



Inductors

RF chokes, BC series

Series/Type: B78108S, B78148S

Date: June 2012

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BC chokes (Bobbin Core)
Rated inductance 1 ... 4700 μ H
Rated current 55 ... 1200 mA

Construction

- Ferrite drum core
- Winding: enamel copper wire
- Flame-retardant lacquer coating

Features

- Wide inductance range
- Suitable for general-purpose application
- Special versions available
- Suitable for wave soldering
- RoHS-compatible

Applications

- RF blocking and filtering
- Decoupling and interference suppression
- For antenna systems, automotive electronics, energy-saving lamps, entertainment electronics

Terminals

- Central axial leads (B78108S)
- Radially bent to 5 mm lead spacing (B78148S)
- Base material Cu
- Electroplated with nickel and pure tin

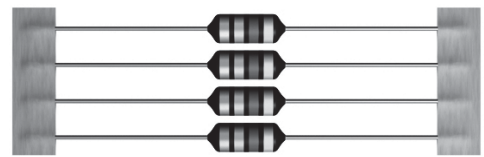
Marking

Inductance indicated by color bands to IEC 60062

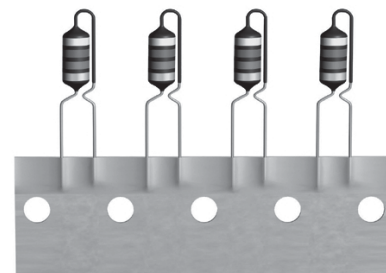
Delivery mode and packing units

- Taped, Ammo and reel packing
- Packing units:

| | Ammo (pcs./pack.) | Reel (pcs./reel) |
|--------|----------------------|---------------------|
| Axial | 2500 | 5000 |
| Radial | 2500 | 2000 |



B78108S

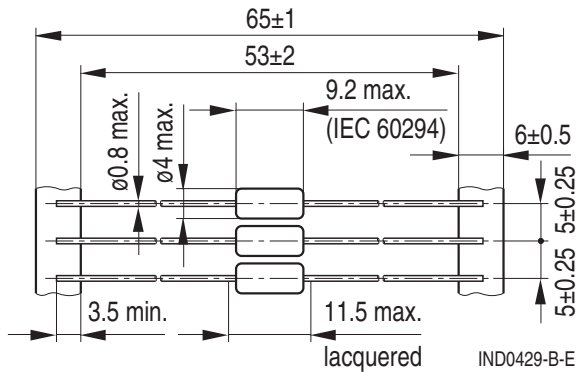


B78148S

Dimensional drawings

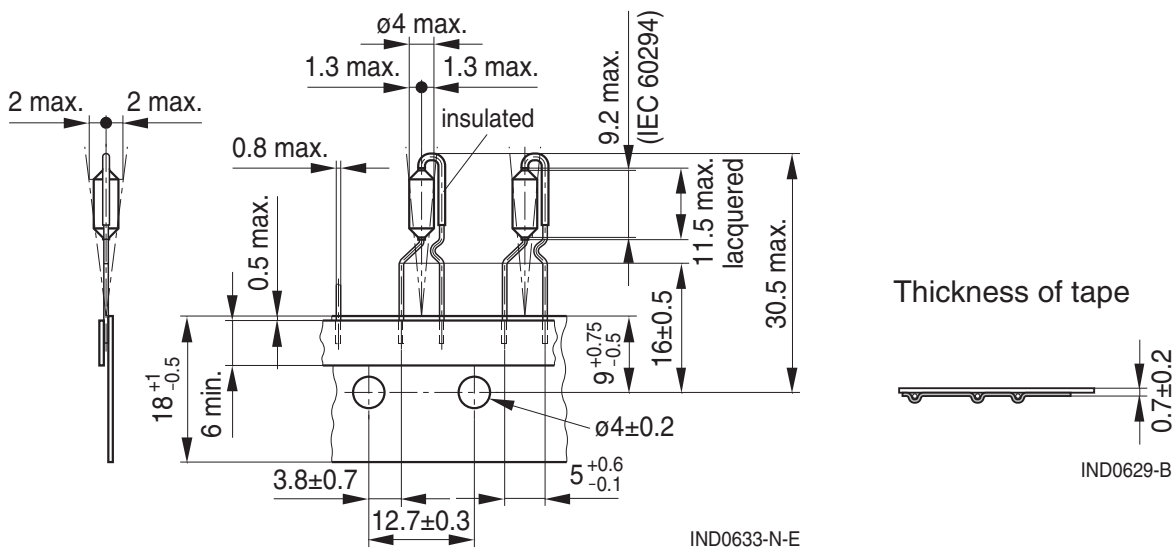
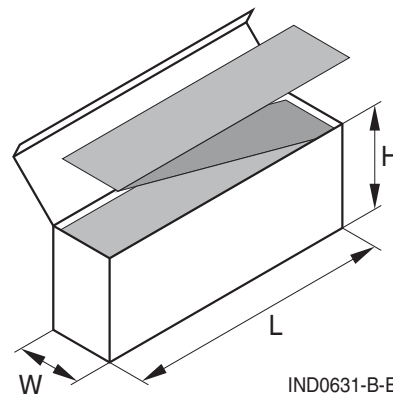
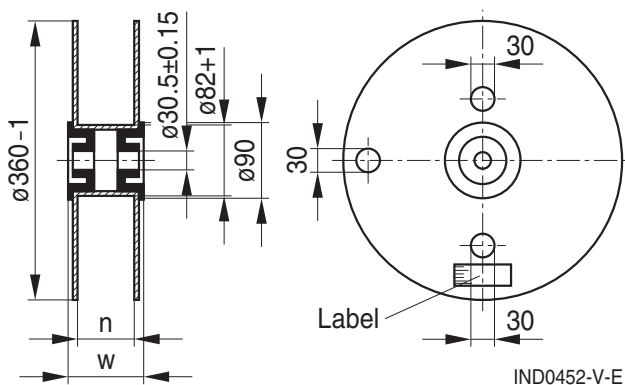
B78108S (axial leads, taped)

Dimensions in mm



Minimum lead spacing 12.5 mm

B78148S (central radial leads, taped)


Packing


n (mm): Axial $72 + 1$, radial $42 + 1$
 w (mm): Axial 84 max., radial 54 max.

L x W x H (max. mm):
 Axial: $275 \times 80 \times 140$, radial: $340 \times 50 \times 210$

Technical data and measuring conditions

| | |
|---|--|
| Rated inductance L_R | Measured with LCR meter Agilent 4284A or impedance analyzer Agilent 4294A Measuring frequency: $L_R \leq 10 \mu\text{H}$ = 1 MHz $10 \mu\text{H} < L_R \leq 4700 \mu\text{H}$ = 100 kHz Measuring current: $\leq 1 \text{ mA}$ Measuring temperature: +20 °C |
| Q factor Q_{\min} | Measured with precision impedance analyzer Agilent 4294A, +20 °C |
| Rated temperature T_R | +40 °C |
| Rated current I_R | Maximum permissible DC current at rated temperature |
| Inductance decrease $\Delta L/L_0$ | $\leq 10\%$ (referred to initial value) at I_R , +20 °C |
| DC resistance R_{\max} | Measured at 20 °C |
| Resonance frequency $f_{\text{res},\min}$ | Measured with Agilent 4294A or 8753ES, +20 °C |
| Solderability (lead-free) | Sn95.5Ag3.8Cu0.7: +(245 ±5) °C, (3 ±0.3) s Wetting of soldering area $\geq 90\%$ (to IEC 60068-2-20, test Ta) |
| Resistance to soldering heat | +(260 ±5) °C, 10 s (to IEC 60068-2-20, test Tb) |
| Tensile strength of leads | $\geq 20 \text{ N}$ (to IEC 60068-2-21, test Ua) |
| Climatic category | 55/125/56 (to IEC 60068-1) |
| Storage conditions | Mounted: -55 °C ... +125 °C Packaged: -25 °C ... +40 °C, $\leq 75\%$ RH |
| Weight | Approx. 0.38 g |

 Mounting information

When bending the leads, take care that the start-of-winding areas at the face ends (protected by glue and lacquer) are not subjected to any mechanical stress.

Characteristics and ordering codes

| L_R μH | Tolerance ¹⁾ | Q_{\min} | f_Q MHz | I_R mA | R_{\max} Ω | $f_{\text{res, min}}$ MHz | Ordering code ²⁾ (reel packing) ³⁾ |
|------------------------|-------------------------|------------|--------------|-------------|------------------------|------------------------------|---|
| 1.0 | $\pm 10\% \triangleq K$ | 55 | 7.96 | 1200 | 0.16 | 205 | B781*8S1102K000 |
| 1.2 | | 55 | 7.96 | 1150 | 0.18 | 185 | B781*8S1122K000 |
| 1.5 | | 55 | 7.96 | 1100 | 0.20 | 165 | B781*8S1152K000 |
| 1.8 | | 55 | 7.96 | 1030 | 0.22 | 155 | B781*8S1182K000 |
| 2.2 | | 55 | 7.96 | 1000 | 0.25 | 140 | B781*8S1222K000 |
| 2.7 | | 60 | 7.96 | 940 | 0.26 | 125 | B781*8S1272K000 |
| 3.3 | | 60 | 7.96 | 900 | 0.29 | 115 | B781*8S1332K000 |
| 3.9 | | 60 | 7.96 | 850 | 0.31 | 105 | B781*8S1392K000 |
| 4.7 | | 60 | 7.96 | 820 | 0.34 | 95 | B781*8S1472K000 |
| 5.6 | | 60 | 7.96 | 780 | 0.38 | 85 | B781*8S1562K000 |
| 6.8 | | 65 | 7.96 | 670 | 0.51 | 75 | B781*8S1682K000 |
| 8.2 | | 65 | 7.96 | 690 | 0.48 | 50 | B781*8S1822K000 |
| 10 | | 70 | 2.52 | 680 | 0.49 | 35 | B781*8S1103K000 |
| 12 | | 70 | 2.52 | 650 | 0.55 | 30 | B781*8S1123K000 |
| 15 | | 60 | 2.52 | 610 | 0.60 | 20 | B781*8S1153K000 |
| 18 | | 60 | 2.52 | 580 | 0.67 | 17 | B781*8S1183K000 |
| 22 | | 55 | 2.52 | 560 | 0.74 | 13 | B781*8S1223K000 |
| 27 | | 55 | 2.52 | 530 | 0.83 | 10 | B781*8S1273K000 |
| 33 | | 55 | 2.52 | 500 | 0.92 | 9.0 | B781*8S1333K000 |
| 39 | 50 | 2.52 | 470 | 1.02 | 8.0 | B781*8S1393K000 | |

BC chokes with temperature range up to +140 °C on request.

BC chokes up to 33 μH with higher resonance frequency on request.

1) Closer tolerances on request.

2) Replace the * by code number »0« for axial taping or by »4« for radial taping.

3) For Ammo pack the last digit has to be a »9«. Example: B78108S1102K009

Characteristics and ordering codes

| L_R μH | Tolerance ¹⁾ | Q_{\min} | f_Q MHz | I_R mA | R_{\max} Ω | $f_{\text{res, min}}$ MHz | Ordering code ²⁾ (reel packing) ³⁾ |
|------------------------|-------------------------|------------|--------------|-------------|------------------------|------------------------------|---|
| 47 | $\pm 5\% \triangleq J$ | 45 | 2.52 | 450 | 1.10 | 7.5 | B781*8S1473J000 |
| 56 | | 40 | 2.52 | 430 | 1.23 | 7.0 | B781*8S1563J000 |
| 68 | | 40 | 2.52 | 410 | 1.35 | 6.5 | B781*8S1683J000 |
| 82 | | 35 | 2.52 | 390 | 1.54 | 6.0 | B781*8S1823J000 |
| 100 | | 70 | 0.796 | 370 | 1.70 | 5.0 | B781*8S1104J000 |
| 120 | | 70 | 0.796 | 300 | 2.40 | 4.5 | B781*8S1124J000 |
| 150 | | 70 | 0.796 | 280 | 2.80 | 4.2 | B781*8S1154J000 |
| 180 | | 70 | 0.796 | 270 | 3.00 | 3.9 | B781*8S1184J000 |
| 220 | | 70 | 0.796 | 250 | 3.30 | 3.7 | B781*8S1224J000 |
| 270 | | 70 | 0.796 | 200 | 5.70 | 2.8 | B781*8S1274J000 |
| 330 | | 70 | 0.796 | 190 | 6.40 | 2.7 | B781*8S1334J000 |
| 390 | | 70 | 0.796 | 180 | 7.00 | 2.4 | B781*8S1394J000 |
| 470 | | 70 | 0.796 | 170 | 7.90 | 2.2 | B781*8S1474J000 |
| 560 | | 60 | 0.796 | 160 | 8.80 | 2.0 | B781*8S1564J000 |
| 680 | | 55 | 0.796 | 150 | 10.0 | 1.9 | B781*8S1684J000 |
| 820 | | 50 | 0.796 | 140 | 12.0 | 1.6 | B781*8S1824J000 |
| 1000 | | 50 | 0.252 | 130 | 14.0 | 1.6 | B781*8S1105J000 |
| 1200 | | 50 | 0.252 | 115 | 17.5 | 1.3 | B781*8S1125J000 |
| 1500 | | 50 | 0.252 | 100 | 23.0 | 1.25 | B781*8S1155J000 |
| 1800 | | 50 | 0.252 | 95 | 26.0 | 1.2 | B781*8S1185J000 |
| 2200 | 40 | 0.252 | 80 | 34.7 | 1.1 | B781*8S1225J000 | |
| 2700 | 40 | 0.252 | 75 | 40.0 | 1.0 | B781*8S1275J000 | |
| 3300 | 40 | 0.252 | 62 | 59.5 | 0.9 | B781*8S1335J000 | |
| 3900 | 40 | 0.252 | 59 | 66.0 | 0.8 | B781*8S1395J000 | |
| 4700 | 35 | 0.252 | 55 | 78.0 | 0.7 | B781*8S1475J000 | |

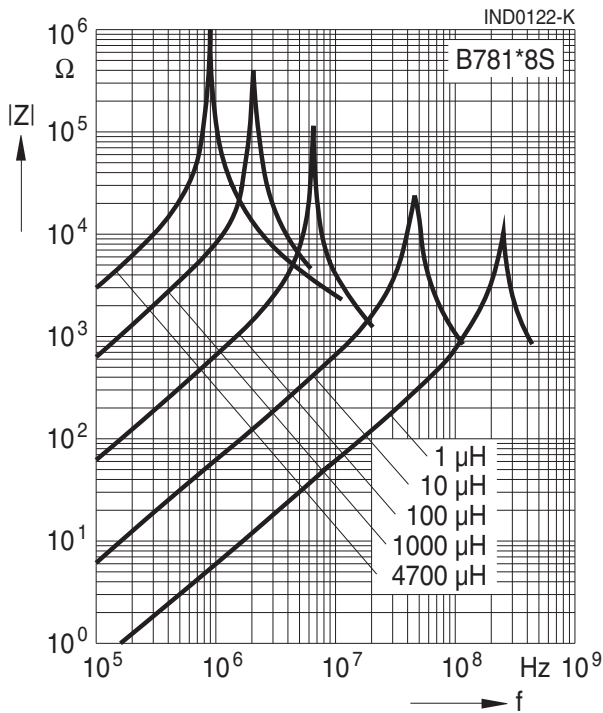
BC chokes with temperature range up to +140 °C on request.

1) Closer tolerances on request.

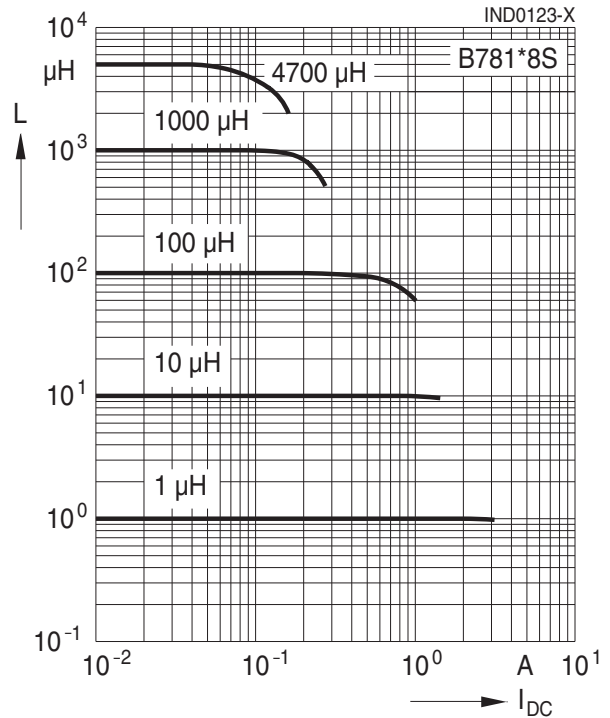
2) Replace the * by code number »0« for axial taping or by »4« for radial taping.

3) For Ammo pack the last digit has to be a »9«. Example: B78108S1473J009

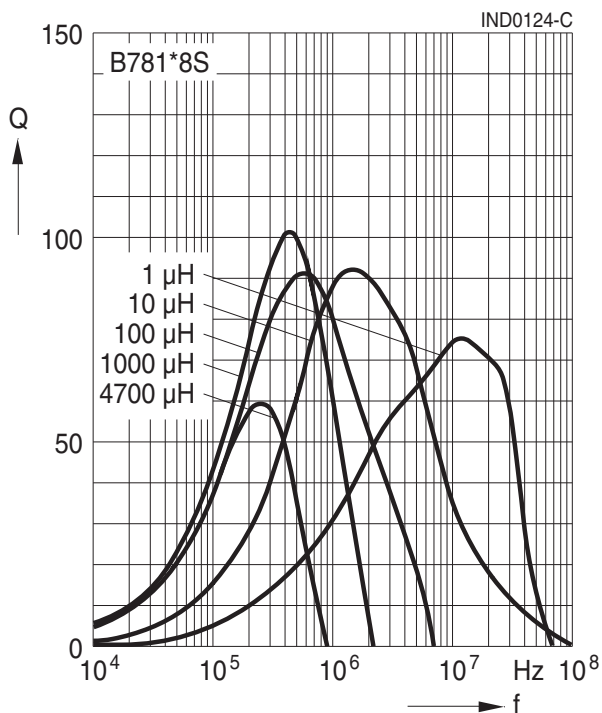
Impedance $|Z|$ versus frequency f
 measured with impedance analyzer Agilent 4294A or S-parameter network analyzer Agilent 8753ES, typical values at +20 °C



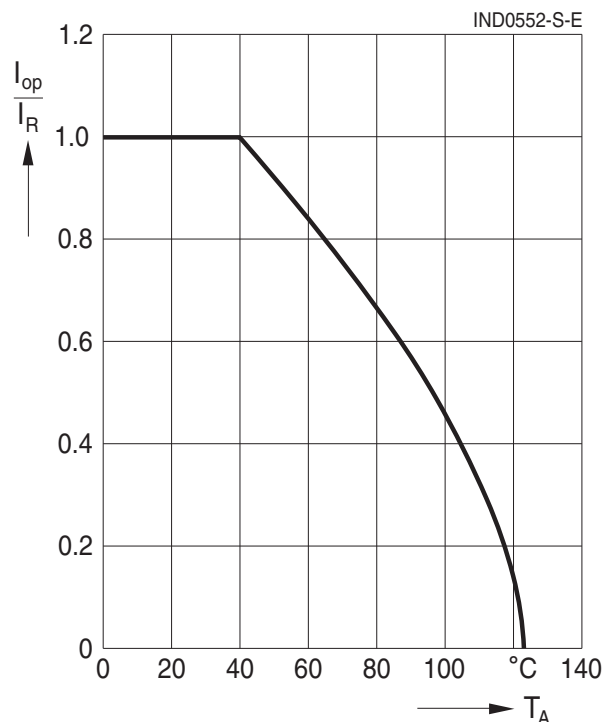
Inductance L versus DC load current I_{DC}
 measured with LCR meter Agilent 4284A, typical values at +20 °C



Q factor versus frequency f
 measured with impedance analyzer Agilent 4294A, typical values at +20 °C



Current derating I_{op}/I_R versus ambient temperature T_A
 (rated temperature $T_R = +40$ °C)



Cautions and warnings

- Please note the recommendations in our Inductors data book (latest edition) and in the data sheets.
 - Particular attention should be paid to the derating curves given there.
 - The soldering conditions should also be observed. Temperatures quoted in relation to wave soldering refer to the pin, not the housing.
- If the components are to be washed varnished it is necessary to check whether the washing varnish agent that is used has a negative effect on the wire insulation, any plastics that are used, or on glued joints. In particular, it is possible for washing varnish agent residues to have a negative effect in the long-term on wire insulation.
Washing processes may damage the product due to the possible static or cyclic mechanical loads (e.g. ultrasonic cleaning). They may cause cracks to develop on the product and its parts, which might lead to reduced reliability or lifetime.
- The following points must be observed if the components are potted in customer applications:
 - Many potting materials shrink as they harden. They therefore exert a pressure on the plastic housing or core. This pressure can have a deleterious effect on electrical properties, and in extreme cases can damage the core or plastic housing mechanically.
 - It is necessary to check whether the potting material used attacks or destroys the wire insulation, plastics or glue.
 - The effect of the potting material can change the high-frequency behaviour of the components.
- Ferrites are sensitive to direct impact. This can cause the core material to flake, or lead to breakage of the core.
- Even for customer-specific products, conclusive validation of the component in the circuit can only be carried out by the customer.

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