Inductors for Power over Coaxial (PoC)

Power injection choke, EIA1812

Series/Type: **ADM45FDC**

Date: June 2022

Rated current: 1.1 A
Rated inductance: 10 µH

Construction

- Metal I-core, ferrite shielding
- Winding: enamel copper wire
- Winding welded to terminals

Features

- Temperature range up to +150 °C
- Suitable for lead-free reflow soldering as referenced in IPC/JEDEC J-STD-020E
- Qualified to AEC-Q200
- RoHS compatible

Applications

- Automotive Electronics
- Power over Coaxial (PoC)

Terminals

On-sided tinned terminals

- Base material CuSn6
- Layer composition Ag, Sn
- Lead-free tinned

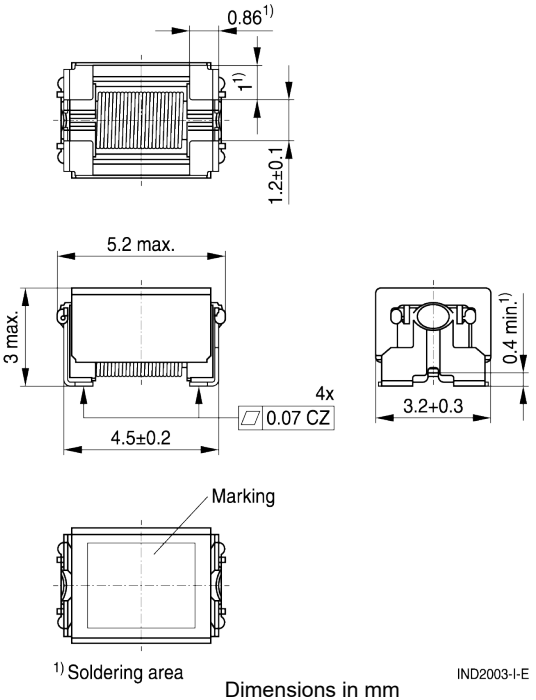
Marking

- Marking on component:
  Date of manufacture (YWWD), application and inductance (in µH, coded)
- Minimum data on reel:
  Lot number, part number, date of packing

Delivery mode and packing unit

- 12 mm blister tape, wound on 330 mm Ø reel
- Packing unit: 2500 pcs. per reel

Dimensional drawing

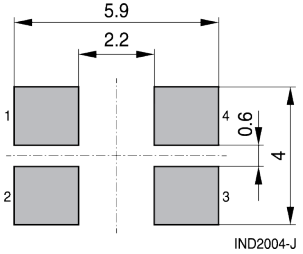


1) Soldering area

Dimensions in mm

IND2003-I-E

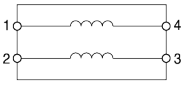
Layout recommendation



IND2004-J

1-2 & 3-4 to be joined in PCB

Dimensions in m



IND2005-K

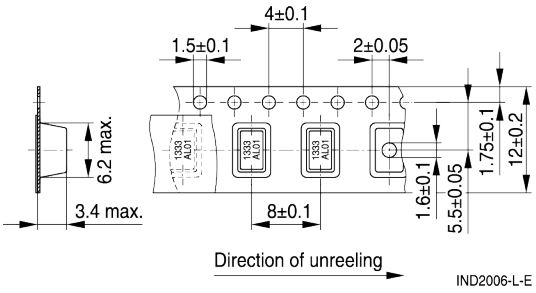
No polarity

1-2 & 3-4 to be joined in PCB

IND2007-M

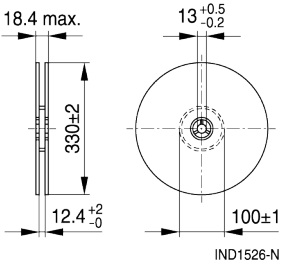
Taping and packing

Blister tape



IND2006-L-E

Reel



IND1526-N

Dimensions in mm

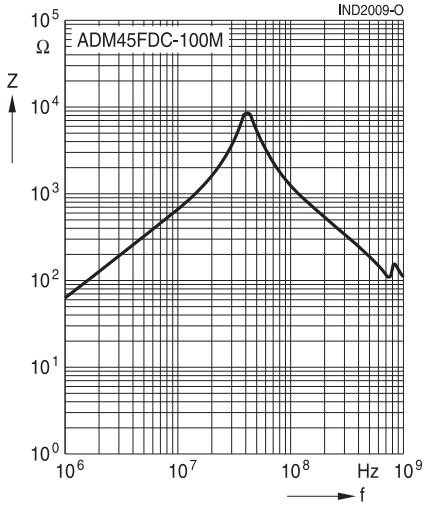
Technical data and measuring conditions

Rated inductance L_R	Measured with Keysight E4990A (or equivalent) at 100 kHz, 0.1 mA, +23 °C ±3 °C
Inductance tolerance	±20%
DC resistance R_{DC}	Measured at +23 °C ±3 °C
Self-resonant frequency f_{res}	Measured with Agilent E4990A (or equivalent), at 100 mV, +23 °C ±3 °C
Rated current I_R	Maximum permissible DC current up to an ambient temperature of +60 °C (see derating curve) Defined with PCB design acc. IEC 62024-2 for current class A ≤ 1 A. Temperature rise is also depending on PCB structure.
Saturation current I_{sat}	Based on the inductance change rate (30% below the initial value).
Load current I_{temp}	Based on the temperature increase (temperature increase +40 °C / +25 °C by self-heating) Ambient temperature: +25 °C / +85 °C / +105 °C / +125 °C Temperature increase refers to PCB design acc. IEC 62024-2 for current class A (I ≤ 1 A). Temperature rise is also depending on PCB structure.
Weight	approx. 0.17 g

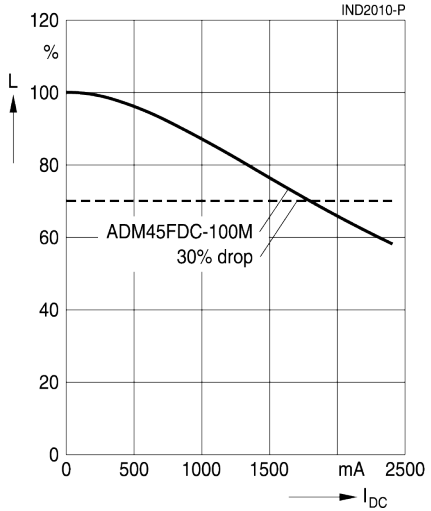
Characteristics

L_R	R_{DC}	f_{res}	$I_{sat,typ}$	$I_{temp,typ}$				Internal code	Ordering code
µH	Ω	MHz	mA	mA					
	max.	typ.	Ambient temp.	Ambient temp. + temp. increase in (°C)					
			+25 °C	+25+40	+85+40	+105+40	+125 +25		
10	0.26	40	1800	900	820	790	620	B82783N1103H100	ADM45FDC-100M

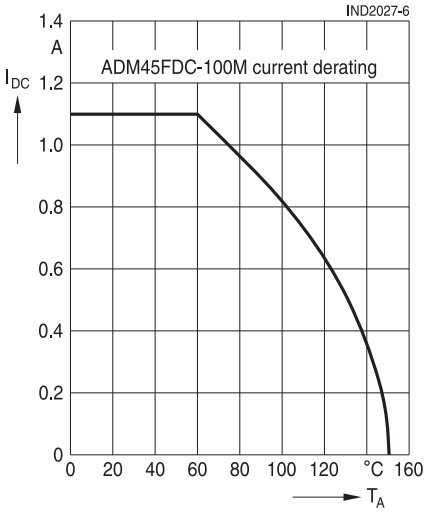
Impedance versus frequency (typical curve)



Saturation current I_{sat} (typical curve)



Current derating I_{DC} vs. ambient temperature



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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