



## **Ferrites and accessories**

P 30 × 19  
Core and accessories

**Series/Type:** B65701, B65702, B65705, B65679  
**Date:** September 2006, September 2008

**P 30 × 19**

**Core**

**B65701**

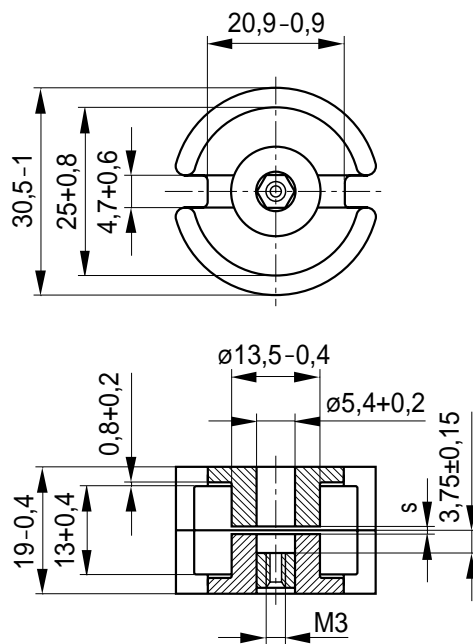
- To IEC 60133
- Delivery mode: sets

**Magnetic characteristics (per set)**

|              | with center hole | without center hole |                  |
|--------------|------------------|---------------------|------------------|
| $\Sigma I/A$ | 0.33             | 0.32                | mm <sup>-1</sup> |
| $I_e$        | 45               | 46                  | mm               |
| $A_e$        | 136              | 145                 | mm <sup>2</sup>  |
| $A_{min}$    | —                | 117                 | mm <sup>2</sup>  |
| $V_e$        | 6120             | 6670                | mm <sup>3</sup>  |

**Approx. weight (per set)**

| m | 36 | 38 | g |
|---|----|----|---|
|   |    |    |   |



**Gapped**

| Material | $A_L$ value | s<br>approx.<br>mm | $\mu_e$ | Ordering code 1)<br>-D with center hole<br>-T with threaded sleeve |
|----------|-------------|--------------------|---------|--|
|          | nH          |                    |         |  |
| N48      | 250 ±3%     | 0.72               | 66      | B65701+0250A048  |
|          | 400 ±3%     | 0.40               | 105     | B65701+0400A048  |
|          | 630 ±3%     | 0.22               | 166     | B65701+0630A048  |
|          | 1000 ±3%    | 0.12               | 263     | B65701+1000A048  |
|          | 2000 ±5%    | 0.05               | 527     | B65701D2000J048  |

**Ungapped**

| Material | $A_L$ value    | $\mu_e$ | $P_V$<br>W/set                  | Ordering code<br>-D with center hole<br>-W without center hole |
|----------|----------------|---------|---------------------------------|--|
|          | nH             |         |                                 |  |
| N48      | 6200 +30/-20%  | 1630    |                                 | B65701D0000R048  |
| N30      | 11500 +30/-20% | 2900    |                                 | B65701W0000R030  |
| T38      | 28000 +40/-30% | 7070    |                                 | B65701W0000Y038  |
| N87      | 6400 +30/-20%  | 1620    | < 2.5 (200 mT, 100 kHz, 100 °C) | B65701W0000R087  |

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

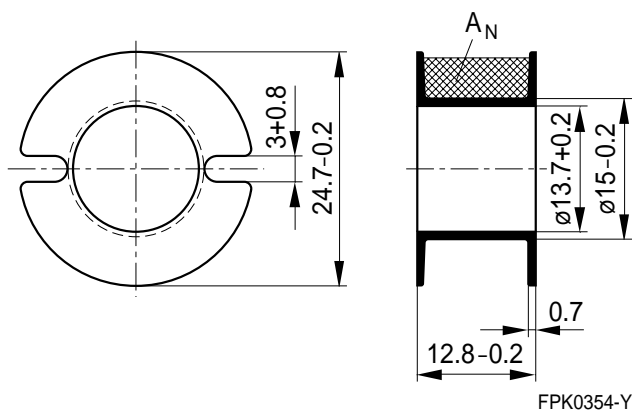
Winding: see Data Book 2007, chapter “Processing notes, 2.1”

**Insulating washer between core and coil former**

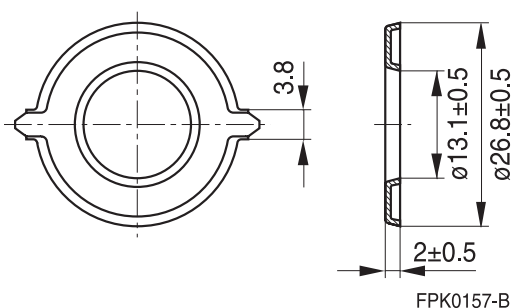
- For tolerance compensation and for insulation
- Polycarbonate spring washer (UL 94 V-0, insulation class to IEC 60085: E  $\triangleq$  120 °C), 0.08 mm thick Arphan F685, [E167358 (M)], natural color, LOFO HIGH TECH FILM GMBH

| Coil former                                   |                                   |                      |                            | Ordering code   |
|---|-----------------------------------|----------------------|----------------------------|-----------------|
| Sections                                      | A <sub>N</sub><br>mm <sup>2</sup> | l <sub>N</sub><br>mm | A <sub>R</sub> value<br>μΩ |                 |
| 1   | 48                                | 60                   | 46                         | B65702B0000T001 |
| Insulating washer (reel packing, PU = 1 reel) |                                   |                      |                            | B65702A5000X000 |

**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 85: F  $\triangleq$  max. operating temperature 155 °C), color code gray  
 Pocan B4235® [E245249 (M)], LANXESS AG

Solderability: to IEC 68-2-20, test Ta, method 1 (aging 3): 235 °C, 2 s

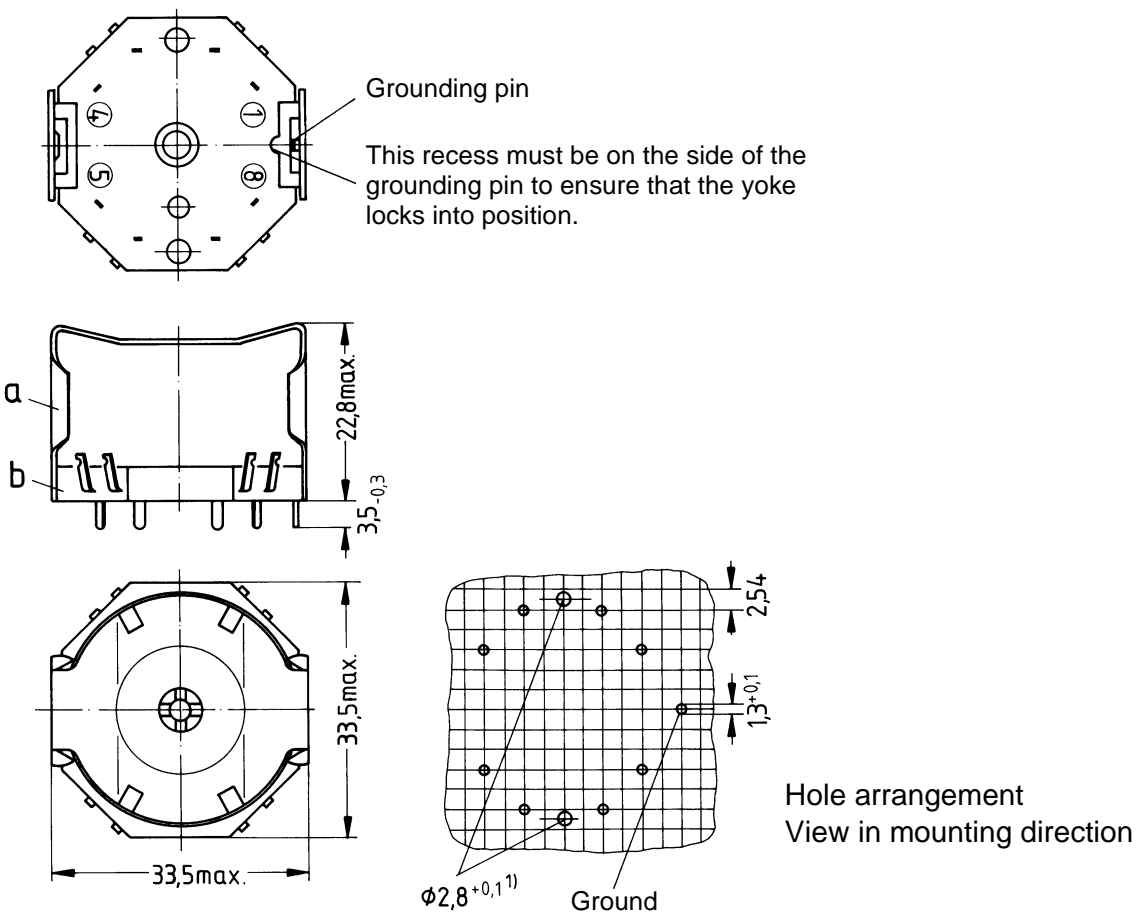
Resistance to soldering heat: to IEC 68-2-20, test Tb, method 1B: 350 °C, 3.5 s

#### Yoke

Spring yoke, made of tinned nickel silver (0.5 mm), with ground terminal

Complete mounting assembly (8 solder terminals)

Ordering code: B65705B0003X000



FPK0159-S

1) The 2.8 mm hole is only necessary for additional fixing with M 2.5 screw.

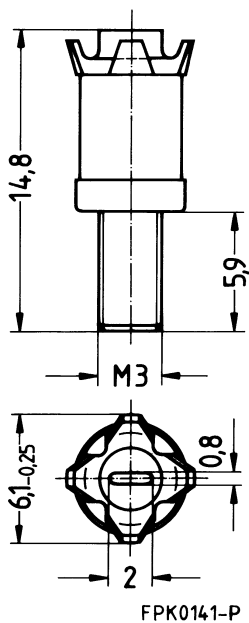
a) Yoke

b) Terminal carrier with 8 solder terminals

**Adjusting screw**

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

| Tube core       |          |            | Ordering code   |
|-----------------|----------|------------|-----------------|
| Ø × length (mm) | Material | Color code |                 |
| 4.55 × 6.3      | N22      | red        | B65679E0003X022 |
| 4.98 × 6.3      | N22      | black      | B65679E0002X022 |


**Note:**

Due to the limited distance between adjusting screw and internal borehole, the entire assembly must be accurately centered.

### **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.
- Too strong winding forces may blast the flanges or squeeze the tube that the cores can no more be mounted.
- Too long 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 pollution with Sn oxide 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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