

DATA SHEET

FRM24/3.9/10

Frame and Bar cores and
accessories

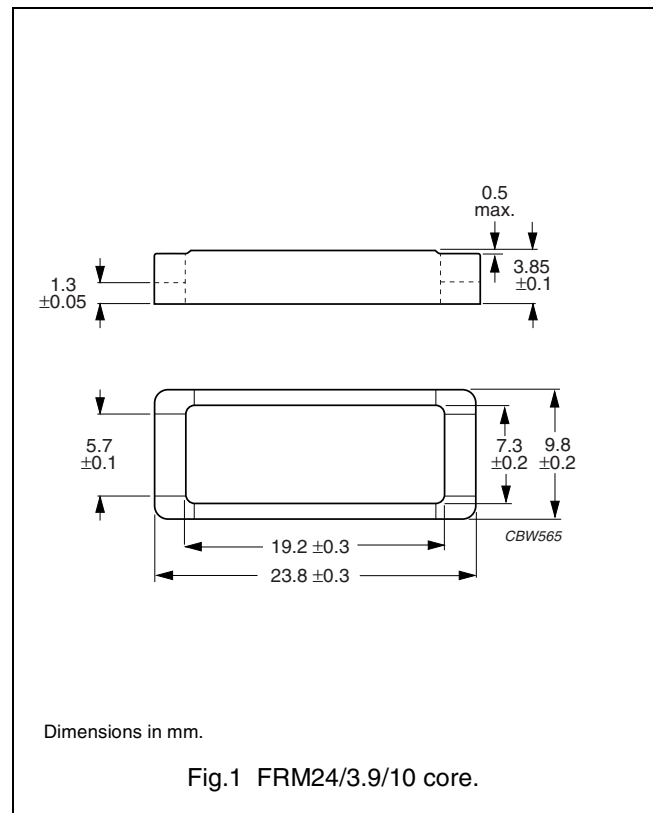
Supersedes data of September 2004

2008 Sep 01

CORE SETS

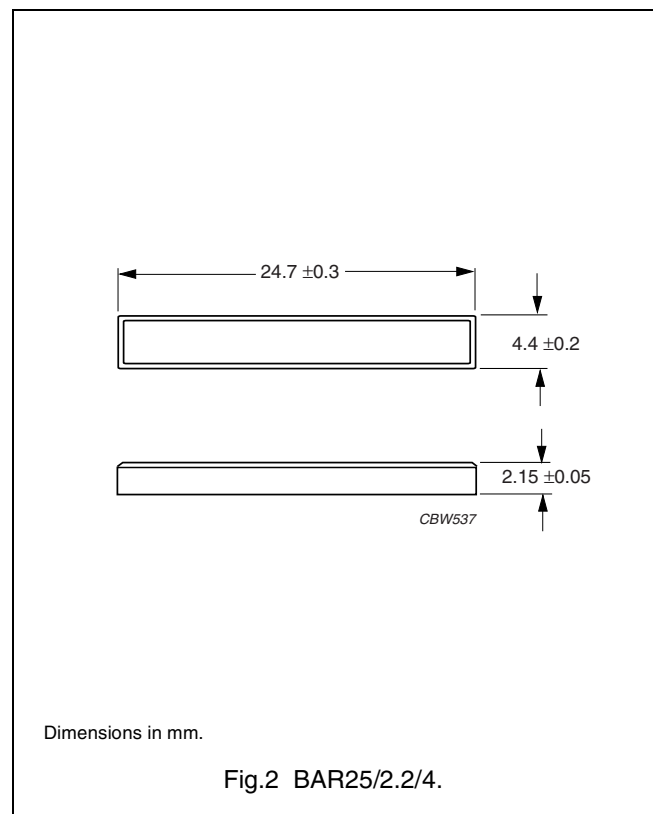
Effective core parameters

| SYMBOL | PARAMETER | VALUE | UNIT |
|---------------|------------------|-------|------------------|
| $\Sigma(l/A)$ | core factor (C1) | 5.65 | mm ⁻¹ |
| V_e | effective volume | 370 | mm ³ |
| l_e | effective length | 45.8 | mm |
| A_e | effective area | 8.1 | mm ² |
| A_{min} | minimum area | 6.0 | mm ² |
| m | mass of frame | ≈ 1.3 | g |
| m | mass of bar | ≈ 1.2 | g |



Ordering information for bar cores

| GRADE | TYPE NUMBER |
|-------|------------------|
| 3C90 | BAR25/2.2/4-3C90 |
| 3C91 | BAR25/2.2/4-3C91 |



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Frame cores for use in combination with matching bar cores

AL measured in combination with bar core.

| GRADE | A_L (nH) | μ_e | AIR GAP (μm) | TYPE NUMBER |
|-------|----------------|----------------|------------------------------|-------------------|
| 3C90 | $370 \pm 25\%$ | ≈ 1660 | ≈ 0 | FRM24/3.9/10-3C90 |
| 3C91 | $440 \pm 25\%$ | ≈ 1970 | ≈ 0 | FRM24/3.9/10-3C91 |

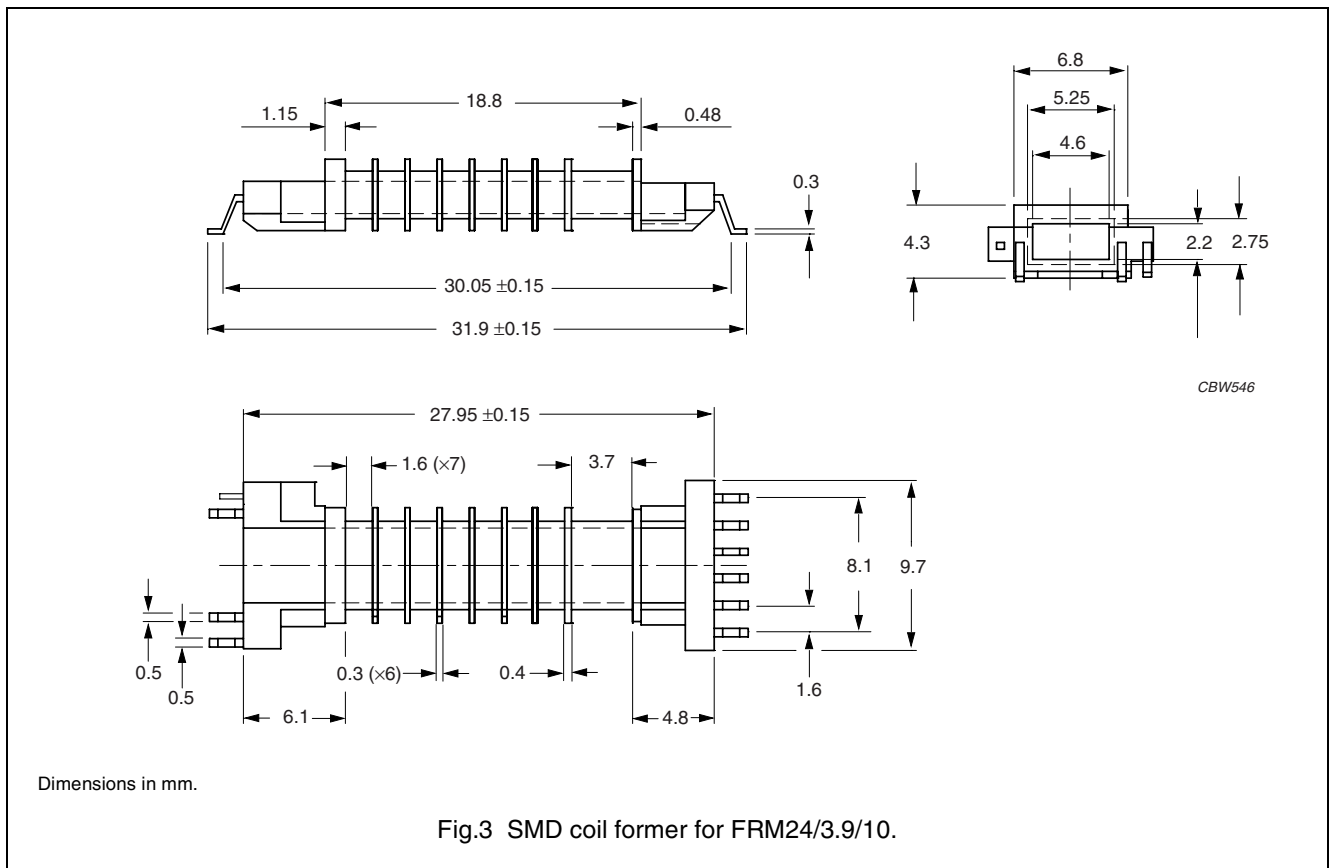
Properties of Frame and Bar combinations under power conditions

| GRADE | B (mT) at | CORE LOSS (W) at | | | |
|-------|---|--|---|--|--|
| | H = 250 A/m; f = 10 kHz; T = 100 °C | f = 25 kHz; $\hat{B} = 200$ mT; T = 100 °C | f = 100 kHz; $\hat{B} = 100$ mT; T = 100 °C | f = 100 kHz; $\hat{B} = 100$ mT; T = 60 °C | f = 100 kHz; $\hat{B} = 200$ mT; T = 60 °C |
| 3C90 | ≥ 320 | ≤ 0.041 | ≤ 0.044 | – | – |
| 3C91 | ≥ 320 | – | – | ≤ 0.019 | ≤ 0.15 |

COIL FORMERS

General data

| PARAMETER | SPECIFICATION |
|-------------------------------|---|
| Coil former material | liquid crystal polymer (LCP), glass-reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E54705(M) |
| Pin material | copper-tin alloy (CuSn), tin (Sn) plated |
| Maximum operating temperature | 155 °C, "IEC 60085", class F |
| 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: 235 °C, 2 s |



Winding data and area product

| NUMBER OF SECTIONS | NUMBER OF SOLDER PADS | WINDING AREA (mm ²) | WINDING WIDTH (mm) | AVERAGE LENGTH OF TURN (mm) | AREA PRODUCT Ae x Aw (mm ⁴) | TYPE NUMBER |
|--------------------|-----------------------|---------------------------------|--------------------|-----------------------------|---|---------------------|
| 8 | 9 | 2.9 + 7 × 1.24 | 3.7 + 7 × 1.6 | 17.3 | 23.5 + 7 × 10.0 | CPHS-FRM24/10-8S-9P |

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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 |
|------------------|---|--|
| Prototype |  | 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. |
| Design-in |  | These products are recommended for new designs. |
| Preferred | | These products are recommended for use in current designs and are available via our sales channels. |
| Support |  | These products are not recommended for new designs and may not be available through all of our sales channels. Customers are advised to check for availability. |