

# DATA SHEET

**E32/6/20**

**Planar E cores and accessories**

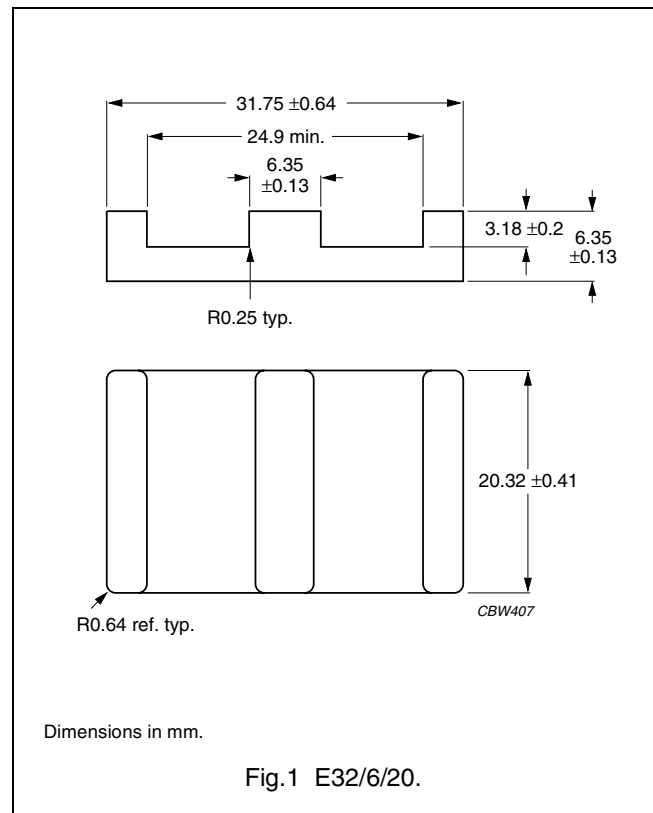
Supersedes data of September 2004

2008 Sep 01

**CORES**

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

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.323	mm <sup>-1</sup>
$V_e$	effective volume	5380	mm <sup>3</sup>
$l_e$	effective length	41.4	mm
$A_e$	effective area	130	mm <sup>2</sup>
$A_{min}$	minimum area	130	mm <sup>2</sup>
m	mass of core half	≈ 13	g

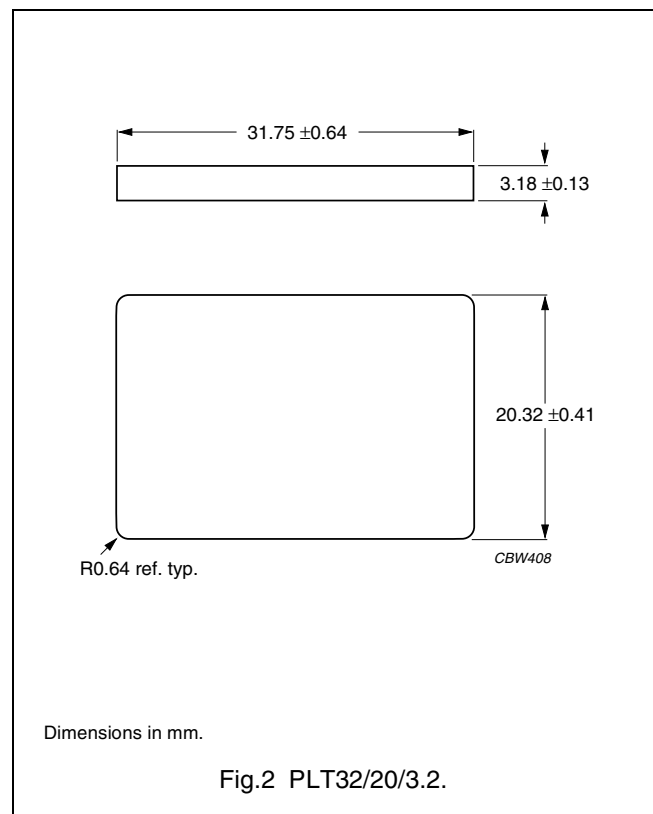


**Effective core parameters of an E/PLT combination**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.278	mm <sup>-1</sup>
$V_e$	effective volume	4560	mm <sup>3</sup>
$l_e$	effective length	35.1	mm
$A_e$	effective area	130	mm <sup>2</sup>
$A_{min}$	minimum area	130	mm <sup>2</sup>
m	mass of plate	≈ 10	g

**Ordering information for plates**

GRADE	TYPE NUMBER
3C90	PLT32/20/3.2-3C90
3C92 <small>des</small>	PLT32/20/3.2-3C92
3C93 <small>des</small>	PLT32/20/3.2-3C93
3C94	PLT32/20/3.2-3C94
3C95 <small>des</small>	PLT32/20/3.2-3C95
3C96 <small>des</small>	PLT32/20/3.2-3C96
3F3	PLT32/20/3.2-3F3
3F4 <small>des</small>	PLT32/20/3.2-3F4



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**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,  $30 \pm 10$  N, unless stated otherwise.

GRADE	$A_L$ (nH)	$\mu_e$	TOTAL AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3C90	$160 \pm 3\%^{(1)}$	$\approx 41$	$\approx 1200$	E32/6/20-3C90-E160-E
	$250 \pm 3\%^{(1)}$	$\approx 64$	$\approx 700$	E32/6/20-3C90-E250-E
	$315 \pm 3\%$	$\approx 81$	$\approx 550$	E32/6/20-3C90-A315-E
	$400 \pm 5\%$	$\approx 103$	$\approx 450$	E32/6/20-3C90-A400-E
	$630 \pm 8\%$	$\approx 162$	$\approx 260$	E32/6/20-3C90-A630-E
	$6425 \pm 25\%$	$\approx 1650$	$\approx 0$	E32/6/20-3C90
3C92 <b>des</b>	$5000 \pm 25\%$	$\approx 1290$	$\approx 0$	E32/6/20-3C92
3C93 <b>des</b>	$5900 \pm 25\%$	$\approx 1520$	$\approx 0$	E32/6/20-3C93
3C94	$160 \pm 3\%^{(1)}$	$\approx 41$	$\approx 1200$	E32/6/20-3C94-E160-E
	$250 \pm 3\%^{(1)}$	$\approx 64$	$\approx 700$	E32/6/20-3C94-E250-E
	$315 \pm 3\%$	$\approx 81$	$\approx 550$	E32/6/20-3C94-A315-E
	$400 \pm 5\%$	$\approx 103$	$\approx 450$	E32/6/20-3C94-A400-E
	$630 \pm 8\%$	$\approx 162$	$\approx 260$	E32/6/20-3C94-A630-E
	$6425 \pm 25\%$	$\approx 1650$	$\approx 0$	E32/6/20-3C94
3C95 <b>des</b>	$7690 \pm 25\%$	$\approx 1950$	$\approx 0$	E32/6/20-3C95
3C96 <b>des</b>	$6425 \pm 25\%$	$\approx 1650$	$\approx 0$	E32/6/20-3C96
3F3	$160 \pm 3\%^{(1)}$	$\approx 41$	$\approx 1200$	E32/6/20-3F3-E160-E
	$250 \pm 3\%^{(1)}$	$\approx 64$	$\approx 700$	E32/6/20-3F3-E250-E
	$315 \pm 3\%$	$\approx 81$	$\approx 550$	E32/6/20-3F3-A315-E
	$400 \pm 5\%$	$\approx 103$	$\approx 450$	E32/6/20-3F3-A400-E
	$630 \pm 8\%$	$\approx 162$	$\approx 260$	E32/6/20-3F3-A630-E
	$5900 \pm 25\%$	$\approx 1520$	$\approx 0$	E32/6/20-3F3
3F4 <b>des</b>	$160 \pm 3\%^{(1)}$	$\approx 41$	$\approx 1200$	E32/6/20-3F4-E160-E
	$250 \pm 3\%^{(1)}$	$\approx 64$	$\approx 700$	E32/6/20-3F4-E250-E
	$315 \pm 3\%$	$\approx 81$	$\approx 550$	E32/6/20-3F4-A315-E
	$400 \pm 5\%$	$\approx 103$	$\approx 450$	E32/6/20-3F4-A400-E
	$630 \pm 8\%$	$\approx 162$	$\approx 260$	E32/6/20-3F4-A630-E
	$3200 \pm 25\%$	$\approx 820$	$\approx 0$	E32/6/20-3F4

**Note**

1. Measured in combination with an equal gapped E core half, clamping force for  $A_L$  measurements,  $30 \pm 10$  N.

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**Core halves for use in combination with a plate (PLT)**A<sub>L</sub> measured in combination with a plate (PLT), clamping force for A<sub>L</sub> measurements, 30 ±10 N.

GRADE	A <sub>L</sub> (nH)	μ <sub>e</sub>	AIR GAP (μm)	TYPE NUMBER
3C90	160 ±3%	≈ 35	≈ 1200	E32/6/20-3C90-A160-P
	250 ±3%	≈ 55	≈ 700	E32/6/20-3C90-A250-P
	315 ±3%	≈ 69	≈ 550	E32/6/20-3C90-A315-P
	400 ±5%	≈ 87	≈ 450	E32/6/20-3C90-A400-P
	630 ±8%	≈ 138	≈ 260	E32/6/20-3C90-A630-P
	7350 ±25%	≈ 1610	≈ 0	E32/6/20-3C90
3C92 <small>des</small>	5760 ±25%	≈ 1270	≈ 0	E32/6/20-3C92
3C93 <small>des</small>	6780 ±25%	≈ 1500	≈ 0	E32/6/20-3C93
3C94	160 ±3%	≈ 35	≈ 1200	E32/6/20-3C94-A160-P
	250 ±3%	≈ 55	≈ 700	E32/6/20-3C94-A250-P
	315 ±3%	≈ 69	≈ 550	E32/6/20-3C94-A315-P
	400 ±5%	≈ 87	≈ 450	E32/6/20-3C94-A400-P
	630 ±8%	≈ 138	≈ 260	E32/6/20-3C94-A630-P
	7350 ±25%	≈ 1610	≈ 0	E32/6/20-3C94
3C95 <small>des</small>	8750 ±25%	≈ 1880	≈ 0	E32/6/20-3C95
3C96 <small>des</small>	7350 ±25%	≈ 1610	≈ 0	E32/6/20-3C96
3F3	160 ±3%	≈ 35	≈ 1200	E32/6/20-3F3-A160-P
	250 ±3%	≈ 55	≈ 700	E32/6/20-3F3-A250-P
	315 ±3%	≈ 69	≈ 550	E32/6/20-3F3-A315-P
	400 ±5%	≈ 87	≈ 450	E32/6/20-3F3-A400-P
	630 ±8%	≈ 138	≈ 260	E32/6/20-3F3-A630-P
	6780 ±25%	≈ 1490	≈ 0	E32/6/20-3F3
3F4 <small>des</small>	160 ±3%	≈ 35	≈ 1200	E32/6/20-3F4-A160-P
	250 ±3%	≈ 55	≈ 700	E32/6/20-3F4-A250-P
	315 ±3%	≈ 69	≈ 550	E32/6/20-3F4-A315-P
	400 ±5%	≈ 87	≈ 450	E32/6/20-3F4-A400-P
	630 ±8%	≈ 138	≈ 260	E32/6/20-3F4-A630-P
	3700 ±25%	≈ 810	≈ 0	E32/6/20-3F4

## 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+E32-3C90	≥320	≤ 0.65	–	–	–
E+PLT32-3C90	≥320	≤ 0.55	–	–	–
E+E32-3C92	≥370	≤ 0.48	–	≤ 3.4	–
E+PLT32-3C92	≥370	≤ 0.41	–	≤ 2.9	–
E+E32-3C93	≥320	≤ 0.48 <sup>(1)</sup>	–	≤ 3.4 <sup>(1)</sup>	–
E+PLT32-3C93	≥320	≤ 0.41 <sup>(1)</sup>	–	≤ 2.9 <sup>(1)</sup>	–
E+E32-3C94	≥320	≤ 0.48	–	≤ 3.4	–
E+PLT32-3C94	≥320	≤ 0.41	–	≤ 2.9	–
E+E32-3C95	≥320	–	≤ 3.17	≤ 3.0	–
E+PLT32-3C95	≥320	–	≤ 2.69	≤ 2.55	–
E+E32-3C96	≥320	≤ 0.36	–	≤ 2.6	≤ 0.9
E+PLT32-3C96	≥320	≤ 0.3	–	≤ 2.2	≤ 0.8
E+E32-3F3	≥300	≤ 0.65	–	–	≤ 1.0
E+PLT32-3F3	≥300	≤ 0.6	–	–	≤ 0.85
E+E32-3F4	≥250	–	–	–	–
E+PLT32-3F4	≥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+E32-3C96	≥320	≤ 2.0	–	–	–
E+PLT32-3C96	≥320	≤ 1.7	–	–	–
E+E32-3F3	≥300	–	–	–	–
E+PLT32-3F3	≥300	–	–	–	–
E+E32-3F4	≥250	–	–	≤ 1.6	≤ 2.5
E+PLT32-3F4	≥250	–	–	≤ 1.36	≤ 2.2

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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**

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<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.