

# B82472D6472M000 Datasheet

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DiGi Electronics Part Number	B82472D6472M000-DG
Manufacturer	<a href="#">EPCOS - TDK Electronics</a>
Manufacturer Product Number	B82472D6472M000
Description	FIXED IND 4.7UH 3.3A 53 MOHM SMD
Detailed Description	Shielded 2 Coil Inductor Array 18.8 $\mu$ H Inductance - Connected in Series 4.7 $\mu$ H Inductance - Connected in Parallel 26.5mOhm Max DC Resistance (DCR) - Parallel Nonstandard



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DiGi is a global authorized distributor of electronic components.



## Purchase and inquiry

Manufacturer Product Number:

B82472D6472M000

Series:

B82472D6

Number of Coils:

2

Inductance - Connected In Series:

18.8  $\mu$ H

Current Rating - Series:

3.3 A

Current Saturation - Series:

2.725 A

DC Resistance (DCR) - Series:

106mOhm Max

Ratings:

AEC-Q200

Mounting Type:

Surface Mount

Size / Dimension:

0.287" L x 0.287" W (7.30mm x 7.30mm)

Manufacturer:

EPCOS - TDK Electronics

Product Status:

Active

Inductance - Connected In Parallel:

4.7  $\mu$ H

Tolerance:

$\pm$ 20%

Current Saturation - Parallel:

5.45 A

DC Resistance (DCR) - Parallel:

26.5mOhm Max

Shielding:

Shielded

Operating Temperature:

-55°C ~ 150°C

Package / Case:

Nonstandard

Height:

0.189" (4.80mm)

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8504.50.8000

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99



## SMT power inductors

Size  $7.3 \times 7.3 \times 4.8$  (mm)

**Series/Type:** B82472D6

**Date:** December 2020

## SMT power inductors

B82472D6

Size 7.3 x 7.3 x 4.8 (mm)

SMDRated inductance 2.2 ... 47  $\mu$ H

Rated current 1.1 ... 4.3 A

**Construction**

- Ferrite core
- Magnetically shielded
- Winding welded to terminals

**Features**

- Temperature range up to +150 °C
- High rated current
- Low DC resistance
- Coupling factor typically 98%
- Functional isolation up to 500 V
- Suitable for lead-free reflow soldering as referenced in JEDEC J-STD 020D
- Qualified to AEC-Q200
- RoHS-compatible

**Applications**

- Common-mode chokes
- DC/DC converters, especially for SEPIC topology
- 1:1 transformers

**Terminals**

- Base material CuSn6P
- Lead-finish Sn (lead-free)
- Electro-plated

**Marking**

- Marking on component:  
L value ( $\mu$ H, coded), date of manufacture (YWWDD),  
dot for Pin1 identification
- Minimum data on reel:  
Manufacturer, ordering code,  
L value, quantity, date of packing

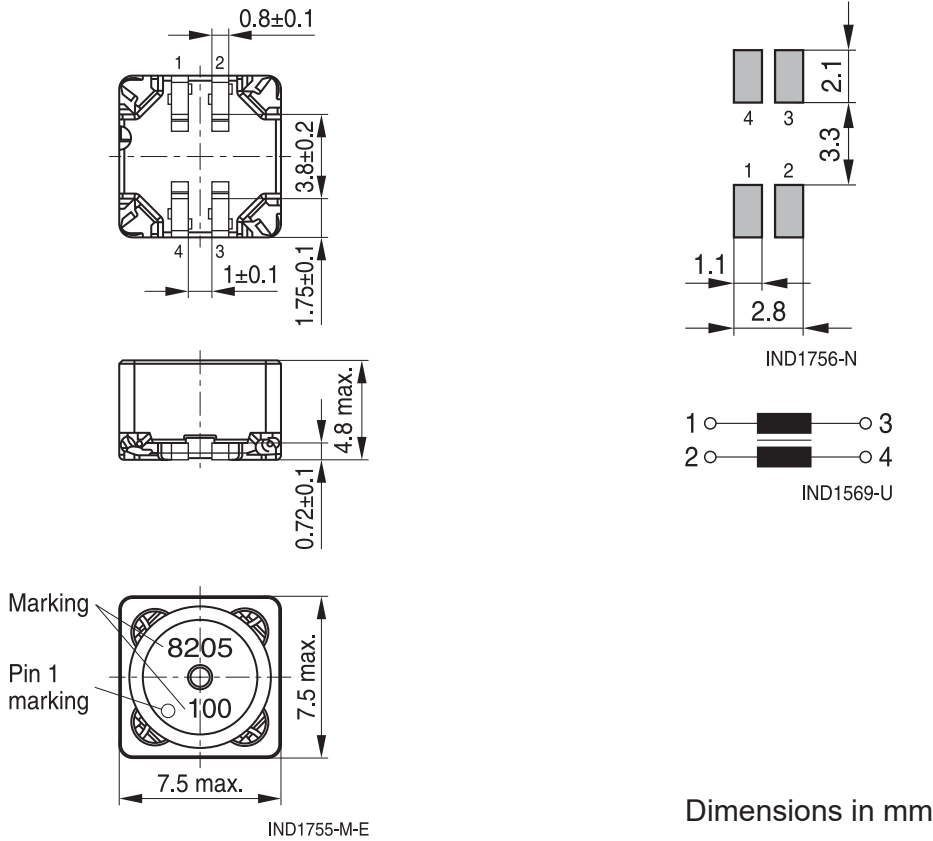
**Delivery mode and packing unit**

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

**SMT power inductors** **B82472D6**  
**Size 7.3 x 7.3 x 4.8 (mm)**

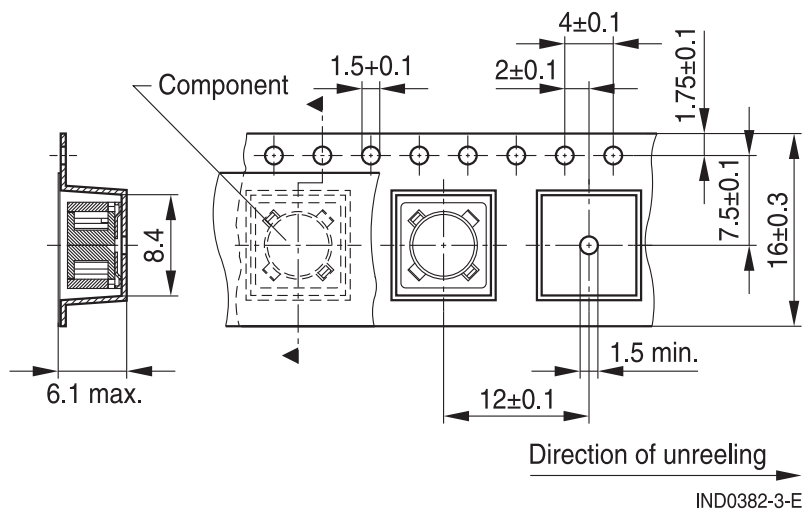
**SMD**

**Dimensional drawing and layout recommendation**

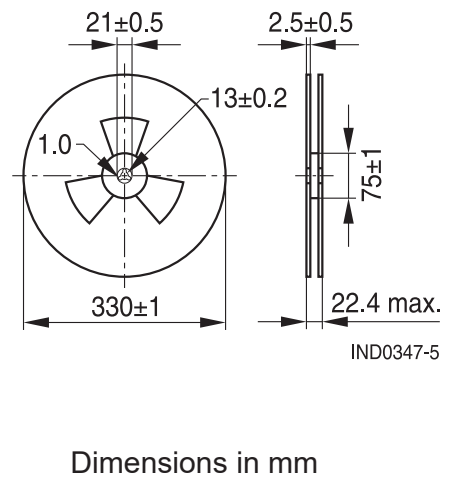


**Taping and packing**

**Blister tape**



**Reel**



## SMT power inductors

B82472D6

Size 7.3 x 7.3 x 4.8 (mm)

SMD

## Technical data and measuring conditions

Rated inductance $L_1, L_2$	Measured with LCR meter Agilent 4263 or equivalent at frequency $f_L$ , 0.1 V, +20 °C
Coupling factor $K_{typ}$	Coupling test $L_1$ while $L_2$ is shortened: $k = \sqrt{1 - \frac{L_s}{L_n}}$ Measured with LCR meter Agilent 4263 or equivalent at frequency $f_L$ , 0.1 V, +20 °C
Operating temperature range	-55 °C ... +150 °C
Rated current $I_R$	Max. permissible DC with temperature increase of $\leq 40$ K (method to IEC 62024-2)
Saturation current $I_{sat}$	Max. permissible DC with inductance decrease $\Delta L/L_0$ of 10% and 30% per winding, typical values
DC resistance $R_{1,max}, R_{2,max}, R_{1,typ}, R_{2,typ}$	Measured at +20 °C
Isolation (functional)	Tested with 500 V, 0.4 s at 100%, 3 s during qualification
Solderability (lead-free)	Dip and look method Sn95.5Ag3.8Cu0.7: +(245 ±5) °C, (3 ±0.3) s Wetting of soldering area $\geq 90\%$ (based on IEC 60068-2-58)
Resistance to soldering heat	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. 0.9 g

## SMT power inductors

B82472D6

Size 7.3 x 7.3 x 4.8 (mm)

SMD

## Characteristics and ordering codes

$L_R$	$K_{typ}$	Tolerance	$f_L$	$I_{sat}$ 10% drop	$I_{sat}$ 30% drop	$I_R$	$R_{1,2,max}$	$R_{1,2,typ}$	Ordering code
$\mu H$	%		MHz	A	A	A	$\Omega$	$\Omega$	
2.2	97.0	$\pm 20\% \triangleq M$	0.1	5.60	7.95	4.30	0.035	0.030	B82472D6222M000
3.3	97.0		0.1	4.40	6.40	3.70	0.043	0.038	B82472D6332M000
4.7	98.0		0.1	4.10	5.45	3.30	0.053	0.047	B82472D6472M000
6.8	98.0		0.1	3.40	4.60	2.75	0.075	0.067	B82472D6682M000
10	98.0		0.1	2.70	3.75	2.30	0.105	0.095	B82472D6103M000
15	99.0		0.1	2.10	3.00	1.85	0.158	0.144	B82472D6153M000
22	99.0		0.1	1.80	2.55	1.65	0.193	0.177	B82472D6223M000
33	99.0		0.1	1.40	2.00	1.35	0.290	0.265	B82472D6333M000
47	99.0		0.1	1.10	1.80	1.10	0.438	0.400	B82472D6473M000

Inductance is per winding.

When leads are connected in parallel, inductance  $L_R$  is the same value.

When leads are connected in series, inductance  $L_R$  is four times the value.

DCR is for each winding. When leads are connected in parallel,  $DCR = \frac{(R1 \times R2)}{(R1 + R2)}$ .

When leads are connected in series, DCR is  $R1+R2$ .

$I_{sat}$  is the current flowing through one winding.

When leads are connected in parallel,  $I_{sat}$  is the same.

When leads are connected in series,  $I_{sat}$  is half the value.

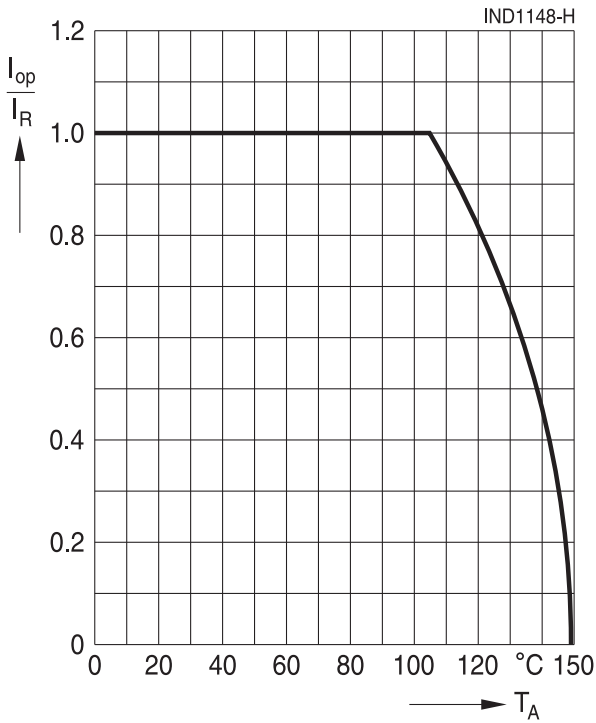
$I_R$  is the total current through both windings

$I_1$  and  $I_2$  can be calculated like this:  $I_1^2 + I_2^2 = I_R^2$

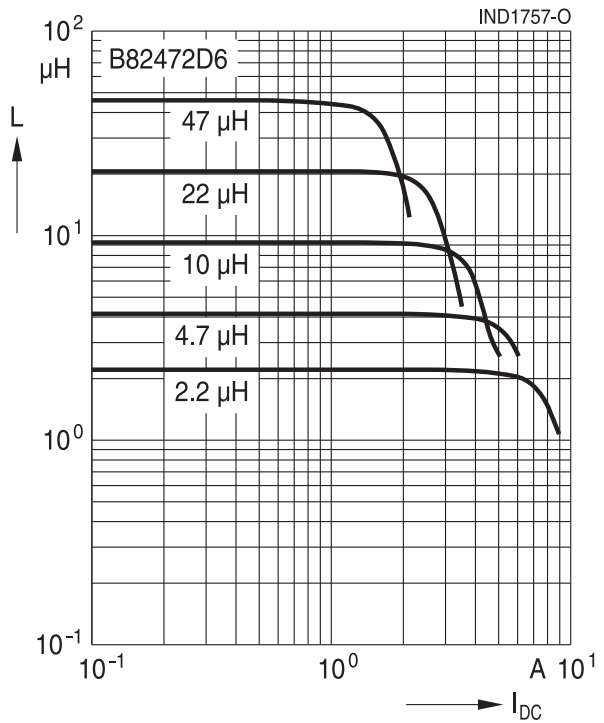
**SMT power inductors** **B82472D6**  
**Size 7.3 x 7.3 x 4.8 (mm)**

**SMD**

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



**Inductance L versus  $I_{DC}$  superposition measured with LCR meter Agilent 4284A at  $T_a = +20$  °C**





## 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.

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2. We also point out that **in individual cases, a malfunction of 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 an 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 an electronic component.
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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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