



## **Inductors**

RF chokes, BC series

**Series/Type:** B78108S, B78148S

**Date:** March 2008

**BC chokes (Bobbin Core)**
**Rated inductance 1  $\mu$ H to 4700  $\mu$ H**
**Rated current 55 mA to 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
- Hot-dipped with pure tin

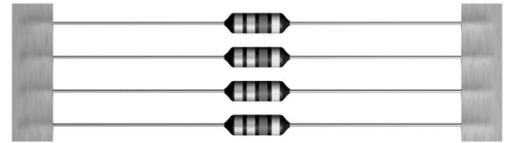
**Marking**

Inductance indicated by color bands to IEC 60062

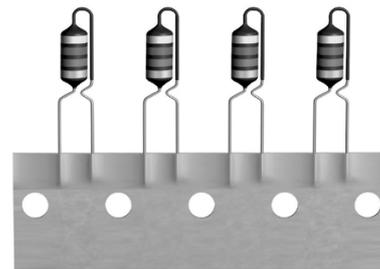
**Delivery mode and packing units**

- Taped, Ammo and reel packing
- Packing units:

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



B78108S



B78148S



**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**

$L_R$ $\mu\text{H}$	Tolerance <sup>1)</sup>	$Q_{\min}$	$f_Q$ MHz	$I_R$ mA	$R_{\max}$ $\Omega$	$f_{\text{res, min}}$ MHz	Ordering code <sup>2)</sup> (reel packing) <sup>3)</sup>
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  $\mu\text{H}$  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**

$L_R$ $\mu\text{H}$	Tolerance <sup>1)</sup>	$Q_{\min}$	$f_Q$ MHz	$I_R$ mA	$R_{\max}$ $\Omega$	$f_{\text{res, min}}$ MHz	Ordering code <sup>2)</sup> (reel packing) <sup>3)</sup>
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

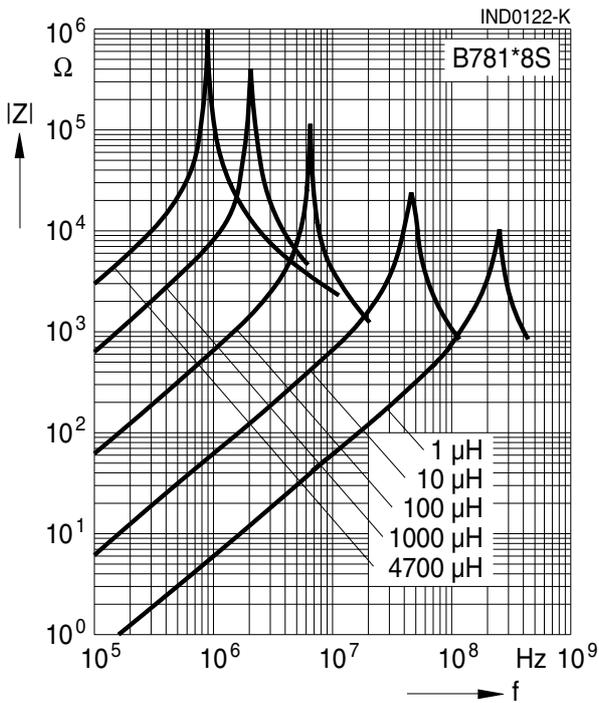
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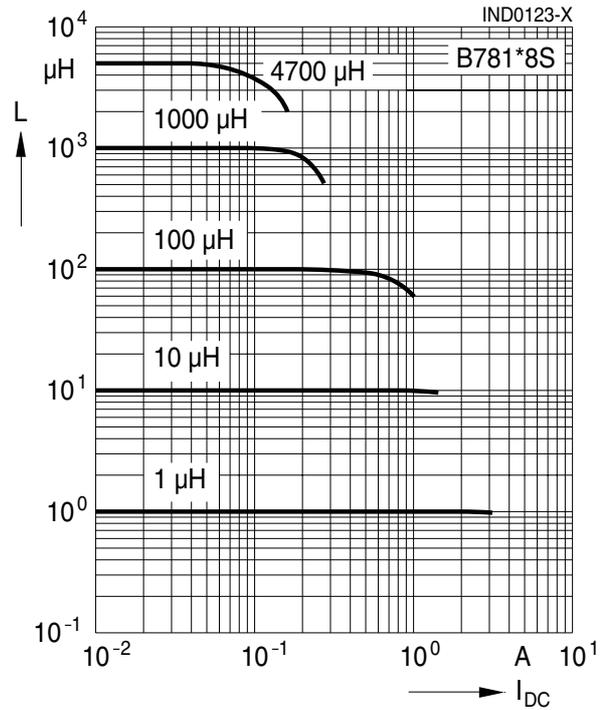
2) Replace the \* by code number »0« for axial taping or by »4« for radial taping.

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

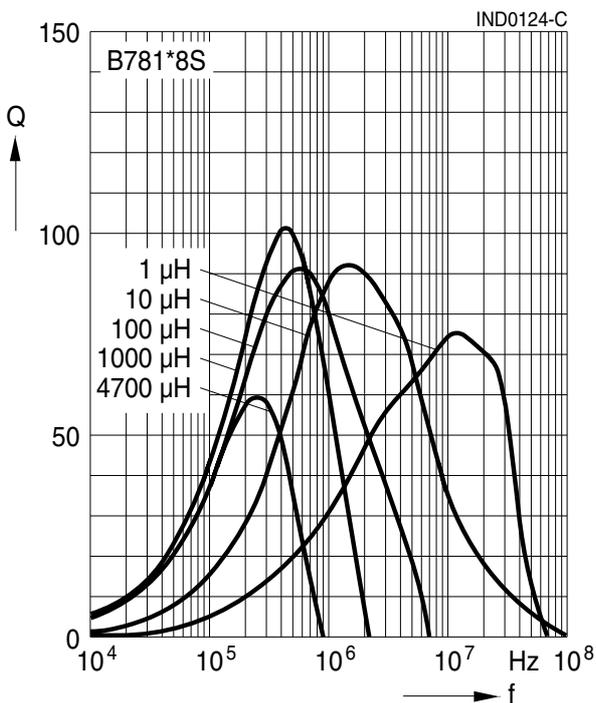
**Impedance |Z| versus frequency f**  
 measured with impedance analyzer Agilent 4294A or S-parameter network analyzer Agilent 8753ES, typical values at 20 °C



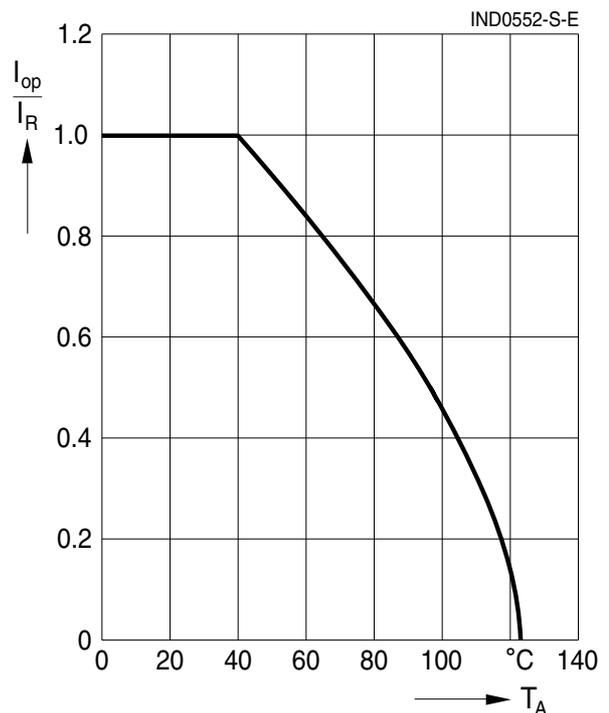
**Inductance L versus DC load current I<sub>DC</sub>**  
 measured with LCR meter Agilent 4284A, typical values at 20 °C



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



**Current derating I<sub>op</sub>/I<sub>R</sub> versus ambient temperature T<sub>A</sub>**  
 (rated temperature T<sub>R</sub> = 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.
- 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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