

# DATA SHEET

**E43/10/28**

**Planar E cores and accessories**

Supersedes data of September 2004

2008 Sep 01

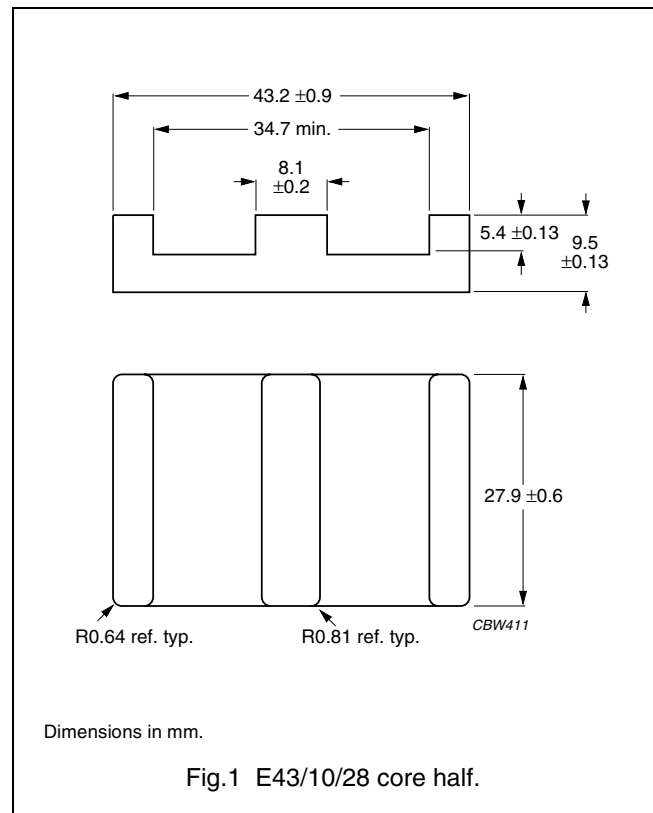


**FERROXCUBE**  
A YAGEO COMPANY

**CORES**

**Effective core parameters of a set of E cores**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.276	mm <sup>-1</sup>
$V_e$	effective volume	13900	mm <sup>3</sup>
$l_e$	effective length	61.1	mm
$A_e$	effective area	229	mm <sup>2</sup>
$A_{min}$	minimum area	229	mm <sup>2</sup>
m	mass of core half	≈ 35	g

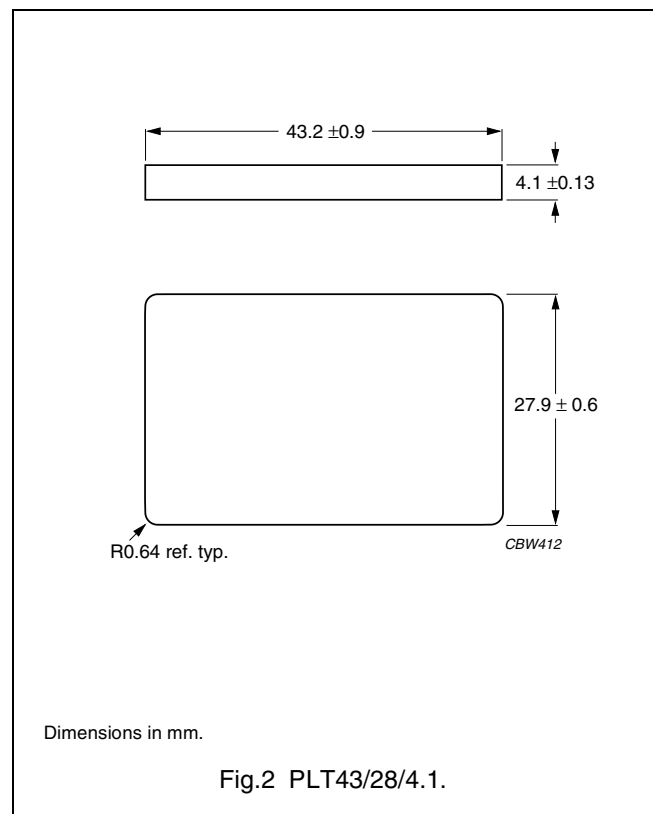


**Effective core parameters of an E/PLT combination**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.226	mm <sup>-1</sup>
$V_e$	effective volume	11500	mm <sup>3</sup>
$l_e$	effective length	50.4	mm
$A_e$	effective area	229	mm <sup>2</sup>
$A_{min}$	minimum area	229	mm <sup>2</sup>
m	mass of core half	≈ 24	g

**Ordering information**

GRADE	TYPE NUMBER
3C90	PLT43/28/4.1-3C90
3C92 <small>des</small>	PLT43/28/4.1-3C92
3C93 <small>des</small>	PLT43/28/4.1-3C93
3C94	PLT43/28/4.1-3C94
3C95 <small>des</small>	PLT43/28/4.1-3C95
3F3	PLT43/28/4.1-3F3
3F4 <small>des</small>	PLT43/28/4.1-3F4



## Planar E cores and accessories

E43/10/28

**Core halves for use in combination with an E core**

$A_L$  measured in combination with a non-gapped core half, clamping force for  $A_L$  measurements,  $40 \pm 20$  N, unless stated otherwise.

GRADE	$A_L$ (nH)	$\mu_e$	TOTAL AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3C90	$250 \pm 3\%^{(1)}$	$\approx 55$	$\approx 1100$	E43/10/28-3C90-E250-E
	$315 \pm 3\%^{(1)}$	$\approx 69$	$\approx 800$	E43/10/28-3C90-E315-E
	$400 \pm 3\%^{(1)}$	$\approx 87$	$\approx 700$	E43/10/28-3C90-E400-E
	$630 \pm 5\%$	$\approx 138$	$\approx 400$	E43/10/28-3C90-A630-E
	$1000 \pm 10\%$	$\approx 219$	$\approx 250$	E43/10/28-3C90-A1000-E
	$8030 \pm 25\%$	$\approx 1710$	$\approx 0$	E43/10/28-3C90
3C92 <small>des</small>	$6300 \pm 25\%$	$\approx 1380$	$\approx 0$	E43/10/28-3C92
3C93 <small>des</small>	$7310 \pm 25\%$	$\approx 1610$	$\approx 0$	E43/10/28-3C93
3C94	$250 \pm 3\%^{(1)}$	$\approx 55$	$\approx 1100$	E43/10/28-3C94-E250-E
	$315 \pm 3\%^{(1)}$	$\approx 69$	$\approx 800$	E43/10/28-3C94-E315-E
	$400 \pm 3\%^{(1)}$	$\approx 87$	$\approx 700$	E43/10/28-3C94-E400-E
	$630 \pm 5\%$	$\approx 138$	$\approx 400$	E43/10/28-3C94-A630-E
	$1000 \pm 10\%$	$\approx 219$	$\approx 250$	E43/10/28-3C94-A1000-E
	$8030 \pm 25\%$	$\approx 1710$	$\approx 0$	E43/10/28-3C94
3C95 <small>des</small>	$9700 \pm 25\%$	$\approx 2060$	$\approx 0$	E43/10/28-3C95
3F3	$250 \pm 3\%^{(1)}$	$\approx 55$	$\approx 1100$	E43/10/28-3F3-E250-E
	$315 \pm 3\%^{(1)}$	$\approx 69$	$\approx 800$	E43/10/28-3F3-E315-E
	$400 \pm 3\%^{(1)}$	$\approx 87$	$\approx 700$	E43/10/28-3F3-E400-E
	$630 \pm 5\%$	$\approx 138$	$\approx 400$	E43/10/28-3F3-A630-E
	$1000 \pm 10\%$	$\approx 219$	$\approx 250$	E43/10/28-3F3-A1000-E
	$7310 \pm 25\%$	$\approx 1600$	$\approx 0$	E43/10/28-3F3
3F4 <small>des</small>	$250 \pm 3\%^{(1)}$	$\approx 55$	$\approx 1100$	E43/10/28-3F4-E250-E
	$315 \pm 3\%^{(1)}$	$\approx 69$	$\approx 800$	E43/10/28-3F4-E315-E
	$400 \pm 3\%^{(1)}$	$\approx 87$	$\approx 700$	E43/10/28-3F4-E400-E
	$630 \pm 5\%$	$\approx 138$	$\approx 400$	E43/10/28-3F4-A630-E
	$1000 \pm 10\%$	$\approx 219$	$\approx 250$	E43/10/28-3F4-A1000-E
	$3860 \pm 25\%$	$\approx 850$	$\approx 0$	E43/10/28-3F4

**Note**

1. Measured in combination with an equal gapped E core half, clamping force for  $A_L$  measurements,  $40 \pm 20$  N.

Planar E cores and accessories

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

$A_L$  measured in combination with a plate (PLT), clamping force for  $A_L$  measurements,  $40 \pm 20$  N.

GRADE	$A_L$ (nH)	$\mu_e$	AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3C90	250 $\pm 3\%$	$\approx 45$	$\approx 1100$	E43/10/28-3C90-A250-P
	315 $\pm 3\%$	$\approx 57$	$\approx 800$	E43/10/28-3C90-A315-P
	400 $\pm 3\%$	$\approx 72$	$\approx 700$	E43/10/28-3C90-A400-P
	630 $\pm 5\%$	$\approx 113$	$\approx 400$	E43/10/28-3C90-A630-P
	1000 $\pm 10\%$	$\approx 180$	$\approx 250$	E43/10/28-3C90-A1000-P
	9250 $\pm 25\%$	$\approx 1710$	$\approx 0$	E43/10/28-3C90
3C92 <small>des</small>	7460 $\pm 25\%$	$\approx 1340$	$\approx 0$	E43/10/28-3C92
3C93 <small>des</small>	8700 $\pm 25\%$	$\approx 1560$	$\approx 0$	E43/10/28-3C93
3C94	250 $\pm 3\%$	$\approx 45$	$\approx 1100$	E43/10/28-3C94-A250-P
	315 $\pm 3\%$	$\approx 57$	$\approx 800$	E43/10/28-3C94-A315-P
	400 $\pm 3\%$	$\approx 72$	$\approx 700$	E43/10/28-3C94-A400-P
	630 $\pm 5\%$	$\approx 113$	$\approx 400$	E43/10/28-3C94-A630-P
	1000 $\pm 10\%$	$\approx 180$	$\approx 250$	E43/10/28-3C94-A1000-P
	9250 $\pm 25\%$	$\approx 1710$	$\approx 0$	E43/10/28-3C94
3C95 <small>des</small>	11060 $\pm 25\%$	$\approx 1940$	$\approx 0$	E43/10/28-3C95
3F3	250 $\pm 3\%$	$\approx 45$	$\approx 1100$	E43/10/28-3F3-A250-P
	315 $\pm 3\%$	$\approx 57$	$\approx 800$	E43/10/28-3F3-A315-P
	400 $\pm 3\%$	$\approx 72$	$\approx 700$	E43/10/28-3F3-A400-P
	630 $\pm 5\%$	$\approx 113$	$\approx 400$	E43/10/28-3F3-A630-P
	1000 $\pm 10\%$	$\approx 180$	$\approx 250$	E43/10/28-3F3-A1000-P
	8700 $\pm 25\%$	$\approx 1560$	$\approx 0$	E43/10/28-3F3
3F4 <small>des</small>	250 $\pm 3\%$	$\approx 45$	$\approx 1100$	E43/10/28-3F4-A250-P
	315 $\pm 3\%$	$\approx 57$	$\approx 800$	E43/10/28-3F4-A315-P
	400 $\pm 3\%$	$\approx 72$	$\approx 700$	E43/10/28-3F4-A400-P
	630 $\pm 5\%$	$\approx 113$	$\approx 400$	E43/10/28-3F4-A630-P
	1000 $\pm 10\%$	$\approx 180$	$\approx 250$	E43/10/28-3F4-A1000-P
	4660 $\pm 25\%$	$\approx 850$	$\approx 0$	E43/10/28-3F4

## Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 10 kHz; T = 100 °C	f = 100 kHz; $\hat{B}$ = 100 mT; T = 100 °C	f = 100 kHz; $\hat{B}$ = 200 mT; T = 25 °C	f = 100 kHz; $\hat{B}$ = 200 mT; T = 100 °C	f = 400 kHz; $\hat{B}$ = 50 mT; T = 100 °C
E+E43-3C90	≥320	≤ 1.8	–	–	–
E+PLT43-3C90	≥320	≤ 1.5	–	–	–
E+E43-3C92	≥370	≤ 1.4	–	≤ 8.0	–
E+PLT43-3C92	≥370	≤ 1.2	–	≤ 7.0	–
E+E43-3C93	≥320	≤ 1.4 <sup>(1)</sup>	–	≤ 8.0 <sup>(1)</sup>	–
E+PLT43-3C93	≥320	≤ 1.2 <sup>(1)</sup>	–	≤ 7.0 <sup>(1)</sup>	–
E+E43-3C94	≥320	≤ 1.4	–	≤ 8.0	–
E+PLT43-3C94	≥320	≤ 1.2	–	≤ 7.0	–
E+E43-3C95	≥320	–	≤ 8.76	≤ 8.34	–
E+PLT43-3C95	≥320	–	≤ 7.25	≤ 6.9	–
E+E43-3F3	≥300	≤ 1.8	–	–	≤ 2.7
E+PLT43-3F3	≥300	≤ 1.5	–	–	≤ 2.25
E+E43-3F4	≥250	–	–	–	–
E+PLT43-3F4	≥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; f = 10 kHz; T = 100 °C	f = 500 kHz; $\hat{B}$ = 50 mT; T = 100 °C	f = 500 kHz; $\hat{B}$ = 100 mT; T = 100 °C	f = 1 MHz; $\hat{B}$ = 30 mT; T = 100 °C	f = 3 MHz; $\hat{B}$ = 10 mT; T = 100 °C
E+E43-3F4	≥250	–	–	≤ 4.2	≤ 6.5
E+PLT43-3F4	≥250	–	–	≤ 3.5	≤ 5.5

**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**

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<b>Design-in</b>		These products are recommended for new designs.
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