

# DATA SHEET

**PQ32/30**

**PQ cores and accessories**

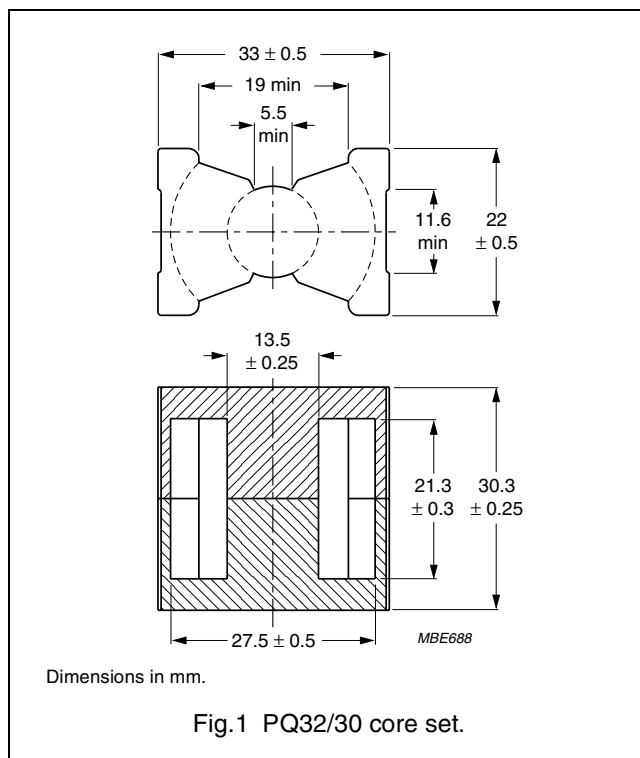
Supersedes data of September 2004

2008 Sep 01

**CORE SETS**

**Effective core parameters**

| SYMBOL        | PARAMETER        | VALUE | UNIT             |
|---------------|------------------|-------|------------------|
| $\Sigma(l/A)$ | core factor (C1) | 0.447 | mm <sup>-1</sup> |
| $V_e$         | effective volume | 12500 | mm <sup>3</sup>  |
| $l_e$         | effective length | 74.7  | mm               |
| $A_e$         | effective area   | 167   | mm <sup>2</sup>  |
| $A_{min}$     | minimum area     | 142   | mm <sup>2</sup>  |
| m             | mass of set      | ≈ 57  | g                |



**Core sets for general purpose transformers and power applications**

Clamping force for  $A_L$  measurements, 80 ±20 N.

| GRADE           | $A_L$ (nH) | $\mu_e$ | TOTAL AIR GAP (μm) | TYPE NUMBER        |
|-----------------|------------|---------|--------------------|--------------------|
| 3C81            | 315 ±3%    | ≈ 112   | ≈ 800              | PQ32/30-3C81-E315  |
|                 | 400 ±3%    | ≈ 142   | ≈ 600              | PQ32/30-3C81-A400  |
|                 | 630 ±3%    | ≈ 224   | ≈ 350              | PQ32/30-3C81-A630  |
|                 | 1000 ±3%   | ≈ 356   | ≈ 200              | PQ32/30-3C81-A1000 |
|                 | 1600 ±5%   | ≈ 570   | ≈ 110              | PQ32/30-3C81-A1600 |
|                 | 6570 ±25%  | ≈ 2340  | ≈ 0                | PQ32/30-3C81       |
| 3C90            | 315 ±3%    | ≈ 112   | ≈ 800              | PQ32/30-3C90-E315  |
|                 | 400 ±3%    | ≈ 142   | ≈ 600              | PQ32/30-3C90-A400  |
|                 | 630 ±3%    | ≈ 224   | ≈ 350              | PQ32/30-3C90-A630  |
|                 | 1000 ±3%   | ≈ 356   | ≈ 200              | PQ32/30-3C90-A1000 |
|                 | 1600 ±5%   | ≈ 570   | ≈ 110              | PQ32/30-3C90-A1600 |
|                 | 5600 ±25%  | ≈ 1990  | ≈ 0                | PQ32/30-3C90       |
| 3C91 <b>des</b> | 6570 ±25%  | ≈ 2340  | ≈ 0                | PQ32/30-3C91       |
| 3C94            | 5600 ±25%  | ≈ 1990  | ≈ 0                | PQ32/30-3C94       |
| 3C95 <b>des</b> | 6570 ±25%  | ≈ 2340  | ≈ 0                | PQ32/30-3C95       |
| 3C96 <b>des</b> | 5040 ±25%  | ≈ 1790  | ≈ 0                | PQ32/30-3C96       |

| GRADE | $A_L$<br>(nH)  | $\mu_e$        | TOTAL AIR GAP<br>( $\mu\text{m}$ ) | TYPE NUMBER       |
|-------|----------------|----------------|------------------------------------|-------------------|
| 3F3   | 315 $\pm$ 3%   | $\approx$ 112  | $\approx$ 800                      | PQ32/30-3F3-E315  |
|       | 400 $\pm$ 3%   | $\approx$ 142  | $\approx$ 600                      | PQ32/30-3F3-A400  |
|       | 630 $\pm$ 3%   | $\approx$ 224  | $\approx$ 350                      | PQ32/30-3F3-A630  |
|       | 1000 $\pm$ 3%  | $\approx$ 356  | $\approx$ 200                      | PQ32/30-3F3-A1000 |
|       | 1600 $\pm$ 5%  | $\approx$ 570  | $\approx$ 110                      | PQ32/30-3F3-A1600 |
|       | 4580 $\pm$ 25% | $\approx$ 1630 | $\approx$ 0                        | PQ32/30-3F3       |

#### Properties of core sets under power conditions

| GRADE | B (mT) at                                 | CORE LOSS (W) at                         |   |  |   |  |  |
|-------|---|--|---|--|---|--|--|
|       | H = 250 A/m;<br>f = 25 kHz;<br>T = 100 °C | f = 25 kHz;<br>B = 200 mT;<br>T = 100 °C | f = 100 kHz;<br>B = 100 mT;<br>T = 100 °C | f = 100 kHz;<br>B = 200 mT;<br>T = 25 °C | f = 100 kHz;<br>B = 200 mT;<br>T = 100 °C | f = 400 kHz;<br>B = 50 mT;<br>T = 100 °C | f = 500 kHz;<br>B = 50 mT;<br>T = 100 °C |
| 3C81  | $\geq$ 320                                | $\leq$ 2.6                               | –   | –  | –   | –  | –  |
| 3C90  | $\geq$ 320                                | $\leq$ 1.5                               | $\leq$ 1.6                                | –  | –   | –  | –  |
| 3C91  | $\geq$ 320                                | –  | $\leq$ 0.9 <sup>(1)</sup>                 | –  | $\leq$ 6.0 <sup>(1)</sup>                 | –  | –  |
| 3C94  | $\geq$ 320                                | –  | $\leq$ 1.2                                | –  | $\leq$ 7.5                                | –  | –  |
| 3C95  | $\geq$ 320                                | –  | –   | $\leq$ 7.88                              | $\leq$ 7.5                                | –  | –  |
| 3C96  | $\geq$ 340                                | –  | $\leq$ 0.9                                | –  | $\leq$ 6.0                                | $\leq$ 2.3                               | $\leq$ 4.7                               |
| 3F3   | $\geq$ 320                                | –  | $\leq$ 1.4                                | –  | –   | $\leq$ 2.4                               | –  |

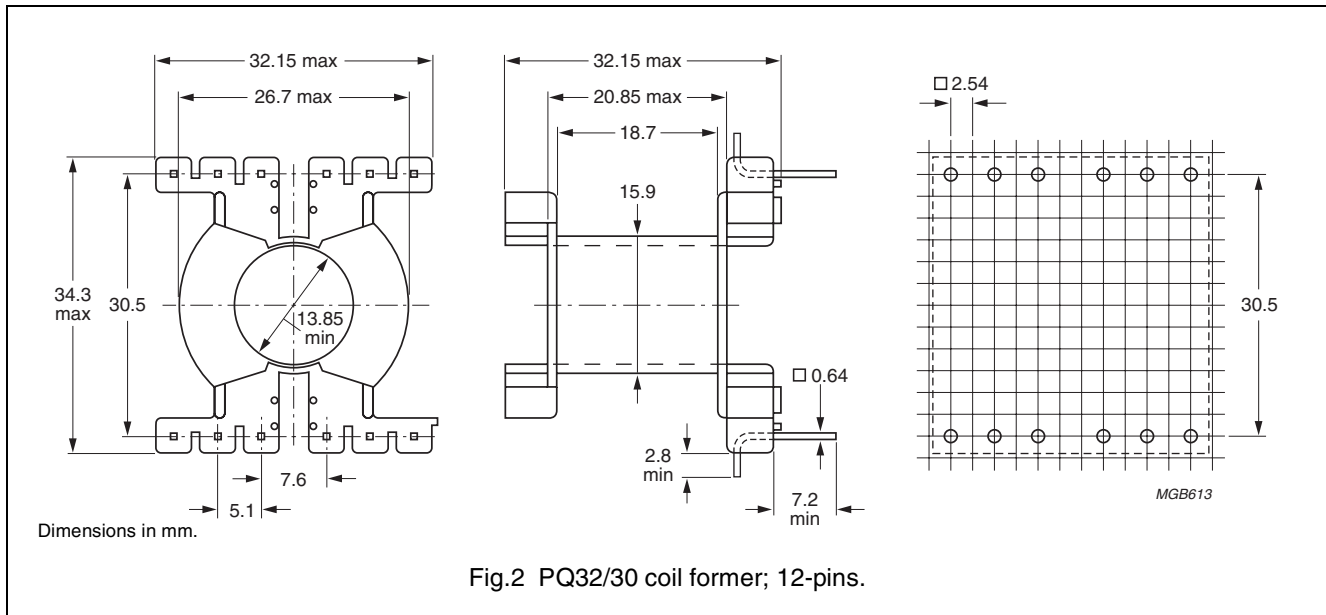
#### Note

1. Measured at 60 °C.

**COIL FORMER**

**General data 12-pins PQ32/30 coil former**

| PARAMETER                     | SPECIFICATION  |
|-------------------------------|--|
| Coil former material          | Polyethylene terephthalate (PET), glass-reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E41938 |
| Pin material                  | copper-tin alloy (CuSn), tin (Sn) plated   |
| Maximum operating temperature | 180 °C, "IEC 60085", class H   |
| Resistance to soldering heat  | "IEC 60068-2-20", Part 2, Test Tb, method 1B, 350 °C, 3.5 s  |
| Solderability                 | "IEC 60068-2-20", Part 2, Test Ta, method 1  |



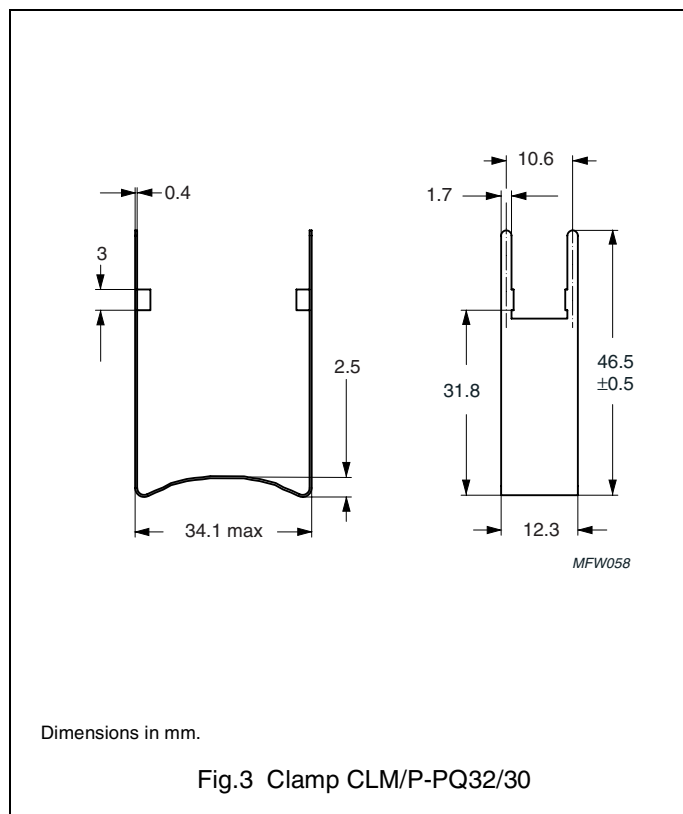
**Winding data and area product for 12-pins PQ32/30 coil former**

| NUMBER OF SECTIONS | MINIMUM WINDING AREA (mm <sup>2</sup> ) | NOMINAL WINDING WIDTH (mm) | AVERAGE LENGTH OF TURN (mm) | AREA PRODUCT Ae x Aw (mm <sup>4</sup> ) | TYPE NUMBER           |
|--------------------|---|----------------------------|-----------------------------|---|-----------------------|
| 1                  | 53.0                                    | 18.7                       | 66.7                        | 8850                                    | CPV-PQ32/30-1S-12P-Z  |
| 1                  | 53.0                                    | 18.7                       | 66.7                        | 8850                                    | CPV-PQ32/30-1S-12PD-Z |

**MOUNTING PARTS**

**General data**

| ITEM  | REMARKS  | TYPE NUMBER   |
|-------|--|---------------|
| Clamp | phosphorbronze, Sn plated, earth pins solderability acc. to "IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s | CLM/P-PQ32/30 |






**DATA SHEET STATUS DEFINITIONS**

| DATA SHEET STATUS         | PRODUCT STATUS | DEFINITIONS  |
|---------------------------|----------------|--|
| Preliminary specification | Development    | This data sheet contains preliminary data. Ferroxcube reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.     |
| Product specification     | Production     | This data sheet contains final specifications. Ferroxcube reserves the right to make changes at any time without notice in order to improve design and supply the best possible product. |

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**PRODUCT STATUS DEFINITIONS**

| STATUS           | INDICATION  | DEFINITION   |
|------------------|---|--|
| <b>Prototype</b> |  | These are products that have been made as development samples for the purposes of technical evaluation only. The data for these types is provisional and is subject to change. |
| <b>Design-in</b> |  | These products are recommended for new designs.  |
| <b>Preferred</b> |   | These products are recommended for use in current designs and are available via our sales channels.  |
| <b>Support</b>   |  | These products are <b>not</b> recommended for new designs and may not be available through all of our sales channels. Customers are advised to check for availability.         |