Power over Ethernet Transformers 60 W series

EFD 20

Series/Type:	**B82806D**
Ordering code:	**B82806D0060A****
Date:	2018-01-15
Version:	1

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Construction

- EFD 20 ferrite core
- SMD-connectors

Features

- Very low DC resistance
- Turn ratios adopted to different output voltages
- Operating temperature range −40 … + 125 °C (component)
- Small SMD package
- HV test: Np/Ns: V= 1500 V AC, 50 Hz, 1s
- RoHS compatible
- UL 1446 class 130 (B) electrical insulation system c𝑭𝑳us

Applications

- Power over Ethernet (PoE)
- Active clamp forward converter
- Switch-mode power supplies

Terminals

- Gullwing

Marking

- Product brand, last 9 digits of ordering code, pin 1 marker, date code, production place identification code

Delivery mode and packing unit

- Blister tape
- Packing unit: 640 pcs

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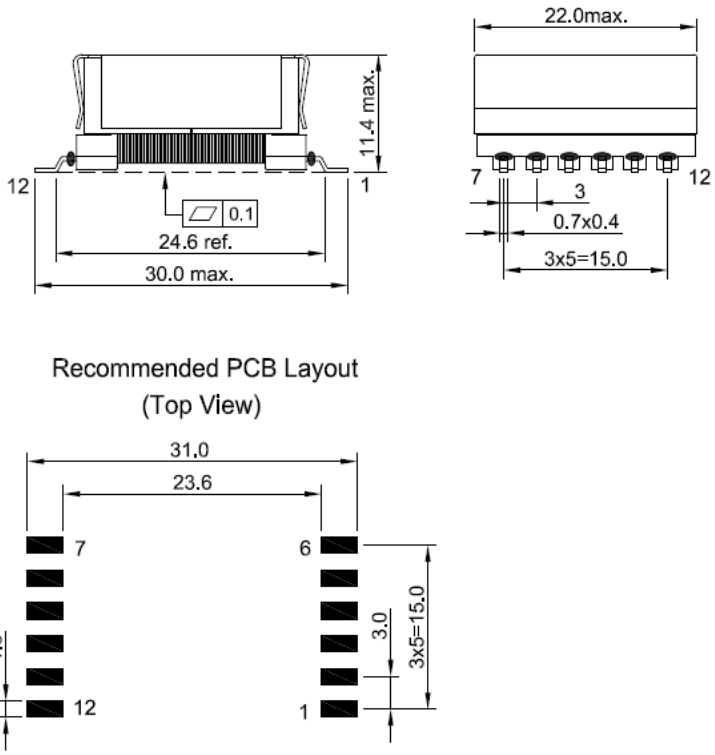
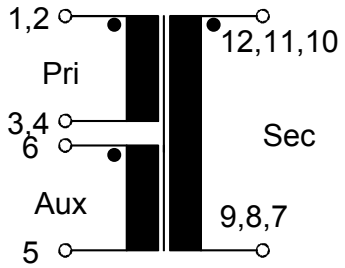
Dimensional drawing



Dimensions in mm

Circuit diagram



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Technical data and measuring conditions

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

Typical frequency	200 kHz
Typical input voltage	36 … 72 V DC
High voltage*)	1500 V AC, 50 Hz, 1 s (Pri,Aux – Sec)
High voltage*)	500 V AC, 50 Hz, 1 s (Pri – Aux)
Inductance L (1,2 – 3,4) ±30%	Measuring conditions 200 kHz, 100 mV
DC resistance R_{DC} Pri(1,2 – 3,4)	
DC resistance R_{DC} Aux(5 – 6)	
DC resistance R_{DC} Sec(7,8,9 – 10,11,12)	
Leakage inductance Ls (1,2 – 3,4)	200 kHz, 100 mV, Aux and Sec shorted
Resistance to reflow soldering heat	In accordance with JEDEC J-STD-020D +245 °C for 10 seconds (2 cycles)
Operating temperature range	−40 … +125 °C (component)
Weight	Approx. 14 g
Approvals	UL1446 Class 130 (B) (E320370)
Remark	Connect on PCB pin 1-2, 3-4, 7-8-9, 10-11-12. Occasional solder bridges between pin 1,2 and 7,8 are allowed.

*) 100% outgoing inspection

Characteristics and ordering codes

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

L(1,2-3,4)	Turns Ratio	Sec Output voltage[1)]	Ls max	R_{DC}Pri max	R_{DC}Aux max	R_{DC}Sec max	Ordering code
µH	Pri:Sec:Aux:	V	µH	mΩ	mΩ	mΩ	
100	1:1:0.5	24	0.25	35	163	35	B82806D0060A240
100	2:1:1	12	0.18	35	160	8	B82806D0060A120
100	4:1:2.3	5	0.32	35	185	4.5	B82806D0060A050
100	6:1:3.5	3.3[2)]	0.6	35	180	3.5	B82806D0060A033

1) If used in an active clamp forward converter.
2) For the max. power transfer an additional cooling of the transformer maybe required.

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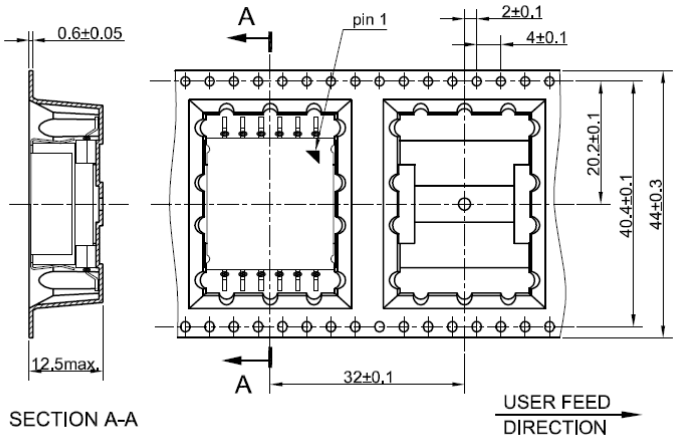
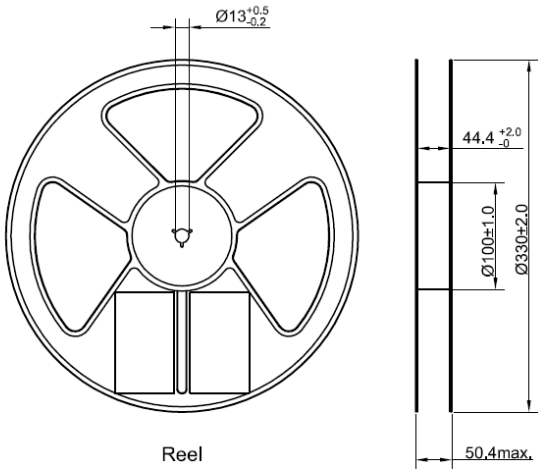
Taping and packing

Blister tape



Reel



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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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