



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 (YWWDD), winding end marking
- Minimum data on reel:
Manufacturer, ordering code, L value, quantity, date of packing

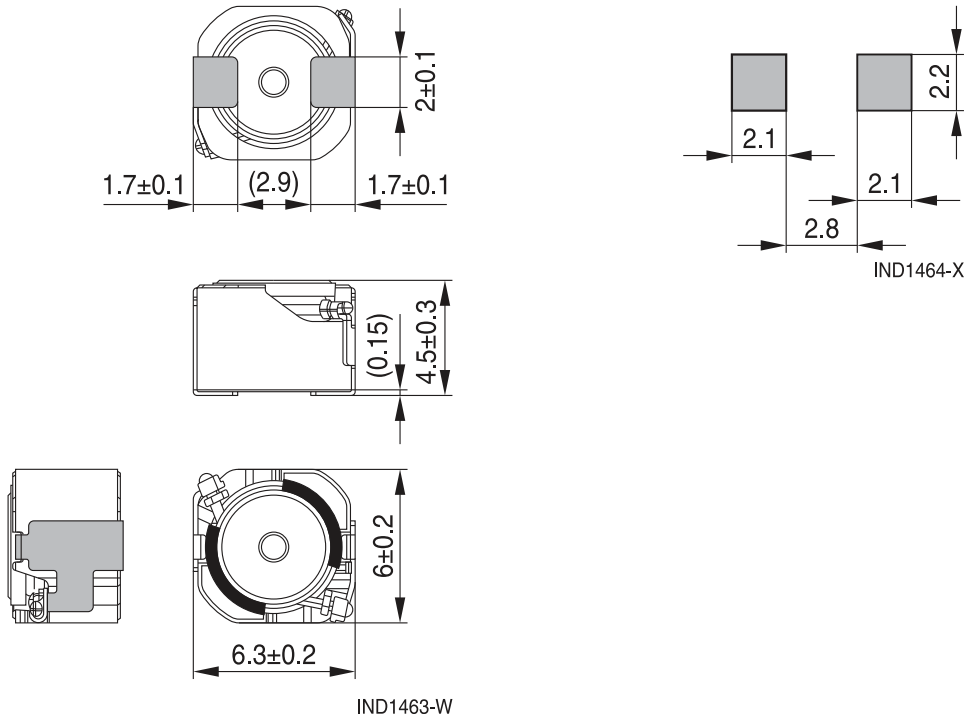
Delivery mode and packing unit

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



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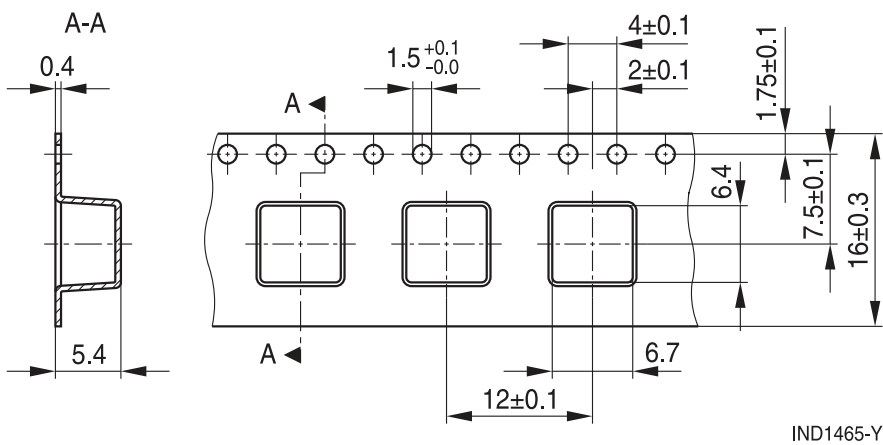
Dimensional drawing and layout recommendation



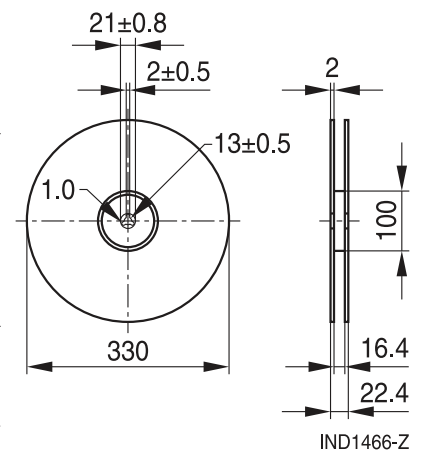
Dimensions in mm

Taping and packing

Blister tape



Reel



Dimensions in mm

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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 |

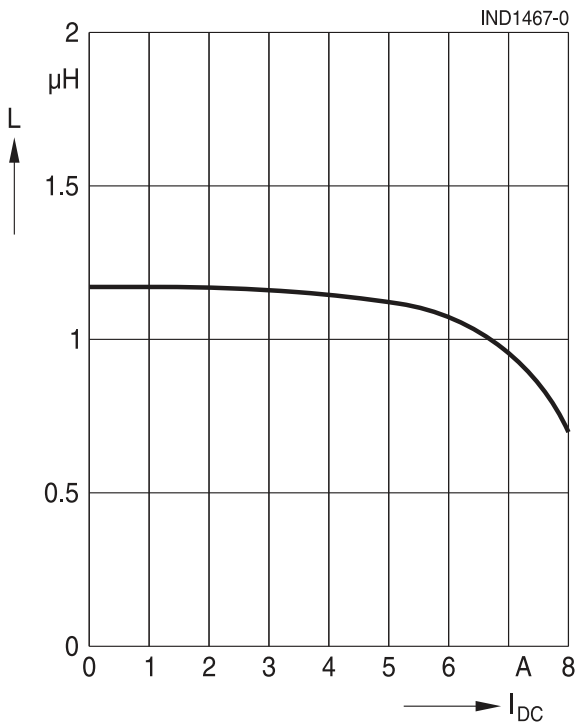
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Characteristics and ordering codes

| 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 |

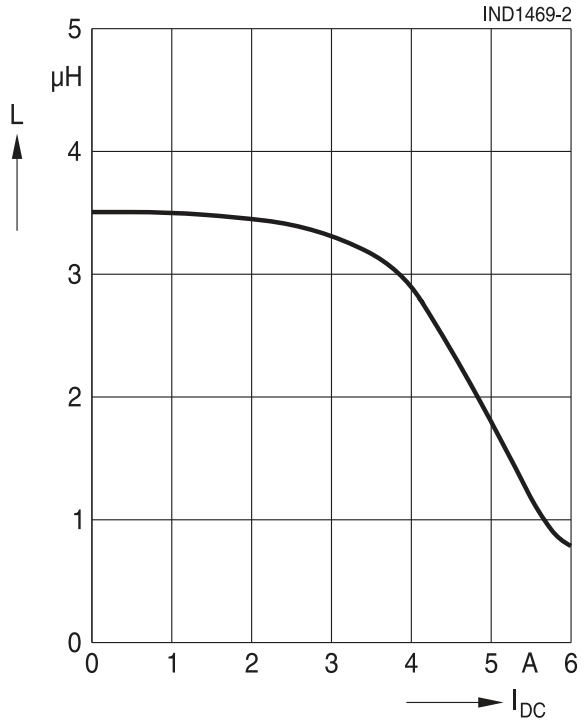
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Inductance L versus DC superposition I_{DC}
 measured with LCR meter Agilent 4284A and
 Agilent 42842, typical values at +20 °C

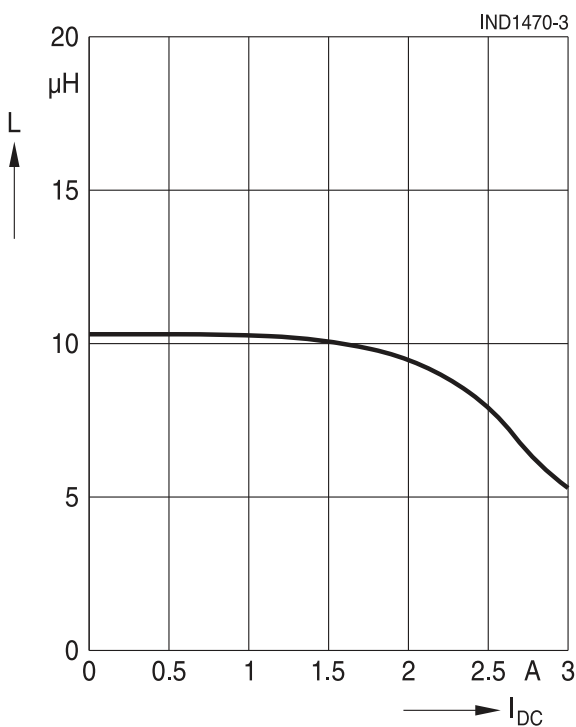
CLF6045NIT-1R0N-D



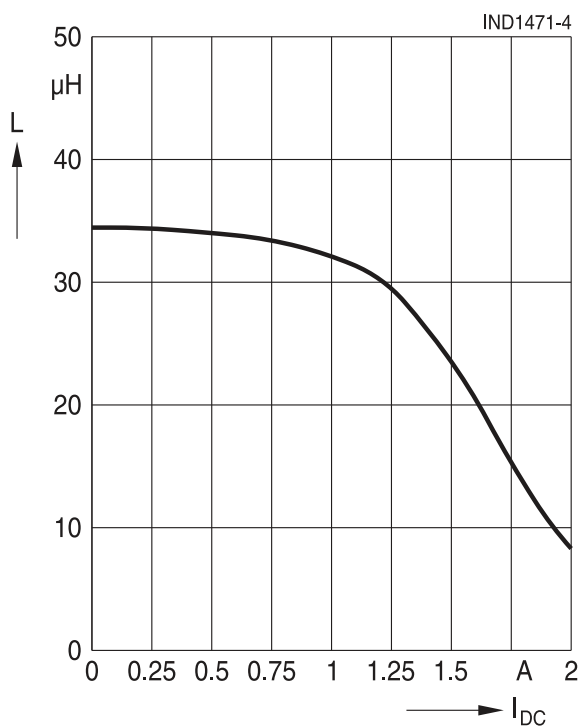
CLF6045NIT-3R3N-D



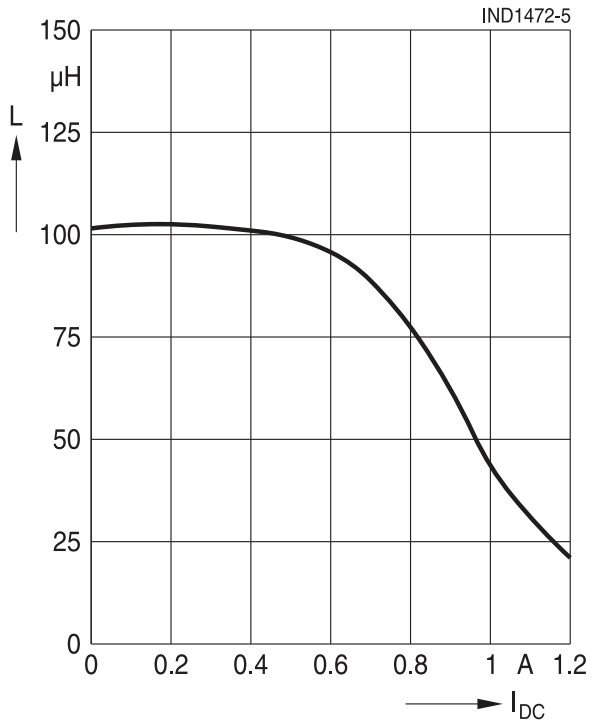
CLF6045NIT-100M-D



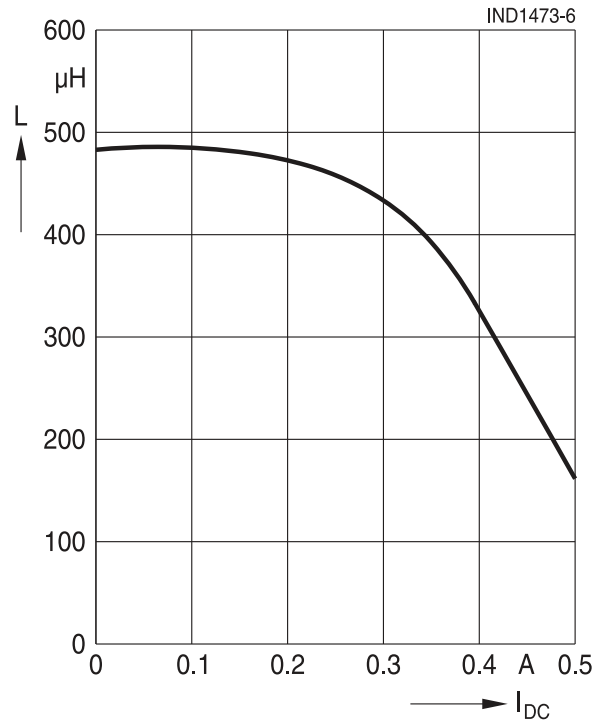
CLF6045NIT-330M-D



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.

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Important notes

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