



## Inductors for power circuits

Size 12.4 × 13.1 × 11.5 (mm)

**Series/Type:** PCM120T

**Date:** November 2023

**SMD**
**Rated inductance 0.4 ... 10  $\mu$ H**
**Rated current 12.0 ... 79.8 A**
**Construction**

- Metal rod core
- Magnetically shielded
- Winding: enamel copper wire
- Flat wire connection


**Features**

- Current-handling capability up to 80 A, soft saturation
- Suitable for AOI (solder point inspection)
- Lead frame provides good coplanarity and solderability
- High mechanical robustness
- Dense magnetic shielding for lower EMI
- Temperature range up to +165 °C
- Suitable for lead-free reflow soldering as referenced in JEDEC J-STD 020
- Qualification to AEC-Q200
- RoHS-compatible

**Applications**

- Primary DC/DC converters (withstands ISO7637 pulses)
- Automotive electronics (PMIC - power management integrated circuits, ECM engine control module, transmission control, power steering control)
- Power supply in servers
- Power supply in 5G base stations

**Terminals**

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

**Marking**

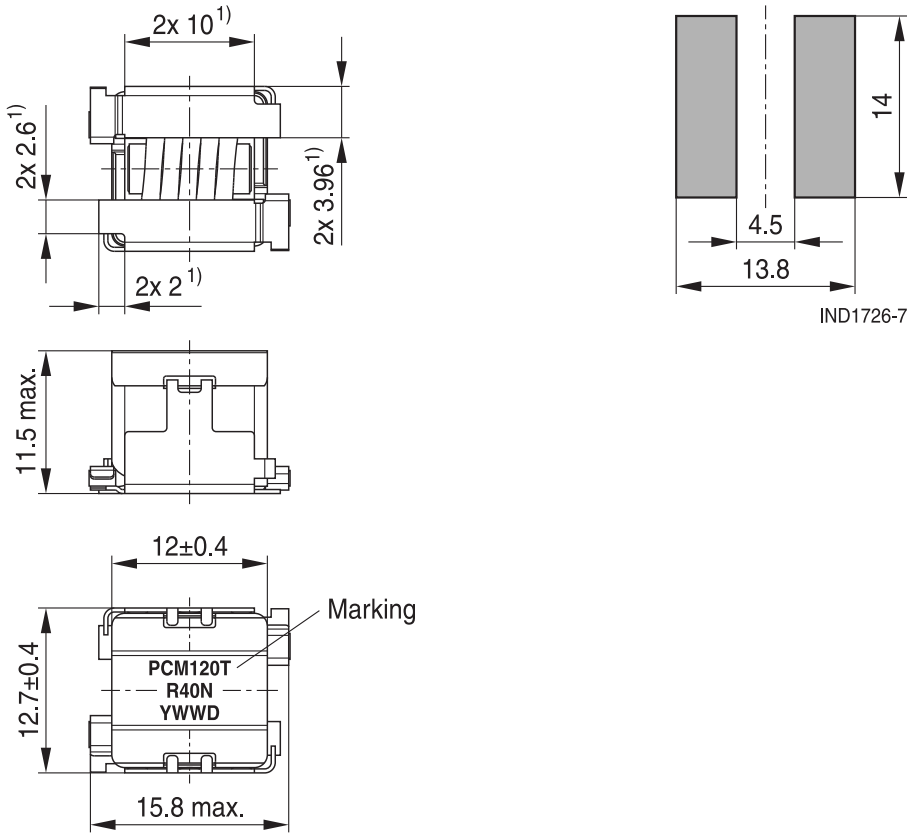
- Marking on component:  
Series name, L value ( $\mu$ H, coded), manufacturing date (YWWDD)
- Minimum data on reel:  
Manufacturer, ordering code, L value, quantity, date of packing

**Delivery mode and packing unit**

- 32-mm blister tape, wound on 330-mm  $\varnothing$  reel
- Packing unit: 250 pcs./reel

**SMD**

**Dimensional drawing and layout recommendation**



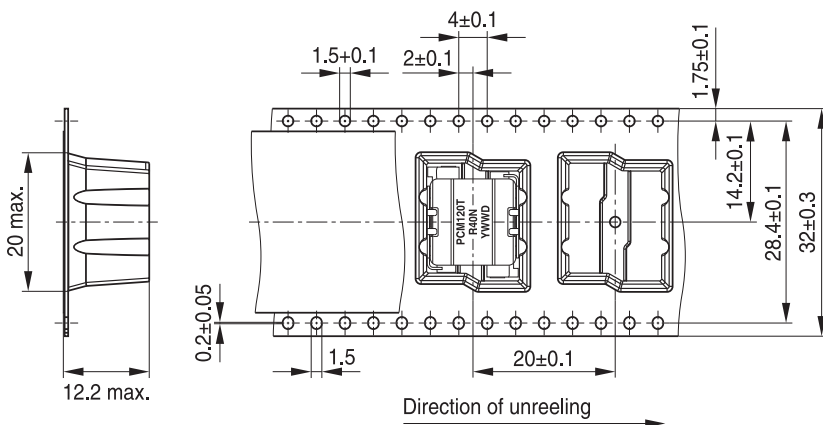
1) Soldering area

IND1725-6-E

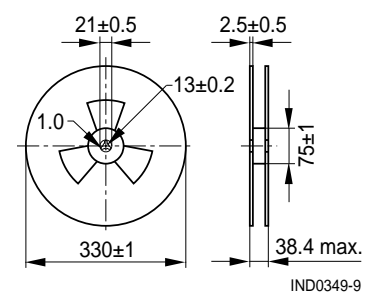
Dimensions in mm

**Taping and packing**

**Blister tape**



**Reel**



Dimensions in mm

**SMD**
**Technical data and measuring conditions**

(Measured at room temperature unless otherwise noted)

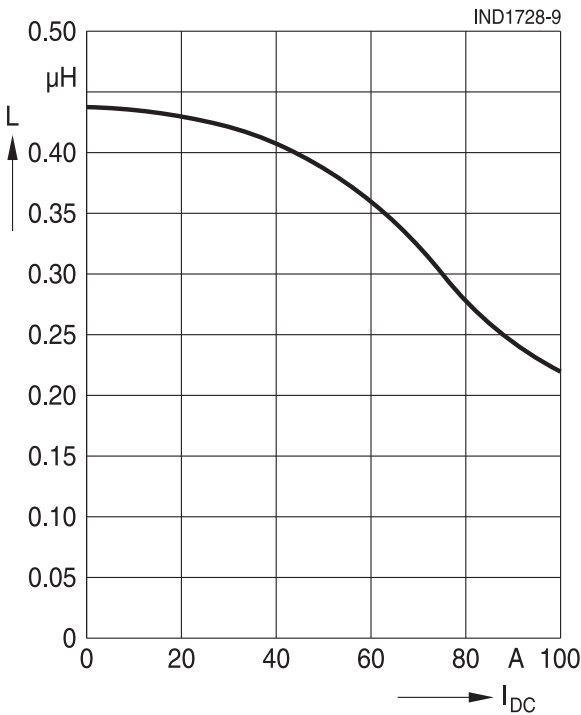
|                              |   |
|------------------------------|---|
| Rated inductance $L_R$       | Measured with LCR meter Keysight 4980 or similar at $f_L$ , 0.1 V   |
| Operating temperature range  | -55 °C ... +165 °C  |
| Thermal current $I_{temp}$   | Max. permissible DC with temperature increase of $\leq 40$ K (to IEC 62024-2)   |
| Saturation current $I_{sat}$ | Max. permissible DC with inductance decrease $\Delta L/L_0$ of 30% of its nominal value   |
| DC resistance $R_{DC}$       | Measured with Burster Resistomat 2329   |
| Solderability (lead-free)    | Dip and look method Sn95.5Ag3.8Cu0.7:<br>+(245 ±5) °C, (5 ±0.3) s<br>Wetting of soldering area $\geq 90\%$<br>(based on IEC 60068-2-58) |
| Resistance to soldering heat | as referenced in JEDEC J-STD 020  |
| Climatic category            | 55/165/56 (to IEC 60068-1)  |
| Storage conditions           | Mounted: -55 °C ... +165 °C<br>Packaged: -25 °C ... +40 °C, $\leq 75\%$ RH  |
| Weight                       | Approx. 6 g   |

**Characteristics and ordering codes**

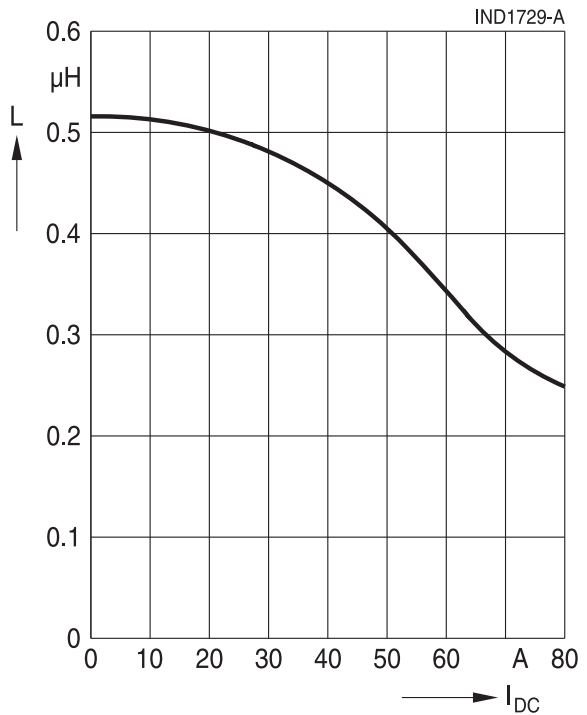
| $L_R$<br>$\mu\text{H}$ | Tol. | $f_L$<br>kHz | $R_{DC}$<br>m $\Omega$ | Rated current      |                    |                     | Internal code   | Ordering code  |
|------------------------|------|--------------|------------------------|--------------------|--------------------|---------------------|-----------------|----------------|
|                        |      |              |                        | $I_{sat,typ}$<br>A | $I_{sat,min}$<br>A | $I_{temp,typ}$<br>A |                 |                |
| 0.40                   | ±30% | 100          | 0.72 ±30%              | 79.80              | 67.8               | 50.0                | B82482M1401N000 | PCM120T-R40N-D |
| 0.50                   | ±30% | 100          | 0.72 ±30%              | 58.7               | 49.9               | 50.0                | B82482M1501N000 | PCM120T-R50N-D |
| 0.68                   | ±30% | 100          | 0.83 ±30%              | 49.5               | 40.6               | 46.6                | B82482M1681N000 | PCM120T-R68N-D |
| 0.82                   | ±30% | 100          | 1.06 ±30%              | 49.3               | 40.5               | 41.2                | B82482M1821N000 | PCM120T-R82N-D |
| 1.0                    | ±30% | 100          | 1.06 ±30%              | 39.5               | 33.6               | 41.2                | B82482M1102N000 | PCM120T-1R0N-D |
| 1.2                    | ±30% | 100          | 1.45 ±30%              | 38.7               | 32.9               | 35.2                | B82482M1122N000 | PCM120T-1R2N-D |
| 1.5                    | ±30% | 100          | 1.45 ±30%              | 32.2               | 27.4               | 35.2                | B82482M1152N000 | PCM120T-1R5N-D |
| 2.2                    | ±20% | 100          | 2.45 ±20%              | 24.8               | 20.5               | 27.1                | B82482M1222M000 | PCM120T-2R2M-D |
| 2.7                    | ±20% | 100          | 3.12 ±20%              | 26.3               | 20.4               | 24.4                | B82482M1272M000 | PCM120T-2R7M-D |
| 3.3                    | ±20% | 100          | 3.12 ±20%              | 20.9               | 16.7               | 24.4                | B82482M1332M000 | PCM120T-3R3M-D |
| 4.7                    | ±20% | 100          | 4.30 ±20%              | 17.0               | 14.9               | 20.6                | B82482M1472M000 | PCM120T-4R7M-D |
| 6.8                    | ±20% | 100          | 6.50 ±20%              | 15.1               | 13.2               | 16.6                | B82482M1682M000 | PCM120T-6R8M-D |
| 8.2                    | ±20% | 100          | 9.00 ±20%              | 15.0               | 11.5               | 14.1                | B82482M1822M000 | PCM120T-8R2M-D |
| 10.0                   | ±20% | 100          | 9.00 ±20%              | 12.0               | 10.2               | 14.1                | B82482M1103M000 | PCM120T-100M-D |

**Inductance L versus DC superposition  $I_{DC}$**   
 measured with LCR meter Wayne Kerr 3260 +  
 3265, typical values at +20 °C

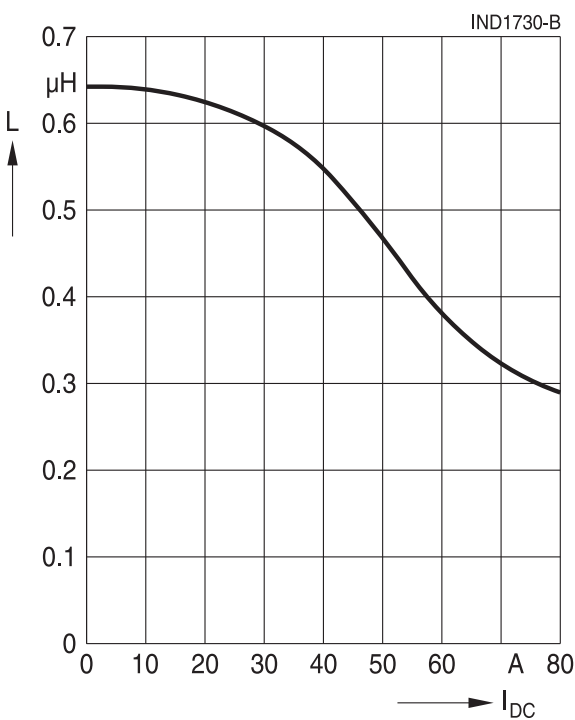
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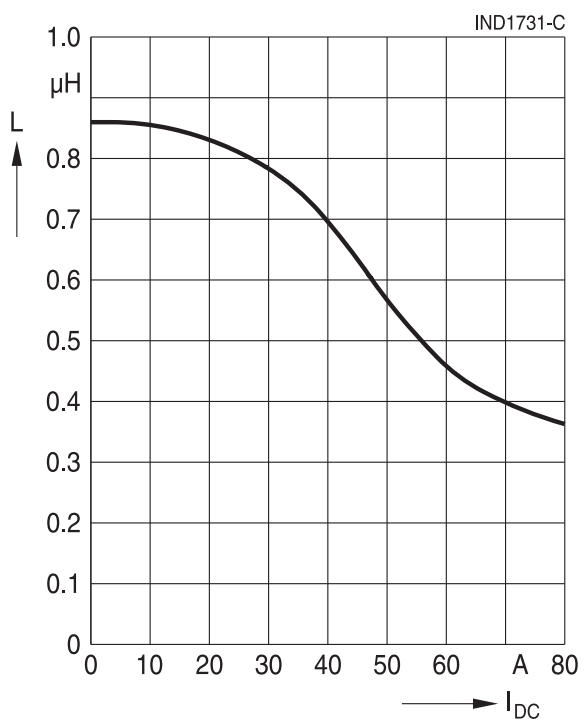
**PCM120T-R50N-D**



**PCM120T-R68N-D**

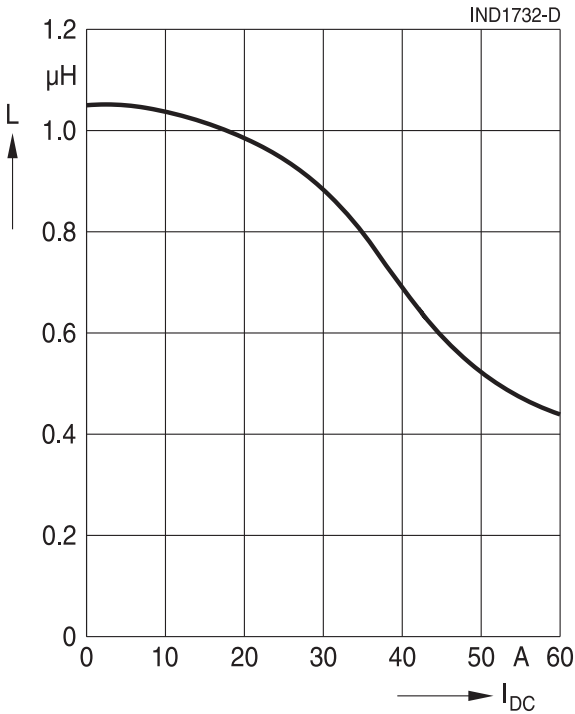


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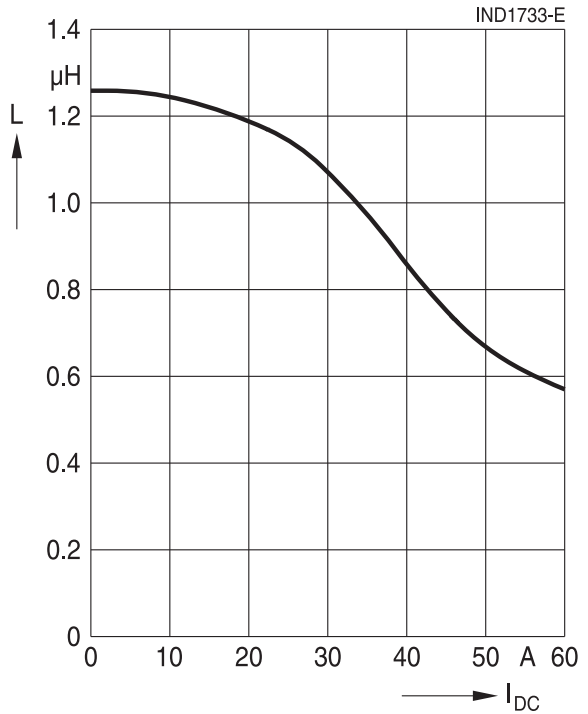


SMD

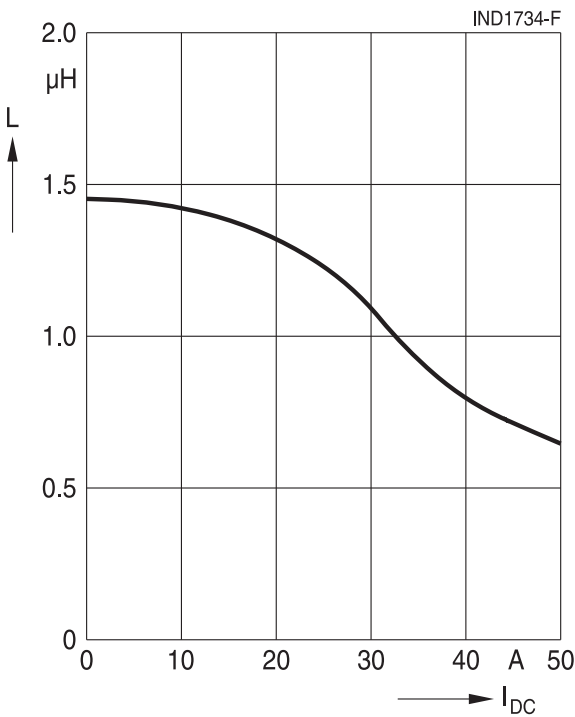
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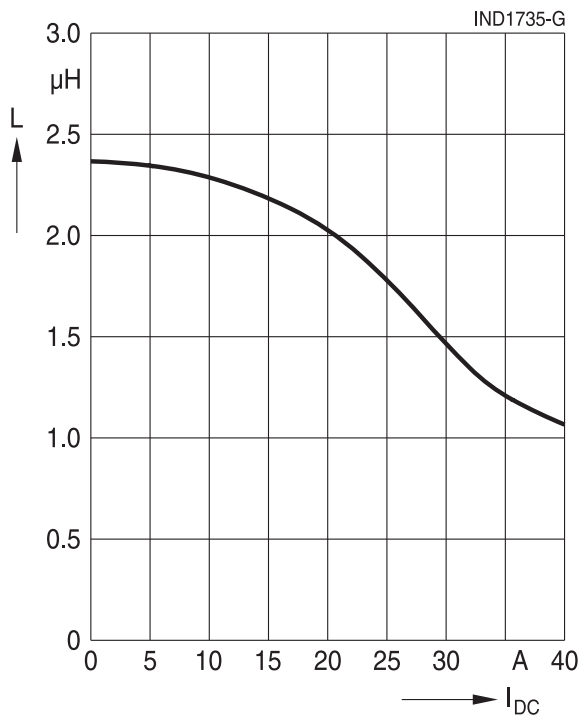
**PCM120T-1R2N-D**



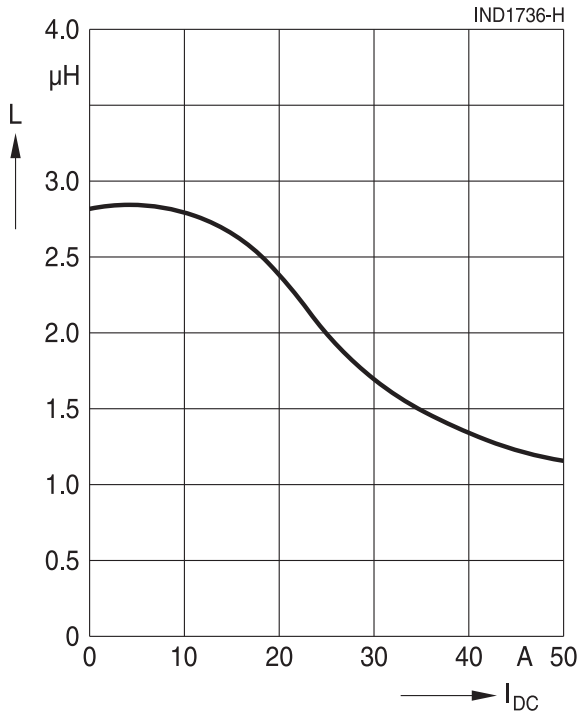
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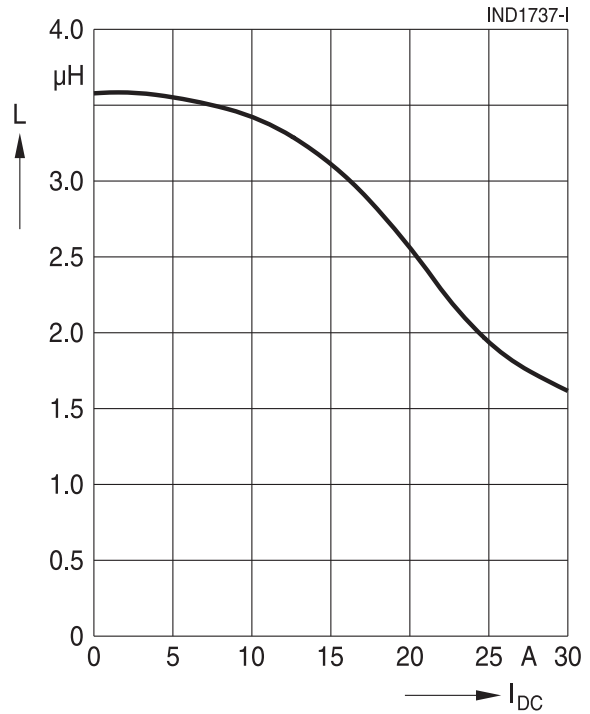
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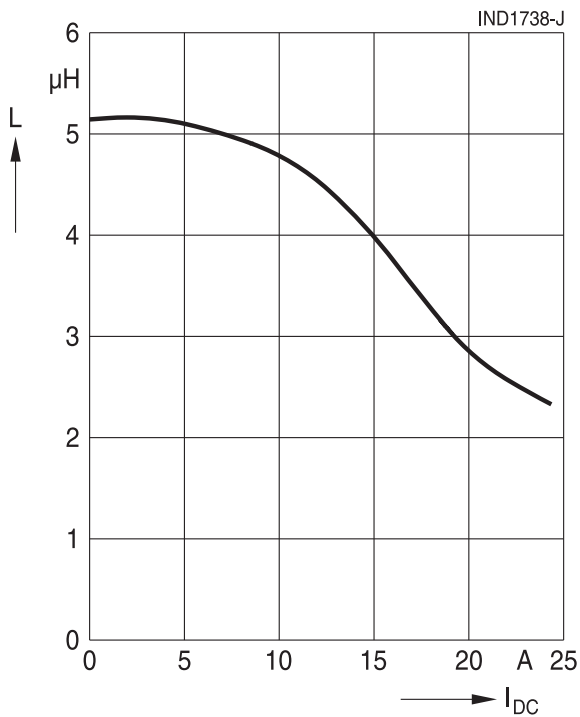
PCM120T-2R7M-D



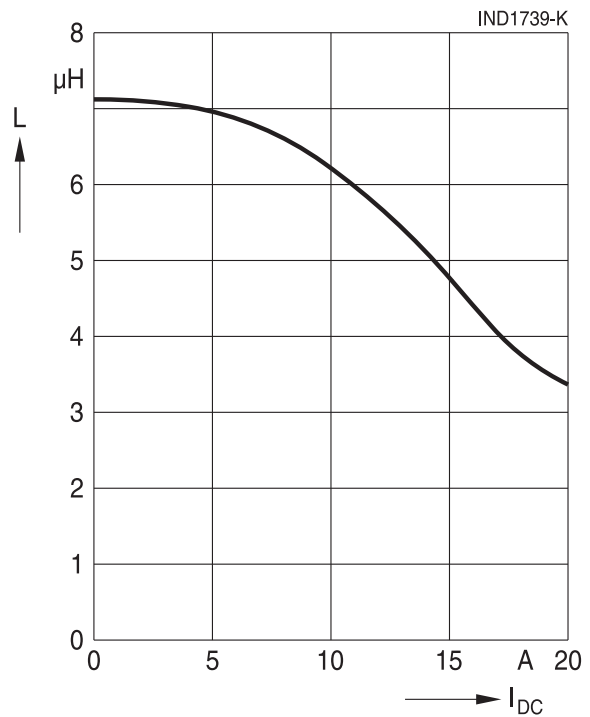
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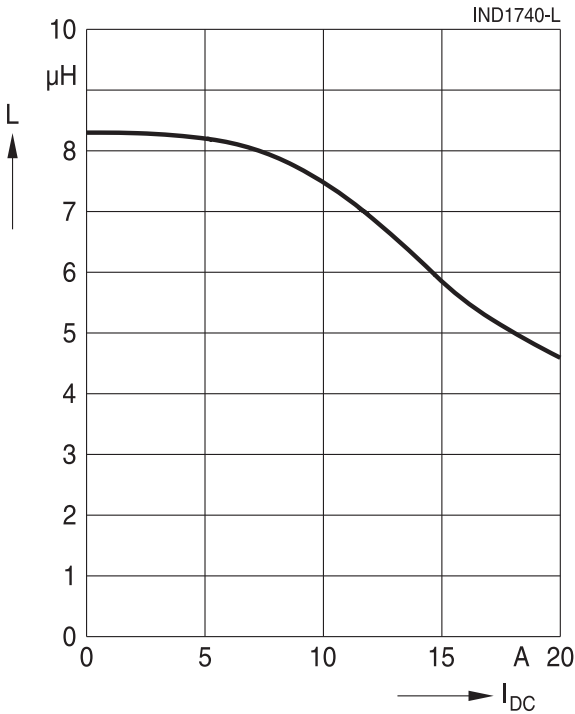
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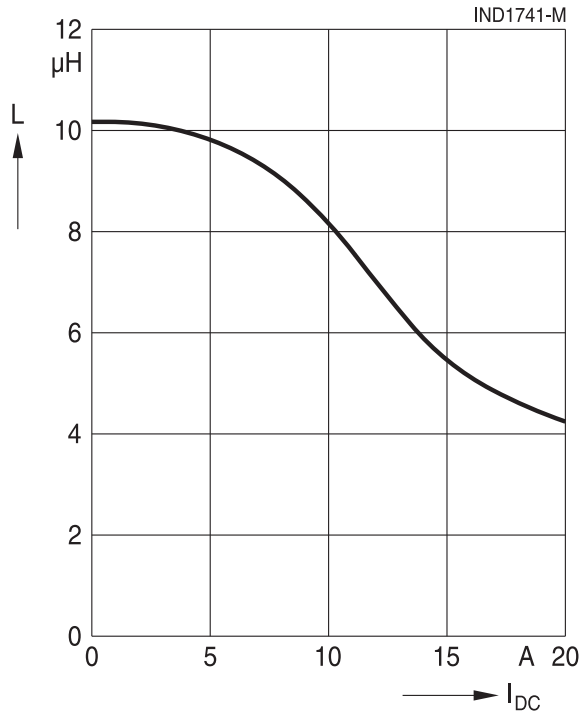
PCM120T-6R8M-D



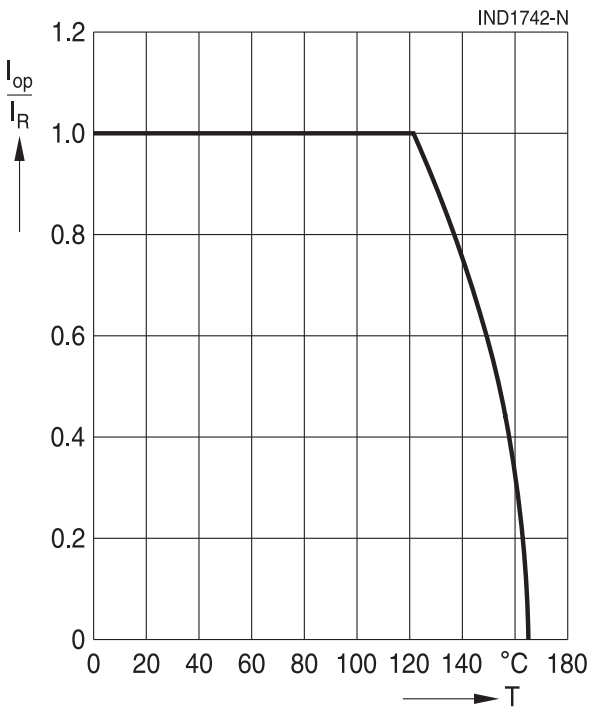
PCM120T-8R2M-D



PCM120T-100M-D



Current derating  $I_{op}/I_R$  versus ambient temperature  $T_A$





## Cautions and warnings

- Please note the recommendations in our Inductors data book (latest edition), online catalogs and in the data sheets.
  - Particular attention should be paid to the derating curves, if given. Derating applies in the case the ambient temperature in application exceeds the rated temperature of the component.
  - Ensure the operation temperature of the component in application not to exceed the maximum specified value or the upper climatic category temperature.
  - 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. 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, sealed, or varnished in customer applications:
  - Many potting, sealing, or varnishing 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, sealing or varnishing materials used attack or destroy the wire insulation, plastics, or glue.
  - The effect of the potting, sealing, or varnishing materials may change the high-frequency behavior of the components.
- Magnetic core materials such as ferrites are sensitive to direct impact. This can cause the core material to flake or lead to breakage of the magnetic core material.
- Any type of tension or pressure on the product may result in damage and affect its functionality and reliability.
  - The products are only to be attached to fixings or mounting holes provided for this purpose in accordance with the data sheet.
  - If additional mechanical forces are applied to the component, e.g., application of gap pads, it is necessary to check whether they attack or destroy any part of the component.
  - It is not permitted for the product specified in the data sheet to assume a mechanical function in the final application.
- Inductance value can drop if external metallic or magnetic parts will be put close to the coil or into the air gap of the coil or core or magnetic material.
- 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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