

# Normal Mode for Signal Line, Through-Hole Type, Bead Lead Type Series

## Overview

The KEMET lead type beads intended for normal mode noise suppression have a wide variety of characteristics. These through-hole beads are designed with our proprietary ferrite material and are suitable for noise countermeasure in DC signal line circuits.

## Applications

- Audio-visual equipment
- Office automation equipment
- Digital appliances
- Home appliances
- Power supplies

## Benefits

- Proprietary Nickel-Zinc (Ni-Zn) ferrite core
- High loss
- High reliability
- Operating temperature range from -20°C to +70°C
- RoHS Compliant



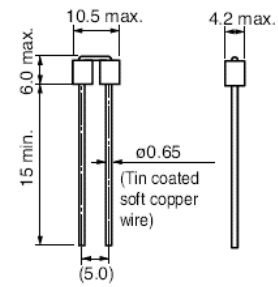
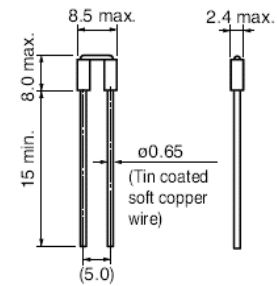
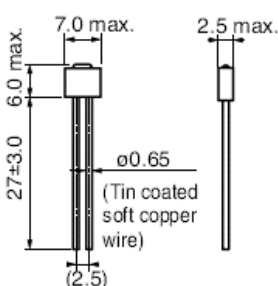
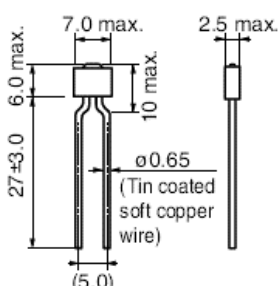
## Part Number System

| B-     | 01-   | R  | T   |
|--------|---|--|---|
| Series | Impedance ( $\Omega$ )  | Lead Type                                | Packaging Type                                      |
| Bead   | 01 = 2 $\Omega$<br>02 = 4 $\Omega$<br>03 = 5 $\Omega$<br>06 = 40 $\Omega$ | A<br>A1<br>A2<br>R<br>R-25<br>R-50<br>RS | Blank = Bulk<br>T = Tape & Reel<br>TF = Flat taping |

## Dimensions – Millimeters

| Part Number | Dimensions - Millimeters  |
|-------------|---|
| B-01-R      | <p>Technical drawing of B-01-R component. Side view shows a lead length of 13 max and a body length of 20 min. The lead diameter is <math>\phi 0.65</math> (Tin coated soft copper wire). The body diameter is <math>\phi 3.4 \pm 0.2</math> and the body length is <math>4.4 \pm 0.2</math>. The lead is bent at a 90-degree angle. The bottom width is 5.0.</p>                                       |
| B-01-RS     | <p>Technical drawing of B-01-RS component. Side view shows a lead length of 7.5 max and a body length of 20 min. The lead diameter is <math>\phi 0.65</math> (Tin coated soft copper wire). The body diameter is <math>\phi 3.4 \pm 0.2</math> and the body length is <math>4.4 \pm 0.2</math>. The lead is bent at a 90-degree angle. The bottom width is 5.0.</p>                                     |
| B-01-A      | <p>Technical drawing of B-01-A component. Top view shows a body diameter of <math>\phi 3.4 \pm 0.2</math> and a body length of <math>4.4 \pm 0.2</math>. The lead diameter is <math>\phi 0.65</math> (Tin coated soft copper wire). The total length of the component is <math>67 \pm 2.0</math>.</p>   |
| B-01-A1     | <p>Technical drawing of B-01-A1 component. Side view shows a lead length of 12.5 <math>\pm</math> 0.8 and a body length of 6.5. The lead diameter is <math>\phi 0.65</math> (Tin coated soft copper wire). The body diameter is <math>\phi 3.4 \pm 0.2</math> and the body length is <math>4.4 \pm 0.2</math>. The lead is bent at a 90-degree angle. The bottom width is 4.5 <math>\pm</math> 1.0.</p> |
| B-01-A2     | <p>Technical drawing of B-01-A2 component. Side view shows a lead length of 10 <math>\pm</math> 0.8 and a body length of 6.5. The lead diameter is <math>\phi 0.65</math> (Tin coated soft copper wire). The body diameter is <math>\phi 3.4 \pm 0.2</math> and the body length is <math>4.4 \pm 0.2</math>. The lead is bent at a 90-degree angle. The bottom width is 4.5 <math>\pm</math> 1.0.</p>   |

**Dimensions – Millimeters cont.**

| Part Number | Dimensions - Millimeters   |
|-------------|--|
| B-02-R      |  <p>10.5 max.<br/>         4.2 max.<br/>         6.0 max.<br/>         15 min.<br/>         5.0<br/> <math>\phi 0.65</math><br/>         (Tin coated soft copper wire)</p>                      |
| B-03-R      |  <p>8.5 max.<br/>         2.4 max.<br/>         8.0 max.<br/>         15 min.<br/>         5.0<br/> <math>\phi 0.65</math><br/>         (Tin coated soft copper wire)</p>                       |
| B-06-R-25   |  <p>7.0 max.<br/>         2.5 max.<br/>         6.0 max.<br/>         27±3.0<br/>         2.5<br/> <math>\phi 0.65</math><br/>         (Tin coated soft copper wire)</p>                       |
| B-06-R-50   |  <p>7.0 max.<br/>         2.5 max.<br/>         6.0 max.<br/>         10 max.<br/>         27±3.0<br/>         5.0<br/> <math>\phi 0.65</math><br/>         (Tin coated soft copper wire)</p> |

## Environmental Compliance

All KEMET DC line filters are RoHS Compliant.



## Performance Characteristics

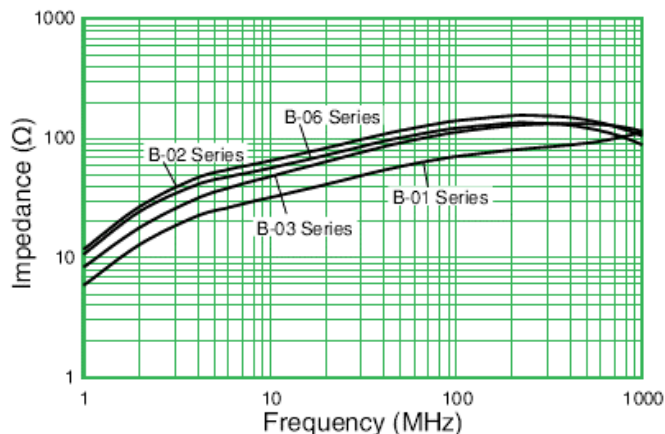
| Item                  | Performance Characteristics                          |
|-----------------------|--|
| Rated Current         | 5 A  |
| Impedance Range       | 2 – 40 $\Omega$                                      |
| Shape                 | Single-bead and double-bead                          |
| Lead Type             | Axial and radial                                     |
| Operating Temperature | -20°C to +70°C (not including self-temperature rise) |

**Table 1 – Ratings & Part Number Reference**

| Part Number | Rated Current DC <sup>1</sup> (A) | Impedance ( $\Omega$ ) | Shape       | Lead Type | Weight (g) |
|-------------|-----------------------------------|------------------------|-------------|-----------|------------|
| B-01-R      | 5                                 | 2 at 1 MHz             | Single-bead | Radial    | 0.40       |
| B-01-RT     | 5                                 | 2 at 1 MHz             | Single-bead | Radial    | 0.40       |
| B-01-RTF    | 5                                 | 2 at 1 MHz             | Single-bead | Radial    | 0.40       |
| B-01-RS     | 5                                 | 2 at 1 MHz             | Single-bead | Radial    | 0.40       |
| B-01-RTS    | 5                                 | 2 at 1 MHz             | Single-bead | Radial    | 0.40       |
| B-01-RTSF   | 5                                 | 2 at 1 MHz             | Single-bead | Radial    | 0.40       |
| B-01-A      | 5                                 | 2 at 1 MHz             | Single-bead | Axial     | 0.40       |
| B-01-A1     | 5                                 | 2 at 1 MHz             | Single-bead | Axial     | 0.30       |
| B-01-A2     | 5                                 | 2 at 1 MHz             | Single-bead | Axial     | 0.30       |
| B-01-AT     | 5                                 | 2 at 1 MHz             | Single-bead | Axial     | 0.40       |
| B-01-ATF    | 5                                 | 2 at 1 MHz             | Single-bead | Axial     | 0.40       |
| B-01-AT1F   | 5                                 | 2 at 1 MHz             | Single-bead | Axial     | 0.30       |
| B-02-R      | 5                                 | 4 at 1 MHz             | Double-bead | Radial    | 0.60       |
| B-02-RT     | 5                                 | 4 at 1 MHz             | Double-bead | Radial    | 0.60       |
| B-02-RTF    | 5                                 | 4 at 1 MHz             | Double-bead | Radial    | 0.60       |
| B-03-R      | 5                                 | 5 at 1 MHz             | Double-bead | Radial    | 0.30       |
| B-03-RT     | 5                                 | 5 at 1 MHz             | Double-bead | Radial    | 0.30       |
| B-06-R-25   | 5                                 | 40 at 10 MHz           | Double-bead | Radial    | 0.50       |
| B-06-RTF-25 | 5                                 | 40 at 10 MHz           | Double-bead | Radial    | 0.50       |
| B-06-R-50   | 5                                 | 40 at 10 MHz           | Double-bead | Radial    | 0.50       |
| B-06-RTF-50 | 5                                 | 40 at 10 MHz           | Double-bead | Radial    | 0.52       |

<sup>1</sup> Rated current values are not guaranteed by impedance levels; these values are permissible levels when the lead wire temperature rise is 20°C.

## Frequency Characteristics

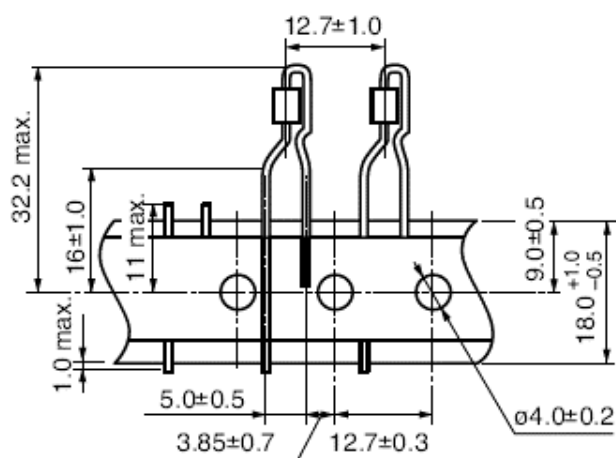


## Packaging

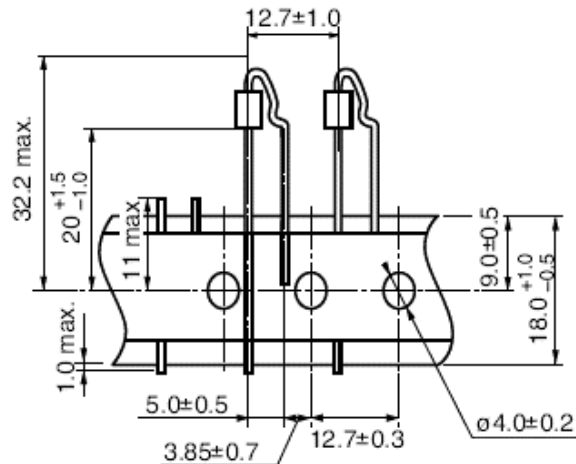
| Part Type   | Packaging Type | Pieces per Package | Pieces per Box |
|-------------|----------------|--------------------|----------------|
| B-01-R      | Bulk           | 100                | 18,000         |
| B-01-RT     | Tape & Reel    | 2,000              | 12,000         |
| B-01-RTF    | Flat taping    | 2,000              | 20,000         |
| B-01-RS     | Bulk           | 100                | 18,000         |
| B-01-RTS    | Tape & Reel    | 2,000              | 12,000         |
| B-01-RTSF   | Flat taping    | 2,000              | 20,000         |
| B-01-A      | Bulk           | 100                | 18,000         |
| B-01-A1     | Bulk           | 250                | 30,000         |
| B-01-A2     | Bulk           | 250                | 30,000         |
| B-01-AT     | Tape & Reel    | 5,000              | 20,000         |
| B-01-ATF    | Flat taping    | 1,500              | 15,000         |
| B-01-AT1F   | Flat taping    | 2,000              | 32,000         |
| B-02-R      | Bulk           | 100                | 12,000         |
| B-02-RT     | Tape & Reel    | 2,000              | 12,000         |
| B-02-RTF    | Flat taping    | 1,500              | 15,000         |
| B-03-R      | Bulk           | 100                | 18,000         |
| B-03-RT     | Tape & Reel    | 2,000              | 12,000         |
| B-06-R-25   | Bulk           | 100                | 12,000         |
| B-06-RTF-25 | Flat taping    | 1,500              | 15,000         |
| B-06-R-50   | Bulk           | 100                | 12,000         |
| B-06-RTF-50 | Flat taping    | 1,500              | 15,000         |

## Taping Specifications

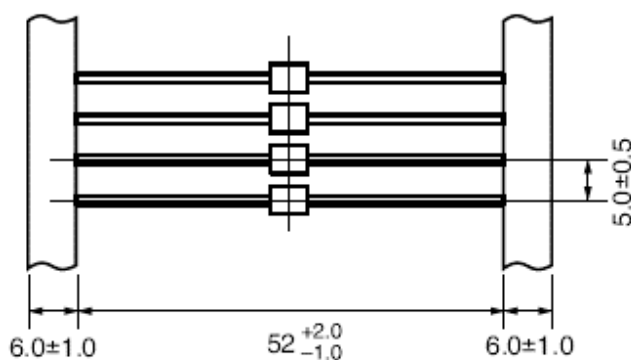
B-01-R\*\*



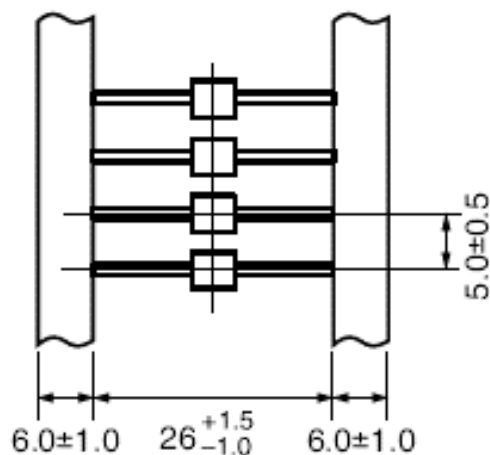
B-01-RS\*\*



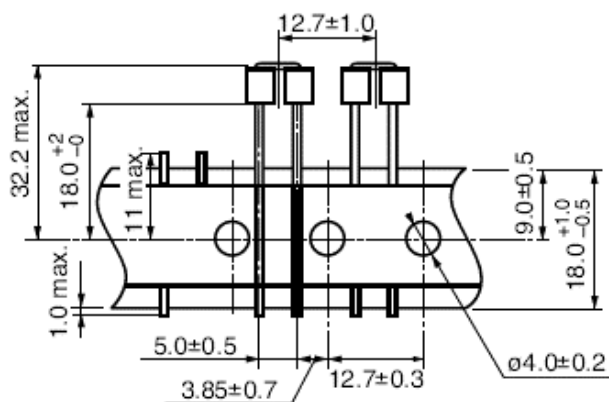
B-01-A\*\*



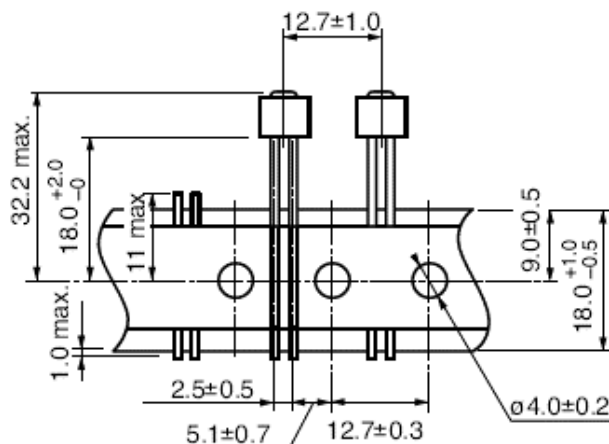
B-01-A1\*\*



B-02-R\*\* & B-03-R\*

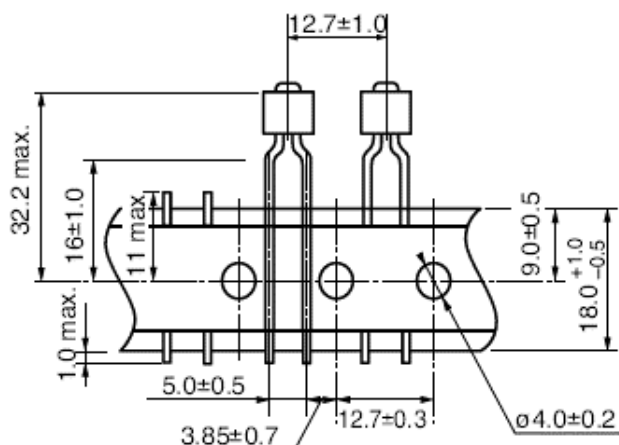


B-06-RTF25



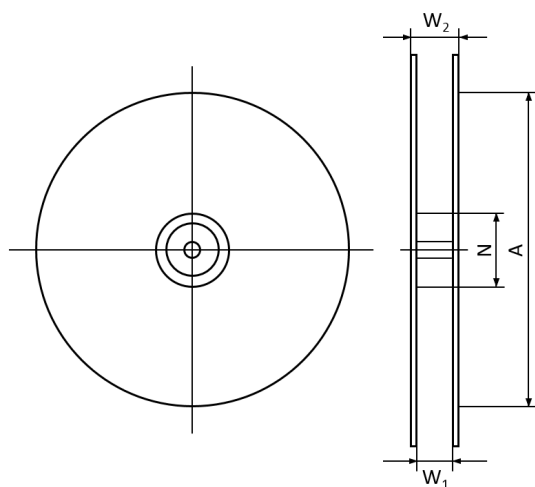
## Taping Specifications cont.

### B-06-RTF50



## Reel Specifications

### Reel Dimensions - Millimeters



| Part Number | A     | N     | W <sub>1</sub><br>+1.0, -0.0 | W <sub>2</sub><br>Maximum |
|-------------|-------|-------|------------------------------|---------------------------|
| B-01-AT     | 360.0 | 81.0  | 68.0                         | 73.2                      |
| B-01-RT     | 360.0 | 140.0 | 44.0                         | 50.2                      |
| B-01-RTS    | 360.0 | 140.0 | 44.0                         | 50.2                      |
| B-02-RT     | 360.0 | 140.0 | 44.0                         | 50.2                      |
| B-03-RT     | 360.0 | 140.0 | 44.0                         | 50.2                      |

## Handling Precautions

### Precautions for product storage

DC Line Filters should be stored in normal working environments. While the chokes themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage.

KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 70% relative humidity. Atmospheres should be free of chlorine and sulfur bearing compounds. Temperature fluctuations should be minimized to avoid condensation on the parts. Do not store near strong magnetic fields, as this might magnetize the product.

For optimized solderability, DC line filter stock should be used promptly, preferably within six months of receipt.

### Product temperature rise values

The values listed for temperature rise are the result of self-heating in wires when the rated current (commercial frequency) is applied. When using, check and evaluate the value of the core temperature rise under actual operating conditions.

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## Export Control

### For customers in Japan

For products that are controlled items subject to the “Foreign Exchange and Foreign Trade Law” of Japan, the export license specified by the law is required for export.

### For customers outside Japan

DC Line Filters should not be used or sold for use in the development, production, stockpiling or utilization of any conventional weapons or mass-destructive weapons (nuclear weapons, chemical or biological weapons, or missiles) or any other weapons.



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