

SMT Push-Pull Transformers

E 6.3 Core

Series/Type: **B82805**

Date: 2015-09-25

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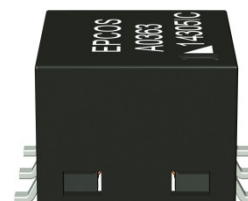
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Construction

- Ferrite core
- Primary winding: copper wire
- Secondary winding: copper wire



Features

- Typical switching frequency > 250 kHz
- Different turns ratios
- Small SMD package
- High Voltage test: N_p/N_s : $V = 500 \text{ V AC}$, 50 Hz, 1 sec, $V = 500 \text{ V AC}$, 50 Hz, 60sec typ. test
- RoHS compatible

Applications

- Switch-mode power supplies
- Isolated interface power supplies
- Industrial automation
- Process control

Terminals

- Gullwing

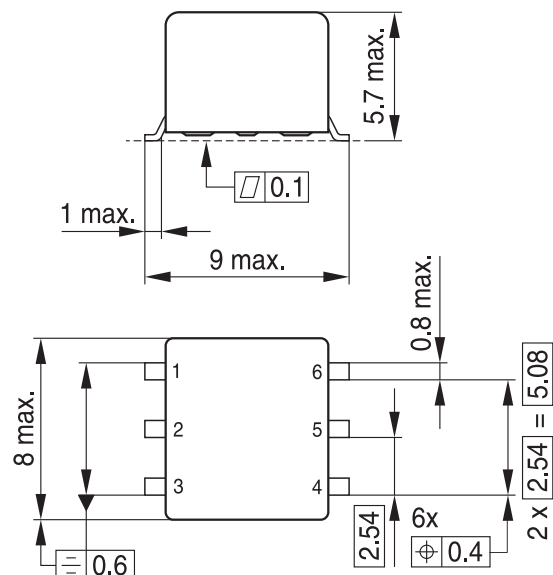
Marking

- Product brand, middle block of ordering code, date code, pin 1 marker, production place identification code

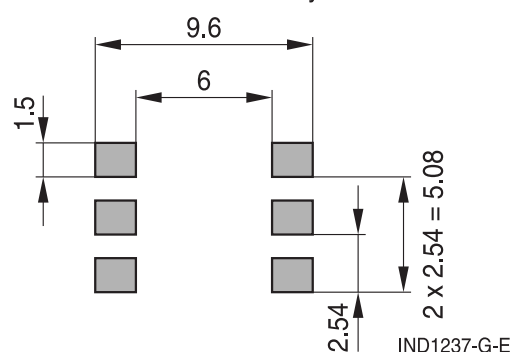
Delivery mode and packing unit

- Blister tape
- Packing unit 900 pcs

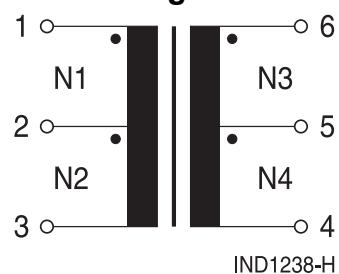
Dimensional drawing



Recommended PCB layout



Circuit diagram



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Technical data and measuring conditions

specified @ +25 °C if not mentioned otherwise, all values without tolerance are typical values

| | |
|-------------------------------------|--|
| Typical Switching frequency | > 250 kHz |
| High voltage: primary - secondary | 500 V AC, 1 s |
| Inductance L (1-2) | Measured at terminals 1, 2, measuring conditions 50 kHz, 100 mV |
| Inductance tolerance | +40/-30% |
| Resistance to reflow soldering heat | In accordance with JEDEC J-STD-020D +245 °C for 10 seconds (2 cycles) |
| Operating temperature range | -25 °C ... +125 °C (component) |
| Weight | Approx. 0.6 g |

$$B_{\max} = \frac{U \times t_{\text{on}}}{n_p \times A_e}$$

With:

B_{max} Maximum magnetic flux density in the ferrite core of the push-pull transformer

U Voltage on primary side

t_{on} t on time

n_p Number of turns of the primary winding of the push pull transformer

A_e Effective magnetic area of the ferrite core

Typical value for E6.3 core **A_e**: 3.3 x 10⁻⁶ m²

Typical **ΔB_{max}**: < 760 mT (bipolar drive @+25 °C)

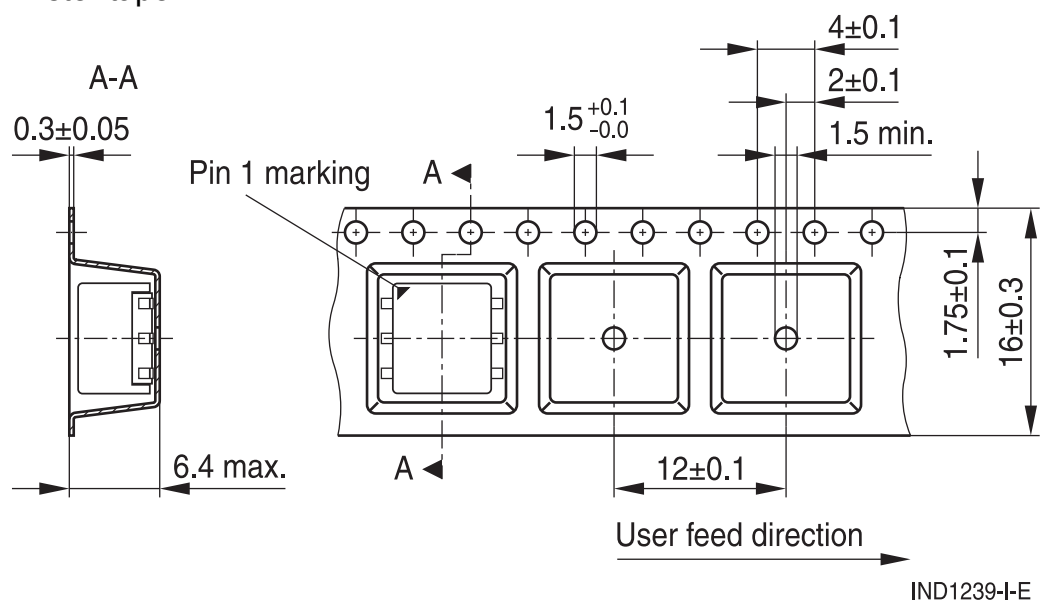
Typical **ΔB_{max}**: < 460 mT (bipolar drive @+120 °C)

Characteristics and ordering codes

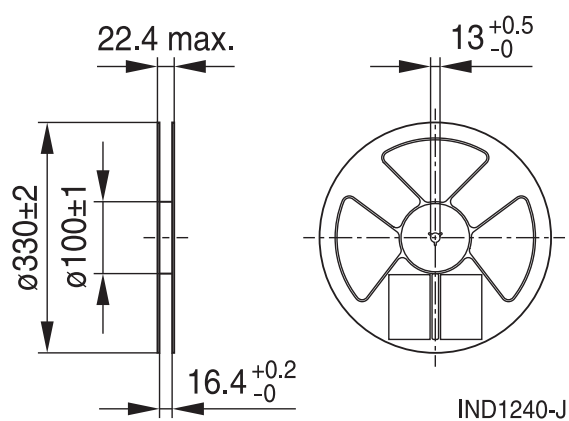
| Turns ratio | ∫Vdt V · μs +25 °C bipolar | ∫Vdt V · μs +120 °C bipolar | Example | L (1-2) μH | Ordering Code |
|-------------|-------------------------------------|--------------------------------------|--------------|-------------------|-----------------|
| N1:N2:N3:N4 | | | | | |
| 1:1:1.7:1.7 | 25 | 15 | 3.3 V → 5 V | 36 | B82805A0363A250 |
| 1:1:1.1:1.1 | 37 | 23 | 5 V → 5 V | 77 | B82805A0773A250 |
| 1:1:1.1:1.1 | 42 | 26 | 12 V → 12 V | 94 | B82805A0943A250 |
| 1:1:3.8:3.8 | 12.5 | 7.6 | 3.3 V → 12 V | 9.5 | B82805A0952A250 |
| 1:1:2.6:2.6 | 17.6 | 10.6 | 5 V → 12 V | 17 | B82805A0173A250 |

Taping and packing

Blister tape



Reel



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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