EPCOS

Ferrites and accessories

E 32/16/9 (EF 32)
Core and accessories

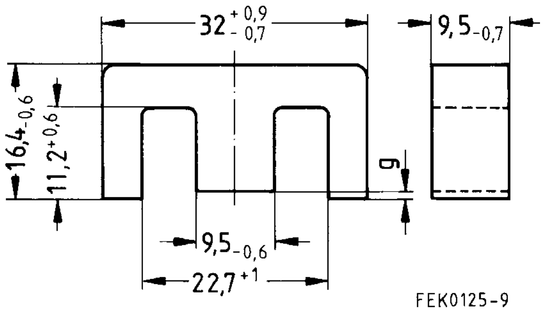
Series/Type: **B66229, B66230**

Date: September 2006

E 32/16/9 (EF 32)

Core **B66229**

- To IEC 61246
- Delivery mode: single units



Magnetic characteristics (per set)

$\Sigma l/A$ = 0.89 mm^{-1}
l_e = 74 mm
A_e = 83 mm^2
A_{min} = 81.4 mm^2
V_e = 6140 mm^3

Approx. weight 30 g/set

Ungapped

Material	A_L value nH	μ_e	P_V W/set	Ordering code
N30	3800 +30/–20%	2690		B66229G0000X130
N27	2100 +30/–20%	1480	< 1.10 (200 mT, 25 kHz, 100 °C)	B66229G0000X127
N87	2300 +30/–20%	1630	< 3.00 (200 mT, 100 kHz, 100 °C)	B66229G0000X187

Gapped

Material	g mm	A_L value approx. nH	μ_e	Ordering code ** = 27 (N27) = 87 (N87)
N27, N87	0.50 ±0.05	244	172	B66229G0500X1**
	1.00 ±0.05	145	103	B66229G1000X1**

The A_L value in the table applies to a core set comprising one ungapped core (dimension g = 0) and one gapped core (dimension g > 0).

Calculation factors (for formulas, see *"E cores: general information"*)

Material	Relationship between air gap – A_L value		Calculation of saturation current			
	K1 (25 °C)	K2 (25 °C)	K3 (25 °C)	K4 (25 °C)	K3 (100 °C)	K4 (100 °C)
N27	145	–0.748	212	–0.847	196	–0.865
N87	145	–0.748	208	–0.796	191	–0.873

Validity range: K1, K2: 0.10 mm < s < 2.50 mm
K3, K4: 70 nH < A_L < 710 nH

Coil former

Material: GFR polyterephthalate (UL 94 V-0, insulation class to IEC 60085:
F ≙ max. operating temperature 155 °C), color code black
Pocan B4235® [E245249 (M)], LANXESS AG

Solderability: to IEC 60068-2-20, test Ta, method 1 (aging 3): 235 °C, 2 s

Resistance to soldering heat: to IEC 60068-2-20, test Tb, method 1B: 350 °C, 3.5 s

Winding: see Data Book 2007, chapter "Processing notes, 2.1"

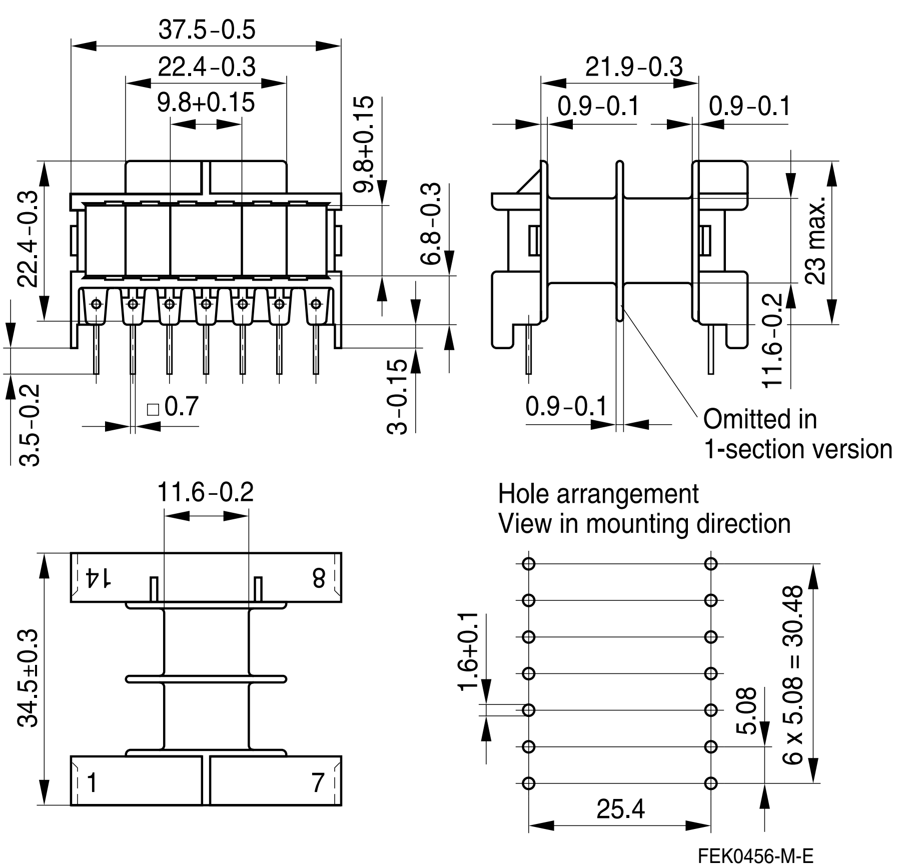
Squared pins.

Yoke

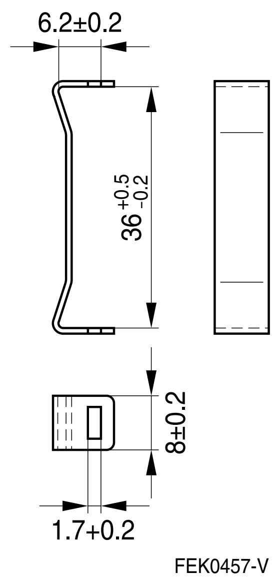
Material: Stainless spring steel (0.4 mm)

Coil former					Ordering code
Sections	A_N mm²	l_N mm	A_R value μΩ	Pins	
1	108.50	64.4	20.42	14	B66230A1114T001
2	103.64	64.4	21.38	14	B66230A1114T002
Yoke (ordering code per piece, 2 are required)					B66230A2010X000

Coil former



Yoke



Mechanical stress and mounting

Ferrite cores have to meet mechanical requirements during assembling and for a growing number of applications. Since ferrites are ceramic materials one has to be aware of the special behavior under mechanical load.

As valid for any ceramic material, ferrite cores are brittle and sensitive to any shock, fast changing or tensile load. Especially high cooling rates under ultrasonic cleaning and high static or cyclic loads can cause cracks or failure of the ferrite cores.

For detailed information see Data Book 2007, chapter "General – Definitions, 8.1".

Effects of core combination on A_L value

Stresses in the core affect not only the mechanical but also the magnetic properties. It is apparent that the initial permeability is dependent on the stress state of the core. The higher the stresses are in the core, the lower is the value for the initial permeability. Thus the embedding medium should have the greatest possible elasticity.

For detailed information see Data Book 2007, chapter "General – Definitions, 8.2".

Heating up

Ferrites can run hot during operation at higher flux densities and higher frequencies.

NiZn-materials

The magnetic properties of NiZn-materials can change irreversible in high magnetic fields.

Processing notes

- The start of the winding process should be soft. Else the flanges may be destroid.
- To strong winding forces may blast the flanges or squeeze the tube that the cores can no more be mount.
- To long soldering time at high temperature (>300 °C) may effect coplanarity or pin arrangement.
- Not following the processing notes for soldering of the J-leg terminals may cause solderability problems at the transformer because of pollution with Sn oxyd of the tin bath or burned insulation of the wire. For detailed information see Data Book 2007, chapter "Processing notes, 2.2".
- The dimensions of the hole arrangement have fixed values and should be understood as a recommendation for drilling the printed circuit board. For dimensioning the pins, the group of holes can only be seen under certain conditions, as they fit into the given hole arrangement. To avoid problems when mounting the transformer, the manufacturing tolerances for positioning the customers' drilling process must be considered by increasing the hole diameter.

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