

## Data and signal line chokes

### RCM common-mode chokes

**Series/Type:**            **RCM70CGI**

**Date:**                    September 2022

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**Rated voltage 80 V DC**

**Rated inductance 470  $\mu$ H**

**Rated current 700 mA**

### Construction

- Current-compensated double choke
- LCP case (UL 94 V-0), silicone potting



### Features

- Operating temperature range  $-40$  to  $+125$  °C incl. self-heating
- Suitable for lead-free reflow soldering as referenced in JEDEC J-STD 020E
- RoHS-compatible
- High current rating

### Function

- Suppression of asymmetrical interference coupled in on lines, whereas data signals can pass unaffectedly

### Applications

- Industrial Single Pair Ethernet (SPE)
- Common-mode choke for 10BASE-T1L (IEEE 802.3cg)

### Terminals

- Base material CuSn6
- Layer composition Ni, Sn
- Hot-dipped

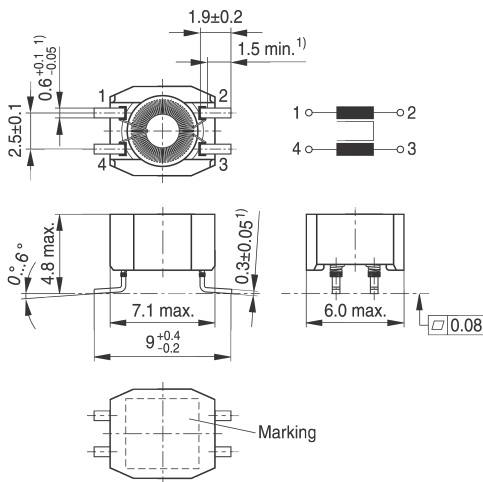
### Marking

- Marking on component:  
Manufacturer, product series,  
inductance (coded in  $\mu$ H),  
date of manufacture (YWWD)

### Delivery mode and packing unit

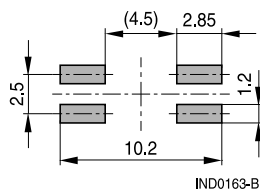
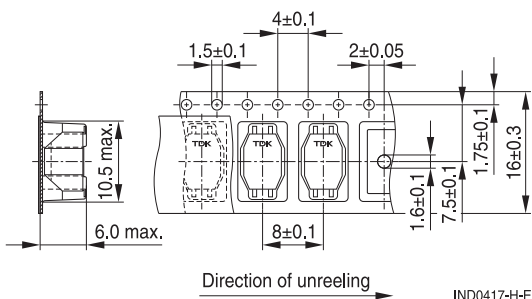
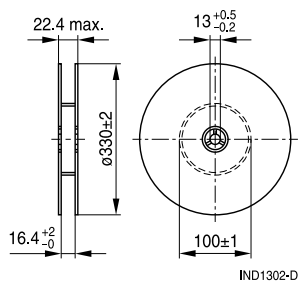
- 16-mm blister tape, wound on 330-mm  $\varnothing$  reel
- Packing unit: 1500 pcs./reel



**Dimensional drawing and pin configuration**


1) Soldering area

IND0010-9-E

**Layout recommendation**

**Taping and packing**
**Blister tape**

**Reel**


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**Technical data and measuring conditions**

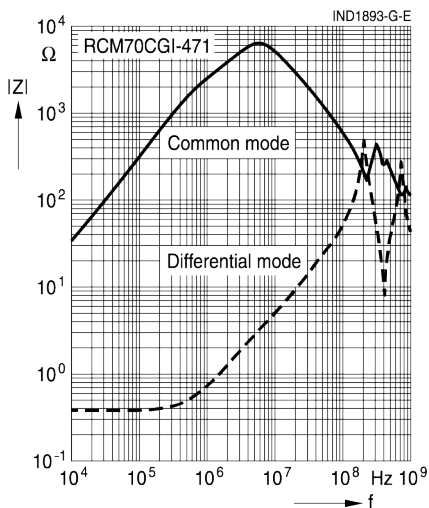
Rated voltage $V_R$	80 V DC
Rated current $I_R$	Referred to 50 Hz and 85 °C Temperature increase of 40 K by self-heating, the value could change depending on the layout in PCB.
Stray inductance $L_{\text{stray,typ}}$	Measured with Keysight E4980A (or equivalent), 100 kHz, 5 mA, typical values
Rated inductance $L_R$	Measured with Keysight E4980A (or equivalent), 0.1 mA, +23 °C $\pm 3$ °C Measuring frequency: 100 kHz Inductance is specified per winding
Inductance tolerance	$\pm 30\%$
DC resistance $R_{DC}$	Measured at +23 °C $\pm 3$ °C, specified per winding
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	250 °C, 30 s (as referenced in JEDEC J-STD-020E)
Climatic category	40/125/56 (to IEC 60068-1)
Operating temperature	-40 °C to +125 °C
Storage conditions (packaged)	-25 °C to +40 °C, 10% to 75% RH
Weight	Approx. 0.25 g

**Characteristics and ordering codes**

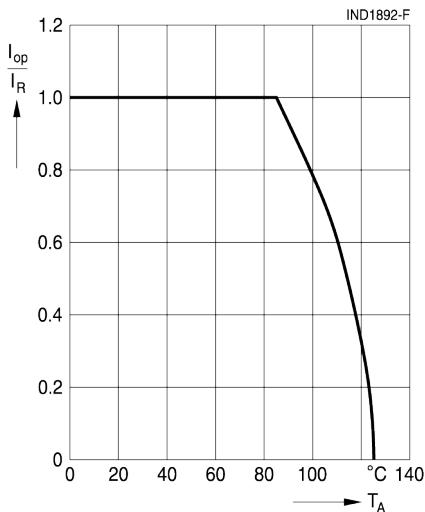
$L_R$	$L_{\text{stray,typ}}$	$I_R$	$R_{DC,typ}$	$V_{\text{test}}$ 2 sec V DC	Internal code	Ordering code
$\mu\text{H}$	nH	mA	$\Omega$			
470	110	700	0.17	250	B82793R0474I215	RCM70CGI-471



Impedance  $|Z|$  versus frequency  $f$



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) 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, wire insulation, plastics or glue.
  - The effect of the potting material can change the high-frequency behaviour of the components.
  - Many coating materials have a negative effect (chemically and mechanically) on the winding wires, insulation materials and connecting points. Customers are always obligated to determine whether and to what extent their coating materials influence the component. Customers are responsible and bear all risk for the use of the coating material. TDK Electronics does not assume any liability for failures of our components that are caused by the coating material.
- Ceramics / 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.
- Due to product design and applied manufacturing process, appearance, symmetry, and shape of not dimensioned details could vary within same lot, as well discoloration of housing is possible. TDK does not expect detrimental effects on product function or reliability. In case of conflicts, TDK reference standard shall prevail.

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