Inductors

RF chokes, BC+ series

Series/Type: **B78108E, B78148E**

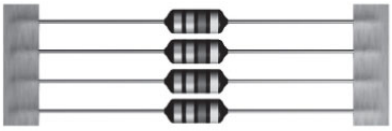
Date: July 2015

EPCOS AG is a TDK Group Company.

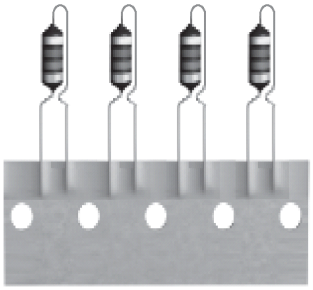
BC chokes
Rated inductance 0.1 µH … 100 µH
Rated current 640 mA .. 7300 mA

Construction

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



B78108E



B78148E

Features

- Very high rated current
- High saturation behaviour
- High self-resonance frequency
- Suitable for wave soldering
- RoHS-compatible

Applications

- DC-DC converter
- Filtering of supply voltage & battery charger (EMI)
- RF blocking and filtering
- Decoupling and interference suppression
- For telecommunications, LED and energy-saving lamps, solar LED lamps, entertainment electronics

Terminals

- Radially bent to 5mm lead spacing (B78148E)
- Central axial leads (B78108E)
- Base material Cu
- Electroplated with nickel and pure tin

Marking

- Inductance indicated by color bands in accordance with IEC 60062

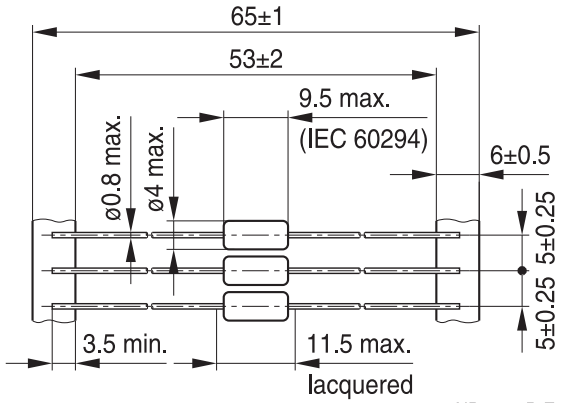
Delivery mode and packing units

- Taped, Ammo and reel packing
- Packing units:

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

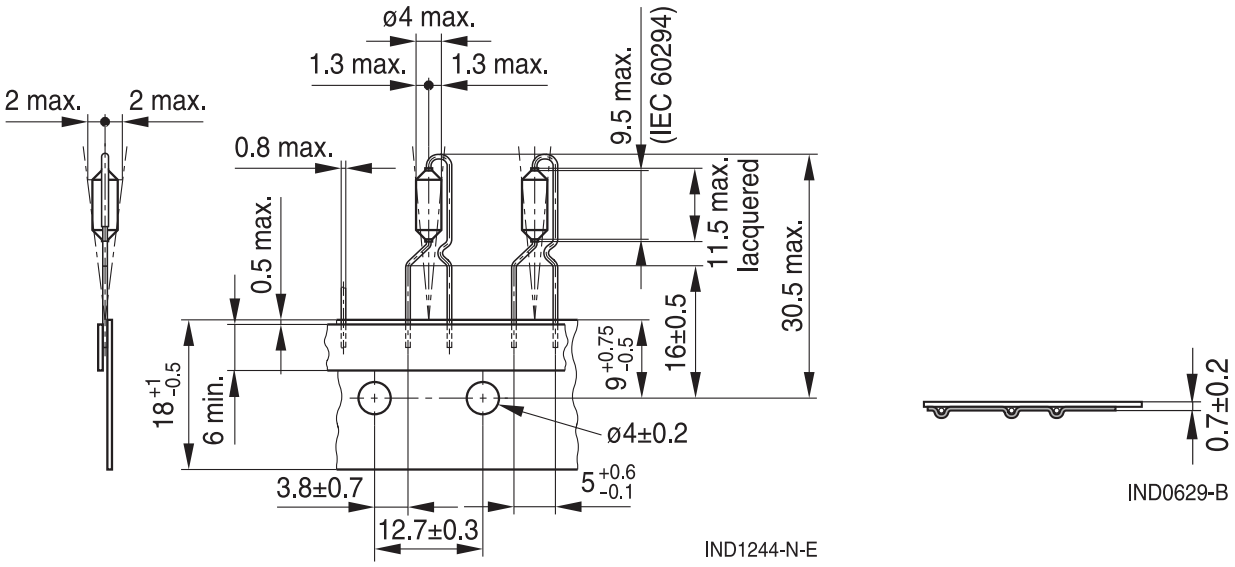
Dimensional drawings

B78108E (axial leads, taped) Dimensions in mm



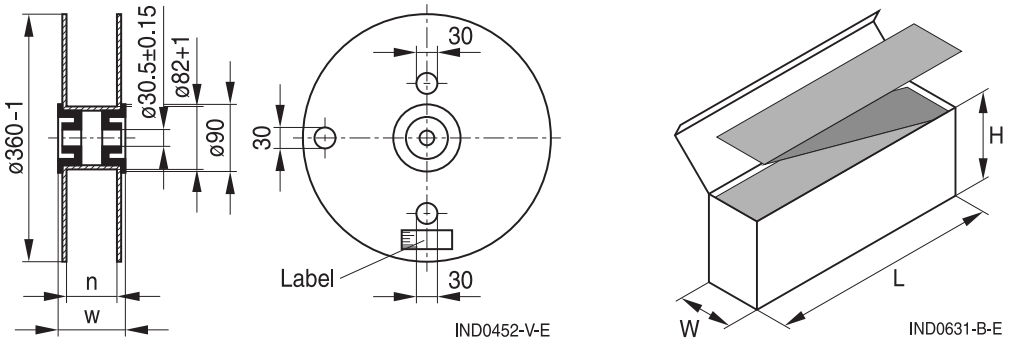
IND0429-B-E **Minimum lead spacing 12.5 mm**

B78148E (central radial leads, taped) Dimensions in mm



IND1244-N-E IND0629-B

Packing Dimensions in mm



IND0452-V-E IND0631-B-E

n (mm):	axial 72 + 1, radial 42 + 1	L x W x H (max. mm):	
w (mm):	axial 84 max., radial 54 max.	axial: 275 x 80 x 140, radial: 340 x 50 x 210	

Technical data and measuring conditions

Rated inductance L_R	Measured with LCR meter Agilent 4284A or impedance analyzer Agilent 4294A Measuring current: 1 mA Measuring temperature: +20 ºC
Q factor Q_{min}	Measured with impedance analyzer Agilent 4294A, +20 °C
Rated temperature T_R	+40 °C
Rated current I_R	Maximum permissible DC current based on rated temperature of +40 °C and component temperature of max. +125 °C
Saturation current I_{sat}	Max. permissible DC with inductance decrease $\Delta L/L_0$ of approx. 10%, at +20 ºC (Agilent 4284A and 42841A)
DC resistance R_{max}	Measured at +20 ºC
Resonance frequency $f_{res,min}$	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: ≥ 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	≥ 20 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, ≤ 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.

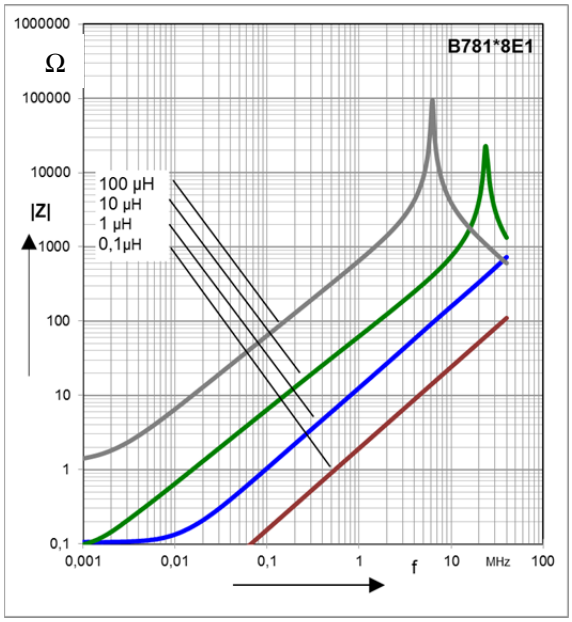
Characteristics and ordering codes

L_R µH	Tolerance	f_L MHz	Q_{min}	f_Q MHz	I_R mA	I_{sat} mA	R_{max} Ω	$f_{res, min}$ MHz	Ordering code [1] (reel packing) [2]
0.1	±20% ≙ M	1.0	50	7.96	7300	17000	0.015	700	B781*8E1101M000
0.15		1.0	50	7.96	6500	14500	0.017	650	B781*8E1151M000
0.22		1.0	55	7.96	5900	12200	0.019	610	B781*8E1221M000
0.33		1.0	60	7.96	5300	10100	0.023	480	B781*8E1331M000
0.47		1.0	60	7.96	5000	8500	0.027	400	B781*8E1471M000
0.68		1.0	60	7.96	4600	7100	0.031	360	B781*8E1681M000
1.0	±10% ≙ K	1.0	60	7.96	4150	5800	0.038	260	B781*8E1102K000
1.5		1.0	60	7.96	3800	4800	0.047	235	B781*8E1152K000
2.2		1.0	50	7.96	3400	4000	0.057	150	B781*8E1222K000
3.3		1.0	45	7.96	3050	3250	0.073	75	B781*8E1332K000
4.7		1.0	45	7.96	2750	2700	0.085	35	B781*8E1472K000
6.8		1.0	40	7.96	2450	2300	0.105	25	B781*8E1682K000
10		1.0	35	7.96	2250	2000	0.136	20	B781*8E1103K000
15		0.1	40	0.796	1600	1450	0.230	15	B781*8E1153K000
22		0.1	40	0.796	1300	1250	0.350	12	B781*8E1223K000
33	±5% ≙ J	0.1	50	0.796	1050	1000	0.550	9.0	B781*8E1333J000
47		0.1	40	0.796	950	870	0.680	8.0	B781*8E1473J000
68		0.1	45	0.796	780	720	0.900	6.5	B781*8E1683J000
100		0.1	60	0.796	640	580	1.450	6.0	B781*8E1104J000

1) Replace the * by code number “0” for axial taping or by “4” for radial taping.
2) For Ammo pack the last digit has to be a “9”. Example: B78108E1223K009

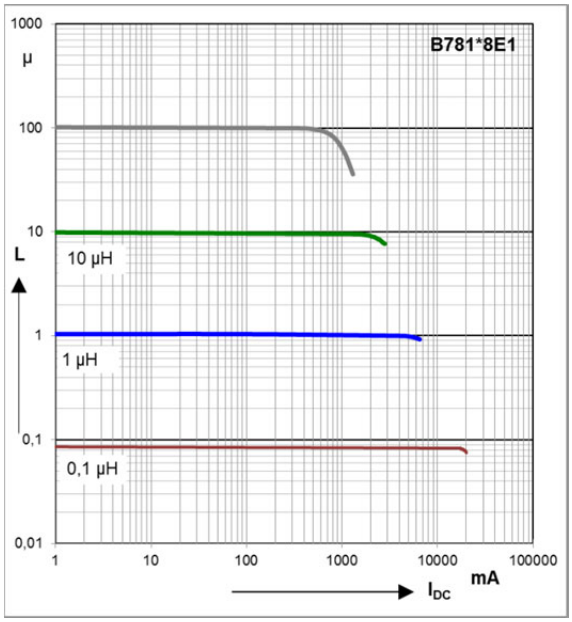
Impedance |Z| versus frequency f

measured with impedance analyzer Agilent 4294A or S-parameter network analyzer Agilent 8753ES, typical values at +20 °C



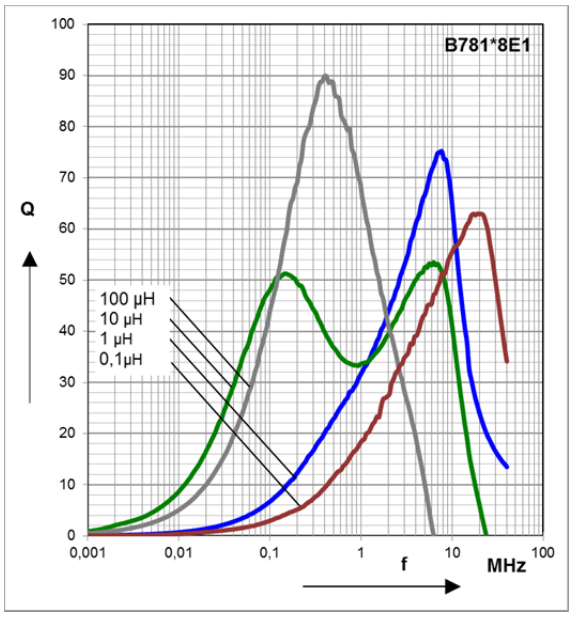
Inductance L versus DC load current I_{DC}

measured with LCR meter Agilent 4284A and 42841A , typical values at +20 °C



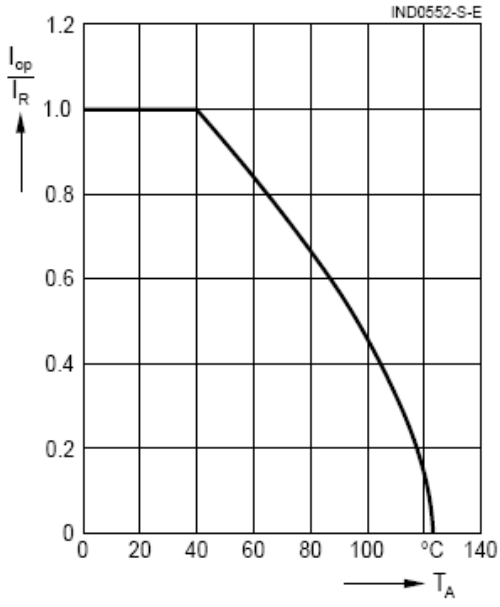
Q factor versus frequency f

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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