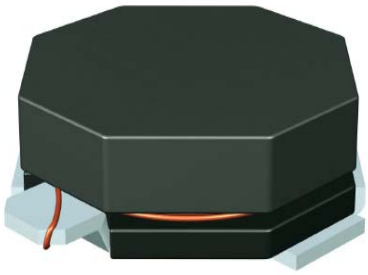
February 26, 2008

Product innovation
Miniaturized low profile power inductors

Mobile communications, consumer electronics and computer peripherals require ever more compact DC/DC converters, which despite their small size, often have to supply currents of more than one ampere. EPCOS has developed three new series of low profile power inductors (LPI) specifically for these applications. Thanks to their innovative core concept, they offer a low DC resistance and the highest power density in relation to size on the market. These magnetically shielded versions are RoHS-compatible and suitable for operating temperatures of up to 125 °C.



The most compact LPI series worldwide, the B82466G0X features a footprint of just 2.0 x 2.0 mm² and a maximum insertion height of only 1.0 mm. It an inductance range from 0.5 to 22 µH and a saturation current of up to 1.6 A. Additional versions with dimensions of 2.6 x 2.8 x 1.0 mm³ and 3.8 x 3.6 x 1.2 mm³ are also available with saturation currents of up to 3.0 A.

Series	Footprint	Insertion height
B82466G0X	2.0 x 2.0 mm²	1.0 mm
B82467G0X	2.8 x 2.6 mm²	1.0 mm
B82469G1X	3.8 x 3.6 mm²	1.2 mm

Availability
Series production starts at the EPCOS production plant in Hongqi, China in April 2008. Samples are now available.

Enclosures Preliminary data sheets

Contact Harald Sorger, IN RF PM, Mch M/An

Customers should address inquiries straight to their EPCOS sales contacts.

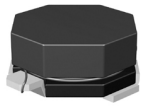
SMT power inductors

Low profile
Size 2.0 x 2.0 x 1.0 (mm)

Series/Type:	**B82466G0**
Date:	February 2008

Preliminary data

Rated inductance 0.56 µH to 22 µH
Rated current 0.25 A to 1.3 A



Construction

- Magnetically shielded
- Special ferrite core shape
- Winding: enamel copper wire
- Winding welded to terminals

Features

- Low profile
- High rated current
- Low DC resistance
- Suitable for lead-free reflow soldering
- RoHS-compatible

Applications

- Filtering of supply voltages
- Coupling, decoupling
- DC/DC converters
- Handheld devices
- EDP (Electronic Data Processing)
- Consumer electronics

Terminals

- Base material $CuSn_6P$
- Layer composition Ni, Sn (lead-free)
- Electro-plated

Marking

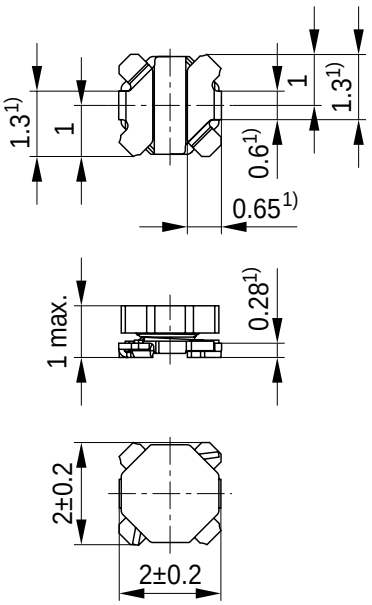
- Marking on component: To be defined
- Minimum data on reel:
  Manufacturer, ordering code, L value, quantity, date of packing

Delivery mode and packing unit

- 8-mm blister tape, wound on 180-mm ∅ reel
- Packing unit: To be defined

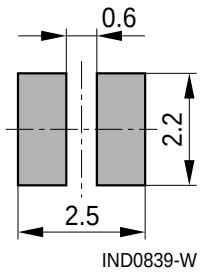
Preliminary data

Dimensional drawing and layout recommendation



1) Soldering area

IND0838-R-E



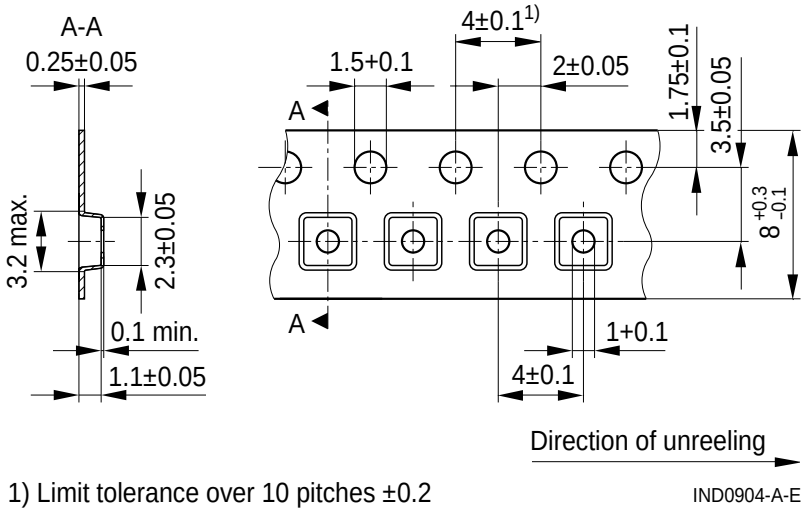
IND0839-W

Dimensions in mm

Component tolerances ±0.2 mm unless otherwise noted.

Taping and packing

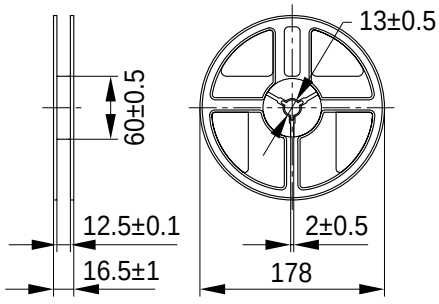
Blister tape



1) Limit tolerance over 10 pitches ±0.2

IND0904-A-E

Reel



IND0397-K

Dimensions in mm

Preliminary data

Technical data and measuring conditions

Rated inductance L_R	Measured with LCR meter Agilent 4284A at frequency f_L, 0.1 V, 20 °C
Rated temperature T_R	85 °C
Rated current I_R	Max. permissible DC with temperature increase of ≤ 40 K at rated temperature
Saturation current $I_{sat,typ}$	Max. permissible DC with inductance decrease $\Delta L/L_0$ of approx. 30%, typical values
DC resistance R_{typ}	Measured at 20 °C, typical values
Solderability (lead-free)	Dip and look methode Sn95.5Ag3.8Cu0.7: (245 ±5) °C, (3 ±0.3) s Wetting of soldering area ≥ 90% (based on IEC 60068-2-58)
Resistance to soldering heat	260 °C, 10 s (based on IEC 60068-2-58)
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. 0.2 g

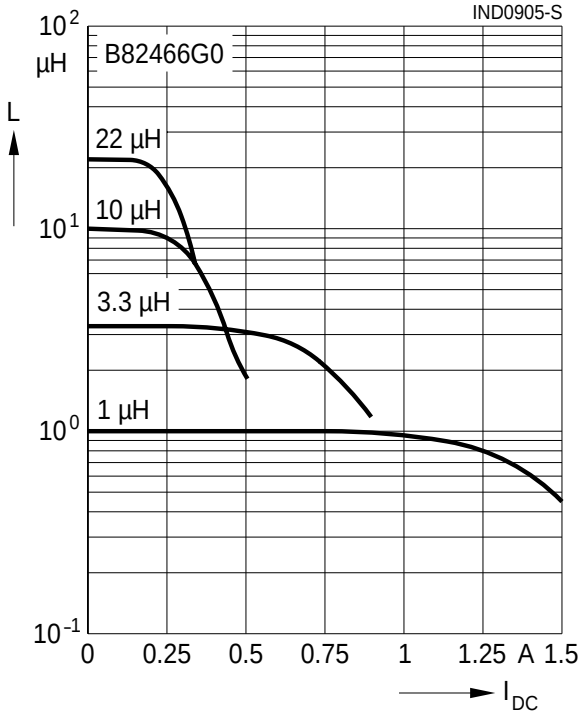
Characteristics and ordering codes

L_R µH	Tolerance	f_L MHz	I_R A	$I_{sat,typ}$ A	R_{typ} Ω	Ordering code
0.56	±20% ≙ M	0.1	1.30	1.60	0.070	B82466G0561M000
1.0		0.1	1.05	1.20	0.105	B82466G0102M000
1.5		0.1	0.92	1.00	0.145	B82466G0152M000
2.2		0.1	0.77	0.85	0.205	B82466G0222M000
2.7		0.1	0.72	0.76	0.245	B82466G0272M000
3.3		0.1	0.67	0.72	0.265	B82466G0332M000
4.7		0.1	0.60	0.63	0.350	B82466G0472M000
6.8		0.1	0.49	0.51	0.515	B82466G0682M000
10		0.1	0.36	0.40	0.900	B82466G0103M000
15		0.1	0.27	0.32	1.52	B82466G0153M000
22		0.1	0.25	0.26	1.70	B82466G0223M000

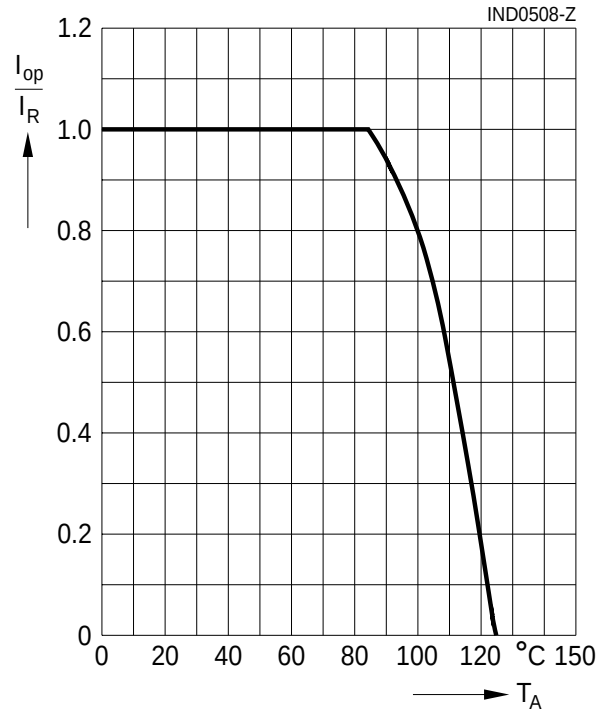
Since this series is under development the specifications are subject to change.

Preliminary data

Inductance L versus DC load current I_{DC}
measured with LCR meter Agilent 4275A,
typical values at 20 °C



Current derating I_{op}/I_R
versus ambient temperature T_A
(rated temperature T_R = 85 °C)



Cautions and warnings

- Please note the recommendations in our data book “Chokes and Inductors” (latest edition).
  - 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 any washing varnish agent that is used has an 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 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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The following applies to all products named in this publication:

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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.
3. **The warnings, cautions and product-specific notes must be observed**.
4. In order to satisfy certain technical requirements, **some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as hazardous)**. Useful information on this will be found in our Material Data Sheets on the Internet (www.epcos.com/material). Should you have any more detailed questions, please contact our sales offices.
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SMT power inductors

Low profile
Size 2.8 x 2.6 x 1.0 (mm)

Series/Type:	**B82467G0**
Date:	February 2008

Preliminary data

Rated inductance 0.5 µH to 22 µH
Rated current 0.38 A to 2.25 A

Construction

- Magnetically shielded
- Special ferrite core shape
- Winding: enamel copper wire
- Winding welded to terminals

Features

- Low profile
- High rated current
- Low DC resistance
- Suitable for lead-free reflow soldering
- RoHS-compatible

Applications

- Filtering of supply voltages
- Coupling, decoupling
- DC/DC converters
- Handheld devices
- EDP (Electronic Data Processing)
- Consumer electronics

Terminals

- Base material $CuSn_6P$
- Layer composition Ni, Sn (lead-free)
- Electro-plated

Marking

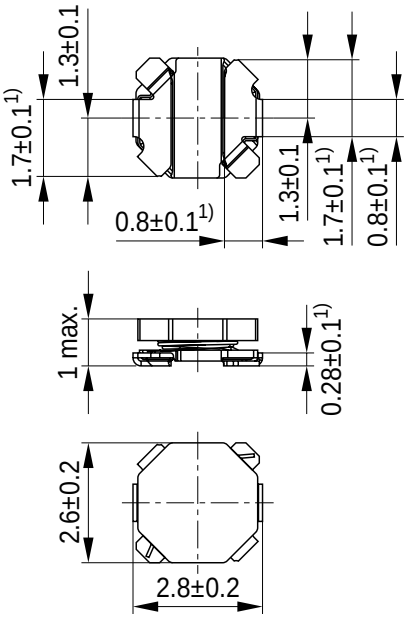
- Marking on component: To be defined
- Minimum data on reel:
  Manufacturer, ordering code, L value, quantity, date of packing

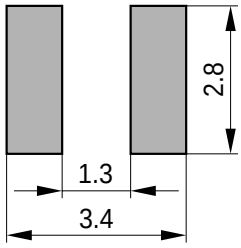
Delivery mode and packing unit

- 8-mm blister tape, wound on 180-mm ∅ reel
- Packing unit: To be defined

Preliminary data

Dimensional drawing and layout recommendation





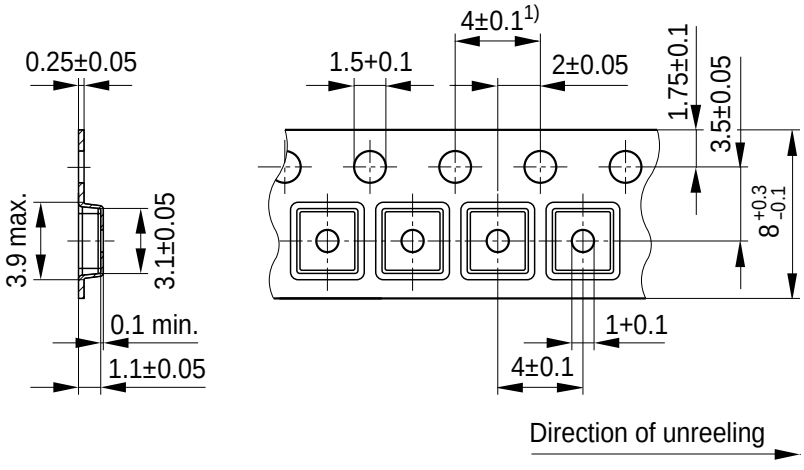
IND0574-S

1) Soldering area IND0573-A-E

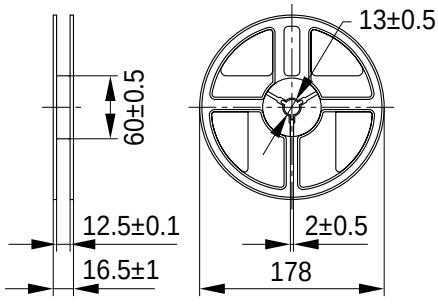
Dimensions in mm

Taping and packing

Blister tape



Reel



IND0397-K

1) Limit tolerance over 10 pitches ±0.2

IND0831-B-E

Dimensions in mm

Preliminary data

Technical data and measuring conditions

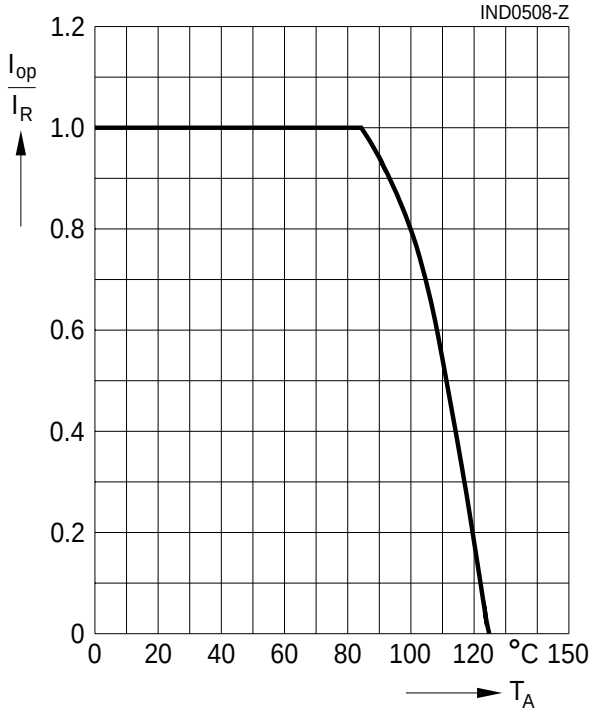
Rated inductance L_R	Measured with LCR meter Agilent 4284A at frequency f_L, 0.1 V, 20 °C
Rated temperature T_R	85 °C
Rated current I_R	Max. permissible DC with temperature increase of ≤ 40 K at rated temperature
Saturation current $I_{sat,typ}$	Max. permissible DC with inductance decrease $\Delta L/L_0$ of approx. 30%, typical values
DC resistance R_{typ}	Measured at 20 °C, tolerance ±20%, typical values
Solderability (lead-free)	Dip and look methode Sn95.5Ag3.8Cu0.7: (245 ±5) °C, (3 ±0.3) s Wetting of soldering area ≥ 90% (based on IEC 60068-2-58)
Resistance to soldering heat	260 °C, 10 s (based on IEC 60068-2-58)
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. 0.2 g

Characteristics and ordering codes

L_R µH	Tolerance	f_L MHz	I_R A	$I_{sat,typ}$ A	R_{typ} Ω	Ordering code
0.5	±20% ≙ M	0.1	2.25	2.00	0.030	B82467G0501M000
1.0		0.1	1.60	1.475	0.055	B82467G0102M000
1.5		0.1	1.25	1.150	0.075	B82467G0152M000
2.2		0.1	1.15	0.950	0.110	B82467G0222M000
3.3		0.1	0.93	0.775	0.165	B82467G0332M000
4.7		0.1	0.80	0.675	0.215	B82467G0472M000
6.8		0.1	0.67	0.580	0.290	B82467G0682M000
10		0.1	0.55	0.480	0.485	B82467G0103M000
15		0.1	0.46	0.370	0.690	B82467G0153M000
22		0.1	0.38	0.320	0.960	B82467G0223M000

Preliminary data

Current derating I_{op}/I_R
versus ambient temperature T_A
(rated temperature T_R = 85 °C)



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SMT power inductors

Low profile
Size 3.8 x 3.6 x 1.2 (mm)

Series/Type:	**B82469G1**
Date:	February 2008

Preliminary data

Rated inductance 0.39 µH to 22 µH
Rated current 0.53 A to 2.8 A

Construction

- Magnetically shielded
- Special ferrite core shape
- Winding: enamel copper wire
- Winding welded to terminals

Features

- Low profile
- High rated current
- Low DC resistance
- Suitable for lead-free reflow soldering
- RoHS-compatible

Applications

- Filtering of supply voltages
- Coupling, decoupling
- DC/DC converters
- Handheld devices
- EDP (Electronic Data Processing)
- Consumer electronics

Terminals

- Base material $CuSn_6P$
- Layer composition Ni, Sn (lead-free)
- Electro-plated

Marking

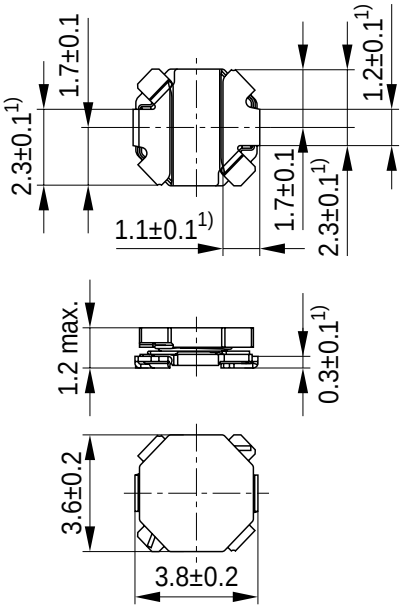
- Marking on component: To be definded
- Minimum data on reel:
  Manufacturer, ordering code, L value,
  quantity, date of packing

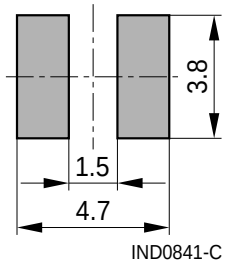
Delivery mode and packing unit

- 12-mm blister tape, wound on 180-mm ∅ reel
- Packing unit: 1000 pcs./reel

Preliminary data

Dimensional drawing and layout recommendation





IND0841-C

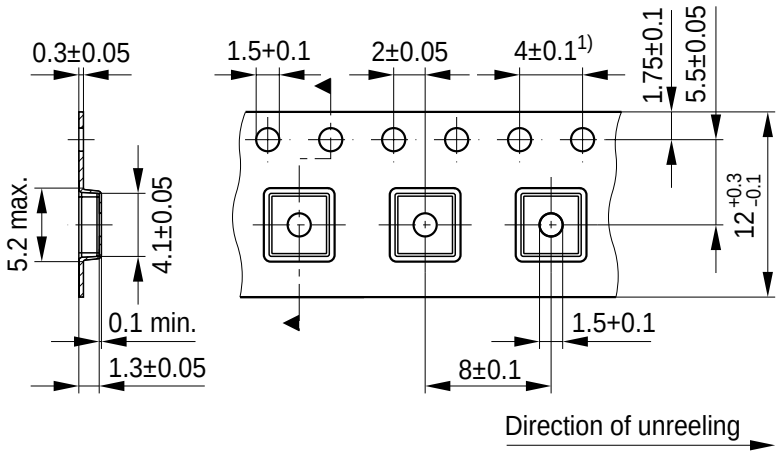
1) Soldering area

IND0840-Z-E

Dimensions in mm

Taping and packing

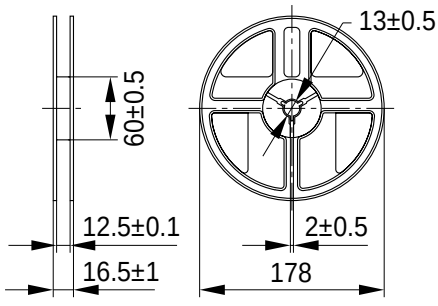
Blister tape



1) Limit tolerance over 10 pitches ±0.2

IND0833-N-E

Reel



IND0397-K

Dimensions in mm

Preliminary data

Technical data and measuring conditions

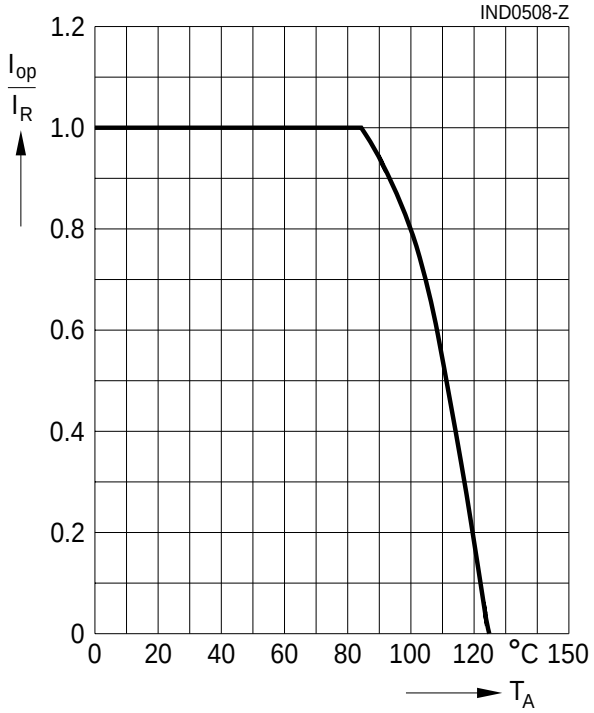
Rated inductance L_R	Measured with LCR meter Agilent 4284A at frequency f_L, 0.1 V, 20 °C
Rated temperature T_R	85 °C
Rated current I_R	Max. permissible DC with temperature increase of ≤ 40 K at rated temperature
Saturation current $I_{sat,typ}$	Max. permissible DC with inductance decrease $\Delta L/L_0$ of approx. 30%, typical values
DC resistance R_{typ}	Measured at 20 °C, typical values
Solderability (lead-free)	Dip and look methode Sn95.5Ag3.8Cu0.7: (245 ±5) °C, (3 ±0.3) s Wetting of soldering area ≥ 90% (based on IEC 60068-2-58)
Resistance to soldering heat	260 °C, 10 s (based on IEC 60068-2-58)
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. 0.2 g

Characteristics and ordering codes

L_R µH	Tolerance	f_L MHz	I_R A	$I_{sat,typ}$ A	R_{typ} Ω	Ordering code
0.39	±20% ≙ M	0.1	2.80	3.00	0.016	B82469G1391M000
0.91		0.1	2.00	1.95	0.033	B82469G1911M000
1.5		0.1	1.70	1.55	0.046	B82469G1152M000
2.2		0.1	1.55	1.33	0.065	B82469G1222M000
3.3		0.1	1.30	1.10	0.085	B82469G1332M000
4.7		0.1	1.20	1.00	0.13	B82469G1472M000
6.8		0.1	0.90	0.80	0.17	B82469G1682M000
10		0.1	0.80	0.66	0.27	B82469G1103M000
15		0.1	0.60	0.57	0.37	B82469G1153M000
22		0.1	0.53	0.45	0.53	B82469G1223M000

Preliminary data

Current derating I_{op}/I_R
versus ambient temperature T_A
(rated temperature T_R = 85 °C)



Cautions and warnings

- Please note the recommendations in our data book “Chokes and Inductors” (latest edition).
  - 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 any washing varnish agent that is used has an 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 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.

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.
3. **The warnings, cautions and product-specific notes must be observed**.
4. In order to satisfy certain technical requirements, **some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as hazardous)**. Useful information on this will be found in our Material Data Sheets on the Internet (www.epcos.com/material). Should you have any more detailed questions, please contact our sales offices.
5. We constantly strive to improve our products. Consequently, **the products described in this publication may change from time to time**. The same is true of the corresponding product specifications. Please check therefore to what extent product descriptions and specifications contained in this publication are still applicable before or when you place an order.

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