BLM **BLE** **BLA**	220°C min.	30 to 60s	245±3°C	2 times max.	230°C min.	60s max.	260°C/10s	2 times max.

(3) Reworking with Solder Iron

The following conditions must be strictly followed when using a soldering iron.(Except for BLM02 Series)

Pre-heating: 150°C 60s min.

Soldering iron power output / Tip diameter:

80W max. / ø3mm max.

Temperature of soldering iron tip / Soldering time / Times:

350°C max. / 3-4s / 2 times

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

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

4. Cleaning

Following conditions should be observed when cleaning chip ferrite beads.

(1) Cleaning Temperature: 60°C max. (40°C max. for alcohol type cleaner)

(2) Ultrasonic

Output: 20W/liter max.

Duration: 5 minutes max.

Frequency: 28 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) Alcohol cleaning agent

Isopropyl alcohol (IPA)

(b) Aqueous cleaning agent

Pine Alpha ST-100S

(4) Ensure that flux residue is completely removed.

Component should be thoroughly dried after aqueous agent has been removed with deionized water.

(5) BLM_G type is processed with resin. On rinsing the product, using water for ultrasonic cleaning may affect the resin quality used for the product by water element. In case of set cleaning conditions, please make sure the reliability according to the cleaning conditions.