



Inductors

RF chokes, MCC series

Series/Type: B78108T, B78148T

Date: March 2008

RF chokes

B78108T, B78148T

MCC series, 3.3 × 7 (mm)

MCC choke (Mini Cylinder Core)

Rated inductance 0.1 µH to 100 µH

Rated current 85 mA to 1120 mA

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

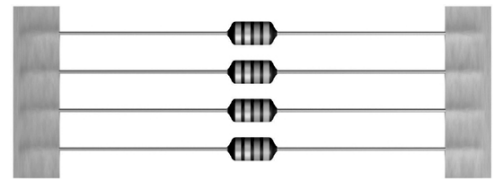
Marking

Inductance indicated by color bands to IEC 60062

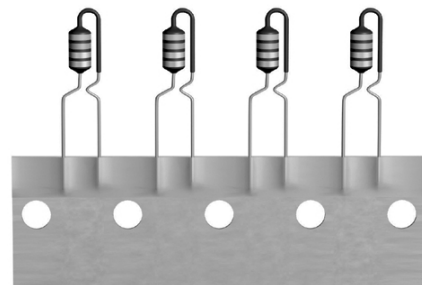
Delivery mode and packing units

- Taped, Ammo and reel packing
- Packing units:

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



B78108T

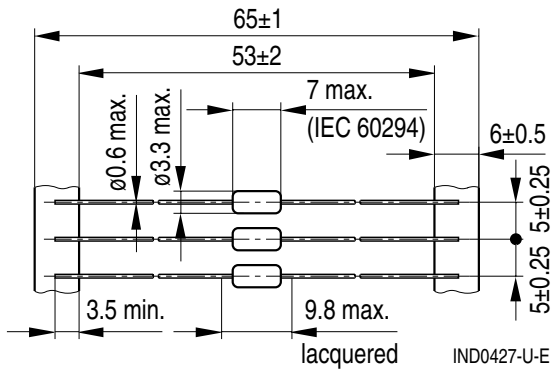


B78148T

Dimensional drawings

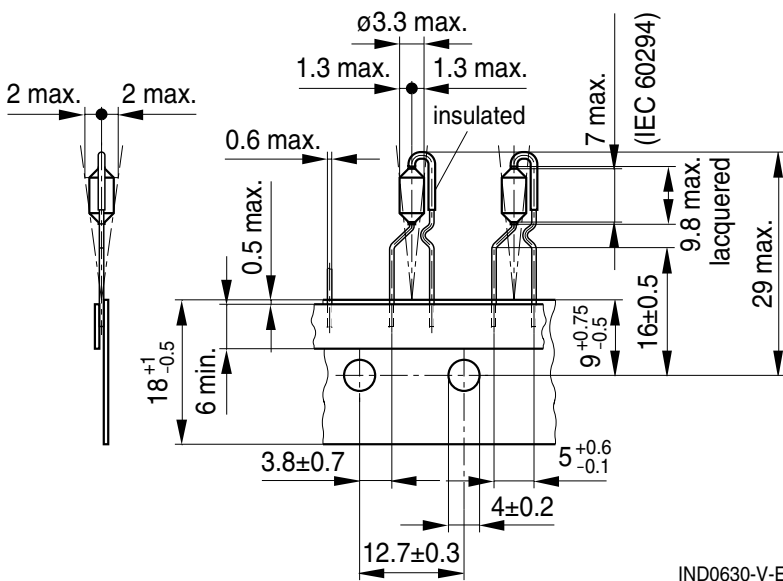
B78108T (axial leads, taped)

Dimensions in mm

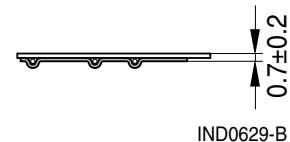


Minimum lead spacing 10 mm

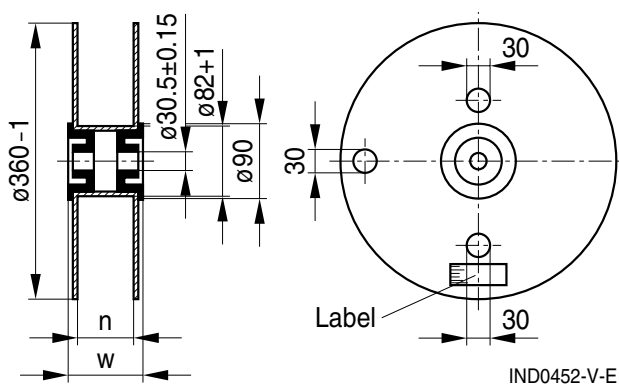
B78148T (central radial leads, taped)



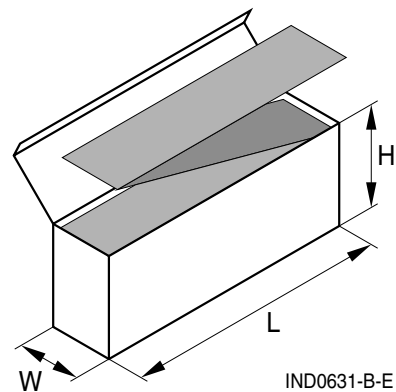
Thickness of tape



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: $L_R \leq 10 \mu\text{H}$ = 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. 0.25 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.

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MCC series, 3.3 × 7 (mm)
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

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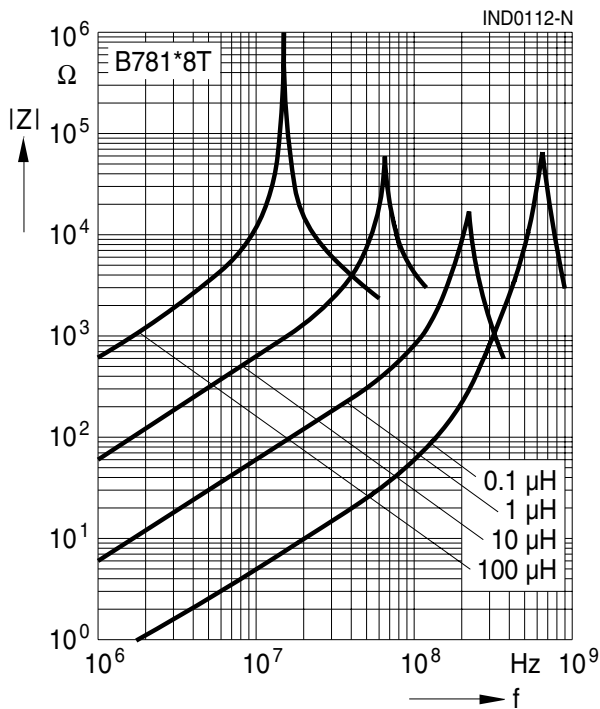
L_R μH	Tolerance ¹⁾	Q_{min}	f_Q MHz	I_R mA	R_{max} Ω	$f_{res,min}$ MHz	Ordering code ²⁾ (reel packing) ³⁾
Ferrite cylinder core							
1.0	$\pm 10\% \triangle K$	35	25.2	630	0.25	180	B781*8T1102K000
1.2		40	7.96	610	0.25	170	B781*8T1122K000
1.5		40	7.96	570	0.30	150	B781*8T1152K000
1.8		40	7.96	540	0.30	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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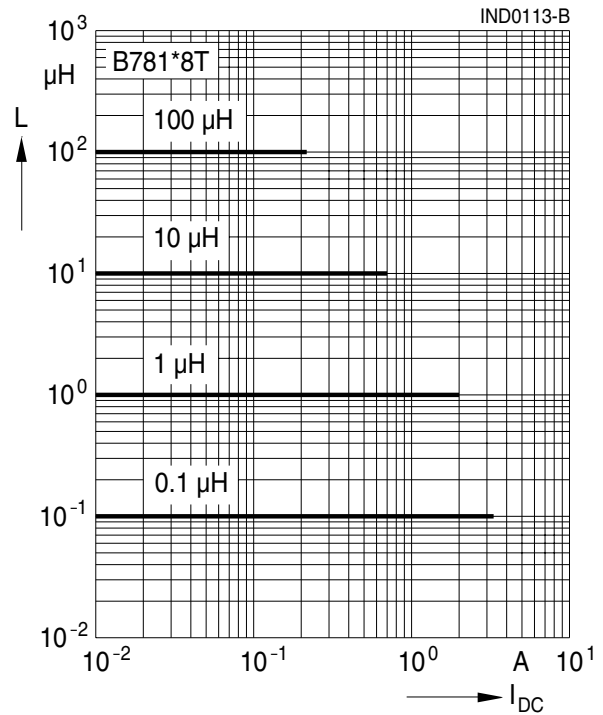
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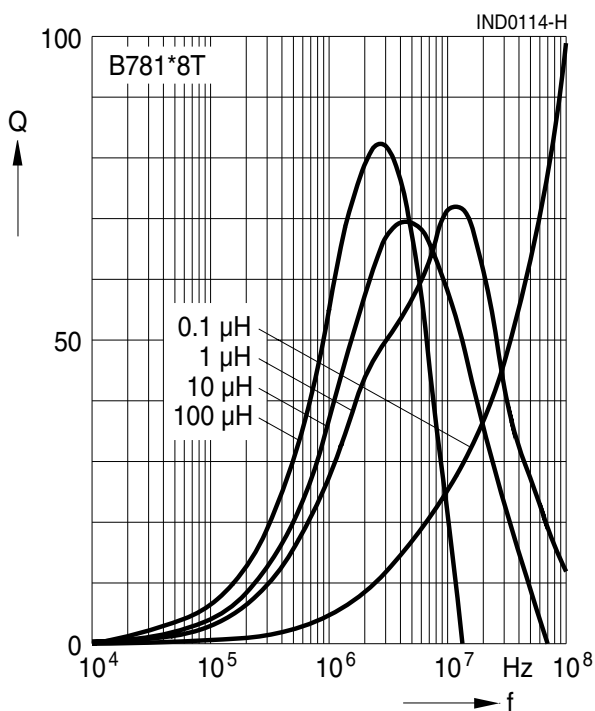
Impedance $|Z|$ versus frequency f
 measured with impedance analyzer Agilent 4294A or S-parameter network analyzer Agilent 8753ES, typical values at 20 °C



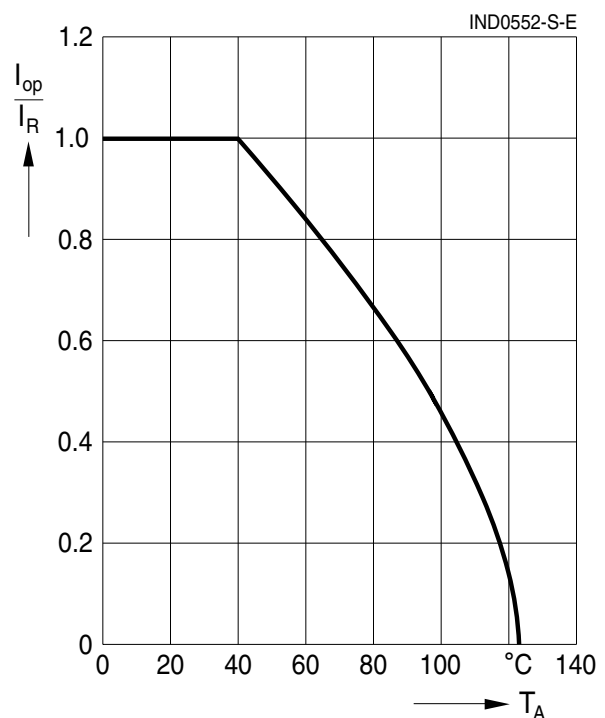
Inductance L versus DC load current I_{DC}
 measured with LCR meter Agilent 4284A, typical values at 20 °C



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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