SMT flyback transformers

EFD series

Series/Type: **B82802A**

Date: October 2012

Construction

- EFD type ferrite core
- 10 gull wing terminals

Features

- Low profile SMT package with high through-put power capability
- Industry standard footprints
- Compliant with JEDEC J-STD-020D
- MSL level 1
- RoHS compatible
- Custom variations available (on request)

Applications

- General purpose isolated DC/DC converters (up to 55W)
- Power over Ethernet (PoE/12W and PoE +/30W) Powered Devices(PD) and Power Sourcing Equipment (PSD)

Marking

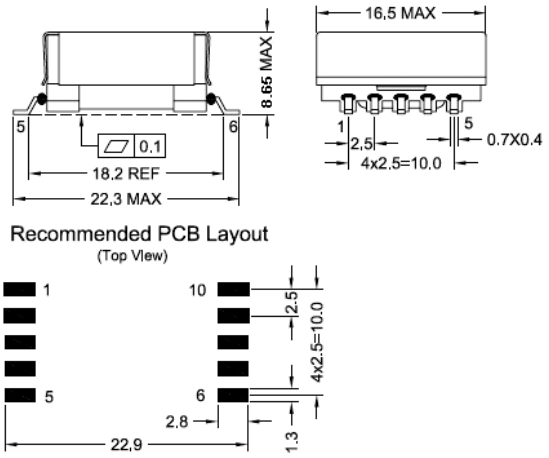
- Manufacturer, middle block of ordering code , date code, pin1 marker

Delivery mode and packing unit

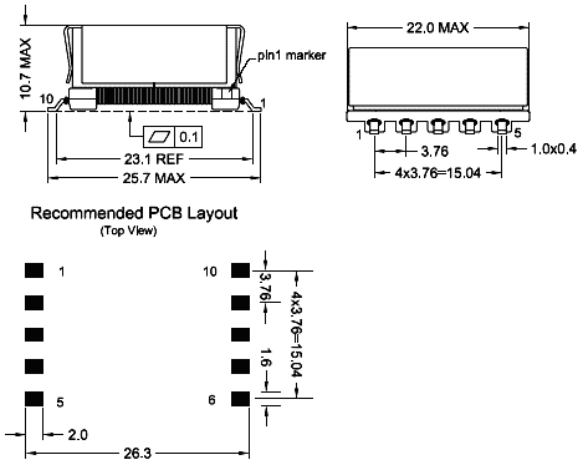
- 44/56-mm blister tape , 330-mm Ø reel
- Packing unit : 300 pcs./ reel (EFD15)
- Packing unit : 160 pcs./ reel (EFD20)
- Packing unit : 80 pcs./ reel (EFD25)

Dimensional drawing

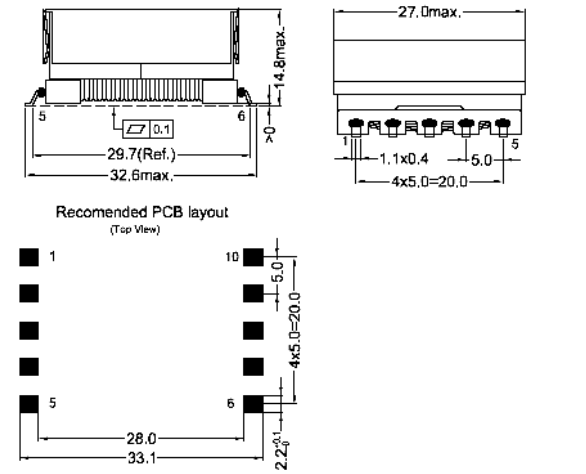
- EFD15



- EFD20



- EFD25



Schematic :

- Figure 1

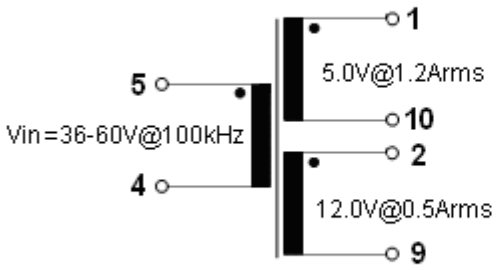
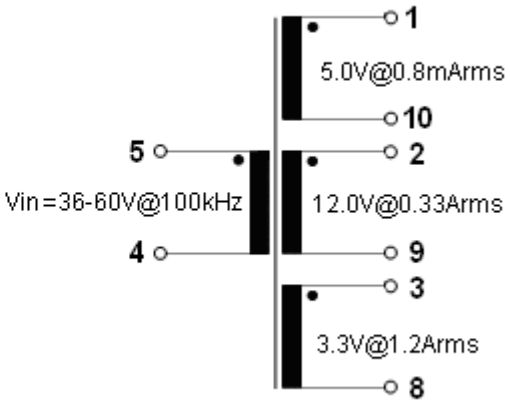


Figure 2



- Figure 3

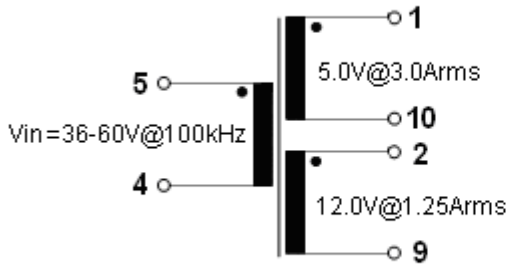
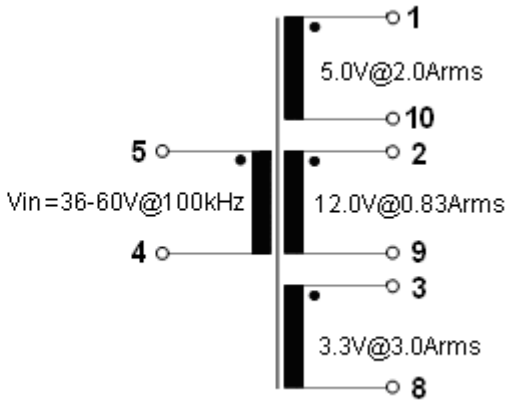


Figure 4



- Figure 5

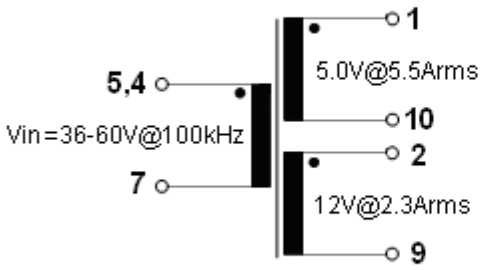
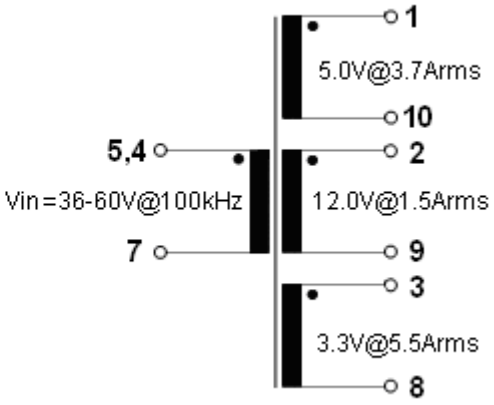


Figure 6



Technical data and measuring conditions

Input voltage V_{in}	36 V DC … 60 V DC
Test voltage V_{test}	1500 V AC
Main inductance L	100 kHz, 100 mV, +25 °C
Inductance tolerance	±10% at +25 °C
DC current I_{DC}	With I_{DC} bias L_{drop} approx. 20%
Operating frequency f	100 kHz
DC resistance R_{max}	Measured at +25 °C, maximum values (specified per winding)
Solderability	⩾99.9 Sn or Sn96.5Ag3.0Cu0.5: +(245± 5) °C, (3±0.3) s Wetting of soldering area: ⩾95% (to IEC 60068-2-58)
Operating temperature range	–40°C … +125°C

Characteristics and ordering codes

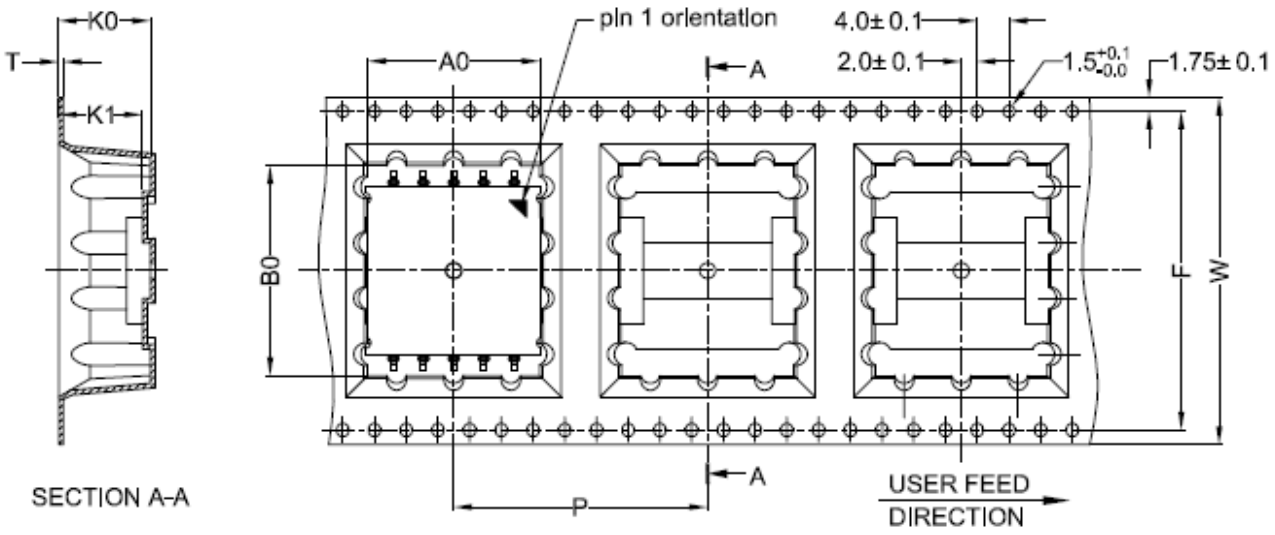
Ordering code	Core	Schematic	L	$L_{stray,max}$	Turns ratio		DC resistance R_{max} (Ω)			
							Pri	Sec		
			µH	µH				V_{out1}	V_{out2}	V_{out3}
B82802A0012A215	EFD15	Fig 1	100	3.0	(1-10):(2-9):(5-4)	1:2.25:6.5	0.03	0.19	0.45	-
B82802A0012A315	EFD15	Fig 2	100	3.0	(1-10):(2-9):(3-8):(5-4)	1:2.5:0.75:7.5	0.05	0.37	0.43	0.03
B82802A0030A220	EFD20	Fig 3	40	1.5	(1-10):(2-9):(5-4)	1:2.25:6.5	0.015	0.04	0.1	-
B82802A0030A320	EFD20	Fig 4	40	1.8	(1-10):(2-9):(3-8):(5-4)	1:2.25:0.75:6.5	0.018	0.04	0.1	0.01
B82802A0055A225	EFD25	Fig 5	22	1.5	(1-10):(2-9):(5,4-7)	1:2.5:7.5	0.003	0.04	0.03	-
B82802A0055A325	EFD25	Fig 6	22	1.2	(1-10):(2-9):(3-8):(5-4)	1:2.33:0.66:6.67	0.015	0.04	0.05	0.003

Ordering code	Core	Schematic	Power	V_{out1}	V_{out2}	V_{out3}
			W	V/A	V/A	V/A
B82802A0012A215	EFD15	Fig 1	12	12/0.5	5.0/1.2	-
B82802A0012A315	EFD15	Fig 2	12	5.0/0.8	3.3/1.2	12/0.33
B82802A0030A220	EFD20	Fig 3	30	12/1.25	5.0/3.0	-
B82802A0030A320	EFD20	Fig 4	30	5.0/2.0	3.3/3.0	12/0.83
B82802A0055A225	EFD25	Fig 5	55	12/2.3	5.0/5.5	-
B82802A0055A325	EFD25	Fig 6	55	5.0/3.7	3.3/5.5	12/1.5

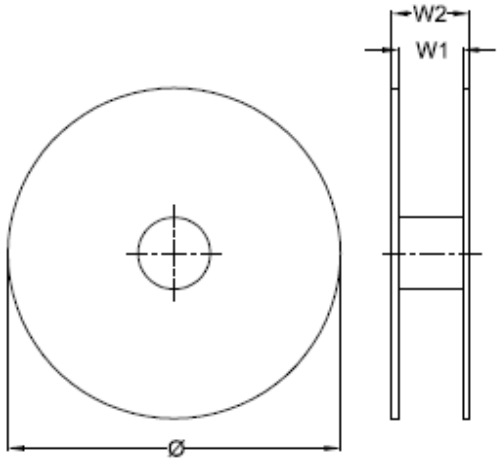
Taping and Packing

Item	Core	Blister tape								Reel		
		W	T	A0	B0	P	K0	K1	F	Φ	W1	W2
DIM.	EFD15	44.0	0.5	16.6	22.3	24.0	8.6	8.1	40.4	330.0	44.0	48.0
(mm)	EFD20	44.0	0.6	21.7	26.6	32.0	11.6	10.6	40.4	330.0	44.0	48.0
	EFD25	56.0	0.6	26.2	33.0	44.0	14.6	13.8	52.4	330.0	56.0	60.0
Tolerance		± 0.3	± 0.05	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.5	±2.0	±0.15

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..

Important notes

The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application.** As a rule, EPCOS is either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether an EPCOS product with the properties described in the product specification is suitable for use in a particular customer application.
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.
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