Ferrites and accessories

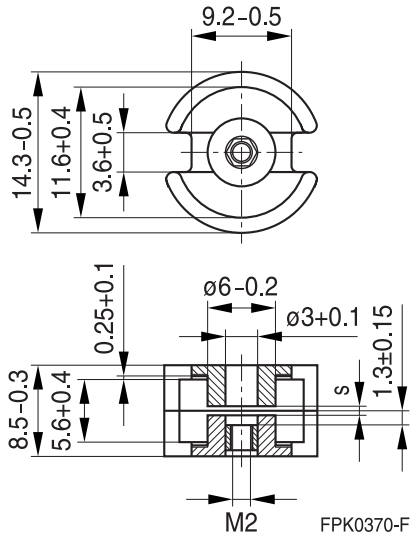
P 14 x 8, core and accessories

Series/Type: **B65541, B65542, B65545, B65549**

Date: September 2011

Core

- Standard: to IEC 60133
- Delivery mode: sets



Dimensions in mm

Magnetic characteristics

	with center hole	without center hole	
$\Sigma l/A$	0.8	0.73	mm^{-1}
l_e	20	21	mm
A_e	25	28.7	mm^2
A_{min}	20	23.6	mm^2
V_e	500	163	mm^3

Approx. weight (per set)

	with center hole	without center hole	
m	3.2	3.5	g

Gapped

Material	AL value nH	s approx mm	μ_e	Ordering code[1] - D with center hole - T with threaded sleeve
M33	100 ±3%	0.3	64	B65541+0100A033
N48	100 ±3%	0.16	102	B65541+0160A048
	160 ±3%	0.10	159	B65541+0250A048
	200 ±3%	0.08	201	B65541+0315A048
	250 ±3%	0.05	255	B65541+0400A048

Ungapped

Material	AL value nH	μ_e	P_V W/set	Ordering code - D with center hole - T with threaded sleeve
K1	140 +30/-20%	98		B65541D0000R001
M33	770 +30/-20%	618		B65541D0000R033
N48	2100 +30/-20%	1340		B65541D0000R048
N30	4600 +30/-30%	2680		B65541W0000Y030
T38	9800 +40/-30%	5710		B65541W0000Y038
N87	2800 +30/-30%	1630	< 0.26 (200 mT, 100 kHz, +100 °C)	B65541W0000Y087
N41	3300 +30/-20%	1920	< 0.09 (200 mT, 25 kHz, +100 °C)	B65541W0000R041

[1] Replace + by D or T for required version

Coil former

Standard: to IEC 60133

Material: GFR polyterephthalate (UL 94 V-0, insulation class to IEC 60085: F ≙ max. operating temperature +155 °C), color code black, B65542B000T001: Crastin CE 7931® [E41938 (M)], E I DUPONT DE NEMOURS & CO INC

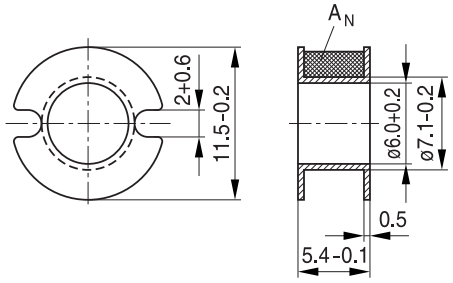
Winding: see Data Book 2007, chapter “Processing notes”

Insulating washer between core and coil former

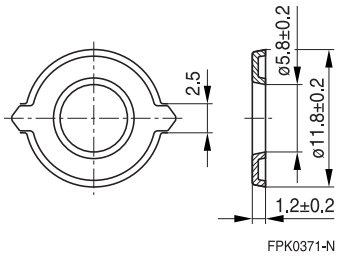
- For tolerance compensation and for insulation
- Polyarylate spring washer (UL 94 V-0, insulation class to IEC 60085: E ≙ +120 °C), 0.08 mm thick, Aryphan F685, [E167358 (M)], natural color, LOFO HIGH TECH FILM GMBH

Coil former				Ordering code
Sections	A_N mm²	l_N mm	A_R value μΩ	
1	8.4	28	115	B65542B0000T001
Insulating washer (reel packing, packing unit = 1 reel)				B65542A5000X000

Coil former:



Insulating washer:



Mounting assembly for printed circuit boards

- The set comprises a terminal carrier and a yoke
- For snap-in connection

Terminal carrier

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

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

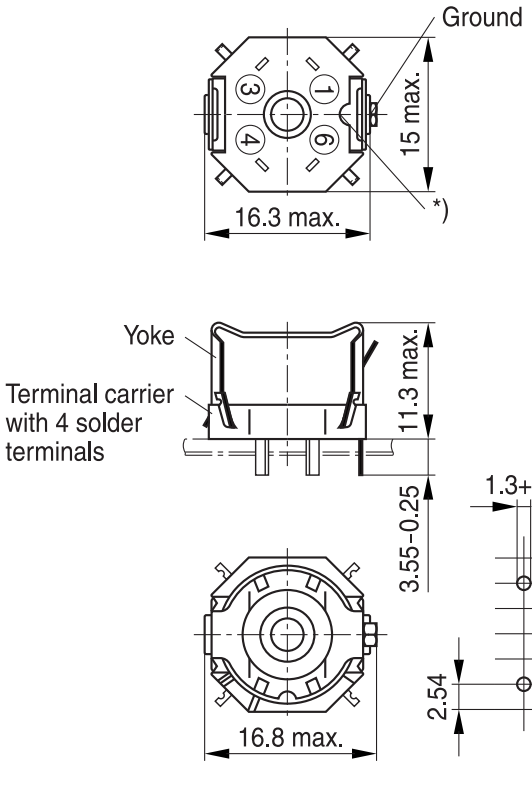
Resistance to soldering heat: to IEC 60068-2-20, test Tb, method 1B: +350 °C, 3.5 s

Yoke

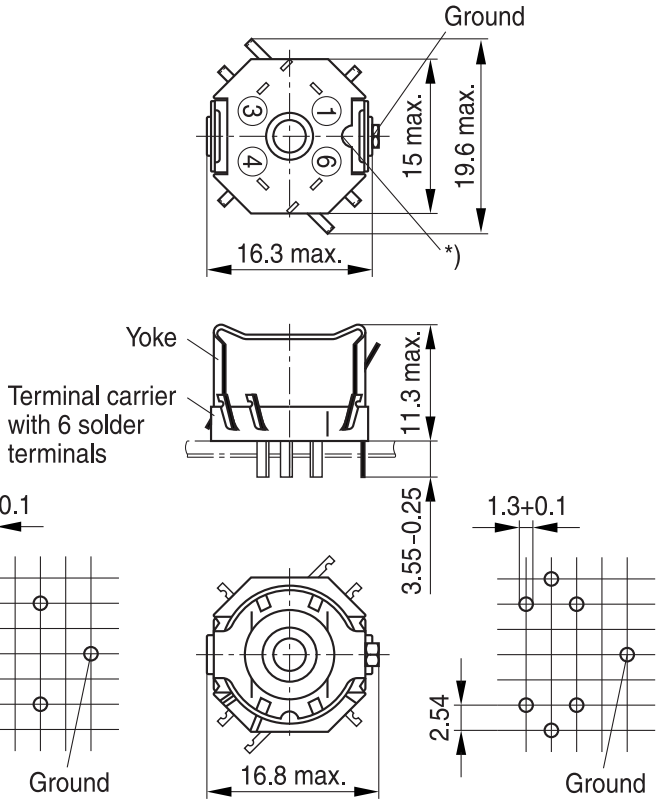
Spring yoke, made of tinned nickel silver (0.25 mm), with ground terminal

Complete mounting assembly (4 solder terminals) Ordering code: B65545B0009X000	Complete mounting assembly (6 solder terminals) Ordering code: B65545B0010X000

4 solder terminals



6 solder terminals



*) This recess must be on the side of the grounding pin to ensure that the yoke locks in position.

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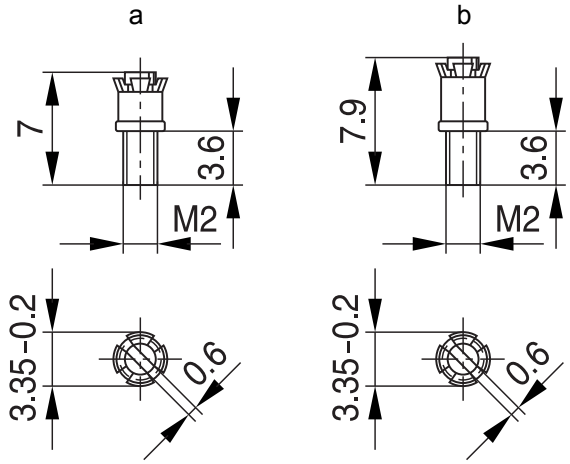
Adjusting screw

- Tube core with thread and core brake made of GFR polyterephthalate Pocan B3235® [E245249 (M)], LANXESS AG

Figure	Tube core			Ordering code
	Ø x length (mm)	Material	Color code	
a	2.6 x 2.0	N22	white	B65549E0003X023
b	2.76 x 2.9	N22	black	B65549E0004X023



Mechanical stress and mounting

Ferrite cores have to meet mechanical requirements during assembly 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 AL 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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