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SMT gate drive transformers

EP5 series

Series/Type: **B82804A**

Date: October 2012

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Construction

- EP5 ferrite core
- 6 gull wing terminals

Features

- Height: 5.4 max
- Footprint: 8.1 x 6.7 mm
- Low leakage inductance
- Low inter-winding capacitance
- High SRF value
- High isolation between primary and secondary side
- RoHS compatible

Applications

- Gate drive transformers
- General purpose (non-automotive): isolated AC/DC, DC/DC converters

Marking

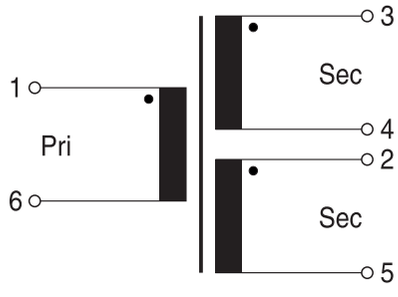
- Manufacturer, middle block of ordering code, date code, pin1 marker

Delivery mode and packing unit

- 16-mm blister tape, 330 mm Ø reel
- Packing unit: 850 packages/reel

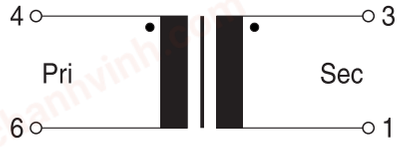
Schematic

- Figure A



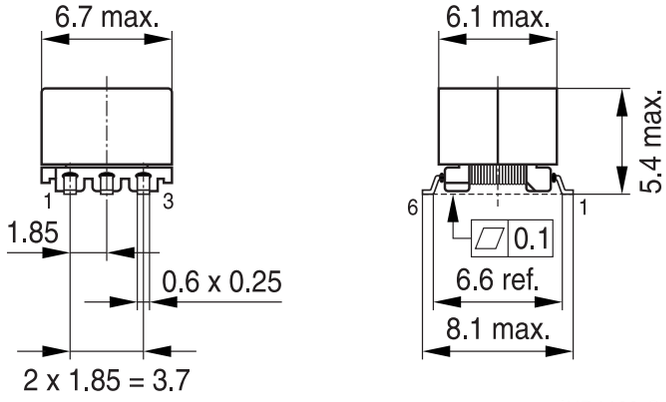
IND1133-R-E

- Figure B



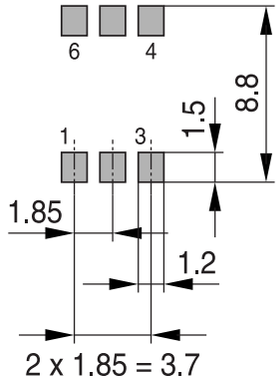
IND1134-M-E

Dimensional drawings



IND1139-Q

Layout recommendation
(Top view)



IND1135-P-E

Please read Cautions and warnings and Important notes at the end of this document.

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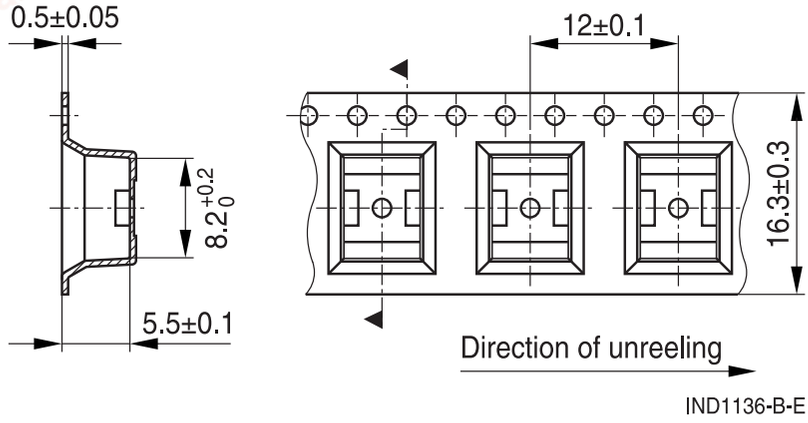
Technical data and measuring conditions

Main inductance L	100 kHz, 100 mV
Stray inductance Primary L_{stray}	100 kHz, 100 mV, secondary shorted
Resistance R_{DC}	Measured at +25 °C
Resistance to reflow soldering heat	In accordance with JEDEC J-STD 20D +245 °C for 10 seconds (2 cycles)
Capacitance C_i Pri-Sec	100 kHz, 100 mV
Resonance frequency f_{res}	Primary winding
Test voltage V_{test}	DC values
Operating temperature range	–40 °C … +125 °C

Characteristics and ordering codes

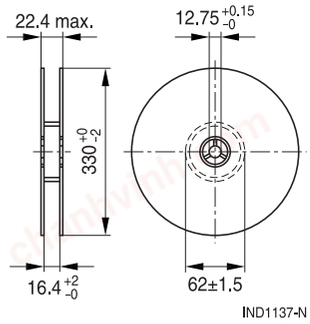
L_{min} µH	Figure	Turns ratio pri-sec	$L_{stray,max}$ µH	$R_{DC\text{-}pri,max}$ Ω	$R_{DC\text{-}sec,max}$ Ω	$C_{i,max}$ pF	$f_{res,min}$ MHz	V_{test} V DC	E*dt µVs	Ordering code
300	A	2.5:1:1	0.9	1.8	0.3	27	2.6	1500	23.8	B82804A0304A225
317	A	2:1:1	0.6	1.6	0.45	22	2	1500	24.5	B82804A0324A220
264	A	1:1:1	0.3	1.5	1.5	95	2.9	1500	22.4	B82804A0264A210
350	B	1:1	1	1	0.65	75	1.2	1500	25.8	B82804A0354A110
690	B	1.5:1	2.5	1.65	0.86	27	0.7	1500	40.8	B82804A0694A115
473	B	2.5:1	1.5	1.5	0.3	25	1.7	1500	30.6	B82804A0474A125

Blister tape detail



IND1136-B-E

Reel size and detail



IND1137-N

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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 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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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.

3. **The warnings, cautions and product-specific notes must be observed.**

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