



## **Chokes and inductors**

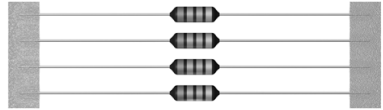
For high frequency and EMC  
RF chokes, HBC series

**Series/Type:**            **B82143A / B82143B**

**Date:**                      November 2005

<b>RF chokes</b>	<b>B82143A</b>
<b>HBC series</b>	<b>B82143B</b>

**HBC choke (High-Current Bobbin Core)**  
**Rated current 850 to 2000 mA**  
**Rated inductance 1 to 27  $\mu$ H**

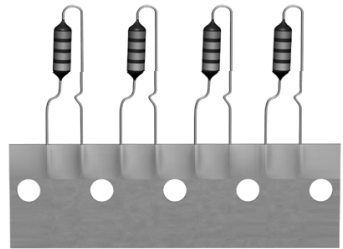


**Construction**

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

**Features**

- Very high rated current
- Low dc resistances
- RoHS-compatible (see page 5)



**Applications**

- Decoupling
- Interference suppression
- For electronic household appliances, automotive and entertainment electronics

**Terminals**

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

**Marking**

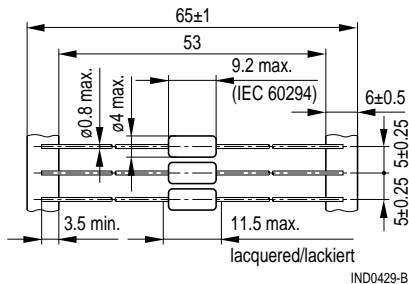
Inductance indicated by color bands to IEC 60062

**Delivery mode**

Taped, Ammo and reel packing (see page 7)

**Dimensional drawings**

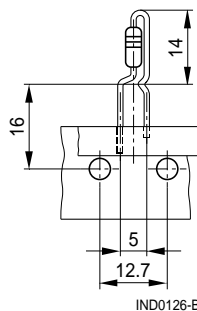
B82143A (axial leads, taped)



Minimum lead spacing 12.5 mm

Approx. weight 0.38 g

B82143B (central radial leads, taped)



Schematic drawing (details page 7)

**Characteristics and ordering codes**

For further technical data see page 5.

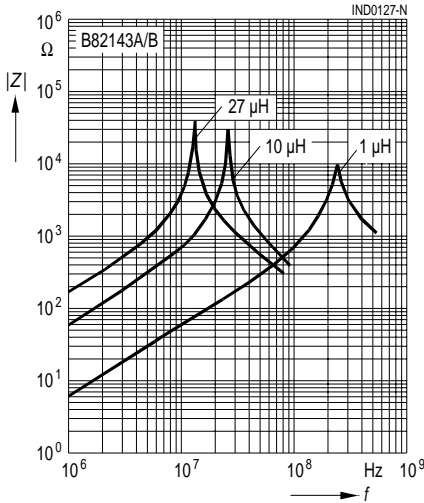
$L_R$ μH	Tolerance <sup>1)</sup>	$Q_{min}$	$f_Q$ MHz	$I_R$ mA	$R_{max}$ mΩ	$f_{res, min}$ MHz	Ordering code <sup>2)</sup> (reel packing) <sup>3)</sup>
1.0	± 10 % △ K	50	7.96	2000	80	195	B82143+1102K000
1.2		50	7.96	1800	90	180	B82143+1122K000
1.5		50	7.96	1700	100	165	B82143+1152K000
1.8		50	7.96	1650	110	155	B82143+1182K000
2.2		50	7.96	1600	120	140	B82143+1222K000
2.7		50	7.96	1500	130	125	B82143+1272K000
3.3		50	7.96	1450	140	115	B82143+1332K000
3.9		50	7.96	1400	150	105	B82143+1392K000
4.7		50	7.96	1300	170	60	B82143+1472K000
5.6		50	7.96	1250	190	45	B82143+1562K000
6.8		40	7.96	1200	220	35	B82143+1682K000
8.2		40	7.96	1150	240	25	B82143+1822K000
10		40	7.96	1100	250	21	B82143+1103K000
12		35	2.52	1050	270	17	B82143+1123K000
15		35	2.52	1000	300	16	B82143+1153K000
18	35	2.52	950	330	15	B82143+1183K000	
22	35	2.52	900	370	13	B82143+1223K000	
27	35	2.52	850	420	11	B82143+1273K000	

1) Closer tolerances upon request.

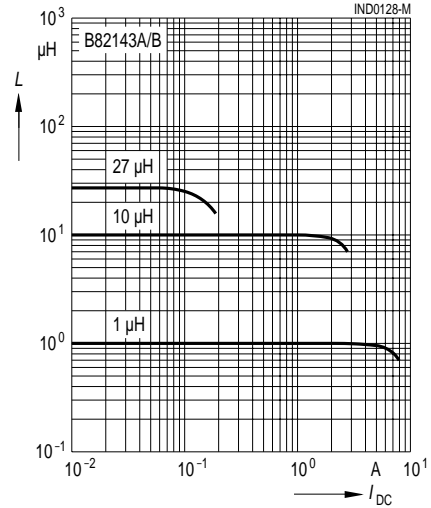
2) Replace the + by code letter »A« for axial taping or by »B« for radial taping.

3) For Ammo pack the last digit has to be a »9«. Example: B82143A1102K009.

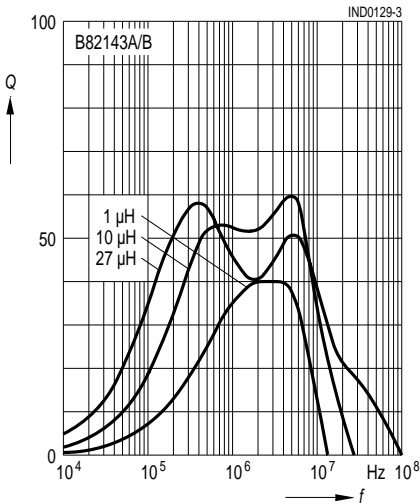
Impedance  $|Z|$   
versus frequency  $f$   
measured with impedance analyzer  
HP 4191A / HP 4194A



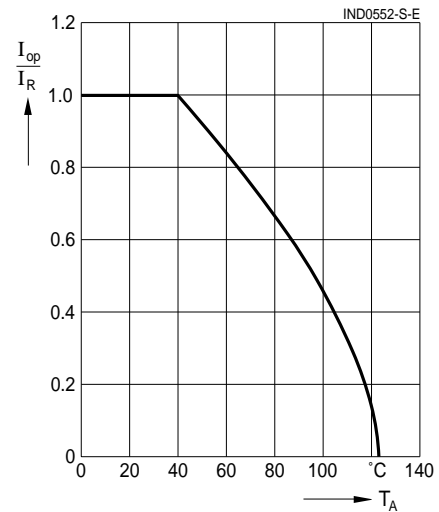
Inductance  $L$   
versus DC load current  $I_{DC}$   
measured with LCR meter  
HP 4275A



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>B82143A</b>
<b>HBC series</b>	<b>B82143B</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

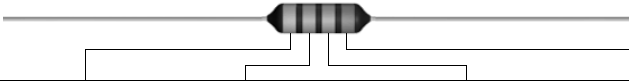
The inductance value and tolerance are encoded by means of colored bands in accordance with IEC 60062. The basic unit is  $\mu\text{H}$ .

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

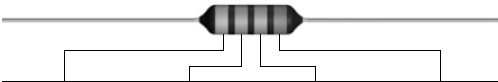
3<sup>rd</sup> band multiplier, i.e. the power of ten, by which the first two digits have to be multiplied.

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		

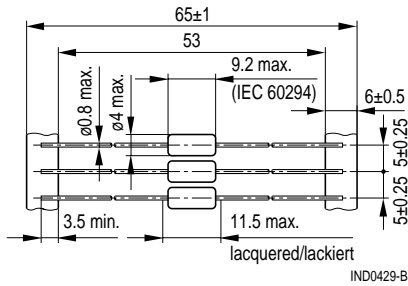
Examples:



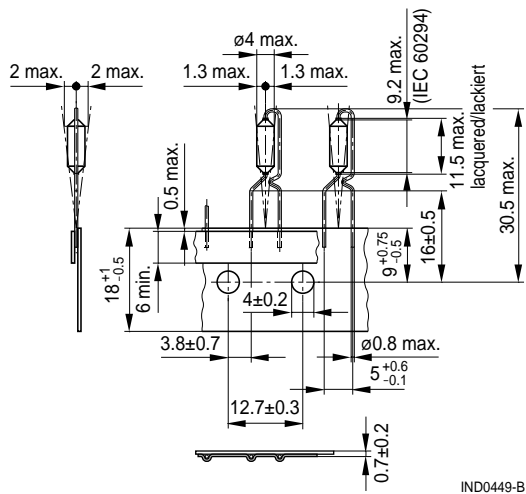
1 <sup>st</sup> band	2 <sup>nd</sup> band	3 <sup>rd</sup> band	4 <sup>th</sup> band	Decoding
Yellow 4	Violet 7	Gold $\times 0.1 \mu\text{H}$	Silver $\pm 10\%$	$= 47 \times 0.1 \mu\text{H} \pm 10\% = 4.7 \mu\text{H} \pm 10\%$
Brown 1	Green 5	Red $\times 100 \mu\text{H}$	Gold $\pm 5\%$	$= 15 \times 100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

**Taping and packing**

Axially taped (to IEC 60286-1)

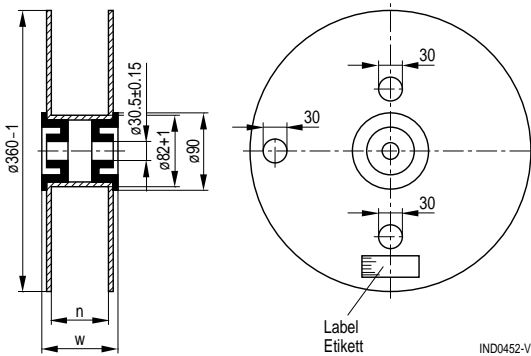


Radially taped (to IEC 60286-2)



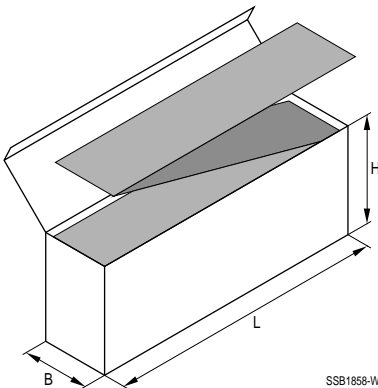
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**Reel packing**



	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./pack.
Axial	5000	2500
Radial	2000	2500



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