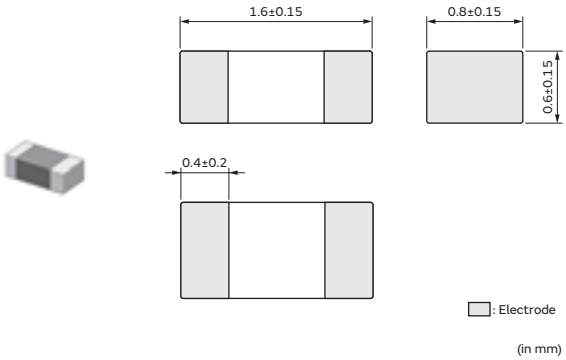
Chip Power Bead SMD Type

BLE18PS Series 0603/1608(inch/mm)

Appearance/Dimensions



Packaging

Code	Packaging	Minimum Quantity
D	ø180mm Paper Tape	4000
J	ø330mm Paper Tape	10000
B	Bulk(Bag)	1000

Equivalent Circuit

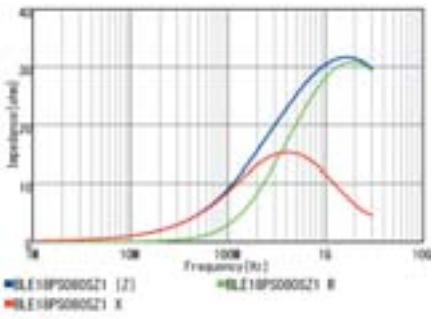
(Resistance element becomes dominant at high frequencies.)

Rated Value (□: packaging code)

Part Number		Impedance at 100MHz	Rated Current at 85°C	Rated Current at 125°C	DC Resistance (Max.)	Operating Temp. Range
Infotainment	Powertrain/Safety					
BLE18PS080SZ1□	—	8.5Ω±25%	8A	5A	0.004Ω	-55°C to 125°C

Z-f characteristics

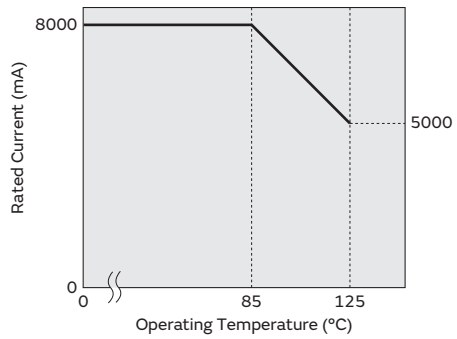
BLE18PS080SZ1



Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLE18PS series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current



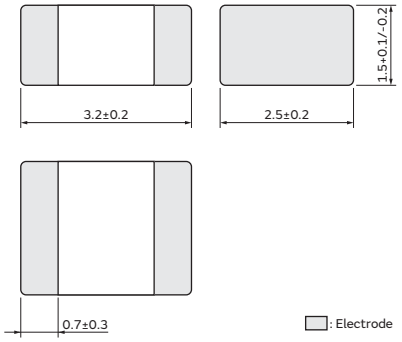
muRata

Chip Power Bead SMD Type

BLE32PN Series 1210/3225(inch/mm)

Appearance/Dimensions

BLE32PN260S□1



Packaging

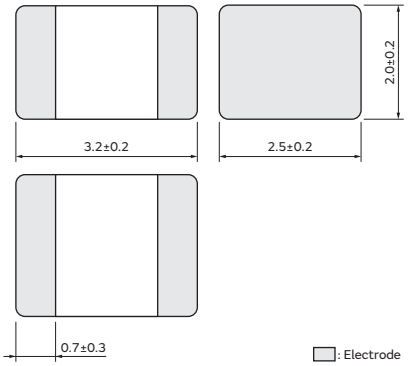
Code	Packaging	Minimum Quantity
K	ø330mm Embossed Tape	7000
L	ø180mm Embossed Tape	1500
B	Bulk(Bag)	1000

Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

Appearance/Dimensions

BLE32PN300S□1



Rated Value (□: packaging code)

Part Number		Impedance at 100MHz	Rated Current at 85°C	Rated Current at 125°C	DC Resistance (Max.)
Infotainment	Powertrain/Safety				
BLE32PN260SZ1□	BLE32PN260SH1□	26Ω±10Ω	10A	10A	1.6mΩ
BLE32PN300SZ1□	BLE32PN300SH1□	30Ω±10Ω	10A	10A	1.6mΩ

Operating Temp. Range: -55°C to 125°C

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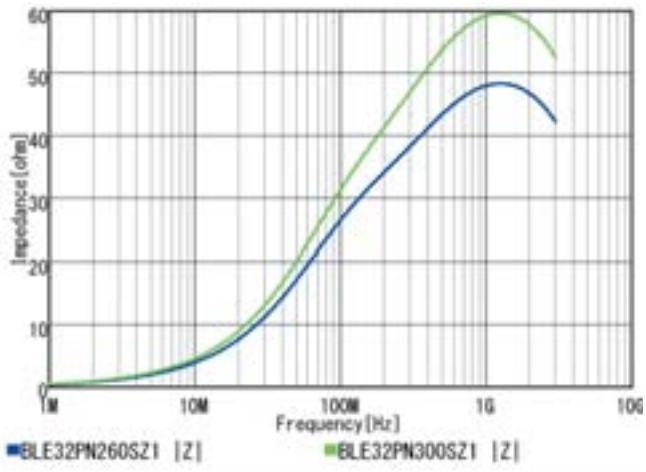
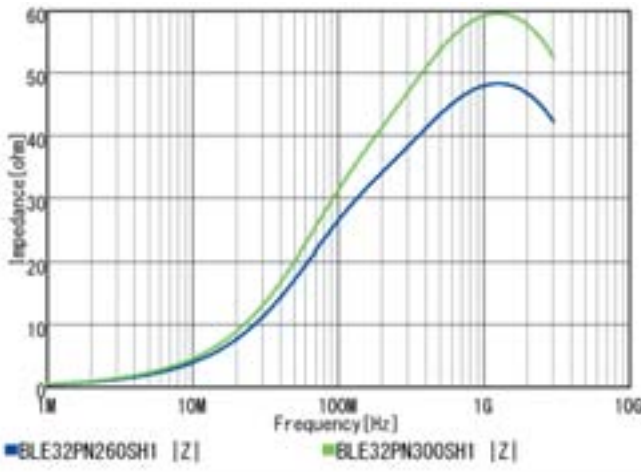
Continued from the preceding page.↘

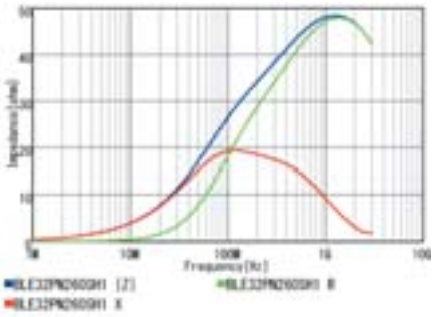
Z-f characteristics: BLE32PN_SZ1 series



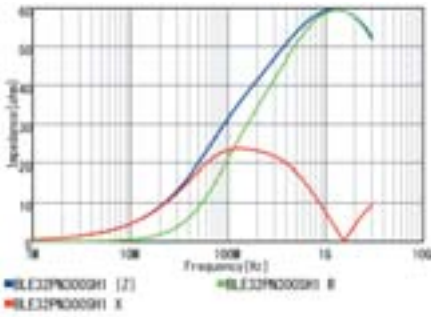
Z-f characteristics: BLE32PN_SH1 series



BLE32PN260SZ1/BLE32PN260SH1



BLE32PN300SZ1/BLE32PN300SH1



Chip Ferrite Bead (BL□ Series) ⚠Caution/Notice

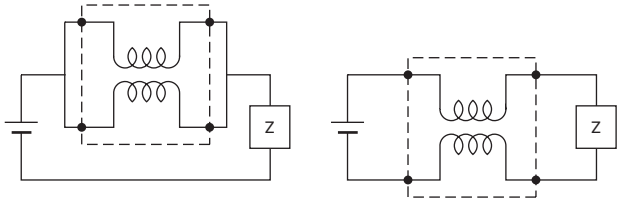
⚠Caution

Rating

1. About the Rated Current
   Do not use products beyond the rated current as this may create excessive heat and deteriorate the insulation resistance.
2. About the Excessive Surge Current
   Excessive surge current (pulse current or rush current) than specified rated current applied to the product may cause a critical failure, such as an open circuit, burnout caused by excessive temperature rise. Please contact us in advance in case of applying the surge current.

Soldering and Mounting

1. Self-heating
   Please pay special attention when mounting chip ferrite beads BLM□□AX/P/K/S series chip power beads BLE series in close proximity to other products that radiate heat. The heat generated by other products may deteriorate the insulation resistance and cause excessive heat in this component.
2. Terminal Connection (BLT)
   The terminations shall be connected correctly.
   The product consists of two coils.
   In order to provide the appropriate performance, two terminations shall be connected to the single power line and used as one coil.
   If the terminations are connected to the power line and ground line separately, serious problems such as open circuit, short circuit, or flames might be caused due to extreme heat generation.



right connection　　wrong connection

Notice

Storage and Operating Conditions

<Operating Environment>
Do not use products in the corrodible atmosphere such as acidic gases, alkaline gases, chlorine, sulfur gases, organic gases. (the sea breeze, Cl_2, H_2S, NH_3, SO_2, NO_2,etc)
Do not use products in the environment close to the organic solvent.
<Storage and Handling Requirements>
1. Storage Period
   BLM15E/15H/15G series should be used within 12 months, the other series should be used within 6 months. Solderability should be checked if this period is exceeded.
2. Storage Conditions
   (1) Storage temperature: -10 to +40˚C
   Relative humidity: 15 to 85%
   Avoid sudden changes in temperature and humidity.
   (2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

Notice (Soldering and Mounting)

1. Cleaning
   Failure and degradation of a product are caused by the cleaning method. When you clean in conditions that are not in mounting information, please contact Murata engineering.
2. Soldering
   Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in mounting information.
3. Mounting on-boad with Conductive Glue
   BLM18AG□□□WH is designed for conductive glue mounting method. Please refer to Mounting infomation.
4. Other
   Noise suppression levels resulting from Murata's EMI suppression filters EMIFIL® may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

Continued on the following page.↗

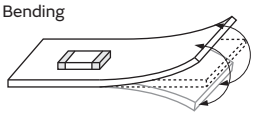
Chip Ferrite Bead (BL□ Series) ⚠Caution/Notice

Continued from the preceding page.↘

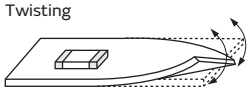
Handling

1. Resin Coating
   Using resin for coating/molding products may affect the products performance.
   So please pay careful attention in selecting resin.
   Prior to use, please make the reliability evaluation with the product mounted in your application set.
2. Handling of a Substrate
   After mounting products on a substrate, do not apply any stress to the product caused by bending or twisting to the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening screw to the substrate.
   Excessive mechanical stress may cause cracking in the Product.

Bending



Twisting

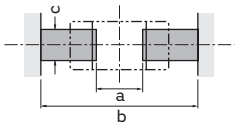
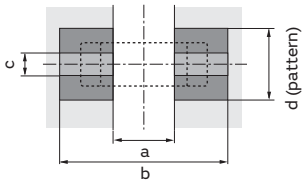


3. Mounting Density
   Add special attention to radiating heat of products when mounting the inductor near the products with heating.
   The excessive heat by other products may cause deterioration at joint of this product with substrate.

Chip Ferrite Bead (BL□ Series) Soldering and Mounting

1. Standard Land Pattern Dimensions

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

Series	Standard Land Dimensions
BLE18 **BLE32** **BLM03** **BLM15** **BLM18** **BLM21** **BLM31** **BLM41**	●Reflow and Flow BLM Series (Except for type (2).) *Please refer to (1).  BLE18PS·32PN·BLM□□AX/P/E/K/S·18KG_JH1/_BH1·AG_BH1·BD_BH1 *Please refer to (2). 

(1)

Type	Soldering	a	b	c
BLM03	Reflow	0.25	0.8	0.3
BLM15	Reflow	0.4	1.2	0.5
BLM18	Flow (except 18G)	0.8	2.5	0.7
	Reflow	0.7	2.0	
BLM21	Flow	1.1	3.5	0.95
	Reflow	1.2	2.4	1.25

- Except for BLM03AX·PG·PX·EB/15AX·PD·PG·PX/18PG_S□1·KG_S□1·KG_T□1·SG_T□1·SN_T□1·18KG_JH1/_BH1·AG_BH1·BD_BH1/21PG·SN. And BLM03/15/18G is specially adapted for reflow soldering.
- BLM18A_WH series is designed for conductive glue mounting method, not for normal soldering method.
  Please contact us for applicable mounting method for BLM18A_WH series.

(2)

Type	Rated Current (A)	Soldering	a	b	c	Land Pad Thickness and Dimension d		
						18μm	35μm	70μm
BLE18PS	8	Flow	0.8	2.5	0.7	-	6.4	3.3
		Reflow	0.7	2.0				
BLE32PN	10	Flow/Reflow	2.2	4.4	2.05	-	4.0 (Temperature 85°C or less)	-
						-	8.0 (Temperature 125°C or less)	-
BLM03AX **BLM03P□** **BLM03EB**	0.9max.	Reflow	0.25	0.8	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	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_S□1 **BLM18KG_S□1** **BLM18KG_T□1** **BLM18SG_T□1**	0.5-1.5	Flow/Reflow	Flow 0.8 Reflow 0.7	Flow 2.5 Reflow 2.0	Flow 0.7 Reflow 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
BLM18SN_T□1	8					-	6.4	3.3
BLM18KG_JH1 **BLM18KG_BH1** **BLM18AG_BH1** **BLM18BD_BH1**	1.0max.	Flow	0.8	2.5	0.7	0.7	0.7	0.7
	1.5max.					1.2	0.7	0.7
	2.5max.	Reflow	0.7	2.0		2.4	1.2	0.7
	4.0max.					6.4	3.3	1.65
BLM21PG	1.5	Flow/Reflow	Flow 1.1 Reflow 1.2	Flow 3.5 Reflow 2.4	Flow 0.95 Reflow 1.25	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
BLM21SN	6-8.5	Flow	1.1	3.5	0.95	-	6.8	3.4
		Reflow	1.2	2.4	1.25			
BLM31PG	1.5-2	Flow/Reflow	Flow 2.4 Reflow 2	Flow 4.7 Reflow 4.3	Flow 1.2 Reflow 1.8	1.2	1.2	1.2
	3.5					2.4	1.2	1.2
	6					6.4	3.3	1.65
BLM31KN_S□1	2					1.2	1.2	1.2
	2.5-2.9					2.4	1.2	1.2
	4-6					6.4	3.3	1.65
BLM31KN_B□1	1.4					1.2	1.2	1.2
	1.7-2.0					2.4	1.2	1.2
	2.7-4					6.4	3.3	1.65
BLM31SN	10-12					-	9.8	4.9
BLM41PG	1.5-2	Flow/Reflow	1.2	6.0	3.0	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 BLMppAX/P/K/S. Narrow pattern can cause excessive heat or open circuit.

Continued on the following page.↗

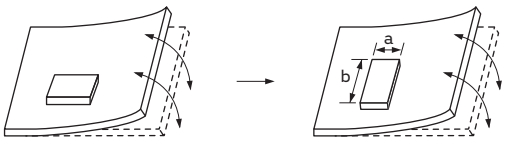
Chip Ferrite Bead (BL□ Series) Soldering and Mounting

Continued from the preceding page.↘

● 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.

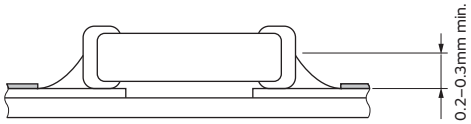


Poor example　　Good example

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.

(in mm)

Series	Solder Paste Printing
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: 100-150μm: BLM03 100-200μm: BLM15/18/21/31/41/BLE18/32 

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.

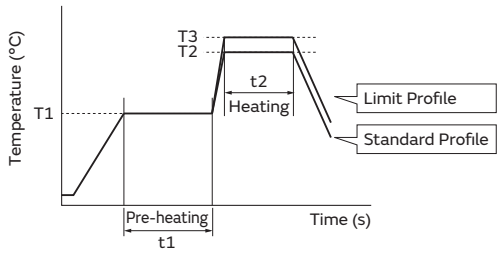
Continued on the following page.↗

Chip Ferrite Bead (BL□ Series) Soldering and Mounting

Continued from the preceding page.↘

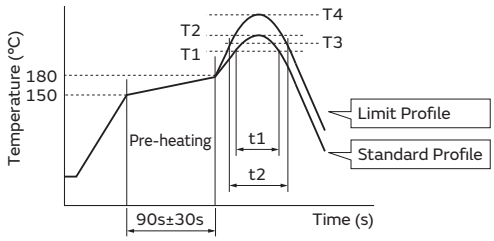
(2) Soldering Profile

●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 BLM03/15/18G/18AG_W/31KN) **BLE**	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 (Except for BLM18AG_W) BLE	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.
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.

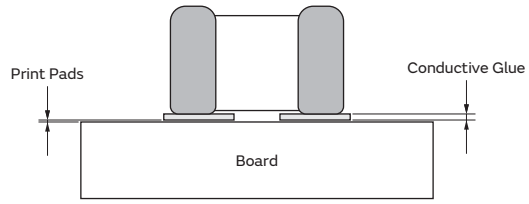
Continued on the following page.↗

Chip Ferrite Bead (BL□ Series) Soldering and Mounting

Continued from the preceding page.↘

4. Mounting on-board with Conductive Glue of BLM18AG□□□WH1

Please adhere rigidly to the condition below which shows the method of mounting with conductive glue.
Please coat print pads with conductive glue using metal mask and metal squeegee, and then mount our products on the substrates with a mount machine or human hand.
Please put the substrates into an oven (140 to 150°C) for 30 minutes in order to cure the adhesive.
Please check whether the chips and the substrates are connected with the conductive glue or not and there is no electrical short of the conductive glue.



1. Board	Ceramic Board or Alumina Board
2. Thickness of Glue	30 to 50μm
3. Recommended Conductive Glue	PC3000 (Manufactured by Heraeus)

5. Cleaning

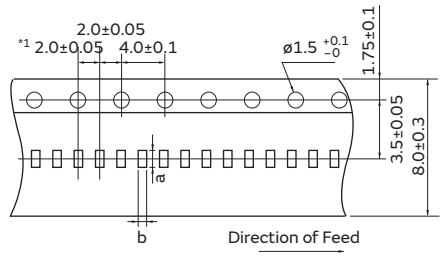
Following conditions should be observed when cleaning chip ferrite beads.

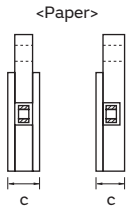
(1) Cleaning Temperature: 60°C max. (40°C max. for alcohol type cleaner)
(2) Ultrasonic
Output: 20W/liter max.
Duration: 5 minutes max.
Frequency: 28 to 40kHz
(3) Cleaning Agent
The following list of cleaning agents have been tested on the individual components. Evaluation of final assembly should be completed prior to production.
Do not clean BLM18AG□□□WH1 series. Before cleaning, please contact Murata engineering.
(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.

For additional cleaning methods, please contact Murata engineering.

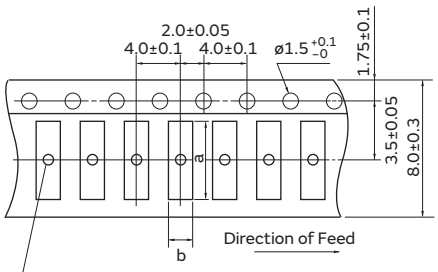
Chip Ferrite Bead (BL□ Series) Packaging

Minimum Quantity and Dimensions of 8mm Width Paper / Embossed Tape

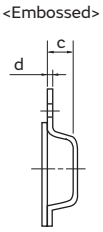




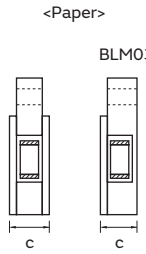
*1 BLM18S/18T/BLA2A: 2.0±0.1



There are holes in the cavities of the BLM21BD222S□1/BD272S□1 and BLM31 only. ø1.0 +0.3 -0.
BLE32 only. ø1.0 +0.2 -0.



c: Depth of Cavity (Embossed Tape)



c: Total Thickness of Tape (Paper Tape)

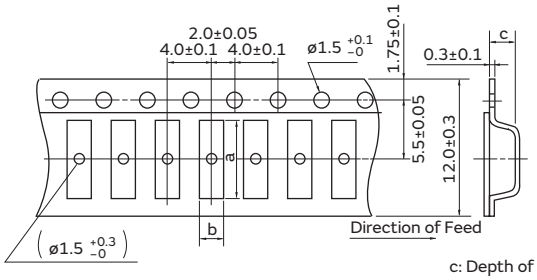
Dimension of the cavity of embossed tape is measured at the bottom side.

Part Number	Dimensions				Minimum Qty. (pcs.)				
					ø180mm Reel		ø330mm Reel		Bulk
	a	b	c	d	Paper Tape	Embossed Tape	Paper Tape	Embossed Tape	
BLM03	0.70 (except 03H/03E)	0.40 (except 03H/03E)	0.55 max.	-	15000	-	50000	-	1000
BLM15	1.15	0.65	0.8 max.	-	10000	-	50000	-	1000
BLM18A/B/P/H/G	1.85	1.05	1.1 max. (except JH/TH/TZ)	-	4000	-	10000	-	1000
BLM18EG/KG_T□	1.85	1.05	0.85 max.	-	4000	-	10000	-	1000
BLM18EG/KG_S□			1.1 max.						
BLM18S	1.85	1.05	0.90 max.	-	10000	-	30000	-	1000
BLM21	2.25	1.45	1.1 max.	-	4000	-	10000	-	1000
BLM31	3.5	1.9	1.3	0.2	-	3000	-	10000	1000
BLM21BD222S□1/272S□1	2.25	1.45	1.3	0.2	-	3000	-	10000	1000
BLE18PS080S□1	1.85	1.05	0.85	-	4000	-	10000	-	1000
BLE32PN260S□1	3.5	2.8	1.75	0.25	-	1500	-	7000	1000
BLE32PN300S□1			2.3						
BLM31KN_S□1/B□1	3.5	1.9	1.75	0.2	-	2500	-	8000	1000

- BLM03H/03E. Dimensions a: 0.66, b: 0.36.
- BLM18_JH/TH/TZ. Dimensions c: 0.85 max.

(in mm)

Minimum Quantity and Dimensions of 12mm Width Embossed Tape



c: Depth of Cavity

Dimension of the cavity is measured at the bottom side.

Part Number	Dimensions			Minimum Qty. (pcs.)		
	a	b	c	ø180mm Reel	ø330mm Reel	Bulk
BLM41	4.8	1.9	1.75	2500	8000	1000

(in mm)

"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity."

Mouser Electronics

Authorized Distributor

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Murata:

BLH03HG901SN1D BLM03PX121SN1D BLM21AG151BH1D BLM21AG331BH1D BLM03HG601SH1D BLM15BD152SZ1D BLM03HG122SH1D BLT5BPT680LN1L BLM15BD152SN1D BLE32PN260SN1L BLE32PN260SZ1L BLE32PN300SH1L BLM03HB401SN1D BLM03HB401SZ1D BLM03HG102SH1D BLM21PG600BH1D BLE18PS080BH1D BLE18PS080SH1D BLE18PS080SN1D BLE18PS080SZ1D BLE32PN260SH1L BLM03PX121SZ1D BLM21AG471BH1D BLM21PG221BH1D BLM21PG300BH1D