



Inductors for power circuits

Size 6.3 × 6.0 × 4.5 (mm)

Series/Type: CLF6045NI-D

Date: July 2018

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SMD
Rated inductance 1 ... 470 μ H
Rated current 0.41 ... 4.80 A
Construction

- Ferrite core
- Magnetically shielded
- Winding: enamel copper wire
- Winding welded to terminals

Features

- High mechanical robustness
- High rated current, low DC resistance
- Temperature range up to +150 °C
- Suitable for lead-free reflow soldering as referenced in JEDEC J-STD 020D
- Qualified to AEC-Q200
- RoHS-compatible

Applications

- DC/DC converters
- Automotive electronics
- Filtering of supply voltages
- Coupling, decoupling

Terminals

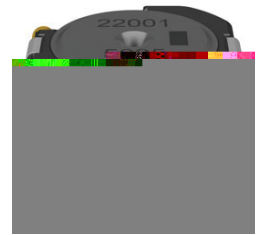
- Base material Cu
- terminal finish Sn (lead-free)
- Electro-plated

Marking

- Marking on component:
L value (μ H, coded), serial number, underscore, manufacturing date (YWWD), winding end marking
- Minimum data on reel:
Manufacturer, ordering code, L value, quantity, date of packing

Delivery mode and packing unit

- 16-mm blister tape, wound on 330-mm \varnothing reel
- Packing unit: 1000 pcs./reel





Dimensional drawing and layout recommendation

IND146

Dimensions in mm

Taping and packing

Blister tape

Reel

SMD
Technical data and measuring conditions

(Measured at room temperature unless otherwise noted)

Rated inductance L_R	Measured with LCR meter Agilent 4284A at frequency f_L , 0.1 V
Operating temperature range	-55 °C ... +150 °C
Thermal current I_{temp}	Max. permissible DC with temperature increase of ≤ 40 K
Saturation current I_{sat}	Max. permissible DC with inductance decrease $\Delta L/L_0$ of 30% of it's nominal value
DC resistance R_{DC}	Measured with Burster Resistomat 2329
Solderability (lead-free)	Dip and look method Sn95.5Ag3.8Cu0.7: +(245 \pm 5) °C, (3 \pm 0.3) s Wetting of soldering area $\geq 90\%$ (based on IEC 60068-2-58)
Resistance to soldering heat	+260 °C, 40 s (as referenced in JEDEC J-STD 020D)
Climatic category	55/150/56 (to IEC 60068-1)
Storage conditions	Mounted: -55 °C ... +150 °C Packaged: -25 °C ... +40 °C, $\leq 75\%$ RH
Weight	Approx. 0.6 g

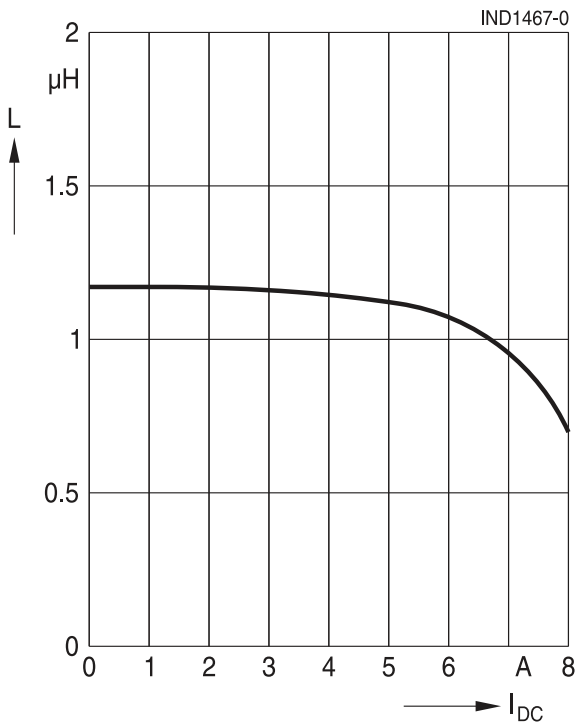
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Characteristics and ordering codes

L _R μH	Tol.	Meas. freq. kHz	R _{DC} Ω	Rated current			Internal code	Ordering code
				I _{sat,min} A	I _{sat,typ} A	I _{t,typ} A		
1.0	±30%	100	0.011 ±30%	6.70	8.00	4.80	B82562N4102N000	CLF6045NIT-1R0N-D
1.5	±30%	100	0.013 ±30%	5.50	6.60	4.50	B82562N4152N000	CLF6045NIT-1R5N-D
2.2	±30%	100	0.015 ±30%	4.20	5.00	4.10	B82562N4222N000	CLF6045NIT-2R2N-D
3.3	±30%	100	0.019 ±30%	3.50	4.30	3.70	B82562N4332N000	CLF6045NIT-3R3N-D
4.7	±30%	100	0.023 ±30%	3.10	3.60	3.30	B82562N4472N000	CLF6045NIT-4R7N-D
6.8	±30%	100	0.027 ±30%	2.50	3.10	3.10	B82562N4682N000	CLF6045NIT-6R8N-D
10	±20%	100	0.035 ±20%	2.10	2.40	2.60	B82562N4103M000	CLF6045NIT-100M-D
15	±20%	100	0.060 ±20%	1.70	2.00	2.00	B82562N4153M000	CLF6045NIT-150M-D
22	±20%	100	0.075 ±20%	1.40	1.70	1.80	B82562N4223M000	CLF6045NIT-220M-D
33	±20%	100	0.100 ±20%	1.10	1.40	1.60	B82562N4333M000	CLF6045NIT-330M-D
47	±20%	100	0.130 ±20%	0.97	1.20	1.40	B82562N4473M000	CLF6045NIT-470M-D
68	±20%	100	0.200 ±20%	0.81	0.90	1.10	B82562N4683M000	CLF6045NIT-680M-D
100	±20%	100	0.320 ±20%	0.61	0.80	0.86	B82562N4104M000	CLF6045NIT-101M-D
150	±20%	100	0.480 ±20%	0.53	0.65	0.72	B82562N4154M000	CLF6045NIT-151M-D
220	±20%	100	0.720 ±20%	0.47	0.52	0.57	B82562N4224M000	CLF6045NIT-221M-D
330	±20%	100	0.920 ±20%	0.36	0.43	0.49	B82562N4334M000	CLF6045NIT-331M-D
470	±20%	100	1.300 ±20%	0.28	0.36	0.41	B82562N4474M000	CLF6045NIT-471M-D

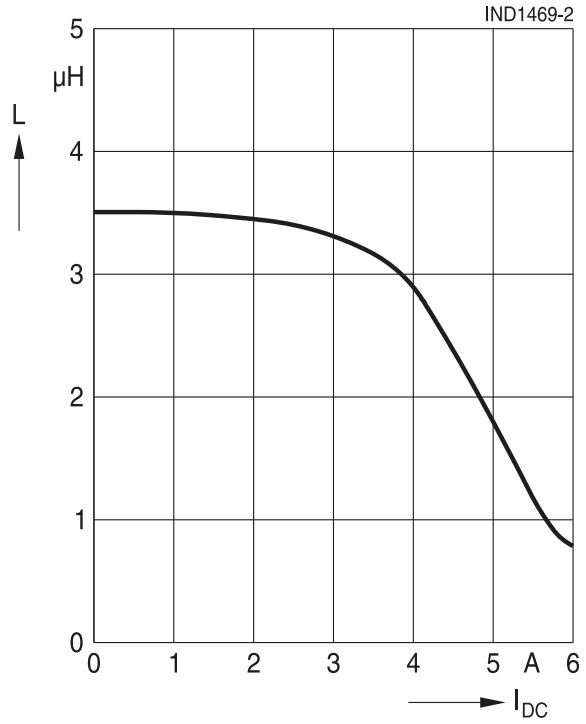
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Inductance L versus DC superposition I_{DC}
 measured with LCR meter Agilent 4284A and
 Agilent 42842, typical values at +20 °C

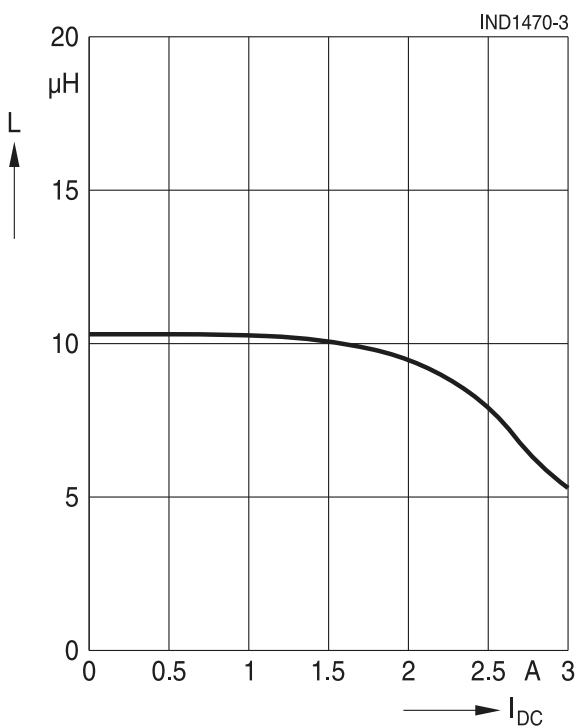
CLF6045NIT-1R0N-D



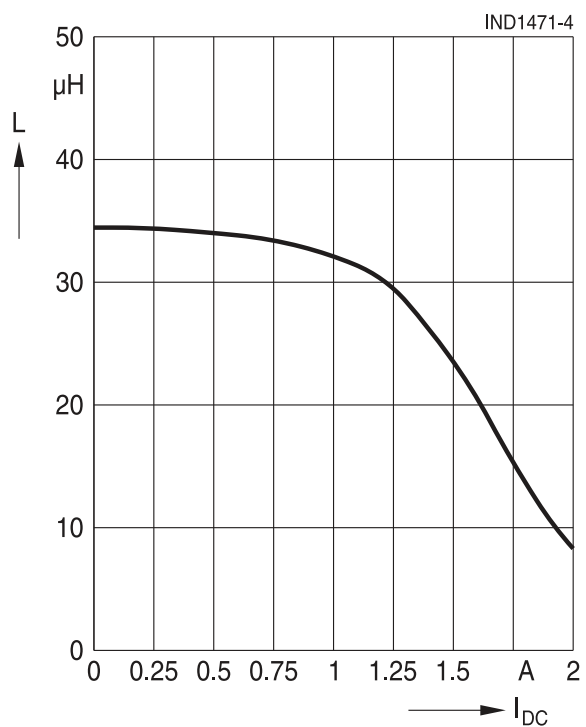
CLF6045NIT-3R3N-D



CLF6045NIT-100M-D

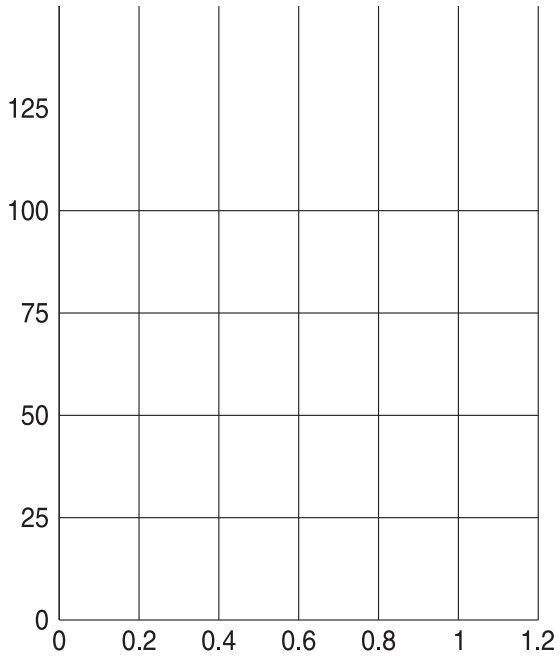


CLF6045NIT-330M-D



CLF6045NIT-101M-D

CLF6045NIT-471M-D



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.

Display of ordering codes for EPCOS products

The ordering code for one and the same product can be represented differently in data sheets, data books, other publications and the website of EPCOS, or in order-related documents such as shipping notes, order confirmations and product labels. **The varying representations of the ordering codes are due to different processes employed and do not affect the specifications of the respective products.** Detailed information can be found on the Internet under www.epcos.com/orderingcodes.

Important notes

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7. **Our manufacturing sites serving the automotive business apply the IATF 16949 standard.**
The IATF certifications confirm our compliance with requirements regarding the quality management system in the automotive industry. Referring to customer requirements and customer specific requirements (“CSR”) TDK always has and will continue to have the policy of respecting individual agreements. Even if IATF 16949 may appear to support the acceptance of unilateral requirements, we hereby like to emphasize that **only requirements mutually agreed upon can and will be implemented in our Quality Management System.** For clarification purposes we like to point out that obligations from IATF 16949 shall only become legally binding if individually agreed upon.
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