



SMT gate drive transformer

E10 EM series

Ordering code: **B78307A2276A003**

Date: 2017-12-15

Version: 1

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Construction

- Ferrite core
- Gullwing pins
- Insulated wire, UL 60950-1, Annex U
- Creepage distance Np/Ns 6 mm
- Clearance distance Np/Ns 5.5 mm
- Plastic bobbin (UL94-V0, CTI ≥ 175)

Features

- Height: 11.35 mm max
- Footprint: 13.15 x 11.7 mm
- RoHS compatible
- Qualified to AEC-Q200
- Insulation distances in compliance with IEC60664 (Basic insulation, working voltage 500 V RMS)

Applications

- Gate drive circuits
- Isolated AC/DC, DC/DC converters

Terminals

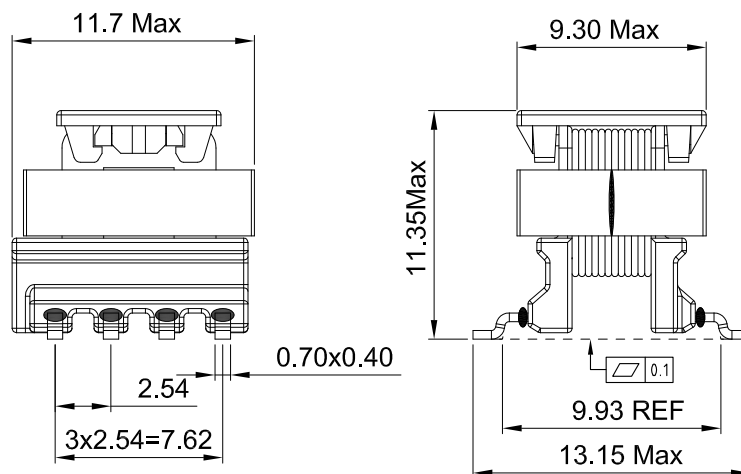
- SMD, Gullwing pins

Marking

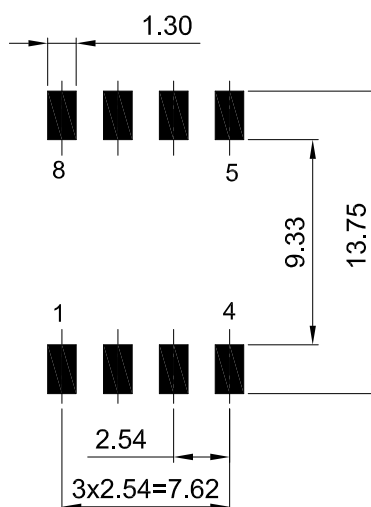
- Product brand, middle block of ordering code, date code, pin 1 marker, production place identification code

Delivery mode

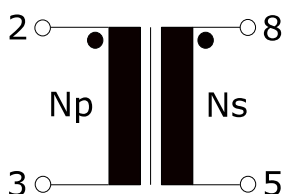
- Blister tape 380 mm
- Packing unit 280 pcs per reel

Dimensional drawings / layout recommendation


Recommended PCB layout
(Top View)



Dimensions in mm

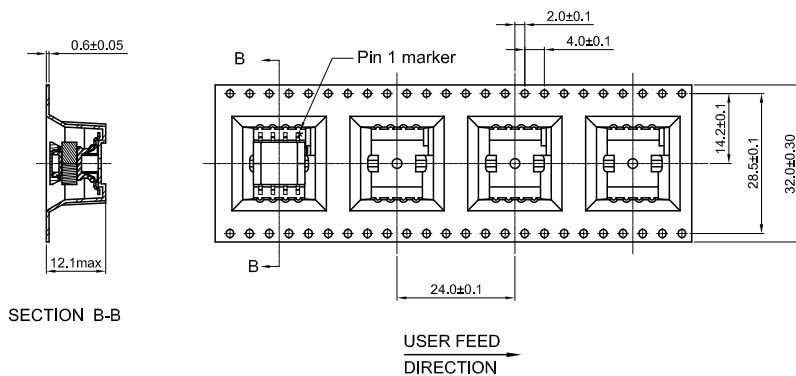
Circuit diagram


Technical data and measuring conditions

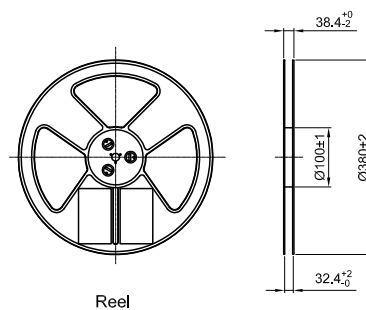
Specified @ +25 °C if not mentioned otherwise, all values without tolerance are typical values

Typical frequency range	100 ... 400 kHz
High Voltage Np/Ns	2400 V AC (50 Hz, 1 s)
High Voltage type test AC, Np/Ns	2400 V AC (50 Hz, 60 s)
High Voltage type test DC, Np/Ns	3400 V DC (0 Hz, 60 s)
Turns ratio Np:Ns	1 : 1.08
Inductance L (2-3)	Min. 100 µH (Measured at 50 kHz, 50 mV)
Leakage inductance LL(2-3)	0.35 µH (Measured at 100 kHz, 100 mV)
Coupling capacity Cp Np/Ns	9 pF (Measured at 20 kHz, 1 V)
DC resistance R _{typ} (2-3)	350 mOhm
DC resistance R _{typ} (8-5)	410 mOhm
Voltage time product (E*dt) bipolar mode	30 µVs (T= +150 °C; B _{peak} = 200 mT, ΔB= 400 mT)
Voltage time product (E*dt) unipolar mode	15 µVs (T= +150 °C; B _{peak} = 200 mT, ΔB= 200 mT)
Creepage distance Np/Ns	Min. 6 mm (Cumulative, core floating)
Clearance distance Np/Ns	Min. 5.5 mm (Cumulative, core floating)
Pollution degree	P2 (to IEC 60664)
Insulation thermal class	+155 °C (F) to (IEC 60085)
Partial discharge inception voltage	>700 V (type test)
Partial discharge extinction voltage	>900 V (type test)
Resistance to reflow soldering heat	In accordance with JEDEC J-STD-020D +245 °C (T _{peak} -5 °C for 30 seconds)
Operating temperature range	-40 °C ... +150 °C (component)
Weight	Approx. 1.9 g

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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