

Chip Ferrite Bead BLM18□□□□WH1D
Murata Standard Reference Specification[AEC-Q200]

1.Scope

This reference specification applies to Chip Ferrite Bead for Automotive Electronics BLM18_WH Series based on AEC-Q200.

2.Part Numbering

(ex.) BL M 18 AG 471 W H 1 D
 (1) (2) (3) (4) (5) (6) (7) (8) (9)

- (1)Product ID (4)Characteristics (7)Category(for Automotive Electronics)
- (2)Type (5)Typical Impedance at 100MHz (8)Numbers of Circuit
- (3)Dimension (L×W) (6)Performance(for Conductive Glue) (9)Packaging (D:Taping/B:Bulk)

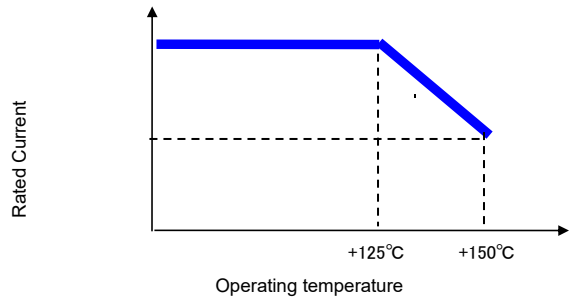
3.Rating

| Customer Part Number | MURATA Part Number | Impedance (Ω) (at 100MHz)(*1) (refer to below comment) | | Rated Current (mA) | | DC Resistance (Ω max.) | | ESD Rank |
|----------------------|--------------------|--|------|--------------------|------|------------------------|----------------------|----------|
| | | | | | | Initial Values | Values After Testing | |
| | | | | | | | | |
| | BLM18AG471WH1D | 470±25% | 470 | 1000 | 500 | 0.20 | 0.26 | 1B |
| | BLM18AG102WH1D | 1000±25% | 1000 | 200 | 200 | 0.70 | 0.8 | |
| | BLM18KG260WH1D | 26±25% | 26 | 2000 | 1200 | 0.032 | 0.037 | 6 |
| | BLM18KG300WH1D | 30±25% | 30 | 1850 | 1100 | 0.035 | 0.040 | |
| | BLM18KG700WH1D | 70±25% | 70 | 1650 | 1000 | 0.047 | 0.057 | |
| | BLM18KG101WH1D | 100±25% | 100 | 1500 | 900 | 0.055 | 0.065 | |
| | BLM18KG121WH1D | 120±25% | 120 | 1500 | 900 | 0.055 | 0.065 | |
| | BLM18KG221WH1D | 220±25% | 220 | 1400 | 800 | 0.080 | 0.090 | |
| | BLM18KG331WH1D | 330±25% | 330 | 1250 | 700 | 0.110 | 0.125 | |
| | BLM18KG471WH1D | 470±25% | 470 | 1100 | 600 | 0.160 | 0.175 | |
| | BLM18KG601WH1D | 600±25% | 600 | 1000 | 500 | 0.180 | 0.195 | |
| | BLM18KG102WH1D | 1000±25% | 1000 | 800 | 450 | 0.230 | 0.245 | |

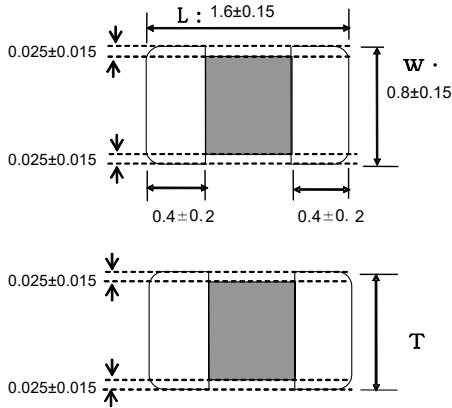
• Operating Temperature : -55°C to +150°C

• Storage Temperature : -55°C to +150°C

Rated Current is derated as shown in the right figure depending on the operating temperature.

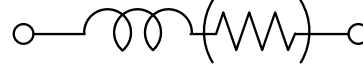


4.Style and Dimensions



| Item | T(mm) |
|----------------------------|----------|
| BLM18KG260/300/700/101/121 | 0.6±0.15 |
| BLM18KG221/331/471/601/102 | 0.8±0.15 |
| BLM18AG | 0.8±0.15 |

■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Unit Mass (Typical value)

BLM18KG260/300/700/101/121 : 0.004g
 BLM18KG221/331/471/601/102 : 0.005g
 BLM18AG

5.Marking

No marking.

6.Standard Testing Conditions

< Unless otherwise specified >

Temperature : Ordinary Temp. (15 °C to 35 °C)
 Humidity : Ordinary Humidity (25%(RH) to 85%(RH))

< In case of doubt >

Temperature : 20°C±2 °C
 Humidity : 60%(RH) to 70%(RH)
 Atmospheric pressure : 86kPa to 106kPa

7.Specifications

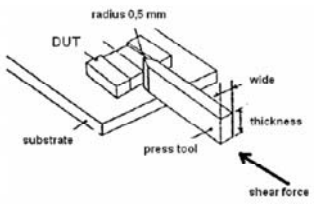
7-1.Electrical Performance

| No. | Item | Specification | Test Method |
|-------|---------------|---------------|---|
| 6-1-1 | Impedance | Meet item 3. | Measuring Frequency : 100MHz±1MHz Measuring Equipment : KEYSIGHT 4991A or the equivalent Test Fixture : KEYSIGHT 16192A or the equivalent |
| 6-1-2 | DC Resistance | Meet item 3. | Measuring Equipment : Digital multi meter *Except resistance of the Substrate and Wire |

7-2. Mechanical Performance(based on Table 13 for FILTER EMI SUPPRESSORS/FILTERS)

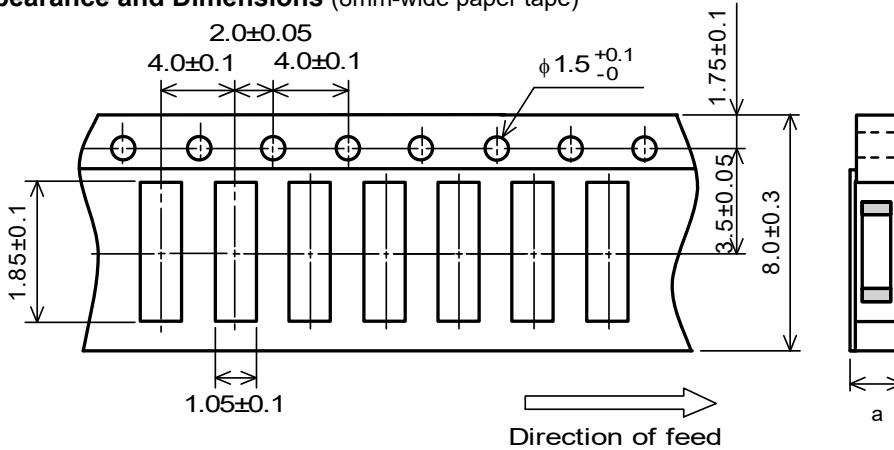
AEC-Q200 Rev.D issued June. 1 2010

| AEC-Q200 | | | Murata Specification / Deviation | | | | | | |
|------------------------------|-------------------------------|--|--|------------|-----------|------------------------------|-------------|---------------|--------------|
| No. | Stress | Test Method | | | | | | | |
| 3 | High Temperature Exposure | 1000hours at 150deg C Set for 24hours at room temperature, then measured. | Meet Table A after testing. Table A <table border="1" style="margin-left: 20px;"> <tr> <td>Appearance</td> <td>No damage</td> </tr> <tr> <td>Impedance Change (at 100MHz)</td> <td>Within ±50%</td> </tr> <tr> <td>DC Resistance</td> <td>Meet item 3.</td> </tr> </table> | Appearance | No damage | Impedance Change (at 100MHz) | Within ±50% | DC Resistance | Meet item 3. |
| Appearance | No damage | | | | | | | | |
| Impedance Change (at 100MHz) | Within ±50% | | | | | | | | |
| DC Resistance | Meet item 3. | | | | | | | | |
| 4 | Temperature Cycling | 1000cycles -55 deg C to +150 deg C Set for 24hours at room temperature, then measured. | Meet Table A after testing. | | | | | | |
| 5 | Destructive Physical Analysis | Per EIA469 No electrical tests | No defects | | | | | | |

| AEC-Q200 | | | Murata Specification / Deviation | | | | | | |
|------------------------------|--|---|---|------------|-----------|------------------------------|--|---------------|--------------|
| No. | Stress | Test Method | | | | | | | |
| 7 | Biased Humidity | 1000hours at 85 deg C, 85%RH Apply max rated current. | Meet Table B after testing. TableB <table border="1" style="margin-left: 20px;"> <tr> <td>Appearance</td> <td>No damage</td> </tr> <tr> <td>Impedance Change (at 100MHz)</td> <td>With in ±50% (BLM18KG) With in ±30% (BLM18AG)</td> </tr> <tr> <td>DC Resistance</td> <td>Meet item 3.</td> </tr> </table> | Appearance | No damage | Impedance Change (at 100MHz) | With in ±50% (BLM18KG) With in ±30% (BLM18AG) | DC Resistance | Meet item 3. |
| Appearance | No damage | | | | | | | | |
| Impedance Change (at 100MHz) | With in ±50% (BLM18KG) With in ±30% (BLM18AG) | | | | | | | | |
| DC Resistance | Meet item 3. | | | | | | | | |
| 8 | Operational Life | Apply 150 deg C 1000hours Set for 24hours at room temperature, then measured | Meet Table A after testing. If the rated current of arts exceed 10mA, The operating temperature should be 125 deg C. | | | | | | |
| 9 | External Visual | Visual inspection | No abnormalities | | | | | | |
| 10 | Physical Dimension | Meet ITEM 4 (Style and Dimensions) | No defects | | | | | | |
| 12 | Resistance to Solvents | Per MIL-STD-202 Method 215 | Not Applicable | | | | | | |
| 13 | Mechanical Shock | Per MIL-STD-202 Method 213 Condition F 1500g's (14.7N)/0.5ms/ Half sine | Meet Table C after testing. TableC <table border="1" style="margin-left: 20px;"> <tr> <td>Appearance</td> <td>No damage</td> </tr> <tr> <td>Impedance Change (at 100MHz)</td> <td>With in ±30%</td> </tr> <tr> <td>DC Resistance</td> <td>Meet item 3.</td> </tr> </table> | Appearance | No damage | Impedance Change (at 100MHz) | With in ±30% | DC Resistance | Meet item 3. |
| Appearance | No damage | | | | | | | | |
| Impedance Change (at 100MHz) | With in ±30% | | | | | | | | |
| DC Resistance | Meet item 3. | | | | | | | | |
| 14 | Vibration | 5g's(0.049N) for 20 minutes, 12cycles each of 3 orientations Test from 10-2000Hz. | Meet Table C after testing. | | | | | | |
| 15 | Resistance to Soldering Heat | Solder temperature 260C+/-5 deg C Immersion time 10s | Not Applicable | | | | | | |
| 17 | ESD | Per AEC-Q200-002 | Meet Table C after testing. ESD Rank: Meet Item 3. (Rating) | | | | | | |
| 18 | Solderability | Per J-STD-002 | Not Applicable | | | | | | |
| 19 | Electrical Characterization | Measured : Impedance | No defects | | | | | | |
| 20 | Flammability | Per UL-94 | Not Applicable | | | | | | |
| 21 | Board Flex | Epoxy-PCB(1.6mm) Deflection 2mm(min) 60s minimum holding tim | Not Applicable | | | | | | |
| 22 | Terminal Strength | Applying Force : 4.8N Applying Time : 5s±1s Applying Direction as shown below.  | Meet Table A after testing. | | | | | | |
| 30 | Electrical Transient Conduction | Per ISO-7637-2 | Not Applicable | | | | | | |

8.Specification of Packaging

8-1.Appearance and Dimensions (8mm-wide paper tape)



| Item | Dimension "a" |
|----------------------------|---------------|
| BLM18KG260/300/700/101/121 | 0.85Max |
| BLM18KG221/331/471/601/102 | 1.10Max |
| BLM18AG | |

(in mm)

(1) Taping

Products shall be packaged in the cavity of the base tape of 8mm-wide,4mm-pitch continuously and sealed by top tape and bottom tape.

(2) The sprocket holes are to the right as the tape is pulled toward the user.

(3) Spliced point:The base tape and top tape have no spliced point

(4) Cavity:There shall not be burr in the cavity.

(5) Missing components number

Missing components number within 0.025% of the number per reel or 1 pc., whichever is greater, and are not continuous. The specified quantity per reel are kept.

8-2.Tape Strength

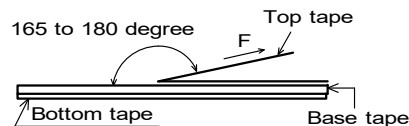
(1) Pull Strength

| | |
|-------------|---------|
| Top tape | 5N min. |
| Bottom tape | |

(2)Peeling off force of Top tape

0.1N to 0.6N (Minimum value is typical.)

*Speed of Peeling off:300mm/min



8-3.Taping Condition

(1)Standard quantity per reel

Quantity per 180mm reel: 4000 pcs. / reel

(2)There shall be leader-tape (top tape and empty tape) and trailer- tape(empty tape) as follows.

(3)On paper tape, the top tape and the base tape shall not be adhered at the tip of the empty leader tape for more than 5 pitch.

(4)Marking for reel

The following items shall be marked on a label and the label is stuck on the reel.

(Customer part number, MURATA part number, Inspection number(*1) , RoHS marking (*2) , Quantity, etc)

*1) « Expression of Inspection No. » $\square\square$ $\bigcirc\bigcirc\bigcirc\bigcirc$ $\times\times\times$
(1) (2) (3)

(1) Factory Code

(2) Date

First digit : Year / Last digit of year

Second digit : Month / Jan. to Sep. → 1 to 9, Oct. to Dec. → O, N, D

Third, Fourth digit : Day

(3) Serial No.

*2) « Expression of RoHS marking » ROHS – Y (Δ)
(1) (2)

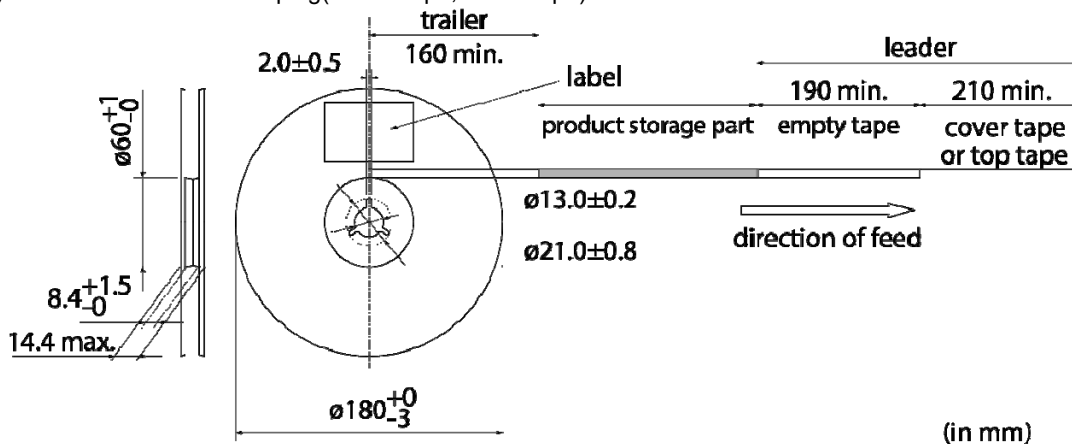
(1) RoHS regulation conformity parts.

(2) MURATA classification number

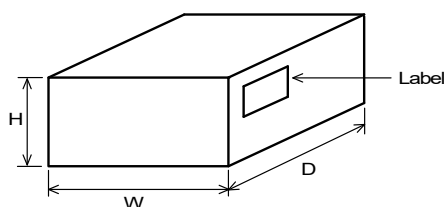
(5) Outside package

These reels shall be packed in the corrugated cardboard package and the following items shall be marked on a label and the label is stuck on the box.
 (Customer name, Purchasing order number, Customer part number, MURATA part number, RoHS discrimination(*2), Quantity, etc)

(6) Dimensions of reel and taping (leader-tape, trailer-tape)



8-4. Specification of Outer Case



| Outer Case Dimensions (mm) | | | Standard Reel Quantity in Outer Case (Reel) |
|----------------------------|-----|----|---|
| W | D | H | |
| 186 | 186 | 93 | 5 |

* Above Outer Case size is typical. It depends on a quantity of an order.

9. Caution

9-1. Rating

Do not use products beyond the Operating Temperature Range and Rated Current.

9-2. Operating Environment

- (1) Don't use our products over the operating temperature, because it may make the deterioration of their electric characteristics. In worst case, it may cause smoke from the adhesive because of the excessive heat.
- (2) Do not use this product in the corrodible atmosphere (acidic gases, alkaline gases, chlorine, sulfur gases, organic gases and etc.), because the atmosphere may cause deterioration of the electrical characteristic because of the corrosion of the inner electrodes and outer electrodes and deterioration of the adhesive.

9-3. Mounting Density

Don't be soldered on the substrate. This product must be mounted on the substrate with conductive glue. Add special attention to radiating heat of some products with heating when mounting our product near the products.

The excessive heat by other products may cause deterioration of our product's characteristics or incorrect operation, so be sure to use our product under the operating temperature including the heat from other products.

9-4. Fail Safe

Be sure to provide an appropriate fail-safe function on your product to prevent from a second damage that may be caused by the abnormal function or the failure of our products.

9-5. Limitation of Applications

Please contact us before using our products for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property.

- | | |
|----------------------------------|---|
| (1)Aircraft equipment | (6)Disaster prevention / crime prevention equipment |
| (2)Aerospace equipment | (7)Traffic signal equipment |
| (3)Undersea equipment | (8)Transportation equipment (trains,ships,etc.) |
| (4)Power plant control equipment | (9) Data-processing equipment |
| (5)Medical equipment | (10)Applications of similar complexity and /or reliability requirements to the applications listed in the above |

10. Notice

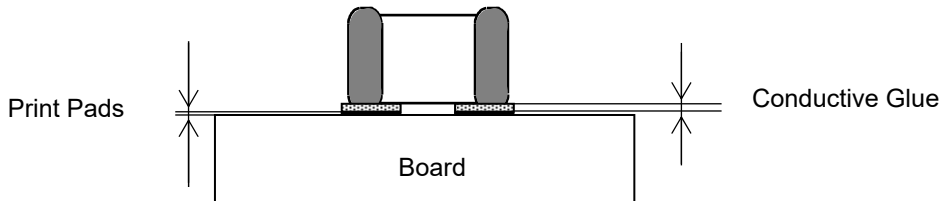
This product is designed for adhesive with conductive glue, so we can't guarantee for other connecting method. If you plan to take another connecting method, please contact us.

10-1. How to mount this product on a board with conductive glue

Please refer to the figure and table below which shows the method of recommended mounting with conductive glue.

(We recommend using a mounting machine to mount this product.)

Please coat print pads with recommended conductive glue "PC3000" manufactured by Heraeus with 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 a oven (140~150 °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 electrically short of the conductive glue.



| | |
|------------------------------|----------------------------------|
| ①Board | Ceramic Board or Alumina Board |
| ②Thickness of Glue | 30-50 μ m |
| ③Recommended Conductive Glue | PC3000 (Manufactured by Heraeus) |

10-2.Storage Conditions

(1)Storage period

Use the products within 6 months after delivered.
Adhesive performance should be checked if this period is exceeded.

(2)Storage conditions

- Products should be stored in the warehouse on the following conditions.
 - Temperature : -10°C to 40°C
 - Humidity : 15% to 85% relative humidity
 - No rapid change on temperature and humidity
- Don't keep products in corrosive gases such as sulfur, chlorine gas or acid, or it may cause oxidation of electrode, resulting in poor solderability.
- Products should be stored on the palette for the prevention of the influence from humidity, dust and so on.
- Products should be stored in the warehouse without heat shock, vibration, direct sunlight and so on.
- Products should be stored under the airtight packaged condition.

(3)Delivery

Care should be taken when transporting or handling product to avoid excessive vibration or mechanical shock.

11. ⚠ Note

- (1)Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.
- (2)You are requested not to use our product deviating from the agreed specifications.
- (3) The contents of this reference specification are subject to change without advance notice. Please approve our product specifications or transact the approval sheet for product specifications before ordering.

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