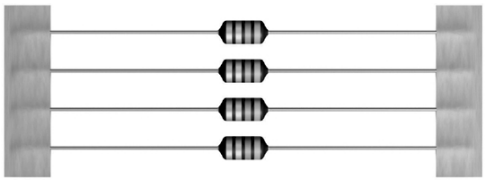
Inductors

RF chokes, MCC series

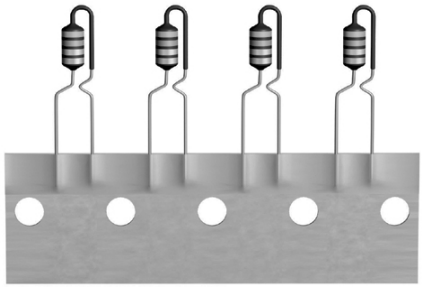
Series/Type: **B78108T, B78148T**

Date: March 2008

MCC choke (Mini Cylinder Core)
Rated inductance 0.1 µH to 100 µH
Rated current 85 mA to 1120 mA



B78108T



B78148T

Construction

- Ceramic or ferrite cylinder core
- Winding: enamel copper wire
- Flame-retardant lacquer coating

Features

- Low total height
- Low inductance
- High resonance frequency
- Suitable for wave soldering
- RoHS-compatible

Applications

- RF blocking
- Decoupling and interference suppression
- For antenna systems, automotive electronics, telecommunications, entertainment electronics

Terminals

- Central axial leads (B78108T)
- Radially bent to 5 mm lead spacing (B78148T)
- B781*T3:
  - Base material Staku 30/copper-clad steel 30
  - Hot-dipped and electro-plated with pure tin
- B781*T1:
  - Base material CuAg0.1
  - Hot-dipped with pure tin

Marking

Inductance indicated by color bands to IEC 60062

Delivery mode and packing units

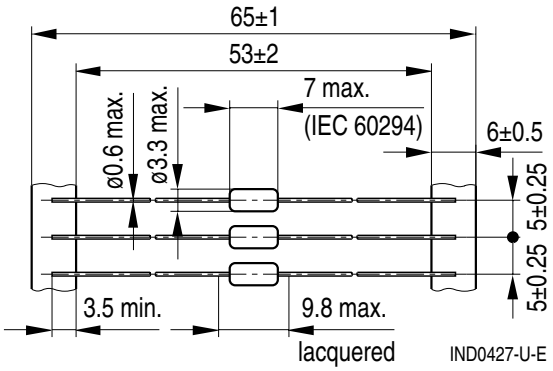
- Taped, Ammo and reel packing
- Packing units:

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

Dimensional drawings

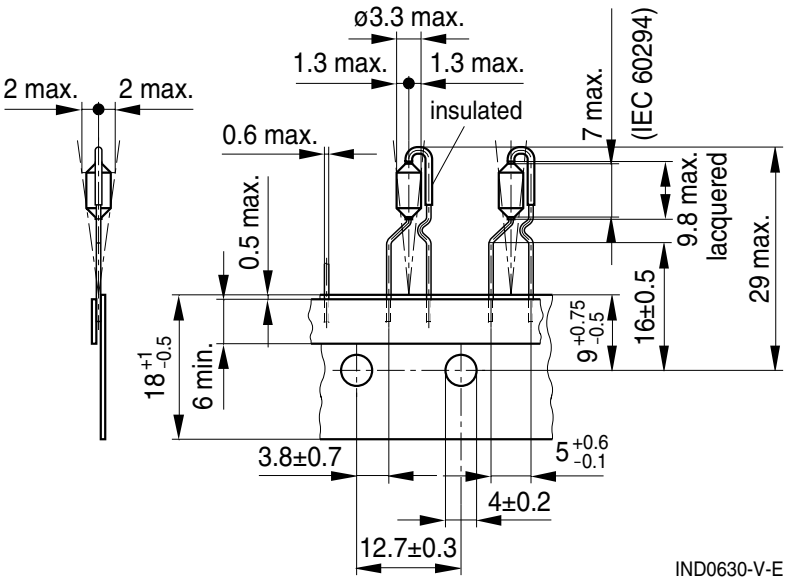
B78108T (axial leads, taped)

Dimensions in mm

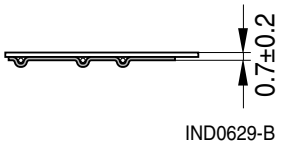


Minimum lead spacing 10 mm

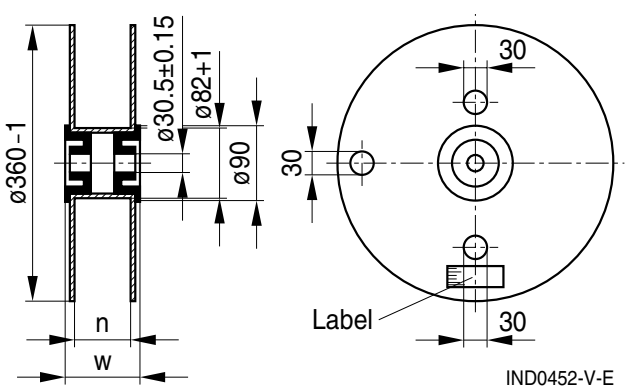
B78148T (central radial leads, taped)

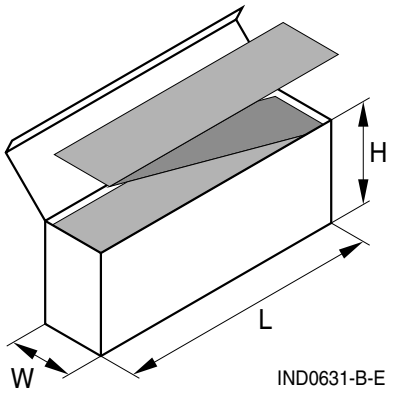


Thickness of tape



Packing





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

L × W × H (max. mm):
Axial: 310 × 75 × 120, radial: 340 × 50 × 210

Technical data and measuring conditions

Rated inductance L_R	Measured with LCR meter Agilent 4284A or impedance analyzer Agilent 4294A Measuring frequency: $L_R \leq 10\ \mu H$ = 1 MHz $10\ \mu H < L_R \leq 4700\ \mu H$ = 100 kHz Measuring current: ≤ 1 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 $\Delta L/L_0$	≤ 10% (referred to initial value) at I_R, 20 °C
DC resistance R_{max}	Measured at 20 °C
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. 0.25 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	$f_{res,min}$ MHz	Ordering code[2] (reel packing)[3]
Ceramic cylinder core							
0.10	±10% ≙ K	40	25.2	1120	0.13	600	B781∗8T3101K000
0.12		40	25.2	1080	0.145	570	B781∗8T3121K000
0.15		38	25.2	1020	0.155	500	B781∗8T3151K000
0.18		35	25.2	1000	0.17	460	B781∗8T3181K000
0.22		35	25.2	990	0.195	420	B781∗8T3221K000
0.27		35	25.2	910	0.215	380	B781∗8T3271K000
0.33		35	25.2	830	0.24	330	B781∗8T3331K000
0.39		35	25.2	790	0.27	300	B781∗8T3391K000
0.47		35	25.2	750	0.315	280	B781∗8T3471K000
0.56		35	25.2	700	0.34	260	B781∗8T3561K000
0.68		35	25.2	530	0.48	240	B781∗8T3681K000
0.82		35	25.2	500	0.55	230	B781∗8T3821K000

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: B78108T3101K009

Characteristics and ordering codes

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]
Ferrite cylinder core							
1.0	±10% ≙ K	35	25.2	630	0.25	180	B781∗8T1102K000
1.2		40	7.96	610	0.25	170	B781∗8T1122K000
1.5		40	7.96	570	0.30	150	B781∗8T1152K000
1.8		40	7.96	540	0.30	130	B781∗8T1182K000
2.2		40	7.96	520	0.35	120	B781∗8T1222K000
2.7		40	7.96	480	0.40	110	B781∗8T1272K000
3.3		40	7.96	420	0.50	110	B781∗8T1332K000
3.9		40	7.96	400	0.55	100	B781∗8T1392K000
4.7		40	7.96	380	0.65	90	B781∗8T1472K000
5.6		45	7.96	260	1.30	75	B781∗8T1562K000
6.8		45	7.96	250	1.45	70	B781∗8T1682K000
8.2		50	7.96	240	1.60	65	B781∗8T1822K000
10		50	7.96	230	1.70	60	B781∗8T1103K000
12		55	2.52	190	2.40	50	B781∗8T1123K000
15		55	2.52	185	2.70	45	B781∗8T1153K000
18		55	2.52	175	2.90	40	B781∗8T1183K000
22		60	2.52	170	3.20	30	B781∗8T1223K000
27		60	2.52	160	3.60	27	B781∗8T1273K000
33		60	2.52	150	4.10	24	B781∗8T1333K000
39		60	2.52	140	4.50	22	B781∗8T1393K000
47		60	2.52	100	8.50	20	B781∗8T1473K000
56		60	2.52	100	8.80	18	B781∗8T1563K000
68		60	2.52	95	10.0	15	B781∗8T1683K000
82		60	2.52	90	11.5	14	B781∗8T1823K000
100		60	2.52	85	12.5	11	B781∗8T1104K000

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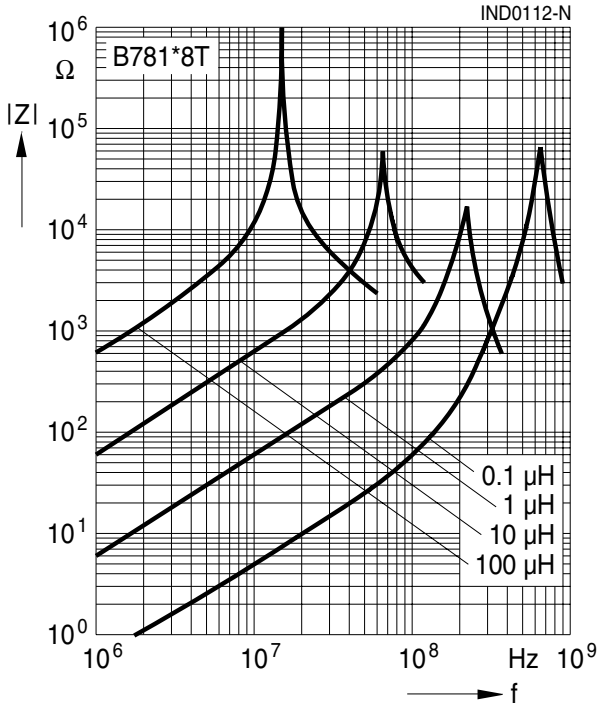
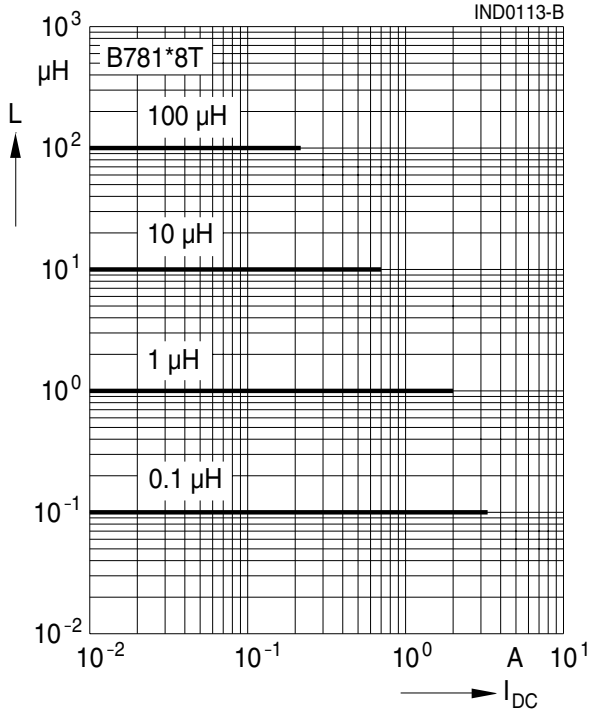
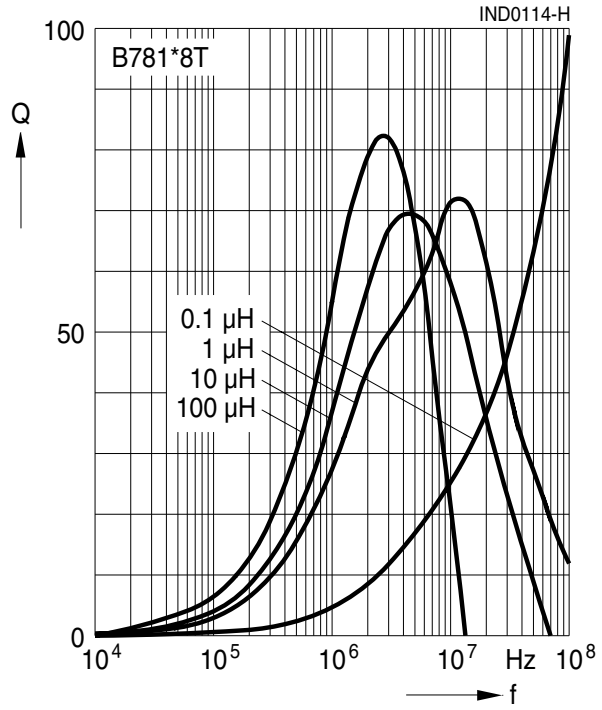
Impedance |Z| versus frequency f
measured with impedance analyzer Agilent 4294A or S-parameter network analyzer Agilent 8753ES, typical values at 20 °C



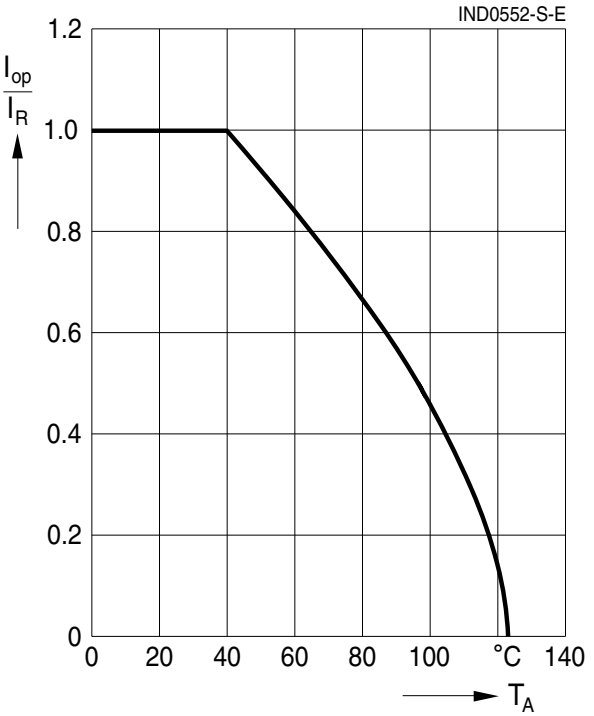
Inductance L versus DC load current I_{DC}
measured with LCR meter Agilent 4284A, typical values at 20 °C



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.
- 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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