



SMT power inductors

Size 12.5 x 12.5 x 8.5 mm

Series/Type: B82477D4

Ordering code:

Date: June 2013

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Rated inductance 2 ... 100µH



Construction

- Ferrite core
 - Magnetically shielded
- Winding: enamel copper wire
 - Winding soldered to terminals
 - Special winding technology for low stray inductance and high coupling factor

Features

- 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
 - Coupling factor of typically 99% in average

Applications

- Common mode choke
 - DC/DC converters, especially for SEPIC topology
 - 1:1 transformer

Terminals

- Base material CuSn6P
- Layer composition Ni, Sn (lead-free)
- Electro-plated

Marking

- Marking on component:
 - Manufacturer, L value (in µH), Date code
- Minimum data on reel:
 - Manufacturer, ordering code, L value, quantity, date of packing

Delivery mode and packing unit

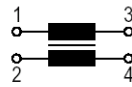
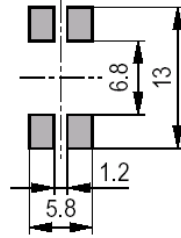
- 24-mm blister tape, wound on 330-mm Ø reel
- Packing unit: 350 pcs./reel

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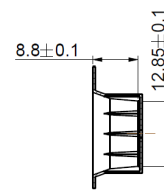
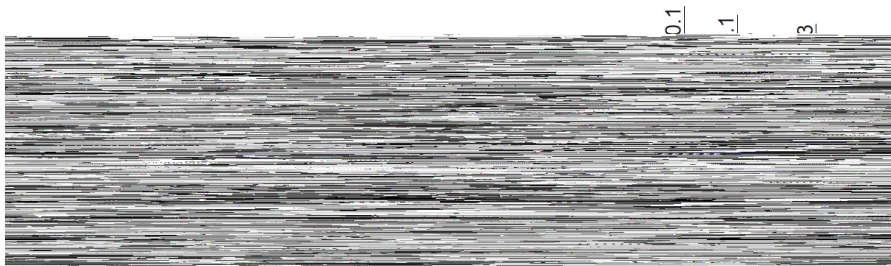
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Dimensional drawing and circuit diagram

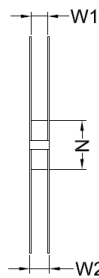
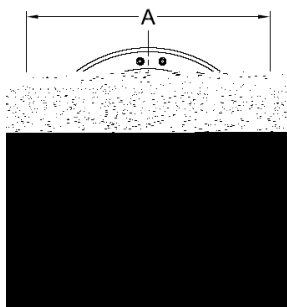


(Dimensions in mm)

Taping and packing



Direction of unreeling



(Dimensions in mm)

A: 330 ± 2

N: 75 ± 1

W1: 24.4 typ

W2: 30.4 max

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Technical data and measuring conditions

Rated inductance L_1, L_2	Measured with LCR meter Agilent 4284A at frequency f_L , 0.1 V, +20 °C.
Leakage or stray inductance L_s	Test L_{1-3} :(short 2+4) .Measured with LCR meter Agilent 4284A at 100khz, 0.1 V, +20 °C.
Coupling factor K_{typ}	Coupling in between the 2 windings. $k = \sqrt{1 - \frac{L_s}{L_n}}$
Operating temperature range	-55°C to +150 °C
Rated current I_R	Max. permissible DC with temperature increase of 40 K
Saturation current I_{Sat}	DC with inductance decrease L/L_0 of approx. 10%
DC resistance R_1, R_2 , (max)	Measured at +20 °C
Solderability (lead-free)	Dip and look method Sn95.5Ag3.8Cu0.7: +(245 ±5) °C, (3 ±0.3) s Wetting of soldering area ≥ 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, 75% RH
Weight	Approx. 4.2 g

Characteristics and ordering codes

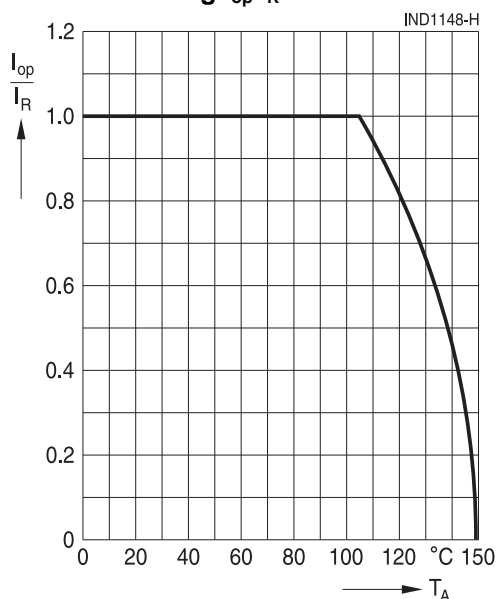
L ₁ , L ₂ μH	L _{s,typ} uH	K _{,typ} %	Tolerance	f _L MHz	I _{sat,typ} A	I _{sat,min} A	I _R A	R ₁ , R ₂ /m		Ordering code
								max	typ	
2.0	0.20	94.9	±20% \triangle M	0.1	15	13	5.75	20	16.5	B82477D4202M000
3.0	0.25	95.7			12	10.25	5.50	22	18.1	B82477D4302M000
4.7	0.25	97.3			10	8.75	5.00	26	23.2	B82477D4472M000
6.8	0.25	98.1			8.25	7.25	4.15	35	28.5	B82477D4682M000
10	0.25	98.7			6.50	5.75	3.75	42	35.5	B82477D4103M000
15	0.30	99.0			5.50	4.80	3.25	60	52.5	B82477D4153M000
22	0.30	99.3			4.50	4.00	2.80	78	69.5	B82477D4223M000
33	0.35	99.5			3.80	3.30	2.30	110	96.4	B82477D4333M000
47	0.45	99.5			3.30	3.10	1.85	145	115	B82477D4473M000
68	0.50	99.6			2.50	2.30	1.55	215	190	B82477D4683M000
100	0.60	99.7			2.20	2.00	1.35	280	267	B82477D4104M000

Inductance is per winding. When leads are connected in parallel, inductance is the same value. When leads are connected in series, inductance is four times the value.

DCR is for each winding. When leads are connected in parallel, DCR is half the value. When leads are connected in series, DCR is twice the value.

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
I₁ and I₂ can be calculated like this: $I_1^2 + I_2^2 = I_R^2$

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


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Important notes

The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application**. As a rule we are either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether a product with the properties described in the product specification is suitable for use in a particular customer application.
2. We also point out that **in individual cases a malfunction of electronic components** a