

DATA SHEET

E32/6/20

Planar E cores and accessories

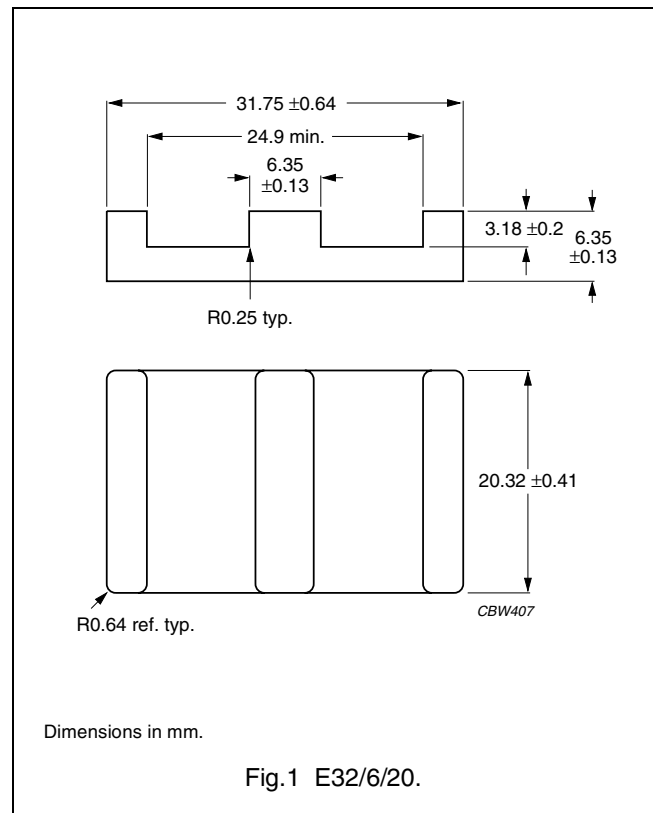
Supersedes data of September 2004

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 ⁻¹
V_e	effective volume	5380	mm ³
l_e	effective length	41.4	mm
A_e	effective area	130	mm ²
A_{min}	minimum area	130	mm ²
m	mass of core half	≈ 13	g

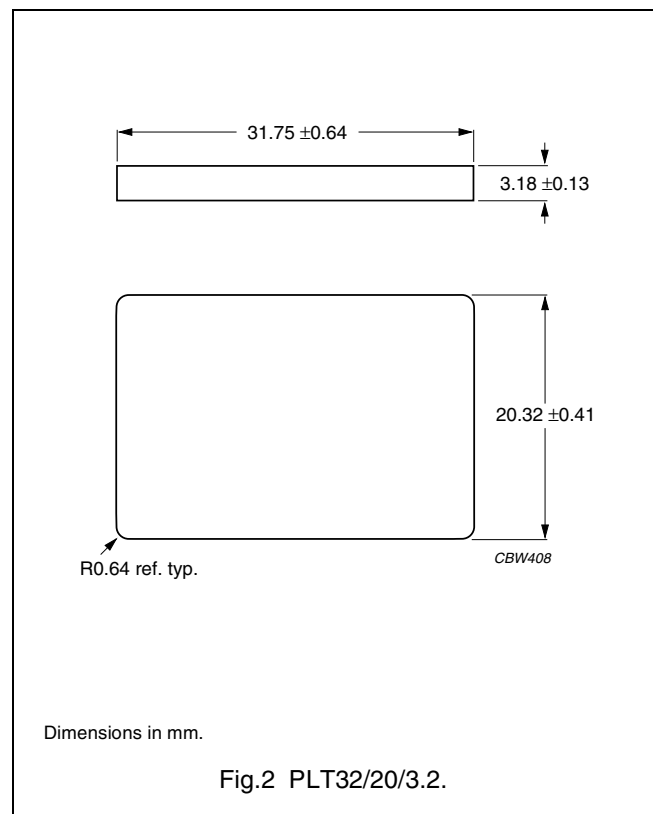


Effective core parameters of an E/PLT combination

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.278	mm ⁻¹
V_e	effective volume	4560	mm ³
l_e	effective length	35.1	mm
A_e	effective area	130	mm ²
A_{min}	minimum area	130	mm ²
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 ± 10 N, unless stated otherwise.

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

Note

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

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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, 30 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	160 $\pm 3\%$	≈ 35	≈ 1200	E32/6/20-3C90-A160-P
	250 $\pm 3\%$	≈ 55	≈ 700	E32/6/20-3C90-A250-P
	315 $\pm 3\%$	≈ 69	≈ 550	E32/6/20-3C90-A315-P
	400 $\pm 5\%$	≈ 87	≈ 450	E32/6/20-3C90-A400-P
	630 $\pm 8\%$	≈ 138	≈ 260	E32/6/20-3C90-A630-P
	7350 $\pm 25\%$	≈ 1610	≈ 0	E32/6/20-3C90
3C92 des	5760 $\pm 25\%$	≈ 1270	≈ 0	E32/6/20-3C92
3C93 des	6780 $\pm 25\%$	≈ 1500	≈ 0	E32/6/20-3C93
3C94	160 $\pm 3\%$	≈ 35	≈ 1200	E32/6/20-3C94-A160-P
	250 $\pm 3\%$	≈ 55	≈ 700	E32/6/20-3C94-A250-P
	315 $\pm 3\%$	≈ 69	≈ 550	E32/6/20-3C94-A315-P
	400 $\pm 5\%$	≈ 87	≈ 450	E32/6/20-3C94-A400-P
	630 $\pm 8\%$	≈ 138	≈ 260	E32/6/20-3C94-A630-P
	7350 $\pm 25\%$	≈ 1610	≈ 0	E32/6/20-3C94
3C95 des	8750 $\pm 25\%$	≈ 1880	≈ 0	E32/6/20-3C95
3C96 des	7350 $\pm 25\%$	≈ 1610	≈ 0	E32/6/20-3C96
3F3	160 $\pm 3\%$	≈ 35	≈ 1200	E32/6/20-3F3-A160-P
	250 $\pm 3\%$	≈ 55	≈ 700	E32/6/20-3F3-A250-P
	315 $\pm 3\%$	≈ 69	≈ 550	E32/6/20-3F3-A315-P
	400 $\pm 5\%$	≈ 87	≈ 450	E32/6/20-3F3-A400-P
	630 $\pm 8\%$	≈ 138	≈ 260	E32/6/20-3F3-A630-P
	6780 $\pm 25\%$	≈ 1490	≈ 0	E32/6/20-3F3
3F4 des	160 $\pm 3\%$	≈ 35	≈ 1200	E32/6/20-3F4-A160-P
	250 $\pm 3\%$	≈ 55	≈ 700	E32/6/20-3F4-A250-P
	315 $\pm 3\%$	≈ 69	≈ 550	E32/6/20-3F4-A315-P
	400 $\pm 5\%$	≈ 87	≈ 450	E32/6/20-3F4-A400-P
	630 $\pm 8\%$	≈ 138	≈ 260	E32/6/20-3F4-A630-P
	3700 $\pm 25\%$	≈ 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 ⁽¹⁾	–	≤ 3.4 ⁽¹⁾	–
E+PLT32-3C93	≥320	≤ 0.41 ⁽¹⁾	–	≤ 2.9 ⁽¹⁾	–
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

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.