EF coil formers

Series/Type: E 13/7/4

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B66202J1106T001	B66202B1106T001	2010-01-29	2010-04-30	2010-07-30
B66202A1108T001	B66202B1108T001	2010-01-29	2010-04-30	2010-07-30

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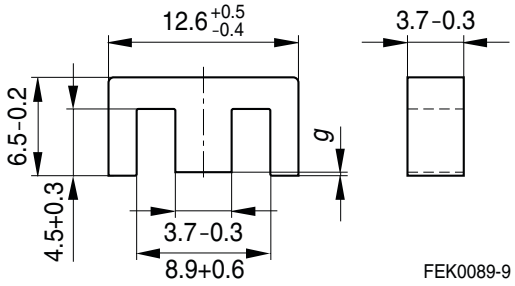
- To IEC 61246
- For miniature transformers
- Available with SMD coil former
- E cores with high permeability for common-mode chokes and broadband applications
- Delivery mode: single units



Magnetic characteristics (per set)

$\Sigma l/A$ = 2.39 mm^{-1}
l_e = 29.6 mm
A_e = 12.4 mm^2
A_{min} = 12.2 mm^2
V_e = 367 mm^3

Approx. weight 2 g/set

Ungapped

Material	A_L value nH	μ_e	P_V W/set	Ordering code
N30	1000 +30/–20%	1900		B66305G0000X130
T46	3600 ±30%	6839		B66305F0000X146
N27	800 +30/–20%	1510	< 0.40 (200 mT, 100 kHz, 100 °C)	B66305G0000X127
N87	850 +30/–20%	1620	< 0.20 (200 mT, 100 kHz, 100 °C)	B66305G0000X187

Gapped

Material	g mm	A_L value approx. nH	μ_e	Ordering code
N27	0.04 ±0.01	250	454	B66305G0040X127

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).

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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	28.4	–0.676	36.5	–0.847	33.2	–0.865
N87	28.4	–0.676	37.5	–0.796	32.1	–0.873

Validity range: K1, K2: 0.03 mm < s < 1.00 mm
K3, K4: 30 nH < A_L < 260 nH

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Coil former (magnetic axis horizontal or vertical)

Material: GFR polyterephthalate (UL 94 V-0, insulation class to IEC 60085:
F ≙ max. operating temperature 155 °C), color code black
Valox 420-SE0® [E45329 (M)], GE PLASTICS B V
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”

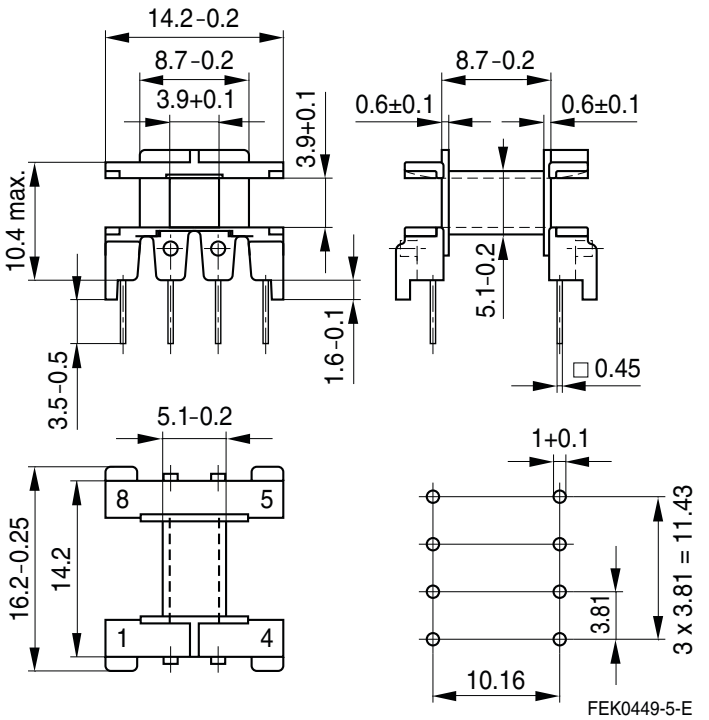
Squared pins.

Yoke

Material: Stainless spring steel (0.2 mm)

Coil former						Ordering code
Version	Sections	A_N mm²	l_N mm	A_R value μΩ	Pins	
Horizontal	1	11.6	27.2	80.6	8	B66202B1108T001
Vertical	1	11.6	27.2	80.6	6	B66202B1106T001
Yoke (ordering code per piece, 2 are required)						B66202A2010X000

Horizontal version



Hole arrangement
View in mounting direction

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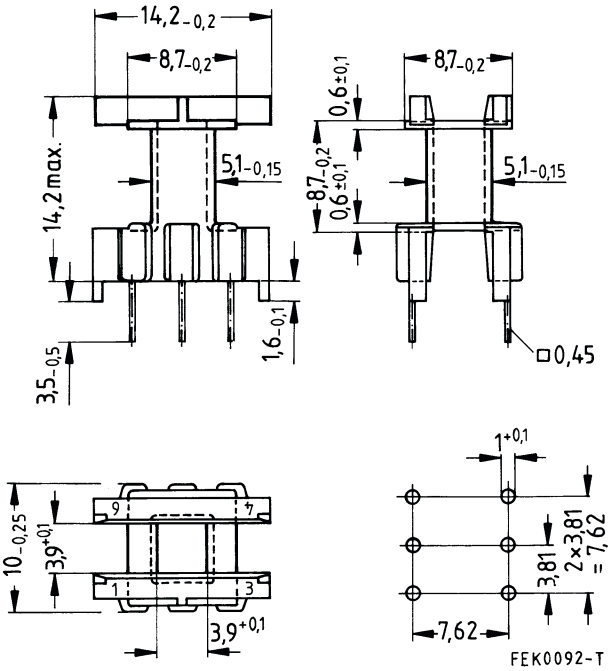
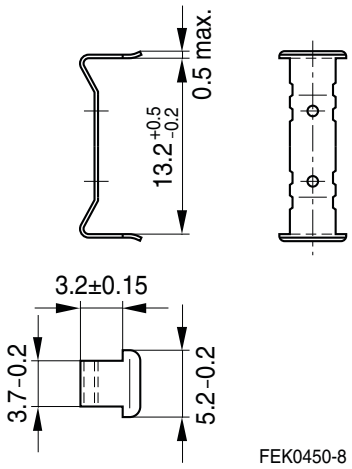
Vertical version



Hole arrangement
View in mounting direction

Yoke



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SMD

SMD coil former with gullwing terminals

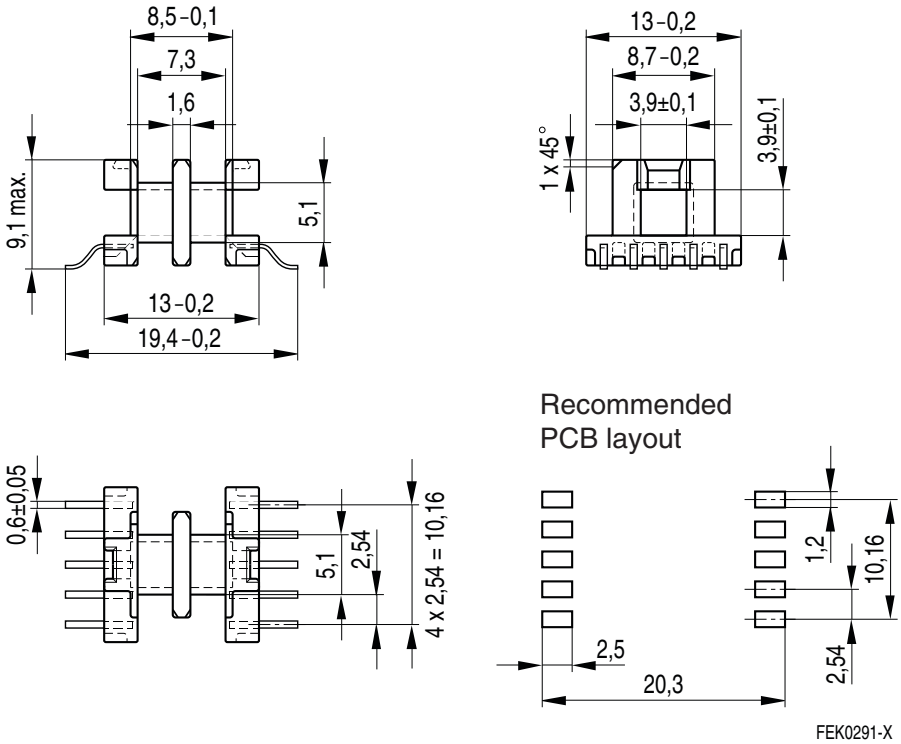
Material: GFR liquid crystal polymer (UL 94 V-0, insulation class to IEC 60085:
F ≙ max. operating temperature 155 °C), color code black
Vectra C 130 [E83005 (M)], TICONA

Solderability: to IEC 60068-2-58, test Td, method 6 (Group 3): 245 °C, 3 s

Resistance to soldering heat: to IEC 60068-2-58, test Td, method 6 (Group 3): 255 °C, 10 s
permissible soldering temperature for wire-wrap connection on coil former: 400 °C, 1 s

Winding: see Data Book 2007, chapter “Processing notes, 2.1”

Sections	A_N mm²	l_N mm	A_R value μΩ	Terminals	Ordering code
1	13.0	27	71	10	B66306C1010T001
2	10.2	27	91	10	B66306C1010T002



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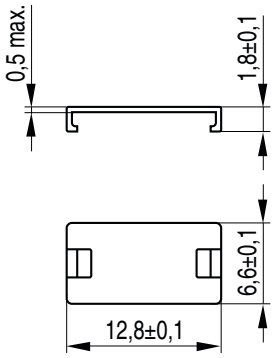
Cover plate

- For stamping and for improved processing on assembly machines
- See under SMD coil former for material and resistance to soldering heat

	Ordering code
Cover plate	B66414A7000X000



FEK0260-3

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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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