

# DATA SHEET

**E14/3.5/5/R**

Planar E cores and accessories

Supersedes data of February 2002

2004 Sep 01

## Planar E cores and accessories

E14/3.5/5/R

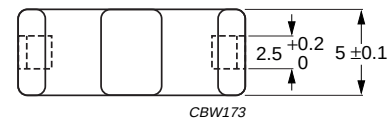
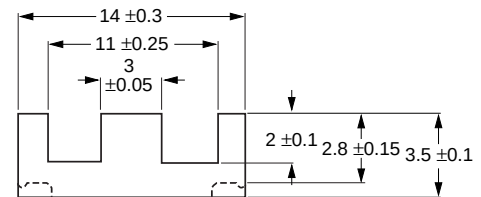
## CORES

## Effective core parameters of an E/PLT combination

| SYMBOL        | PARAMETER           | VALUE         | UNIT             |
|---------------|---------------------|---------------|------------------|
| $\Sigma(l/A)$ | core factor (C1)    | 1.15          | $\text{mm}^{-1}$ |
| $V_e$         | effective volume    | 230           | $\text{mm}^3$    |
| $l_e$         | effective length    | 16.4          | mm               |
| $A_e$         | effective area      | 14.2          | $\text{mm}^2$    |
| $A_{\min}$    | minimum area        | 10.9          | $\text{mm}^2$    |
| m             | mass of E core half | $\approx 0.6$ | g                |
| m             | mass of plate       | $\approx 0.5$ | g                |

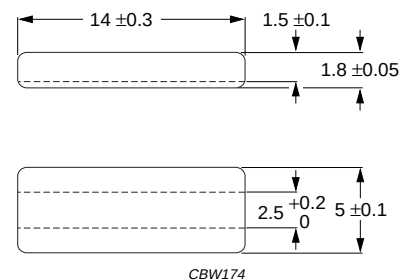
## Ordering information for plates

| GRADE                    | TYPE NUMBER        |
|--------------------------|--------------------|
| 3C90                     | PLT14/5/1.5/S-3C90 |
| 3C92 <small>des</small>  | PLT14/5/1.5/S-3C92 |
| 3C93 <small>des</small>  | PLT14/5/1.5/S-3C93 |
| 3C94                     | PLT14/5/1.5/S-3C94 |
| 3C96 <small>des</small>  | PLT14/5/1.5/S-3C96 |
| 3F3                      | PLT14/5/1.5/S-3F3  |
| 3F35 <small>prot</small> | PLT14/5/1.5/S-3F35 |
| 3F4 <small>des</small>   | PLT14/5/1.5/S-3F4  |
| 3F45 <small>prot</small> | PLT14/5/1.5/S-3F45 |
| 3E6                      | PLT14/5/1.5/S-3E6  |



Dimensions in mm.

Fig.1 E14/3.5/5/R core.



Dimensions in mm.

Fig.2 PLT14/5/1.5/S.

## Planar E cores and accessories

E14/3.5/5/R

**Core halves for use in combination with a slotted plate (PLT/S)**

$A_L$  measured in combination with a slotted plate (PLT/S) clamping force for  $A_L$  measurements  $10 \pm 5$  N; measurement coil as for E14/3.5/5.

| GRADE                                                                                    | $A_L$<br>(nH)    | $\mu_e$        | AIR GAP<br>( $\mu\text{m}$ ) | TYPE NUMBER             |
|------------------------------------------------------------------------------------------|------------------|----------------|------------------------------|-------------------------|
| 3C90                                                                                     | $63 \pm 3\%$     | $\approx 58$   | $\approx 600$                | E14/3.5/5/R-3C90-A63-P  |
|                                                                                          | $100 \pm 5\%$    | $\approx 92$   | $\approx 300$                | E14/3.5/5/R-3C90-A100-P |
|                                                                                          | $160 \pm 8\%$    | $\approx 148$  | $\approx 150$                | E14/3.5/5/R-3C90-A160-P |
|                                                                                          | $1500 \pm 25\%$  | $\approx 1380$ | $\approx 0$                  | E14/3.5/5/R-3C90        |
| 3C92    | $1130 \pm 25\%$  | $\approx 1040$ | $\approx 0$                  | E14/3.5/5/R-3C92        |
| 3C93    | $1300 \pm 25\%$  | $\approx 1200$ | $\approx 0$                  | E14/3.5/5/R-3C93        |
| 3C94                                                                                     | $63 \pm 3\%$     | $\approx 58$   | $\approx 600$                | E14/3.5/5/R-3C94-A63-P  |
|                                                                                          | $100 \pm 5\%$    | $\approx 92$   | $\approx 300$                | E14/3.5/5/R-3C94-A100-P |
|                                                                                          | $160 \pm 8\%$    | $\approx 148$  | $\approx 150$                | E14/3.5/5/R-3C94-A160-P |
|                                                                                          | $1500 \pm 25\%$  | $\approx 1380$ | $\approx 0$                  | E14/3.5/5/R-3C94        |
| 3C96    | $1350 \pm 25\%$  | $\approx 1240$ | $\approx 0$                  | E14/3.5/5/R-3C96        |
| 3F3    | $63 \pm 3\%$     | $\approx 58$   | $\approx 600$                | E14/3.5/5/R-3F3-A63-P   |
|                                                                                          | $100 \pm 5\%$    | $\approx 92$   | $\approx 300$                | E14/3.5/5/R-3F3-A100-P  |
|                                                                                          | $160 \pm 8\%$    | $\approx 148$  | $\approx 150$                | E14/3.5/5/R-3F3-A160-P  |
|                                                                                          | $1300 \pm 25\%$  | $\approx 1200$ | $\approx 0$                  | E14/3.5/5/R-3F3         |
| 3F35  | $1050 \pm 25\%$  | $\approx 970$  | $\approx 0$                  | E14/3.5/5/R-3F35        |
| 3F4   | $63 \pm 3\%$     | $\approx 58$   | $\approx 600$                | E14/3.5/5/R-3F4-A63-P   |
|                                                                                          | $100 \pm 5\%$    | $\approx 92$   | $\approx 300$                | E14/3.5/5/R-3F4-A100-P  |
|                                                                                          | $160 \pm 8\%$    | $\approx 148$  | $\approx 150$                | E14/3.5/5/R-3F4-A160-P  |
|                                                                                          | $780 \pm 25\%$   | $\approx 710$  | $\approx 0$                  | E14/3.5/5/R-3F4         |
| 3F45  | $780 \pm 25\%$   | $\approx 710$  | $\approx 0$                  | E14/3.5/5/R-3F45        |
| 3E6                                                                                      | $6400 +40/-30\%$ | $\approx 5900$ | $\approx 0$                  | E14/3.5/5/R-3E6         |

## Planar E cores and accessories

E14/3.5/5/R

## 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 = 100 kHz;<br>$\hat{B}$ = 100 mT;<br>T = 100 °C | f = 100 kHz;<br>$\hat{B}$ = 200 mT;<br>T = 100 °C | f = 400 kHz;<br>$\hat{B}$ = 50 mT;<br>T = 100 °C | f = 500 kHz;<br>$\hat{B}$ = 50 mT;<br>T = 100 °C |
| E14/R+PLT14/S-3C90 | ≥320                                      | ≤ 0.026                                           | –                                                 | –                                                | –                                                |
| E14/R+PLT14/S-3C92 | ≥370                                      | ≤ 0.021                                           | ≤ 0.15                                            | –                                                | –                                                |
| E14/R+PLT14/S-3C93 | ≥320                                      | ≤ 0.021 <sup>(1)</sup>                            | ≤ 0.15 <sup>(1)</sup>                             | –                                                | –                                                |
| E14/R+PLT14/S-3C94 | ≥320                                      | ≤ 0.021                                           | ≤ 0.15                                            | –                                                | –                                                |
| E14/R+PLT14/S-3C96 | ≥340                                      | ≤ 0.016                                           | ≤ 0.12                                            | ≤ 0.045                                          | ≤ 0.09                                           |
| E14/R+PLT14/S-3F3  | ≥300                                      | ≤ 0.027                                           | –                                                 | ≤ 0.047                                          | –                                                |
| E14/R+PLT14/S-3F35 | ≥300                                      | –                                                 | –                                                 | ≤ 0.024                                          | ≤ 0.035                                          |
| E14/R+PLT14/S-3F4  | ≥250                                      | –                                                 | –                                                 | –                                                | –                                                |
| E14/R+PLT14/S-3F45 | ≥250                                      | –                                                 | –                                                 | –                                                | –                                                |

1. Measured at 140 °C.

## Properties of core sets under power conditions (continued)

| GRADE              | B (mT) at                                 | CORE LOSS (W) at                                  |                                                |                                                |                                                |
|--------------------|-------------------------------------------|---------------------------------------------------|------------------------------------------------|------------------------------------------------|------------------------------------------------|
|                    | H = 250 A/m;<br>f = 25 kHz;<br>T = 100 °C | f = 500 kHz;<br>$\hat{B}$ = 100 mT;<br>T = 100 °C | f = 1 MHz;<br>$\hat{B}$ = 30 mT;<br>T = 100 °C | f = 1 MHz;<br>$\hat{B}$ = 50 mT;<br>T = 100 °C | f = 3 MHz;<br>$\hat{B}$ = 10 mT;<br>T = 100 °C |
| E14/R+PLT14/S-3C90 | ≥320                                      | –                                                 | –                                              | –                                              | –                                              |
| E14/R+PLT14/S-3C92 | ≥370                                      | –                                                 | –                                              | –                                              | –                                              |
| E14/R+PLT14/S-3C93 | ≥320                                      | –                                                 | –                                              | –                                              | –                                              |
| E14/R+PLT14/S-3C94 | ≥320                                      | –                                                 | –                                              | –                                              | –                                              |
| E14/R+PLT14/S-3C96 | ≥340                                      | –                                                 | –                                              | –                                              | –                                              |
| E14/R+PLT14/S-3F3  | ≥300                                      | –                                                 | –                                              | –                                              | –                                              |
| E14/R+PLT14/S-3F35 | ≥300                                      | ≤ 0.027                                           | –                                              | –                                              | –                                              |
| E14/R+PLT14/S-3F4  | ≥250                                      | –                                                 | ≤ 0.07                                         | –                                              | ≤ 0.11                                         |
| E14/R+PLT14/S-3F45 | ≥250                                      | –                                                 | ≤ 0.05                                         | ≤ 0.12                                         | ≤ 0.085                                        |

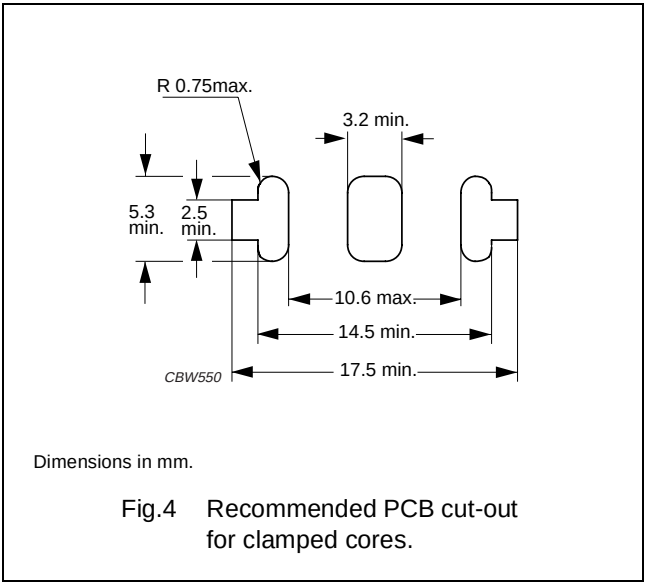
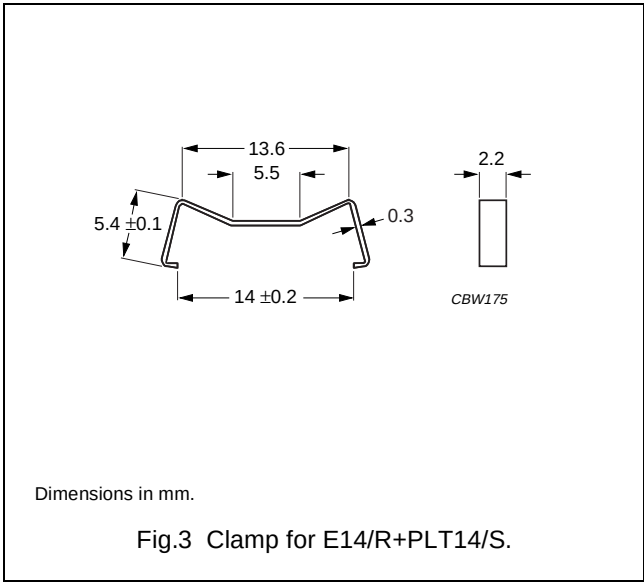
Planar E cores and accessories

E14/3.5/5/R

MOUNTING PARTS

General data and ordering information

| ITEM  | MATERIAL               | FIGURE | TYPE NUMBER   |
|-------|------------------------|--------|---------------|
| Clamp | stainless steel (CrNi) | 3      | CLM-E14/PLT14 |



BLISTER TAPE AND REEL

For blister tape dimensions and construction and reel dimensions, see data sheet "E14/3.5/5".

## Planar E cores and accessories

E14/3.5/5/R

## 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 <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.         |