



## **Chokes and inductors**

For high frequency and EMC  
RF chokes, BC series

**Series/Type:**            **B78108S / B78148S**

**Date:**                      November 2005

**BC chokes (Bobbin Core)**  
**Rated current 55 to 1200 mA**  
**Rated inductance 1 to 4700  $\mu\text{H}$**

### Construction

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

### Features

- Wide inductance range
- Suitable for general-purpose application
- Special versions available
- RoHS-compatible (see page 6)

### Applications

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

### Terminals

- Central axial leads, lead-free tinned
- Radially bent to 5 mm lead spacing

### Marking

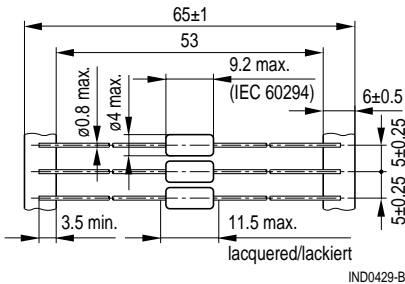
Inductance indicated by color bands to IEC 60062

### Delivery mode

Taped, Ammo and reel packing (see page 8)

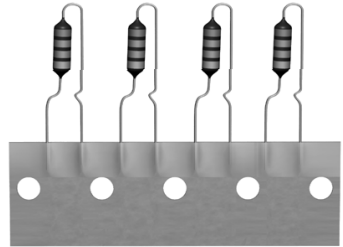
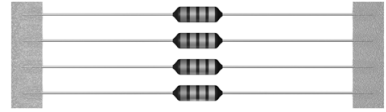
### Dimensional drawings

B78108S (axial leads, taped)

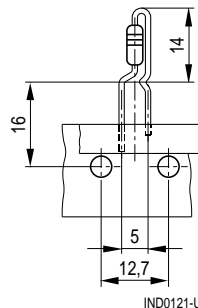


Minimum lead spacing 12.5 mm

Approx. weight 0.38 g



B78148S (central radial leads, taped)



Schematic drawing (details page 8)

**Characteristics and ordering codes**

For further technical data see page 6.

$L_R$ μH	Tolerance <sup>1)</sup>	$Q_{min}$	$f_Q$ MHz	$I_R$ mA	$R_{max}$ Ω	$f_{res, min}$ MHz	Ordering code <sup>2)</sup> (reel packing) <sup>3)</sup>
1.0	± 10 % △ 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	

1) Closer tolerances upon request.

2) Replace the asterisk \* 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** (continued)

For further technical data see page 6.

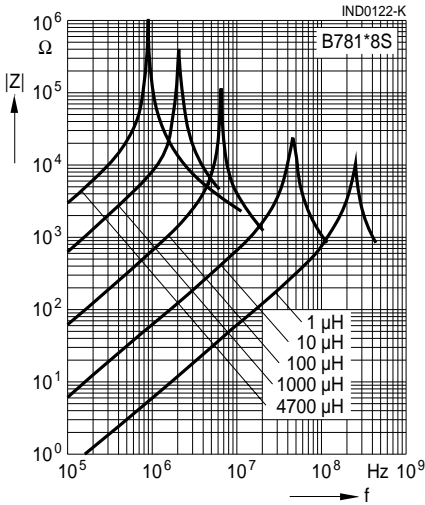
$L_R$ μH	Tolerance <sup>1)</sup>	$Q_{min}$	$f_Q$ MHz	$I_R$ mA	$R_{max}$ Ω	$f_{res, min}$ MHz	Ordering code <sup>2)</sup> (reel packing) <sup>3)</sup>
47	± 5 % △ J	45	2.52	450	1.10	7.5	B781*8S1473J000
56		40	2.52	430	1.23	7.0	B781*8S1563J000
68		40	2.52	410	1.35	6.5	B781*8S1683J000
82		35	2.52	390	1.54	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	

1) Closer tolerances upon request.

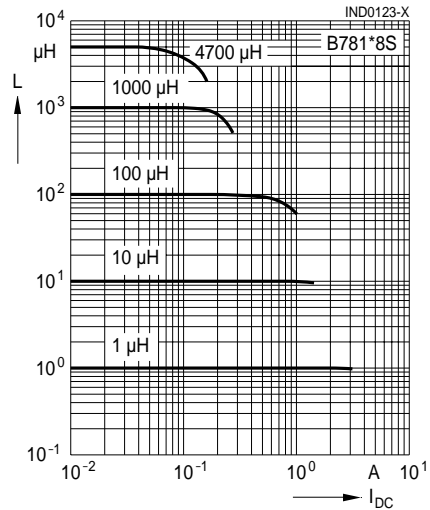
2) Replace the asterisk \* by code number »0« for axial taping or by »4« for radial taping.

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

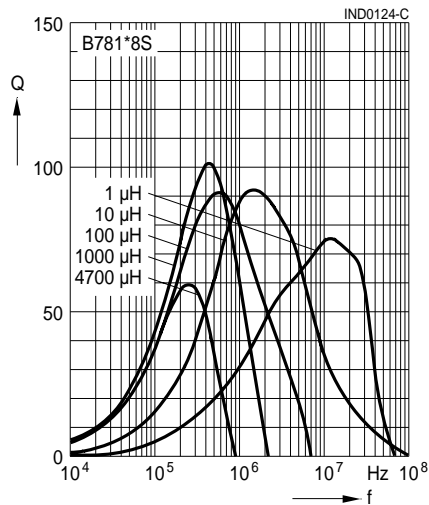
Impedance  $|Z|$   
versus frequency  $f$   
measured with impedance analyzer  
HP 4191A / HP 4194A



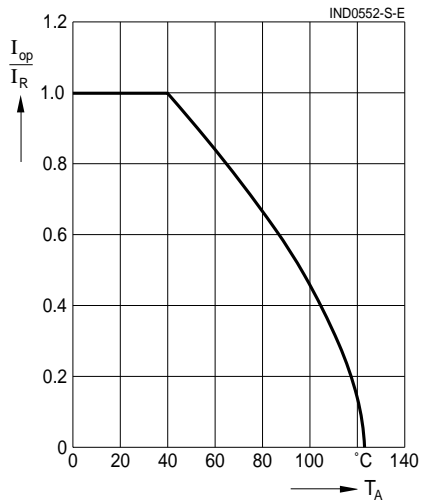
Inductance  $L$   
versus DC load current  $I_{DC}$   
measured with LCR meter  
HP 4275A



Q factor  
versus frequency  $f$   
measured with impedance analyzer  
HP 4194A




Current derating  $I_{op}/I_R$   
versus ambient temperature  $T_A$   
(rated temperature  $T_R = 40^\circ\text{C}$ )



<b>RF chokes</b>	<b>B78108S</b>
<b>BC series</b>	<b>B78148S</b>

**General technical data**

Rated inductance $L_R$	Measuring frequency: $L \leq 10 \mu\text{H}$ = 1 MHz $10 \mu\text{H} < L \leq 4700 \mu\text{H}$ = 100 kHz $L > 4700 \mu\text{H}$ = 10 kHz Measuring current: $\leq 1 \text{ mA}$ Distance between measuring clamps: 25.4 mm
Q factor $Q_{\min}$	Measured with HP 4342A
Rated current $I_R$	Maximum permissible DC current referred to 40 °C ambient temperature, for derating see below
Inductance decrease $\Delta L/L_0$	$\leq 10\%$ (referred to initial value) at $I_R$ at 20 °C ambient temperature
DC resistance $R_{\max}$	Measured at 20 °C ambient temperature, distance between measuring clamps: 25.4 mm
Resonance frequency $f_{\text{res, min}}$	Measured with Scalar Network Analyzer ZAS from Rohde & Schwarz
Climatic category	55/125/56 (-55 °C/+125 °C/56 days damp heat test) to IEC 60068-1
Solderability	235 °C, 2 s, $\geq 90\%$ wetting to IEC 60068-2-20, test Ta
Resistance to soldering heat	To IEC 60068-2-20, test Tb 260 °C, 10 s
Tensile strength of leads	To IEC 60068-2-21, test Ua $\geq 20 \text{ N}$
RoHS-compatible	RoHS-compatible is defined as compatible with the following documents: DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 February 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment COM (2004) 606 final Proposal for a COUNCIL DECISION amending Directive 2002/95/EC of the European Parliament and of the Council for the purposes of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment.
 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.

**Color coding of the inductance value**

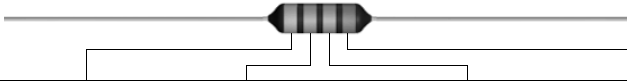
The inductance value and tolerance are encoded by means of colored bands in accordance with IEC 60062. The basic unit is  $\mu\text{H}$ .

1<sup>st</sup> band 1<sup>st</sup> digit of inductance value

2<sup>nd</sup> band 2<sup>nd</sup> digit of inductance value

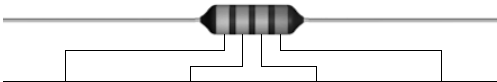
3<sup>rd</sup> band multiplier, i.e. the power of ten, by which the first two digits have to be multiplied.

4<sup>th</sup> band tolerance of the inductance value.



Color code	1 <sup>st</sup> band = 1 <sup>st</sup> digit	2 <sup>nd</sup> band = 2 <sup>nd</sup> digit	3 <sup>rd</sup> band = multiplier	4 <sup>th</sup> band = tolerance
Colorless	—	—	—	$\pm 20\%$ (M)
Silver	—	—	$\times 10^{-2} \mu\text{H} =$	$0.01 \mu\text{H}$ $\pm 10\%$ (K)
Gold	—	—	$\times 10^{-1} \mu\text{H} =$	$0.1 \mu\text{H}$ $\pm 5\%$ (J)
Black	—	0	$\times 10^0 \mu\text{H} =$	$1 \mu\text{H}$ —
Brown	1	1	$\times 10^1 \mu\text{H} =$	$10 \mu\text{H}$ —
Red	2	2	$\times 10^2 \mu\text{H} =$	$100 \mu\text{H}$ $\pm 2\%$ (G)
Orange	3	3	$\times 10^3 \mu\text{H} =$	$1000 \mu\text{H}$ —
Yellow	4	4	$\times 10^4 \mu\text{H} =$	$10000 \mu\text{H}$ —
Green	5	5	$\times 10^5 \mu\text{H} =$	$100000 \mu\text{H}$ —
Blue	6	6		Special designs manufactured to customer specifica- tions are identified by a white tolerance band.
Violet	7	7		
Grey	8	8		
White	9	9		

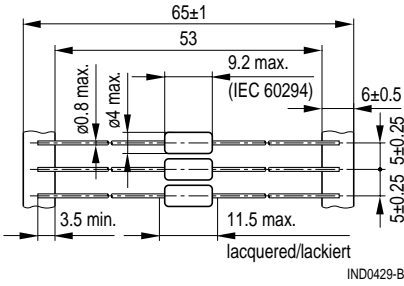
Examples:



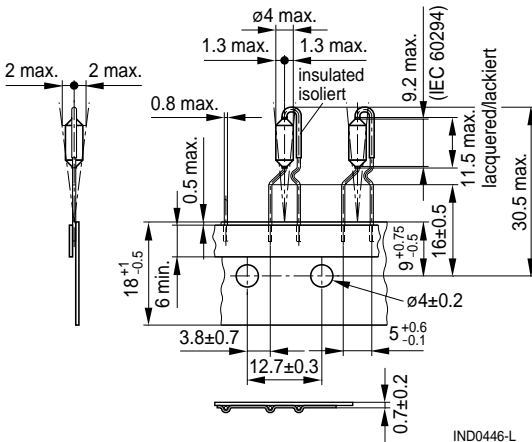
1 <sup>st</sup> band	2 <sup>nd</sup> band	3 <sup>rd</sup> band	4 <sup>th</sup> band	Decoding
Yellow 4	Violet 7	Gold $\times 0.1 \mu\text{H}$	Silver $\pm 10\%$	$= 47 \times 0.1 \mu\text{H} \pm 10\% = 4.7 \mu\text{H} \pm 10\%$
Brown 1	Green 5	Red $\times 100 \mu\text{H}$	Gold $\pm 5\%$	$= 15 \times 100 \mu\text{H} \pm 5\% = 1500 \mu\text{H} \pm 5\%$

**Taping and packing**

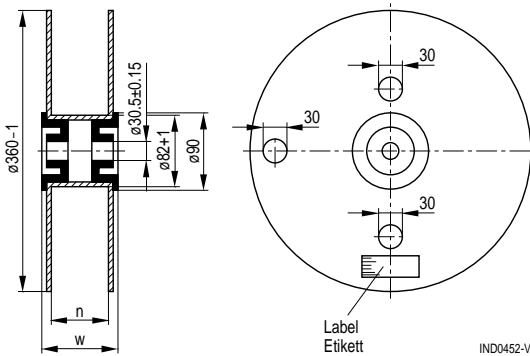
Axially taped (to IEC 60286-1)



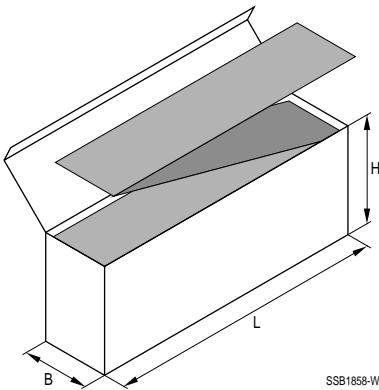
Radially taped (to IEC 60286-2)





**Reel packing**


	Axial	Radial
n (mm)	72 +1	42 +1
w (mm)	84 max.	54 max.

**Ammo pack**


	Axial	Radial
L (mm)	265 max.	340 max.
B (mm)	75 max.	50 max.
H (mm)	125 max.	210 max.

**Packing units**

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

## Important notes

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