Ferrites and accessories

EELP 14, EILP 14
Core set (without clamp recess)

Series/Type: **B66281G, B66281P**
Date: September 2006

Core set EELP 14
Combination: ELP 14/3.5/5 with ELP 14/3.5/5

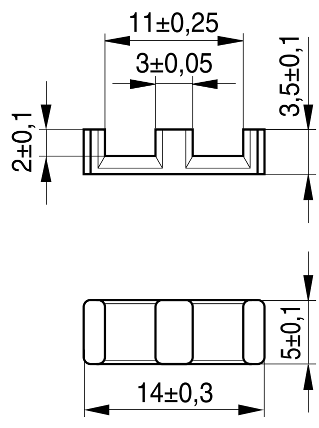
- To IEC 62317-9
- Delivery mode: single units

Magnetic characteristics (per set)

$\Sigma l/A$ = 1.45 mm^{-1}
l_e = 20.7 mm
A_e = 14.3 mm^2
A_{min} = 13.9 mm^2
V_e = 296 mm^3

Approx. weight 1.6 g/set

ELP 14/3.5/5



Ungapped

Material	A_L value nH	μ_e	P_V W/set	Ordering code (per piece)
N49	800 ±25%	920	< 0.08 (50 mT, 500 kHz, 100 °C)	B66281G0000X149
N92	850 ±25%	980	< 0.22 (200 mT, 100 kHz, 100 °C)	B66281G0000X192
N87	1100 ±25%	1270	< 0.20 (200 mT, 100 kHz, 100 °C)	B66281G0000X187
N97	1150 ±25%	1320	< 0.16 (200 mT, 100 kHz, 100 °C)	B66281G0000X197

Calculation factors (for formulas, see *"E cores: general information"*)
EELP 14:

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)
N87	29.0	–0.772	47	–0.796	39	–0.873

Validity range: K1, K2: 0.05 mm < s < 1.00 mm
K3, K4: 20 nH < A_L < 200 nH

Core set EILP 14
Combination:
ELP 14/3.5/5 with I 14/1.5/5

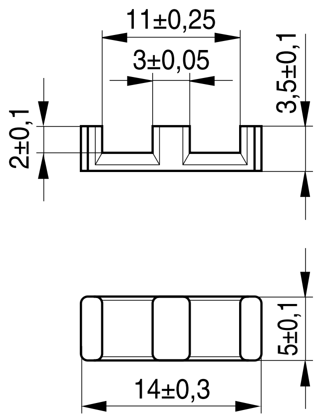
- To IEC 62317-9
- Delivery mode: single units

Magnetic characteristics (per set)

$\Sigma l/A$ = 1.15 mm^{-1}
l_e = 16.7 mm
A_e = 14.5 mm^2
A_{min} = 13.9 mm^2
V_e = 242 mm^3

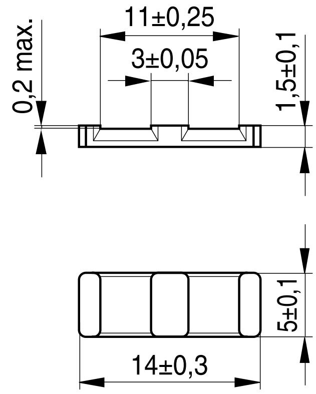
Approx. weight 1.3 g/set

ELP 14/3.5/5



FEK0369-D

I 14/1.5/5



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Ungapped

Material	A_L value nH	μ_e	P_V W/set	Ordering code (per piece)
N49	850 ±25%	780	< 0.06 (50 mT, 500 kHz, 100 °C)	B66281G0000X149 (ELP core) B66281P0000X149 (I core)
N92	900 ±25%	820	< 0.18 (200 mT, 100 kHz, 100 °C)	B66281G0000X192 (ELP core) B66281P0000X192 (I core)
N87	1250 ±25%	1140	< 0.16 (200 mT, 100 kHz, 100 °C)	B66281G0000X187 (ELP core) B66281P0000X187 (I core)
N97	1300 ±25%	1190	< 0.13 (200 mT, 100 kHz, 100 °C)	B66281G0000X197 (ELP core) B66281P0000X197 (I core)

Calculation factors (for formulas, see *"E cores: general information"*)
EILP 14:

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)
N87	38.7	–0.691	49	–0.796	40	–0.873

Validity range: K1, K2: 0.05 mm < s < 1.00 mm
K3, K4: 20 nH < A_L < 200 nH

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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