



# EF coil formers

## **Series/Type: E 30\_15\_7**

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B66232A1114T001	B66232B1114T001	2010-01-29	2010-04-30	2010-07-30

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E 30/15/7

Core

B66319

- Delivery mode: single units

#### Magnetic characteristics (per set)

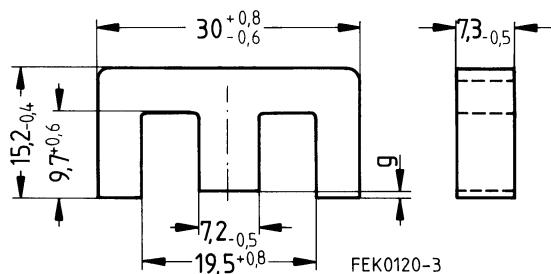
$$\Sigma I/A = 1.12 \text{ mm}^{-1}$$

$$l_e = 67 \text{ mm}$$

$$A_e = 60 \text{ mm}^2$$

$$A_{\min} = 49 \text{ mm}^2$$

$$V_e = 4000 \text{ mm}^3$$



Approx. weight 22 g/set

#### Ungapped

Material	$A_L$ value nH	$\mu_e$	$P_V$ W/set	Ordering code
N30	3100 +30/-20%	2760		B66319G0000X130
N27	1700 +30/-20%	1510	< 0.81 (200 mT, 25 kHz, 100 °C)	B66319G0000X127
N87	1900 +30/-20%	1690	< 2.20 (200 mT, 100 kHz, 100 °C)	B66319G0000X187

#### Gapped

Material	g mm	$A_L$ value approx. nH	$\mu_e$	Ordering code ** = 27 (N27) = 87 (N87)
N27,	0.10 ±0.02	460	410	B66319G0100X1**
N87	0.18 ±0.02	300	265	B66319G0180X1**
	0.34 ±0.02	195	175	B66319G0340X1**

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	90	-0.708	156	-0.847	144	-0.865
N87	90	-0.708	154	-0.796	140	-0.873

Validity range: K1, K2:  $0.10 \text{ mm} < s < 2.00 \text{ mm}$   
K3, K4:  $560 \text{ nH} < A_L < 60 \text{ nH}$

**Coil former (magnetic axis horizontal or vertical)**

Material: GFR polyterephthalate (UL 94 V-0, insulation class to IEC 60085:

F  $\Delta$  max. operating temperature 155 °C, color code black

B66232A, B: Valox 420-SE0® [E45329 (M)], GE PLASTICS B V

B66232J: Pocan B4235® [E245249 (M)], LANXESS AG

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

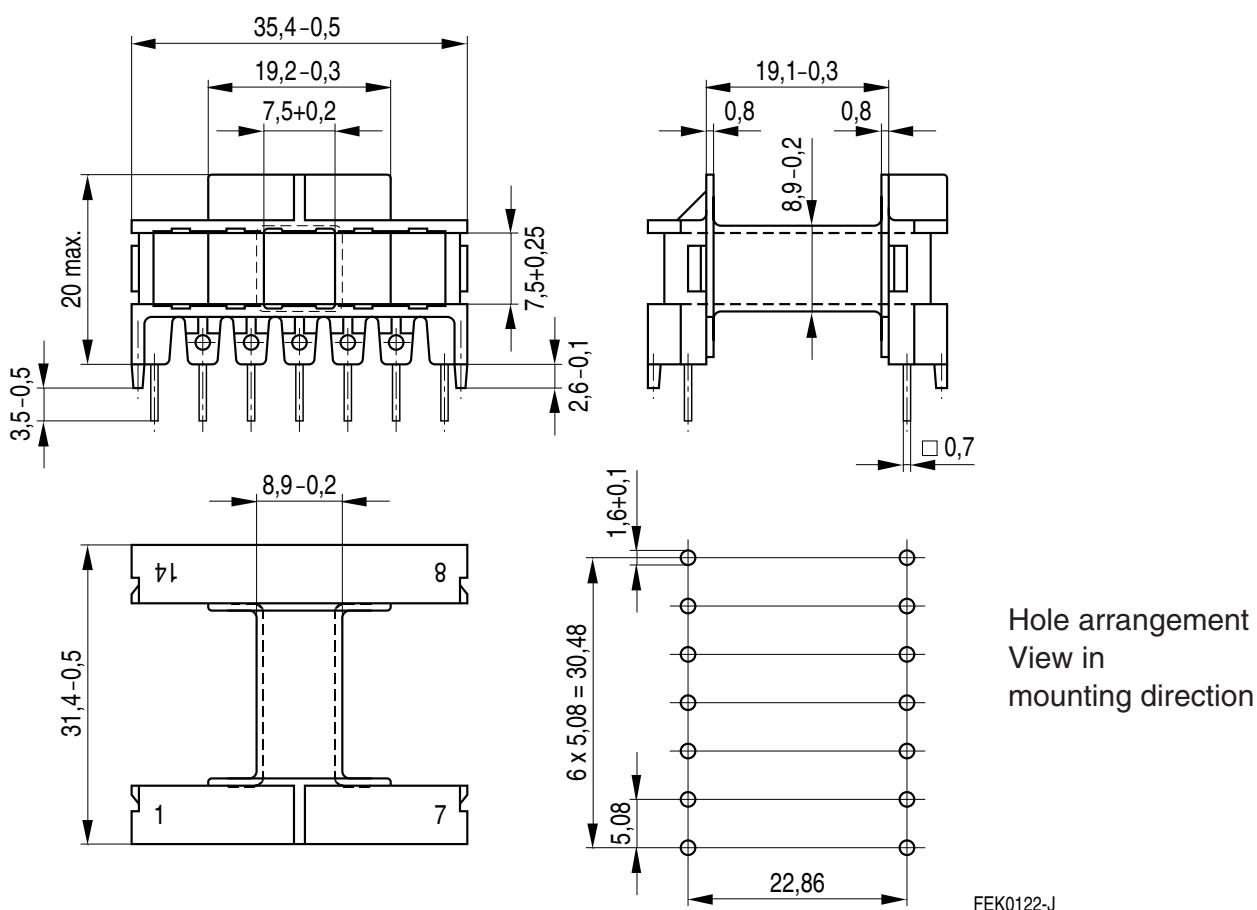
Resistance to soldering heat: to IEC 60068-2-20, test Tb, method 1B: 350 °C, 3.5 s

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

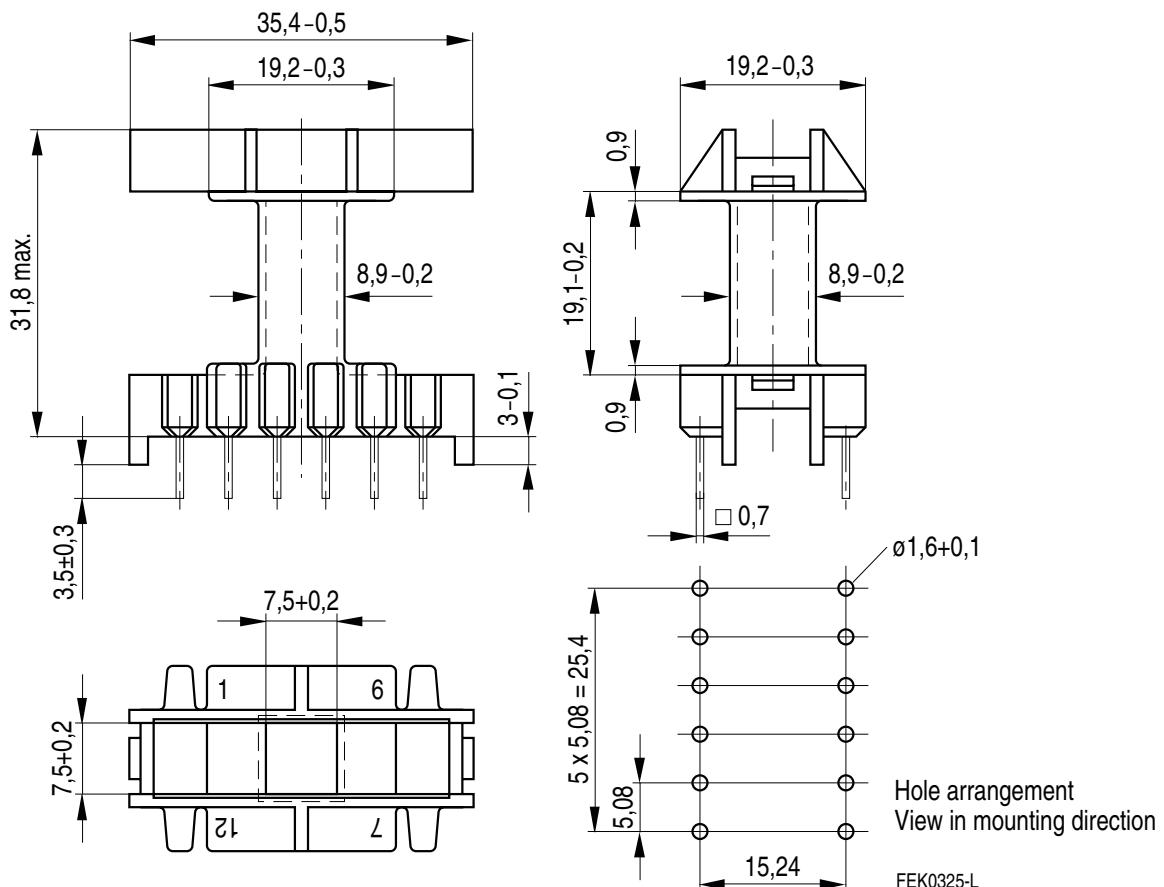
Squared pins.

**Yoke** Material: Stainless spring steel (0.4 mm)

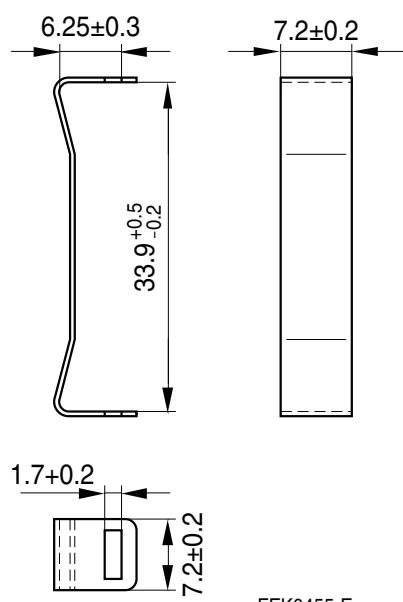
Coil former						Ordering code
Version	Sections	$A_N$ mm <sup>2</sup>	$l_N$ mm	$A_R$ value $\mu\Omega$	Pins	
Horizontal	1	90	56	21	14	B66232B1114T001
Vertical	1	90	56	21	12	B66232J1112T001
Yoke (ordering code per piece, 2 are required)						B66232A2010X000

**Horizontal version**

## Vertical version



## Yoke



## Ferrites and accessories

### Cautions and warnings

#### 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 their special behavior under mechanical load.

Just like any ceramic material, ferrite cores are brittle and sensitive to any shock, fast changing or tensile load. Especially fast cooling rates under ultrasonic cleaning, high static and 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 the value for the initial permeability. Thus, the embedding medium should offer 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 irreversibly when exposed to strong magnetic fields.

#### Processing notes

- The start of the winding process should be soft. Otherwise, the flanges may be destroyed.
- Excessive winding forces may damage the flanges or squeeze the tube so that the cores can no longer be mounted.
- Excessive soldering time at high temperature ( $>300$  °C) may affect 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 contamination with tin oxide (SnO) from the tin bath or burned insulation from the wire. For detailed information see Data Book 2007, chapter "Processing notes, 2.2".
- The dimensions of the pin hole arrangement are fixed and should be understood as an ideal recommendation for drilling the printed circuit board. In order to avoid problems when mounting the transformer, customers should make allowances for manufacturing tolerances in the drilling and pick-and-place processes by increasing the diameter of the pin holes.

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