



## **Ferrites and accessories**

**P 14 × 8**  
**Core and accessories**

**Series/Type:**            **B65541, B65542, B65545, B65549**  
**Date:**                    **September 2006**

P 14 × 8

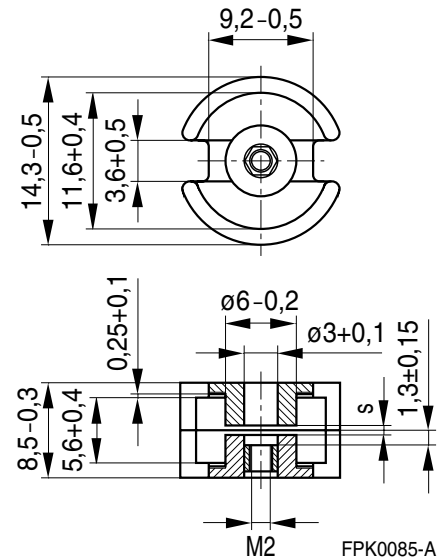
Core

B65541

- To IEC 60133
- Delivery mode: sets

**Magnetic characteristics (per set)**

	with center hole	without center hole	
$\Sigma l/A$	0.8	0.73	mm <sup>-1</sup>
$l_e$	20	21	mm
$A_e$	25	28.7	mm <sup>2</sup>
$A_{min}$	20	23.6	mm <sup>2</sup>
$V_e$	500	603	mm <sup>3</sup>



**Approx. weight (per set)**

m	3.2	3.5	g

**Gapped**

Material	$A_L$ value nH	s approx. mm	$\mu_e$	Ordering code <sup>1)</sup> -D with center hole -T with threaded sleeve
M33	100 ±3%	0.30	64	B65541+0100A033
N48	160 ±3%	0.16	102	B65541+0160A048
	250 ±3%	0.10	159	B65541+0250A048
	315 ±3%	0.08	201	B65541+0315A048
	400 ±3%	0.05	255	B65541+0400A048

**Ungapped**

Material	$A_L$ value nH	$\mu_e$	$P_V$ W/set	Ordering code -D with center hole -W without center hole
K1	140 +30/-20%	89		B65541D0000R001
M33	970 +30/-20%	618		B65541D0000R033
N48	2100 +30/-20%	1340		B65541D0000R048
N30	4600 +30/-20%	2680		B65541W0000R030
T38	9800 +40/-30%	5710		B65541W0000Y038
N87	2800 +30/-20%	1630	< 0.26 (200 mT, 100 kHz, 100 °C)	B65541W0000R087
N41	3300 +30/-20%	1920	< 0.09 (200 mT, 25 kHz, 100 °C)	B65541W0000R041

1) Replace the + by the code letter "D" or "T" for the required version.

**Coil former**

Standard: to IEC 60133

Material: GFR polyterephthalate (UL 94 V-0, insulation class to IEC 60085:  
 $F \triangleq$  max. operating temperature 155 °C), color code black

B65542B0000T001: Crastin CE 7931® [E41938 (M)],  
 E I DUPONT DE NEMOURS & CO INC

B65542B0000T002: Valox 420-SE0® [E45329 (M)], GE PLASTICS B V

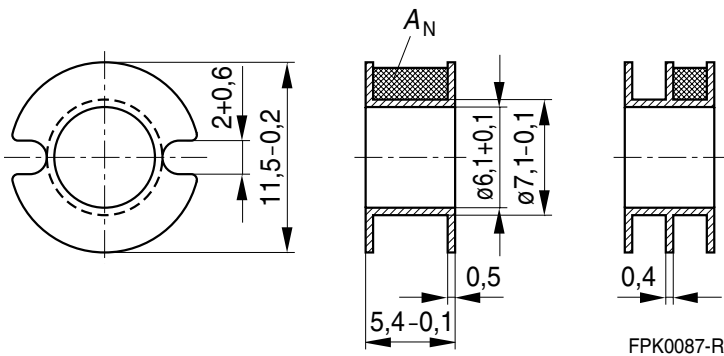
Winding: see Data Book 2007, chapter “Processing notes, 2.1”

**Insulating washer between core and coil former**

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

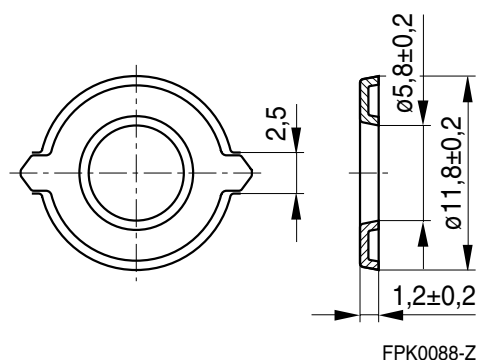
Coil former				Ordering code
Sections	$A_N$ mm <sup>2</sup>	$l_N$ mm	$A_R$ value $\mu\Omega$	
1	8.4	28	115	B65542B0000T001
2	7.6	28	127	B65542B0000T002
Insulating washer (reel packing, PU = 1 reel)				B65542A5000X000

**Coil former**



**Insulating washer**

(preliminary data)



### 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  $\triangleq$  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

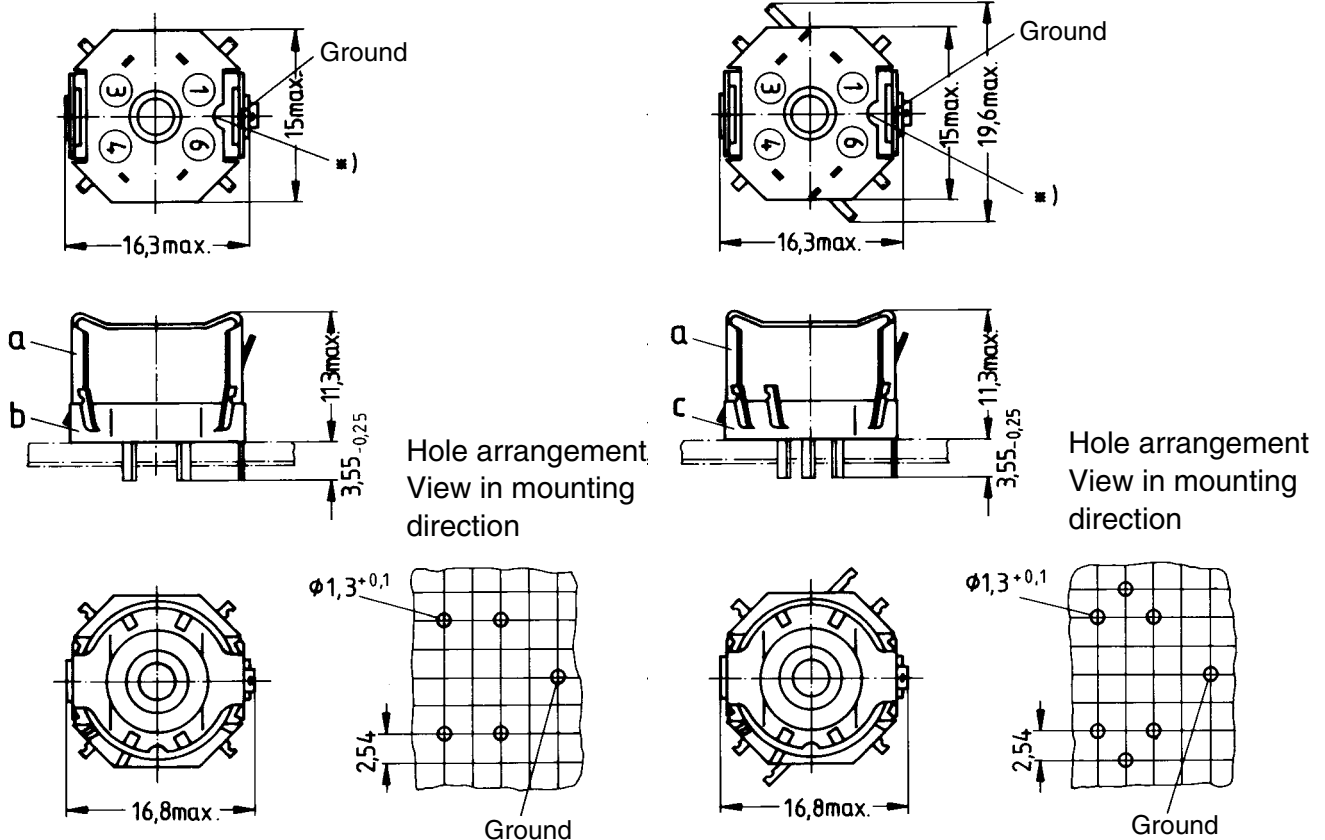
Spring yoke, made of tinned nickel silver (0.25 mm), with ground terminal

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

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

#### 4 solder terminals

#### 6 solder terminals



FPK0090-B

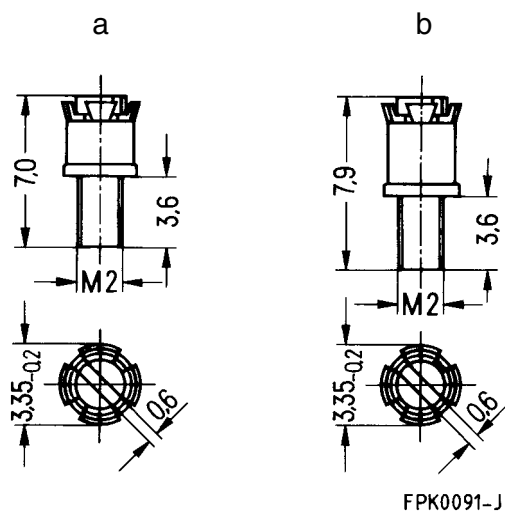
\*) This recess must be on the side of the grounding pin to ensure that the yoke locks in position.

- a) Yoke
- b) Terminal carrier with 4 solder terminals
- c) Terminal carrier with 6 solder terminals

### 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 × length (mm)	Material	Color code	
a	2.6 × 2.0	N22	white	B65549E0003X023
b	2.76 × 2.9	N22	black	B65549E0004X023



### **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 destroyed.
- 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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