# Magnetics modules for LAN applications

## 10/100 Base-T magnetics module

**Series/Type:** **B78476A8247A003**

Date: March 2015

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SMD

### Features

- Ferrite toroid, case and potting (UL 94 V-0)
- Compliant with IPC/JEDEC J-STD-020D
- Compliant with IEEE 802.3
- RoHS-compatible

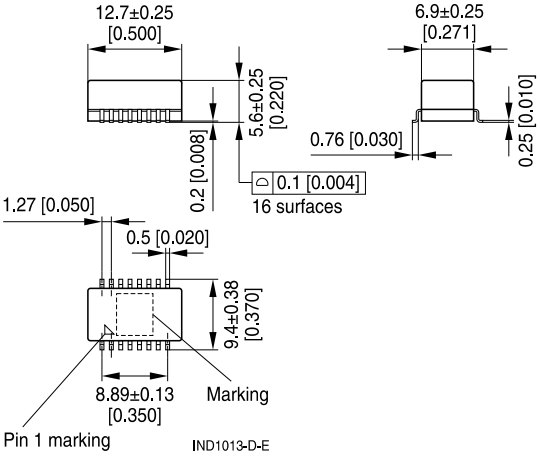
### Marking

- EPCOS, middle block of ordering code, date code

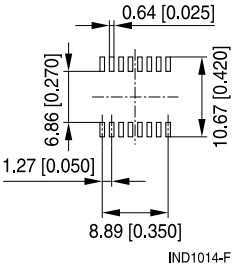
### Delivery mode and packing unit

- 24-mm blister tape,
  330-mm ∅ reel (cardboard packaging)
- Packing unit: 500 pcs./reel

### Dimensional drawing




Layout recommendation




Dimensions in mm [inch]
Values without tolerances are nominal values for reference.

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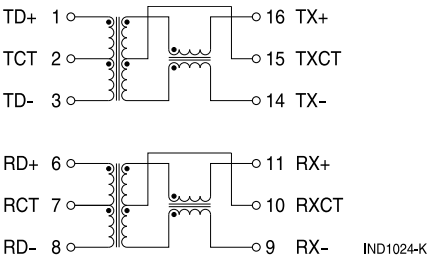
**Pinning**




**Characteristics and ordering code**

(electrical specifications at +25 °C)

| | | |
|---|---|---|
| Ordering code | B78476A8247A003 | |
| Turns ratio (primary : secondary) | 1CT : 1CT ±3% | |
| Inductance L | 350 µH min. | 100 kHz, 100 mV, 8 mA DC bias |
| Voltage test $V_{test}$ | 1500 V AC | 50 Hz, 1 min |
| Insertion loss | −1.0 dB max. | 0.1 MHz ... 100 MHz |
| Return loss | −18 dB min.<br>−16 dB min.<br>−14 dB min.<br>−12 dB min. | 1 MHz ... 30 MHz<br>40 MHz<br>50 MHz<br>60 MHz ... 80 MHz |
| Crosstalk | −43 dB min.<br>−37 dB min.<br>−33 dB min. | 30 MHz<br>60 MHz<br>100 MHz |
| Differential to common-mode rejection (DCMR) | −43 dB min.<br>−37 dB min.<br>−33 dB min. | 30 MHz<br>60 MHz<br>100 MHz |
| Operating temperature range | −40 °C ... +85 °C | |
| Weight | Approx. 0.8 g | |

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**Cautions and warnings**

- For soldering conditions of SMD components please refer to JEDEC J-STD-020D.
- 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 processesmay damage the product due to the possible static or cyclic mechanical loads (e.g. ultrasonic cleaning). They may cause cracks to developon 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 insulation, plastics or glue.
  – The effect of the potting material can change the high-frequency behaviour of the components.
- 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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