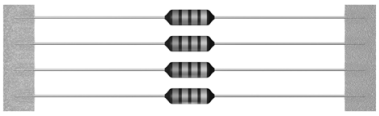
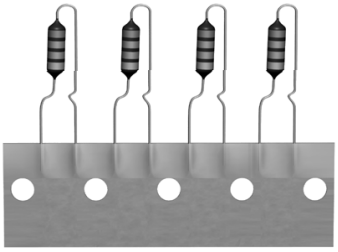
Chokes and inductors

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 µH





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

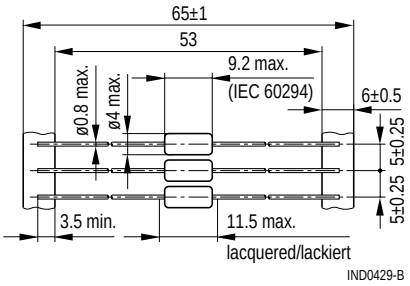
Inductance indicated by color bands to IEC 60062

Delivery mode

Taped, Ammo and reel packing (see page 8)

Dimensional drawings

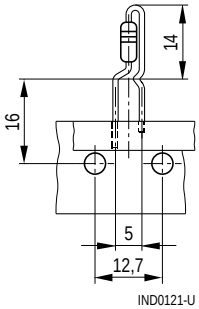
B78108S (axial leads, taped)



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[1]	Q_{min}	f_Q MHz	I_R mA	R_{max} Ω	$f_{res, min}$ MHz	Ordering code[2] (reel packing)[3]
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

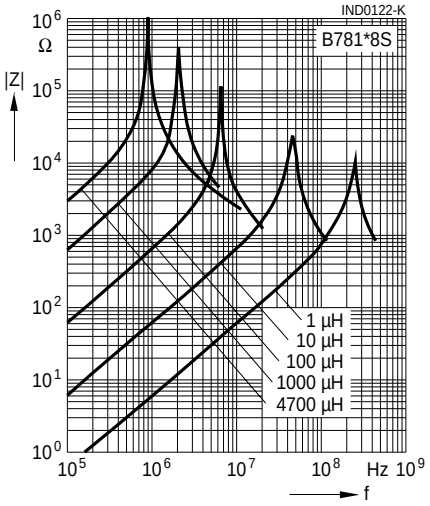
Characteristics and ordering codes (continued)

For further technical data see page 6.

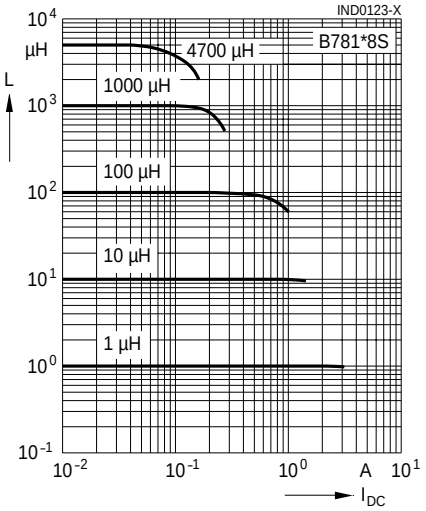
L_R µH	Tolerance[1]	Q_{min}	f_Q MHz	I_R mA	R_{max} Ω	$f_{res,\ min}$ MHz	Ordering code[2] (reel packing)[3]
47	± 5 % ≙ J	45	2.52	450	1.10	7.5	B781⋆8S1473J000
56		40	2.52	430	1.23	7.0	B781⋆8S1563J000
68		40	2.52	410	1.35	6.5	B781⋆8S1683J000
82		35	2.52	390	1.54	6.0	B781⋆8S1823J000
100		70	0.796	370	1.70	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

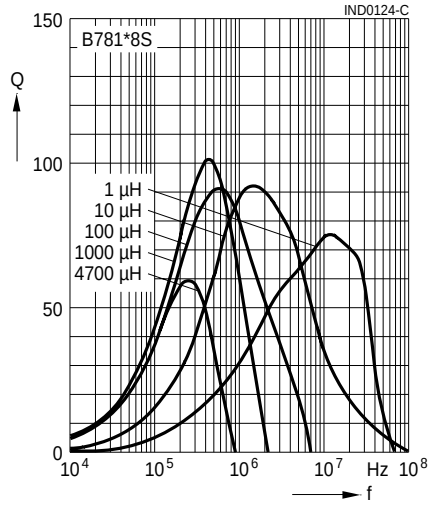
Impedance |Z|
versus frequency f
measured with impedance analyzer
HP 4191A / HP 4194A



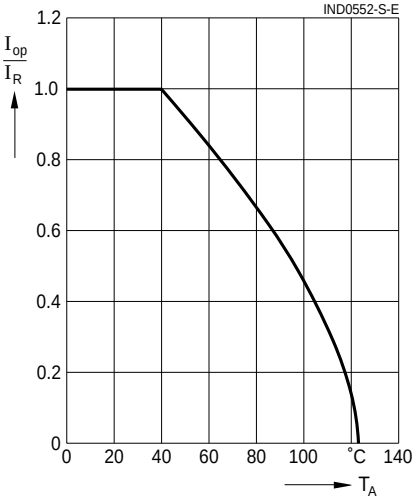
Inductance L
versus DC load current I_{DC}
measured with LCR meter
HP 4275A



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 °C)



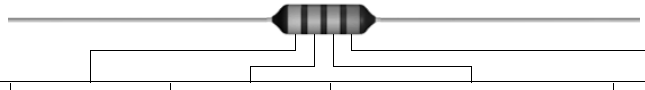
General technical data

Rated inductance L_R	Measuring frequency: L ≤ 10 µH = 1 MHz 10 µH < L ≤ 4700 µH = 100 kHz L > 4700 µH = 10 kHz Measuring current: ≤ 1 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 $\Delta L/L_0$	≤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 $f_{res, min}$	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, ≥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 ≥20 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

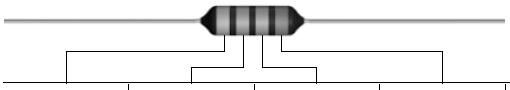
The inductance value and tolerance are encoded by means of colored bands in accordance with IEC 60062. The basic unit is µH.

1st band 1st digit of inductance value
2nd band 2nd digit of inductance value
3rd band multiplier, i.e. the power of ten, by which the first two digits have to be multiplied.
4th band tolerance of the inductance value.



Color code	1st band = 1st digit	2nd band = 2nd digit	3rd band = multiplier	4th band = tolerance
Colorless	—	—	—	± 20 % (M)
Silver	—	—	× 10^{-2} µH = 0.01 µH	± 10 % (K)
Gold	—	—	× 10^{-1} µH = 0.1 µH	± 5 % (J)
Black	—	0	× 10^{0} µH = 1 µH	—
Brown	1	1	× 10^{1} µH = 10 µH	
Red	2	2	× 10^{2} µH = 100 µH	± 2 % (G)
Orange	3	3	× 10^{3} µH = 1000 µH	
Yellow	4	4	× 10^{4} µH = 10000 µH	
Green	5	5	× 10^{5} µH = 100000 µH	Special designs manufactured to customer specifications are identified by a white tolerance band.
Blue	6	6		
Violet	7	7		
Grey	8	8		
White	9	9		

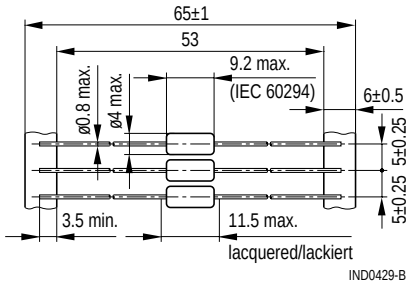
Examples:



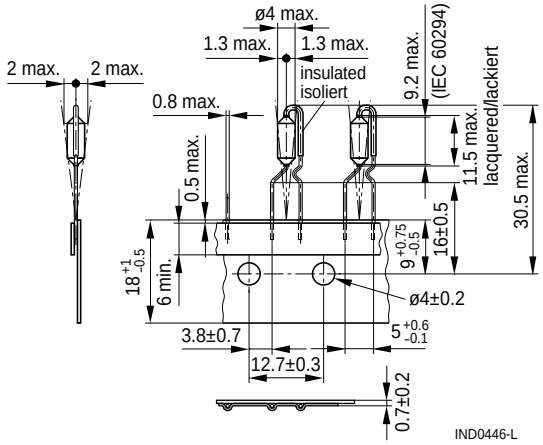
1st band	2nd band	3rd band	4th band	Decoding
Yellow 4	Violet 7	Gold × 0.1 µH	Silver ± 10 %	= 47 × 0.1 µH ± 10 % = 4.7 µH ± 10 %
Brown 1	Green 5	Red × 100 µH	Gold ± 5 %	= 15 × 100 µH ± 5 % = 1500 µH ± 5 %

Taping and packing

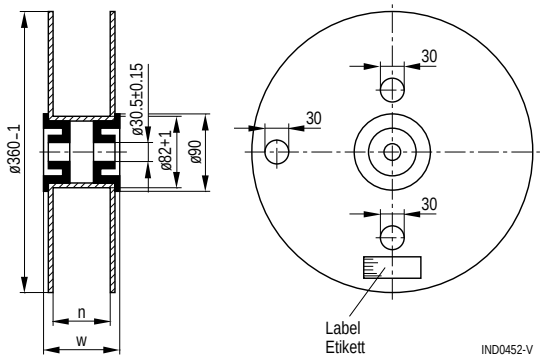
Axially taped (to IEC 60286-1)



Radially taped (to IEC 60286-2)

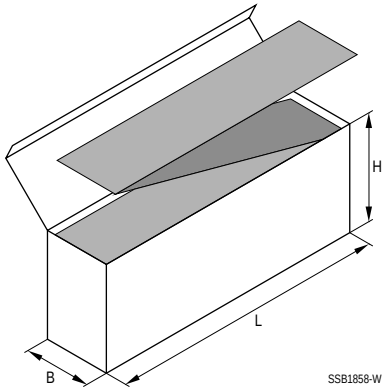


Reel packing



	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

The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application.**
   As a rule, EPCOS is either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether an EPCOS product with the properties described in the product specification is suitable for use in a particular customer application.
2. We also point out that **in individual cases, a malfunction of passive electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified.** In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of a passive electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of a passive electronic component.
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