

# DATA SHEET

**E38/8/25**

Planar E cores and accessories

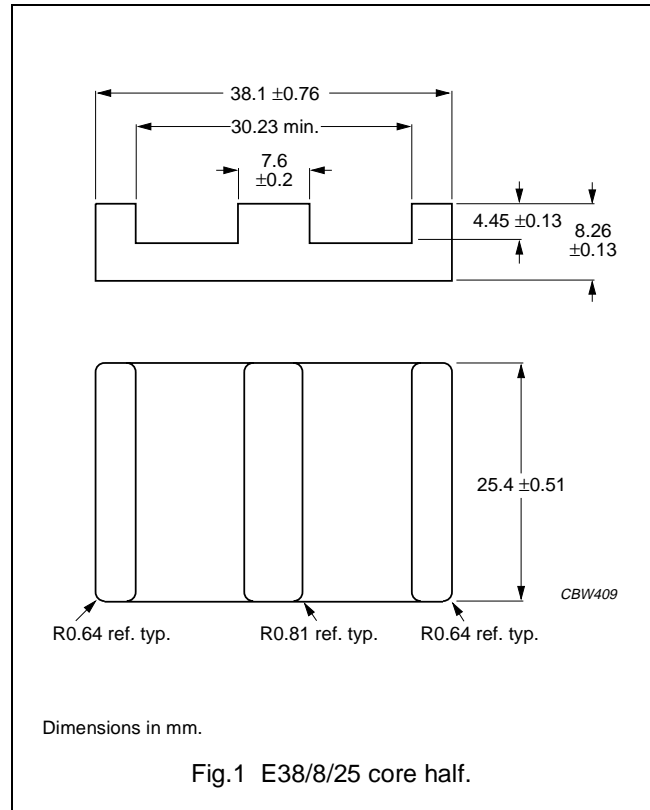
Supersedes data of February 2002

2004 Sep 01

**CORES**

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

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.272	mm <sup>-1</sup>
$V_e$	effective volume	10200	mm <sup>3</sup>
$l_e$	effective length	52.4	mm
$A_e$	effective area	194	mm <sup>2</sup>
$A_{min}$	minimum area	194	mm <sup>2</sup>
$m$	mass of core half	≈ 25	g

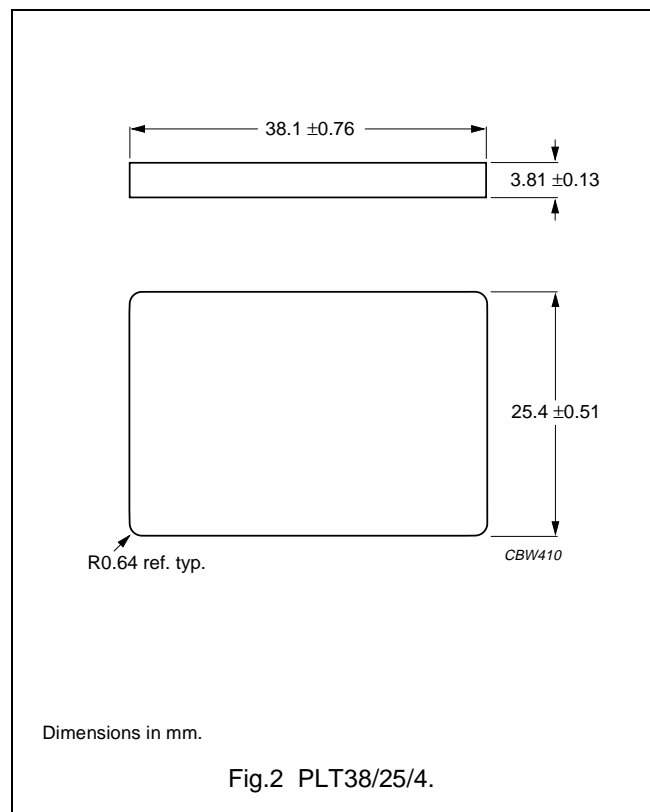


**Effective core parameters of an E/PLT combination**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.226	mm <sup>-1</sup>
$V_e$	effective volume	8460	mm <sup>3</sup>
$l_e$	effective length	43.7	mm
$A_e$	effective area	194	mm <sup>2</sup>
$A_{min}$	minimum area	194	mm <sup>2</sup>
$m$	mass of plate	≈ 18	g

**Ordering information for plates**

GRADE	TYPE NUMBER
3C90	PLT38/25/4-3C90
3C92 <small>des</small>	PLT38/25/4-3C92
3C93 <small>des</small>	PLT38/25/4-3C93
3C94	PLT38/25/4-3C94
3F3	PLT38/25/4-3F3
3F4 <small>des</small>	PLT38/25/4-3F4



## Planar E cores and accessories

E38/8/25

**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,  $40 \pm 15$  N, unless stated otherwise.

GRADE	$A_L$ (nH)	$\mu_e$	AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3C90	$250 \pm 3\%^{(1)}$	$\approx 54$	$\approx 1100$	E38/8/25-3C90-E250-E
	$315 \pm 3\%^{(1)}$	$\approx 68$	$\approx 850$	E38/8/25-3C90-E315-E
	$400 \pm 3\%^{(1)}$	$\approx 86$	$\approx 650$	E38/8/25-3C90-E400-E
	$630 \pm 5\%$	$\approx 136$	$\approx 400$	E38/8/25-3C90-A630-E
	$1000 \pm 10\%$	$\approx 216$	$\approx 250$	E38/8/25-3C90-A1000-E
	$7940 \pm 25\%$	$\approx 1720$	$\approx 0$	E38/8/25-3C90
3C92 <small>des</small>	$6100 \pm 25\%$	$\approx 1320$	$\approx 0$	E38/8/25-3C92
3C93 <small>des</small>	$7250 \pm 25\%$	$\approx 1570$	$\approx 0$	E38/8/25-3C93
3C94	$250 \pm 3\%^{(1)}$	$\approx 54$	$\approx 1100$	E38/8/25-3C94-E250-E
	$315 \pm 3\%^{(1)}$	$\approx 68$	$\approx 850$	E38/8/25-3C94-E315-E
	$400 \pm 3\%^{(1)}$	$\approx 86$	$\approx 650$	E38/8/25-3C94-E400-E
	$630 \pm 5\%$	$\approx 136$	$\approx 400$	E38/8/25-3C94-A630-E
	$1000 \pm 10\%$	$\approx 216$	$\approx 250$	E38/8/25-3C94-A1000-E
	$7940 \pm 25\%$	$\approx 1720$	$\approx 0$	E38/8/25-3C94
3F3	$250 \pm 3\%^{(1)}$	$\approx 54$	$\approx 1100$	E38/8/25-3F3-E250-E
	$315 \pm 3\%^{(1)}$	$\approx 68$	$\approx 850$	E38/8/25-3F3-E315-E
	$400 \pm 3\%^{(1)}$	$\approx 86$	$\approx 650$	E38/8/25-3F3-E400-E
	$630 \pm 5\%$	$\approx 136$	$\approx 400$	E38/8/25-3F3-A630-E
	$1000 \pm 10\%$	$\approx 216$	$\approx 250$	E38/8/25-3F3-A1000-E
	$7250 \pm 25\%$	$\approx 1570$	$\approx 0$	E38/8/25-3F3
3F4 <small>des</small>	$250 \pm 3\%^{(1)}$	$\approx 54$	$\approx 1100$	E38/8/25-3F4-E250-E
	$315 \pm 3\%^{(1)}$	$\approx 68$	$\approx 850$	E38/8/25-3F4-E315-E
	$400 \pm 3\%^{(1)}$	$\approx 86$	$\approx 650$	E38/8/25-3F4-E400-E
	$630 \pm 5\%$	$\approx 136$	$\approx 400$	E38/8/25-3F4-A630-E
	$1000 \pm 10\%$	$\approx 216$	$\approx 250$	E38/8/25-3F4-A1000-E
	$3880 \pm 25\%$	$\approx 840$	$\approx 0$	E38/8/25-3F4

**Note**

1. Measured in combination with an equal gapped core half, clamping force for  $A_L$  measurements,  $40 \pm 15$  N.

## Planar E cores and accessories

E38/8/25

**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, 40 ±15 N.

GRADE	A <sub>L</sub> (nH)	μ <sub>e</sub>	AIR GAP (μm)	TYPE NUMBER
3C90	250 ±3%	≈ 45	≈ 1100	E38/8/25-3C90-A250-P
	315 ±3%	≈ 57	≈ 850	E38/8/25-3C90-A315-P
	400 ±3%	≈ 72	≈ 650	E38/8/25-3C90-A400-P
	630 ±5%	≈ 113	≈ 400	E38/8/25-3C90-A630-P
	1000 ±10%	≈ 180	≈ 250	E38/8/25-3C90-A1000-P
	9250 ±25%	≈ 1660	≈ 0	E38/8/25-3C90
3C92 <small>des</small>	7150 ±25%	≈ 1290	≈ 0	E38/8/25-3C92
3C93 <small>des</small>	8500 ±25%	≈ 1530	≈ 0	E38/8/25-3C93
3C94	250 ±3%	≈ 45	≈ 1100	E38/8/25-3C94-A250-P
	315 ±3%	≈ 57	≈ 850	E38/8/25-3C94-A315-P
	400 ±3%	≈ 72	≈ 650	E38/8/25-3C94-A400-P
	630 ±5%	≈ 113	≈ 400	E38/8/25-3C94-A630-P
	1000 ±10%	≈ 180	≈ 250	E38/8/25-3C94-A1000-P
	9250 ±25%	≈ 1660	≈ 0	E38/8/25-3C94
3F3	250 ±3%	≈ 45	≈ 1100	E38/8/25-3F3-A250-P
	315 ±3%	≈ 57	≈ 850	E38/8/25-3F3-A315-P
	400 ±3%	≈ 72	≈ 650	E38/8/25-3F3-A400-P
	630 ±5%	≈ 113	≈ 400	E38/8/25-3F3-A630-P
	1000 ±10%	≈ 180	≈ 250	E38/8/25-3F3-A1000-P
	8500 ±25%	≈ 1520	≈ 0	E38/8/25-3F3
3F4 <small>des</small>	250 ±3%	≈ 45	≈ 1100	E38/8/25-3F4-A250-P
	315 ±3%	≈ 57	≈ 850	E38/8/25-3F4-A315-P
	400 ±3%	≈ 72	≈ 650	E38/8/25-3F4-A400-P
	630 ±5%	≈ 113	≈ 400	E38/8/25-3F4-A630-P
	1000 ±10%	≈ 180	≈ 250	E38/8/25-3F4-A1000-P
	4600 ±25%	≈ 830	≈ 0	E38/8/25-3F4

## Planar E cores and accessories

E38/8/25

## 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 = 100 °C	f = 400 kHz; $\hat{B}$ = 50 mT; T = 100 °C
E+E38-3C90	≥320	≤ 1.25	–	–
E+PLT38-3C90	≥320	≤ 1.05	–	–
E+E38-3C92	≥370	≤ 1.0	≤ 6.0	–
E+PLT38-3C92	≥370	≤ 0.85	≤ 5.0	–
E+E38-3C93	≥320	≤ 1.0 <sup>(1)</sup>	≤ 6.0 <sup>(1)</sup>	–
E+PLT38-3C93	≥320	≤ 0.85 <sup>(1)</sup>	≤ 5.0 <sup>(1)</sup>	–
E+E38-3C94	≥320	≤ 1.0	≤ 6.0	–
E+PLT38-3C94	≥320	≤ 0.85	≤ 5.0	–
E+E38-3F3	≥300	≤ 1.3	–	≤ 2.0
E+PLT38-3F3	≥300	≤ 1.1	–	≤ 1.65
E+E38-3F4	≥250	–	–	–
E+PLT38-3F4	≥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+E38-3C90	≥320	–	–	–	–
E+PLT38-3C90	≥320	–	–	–	–
E+E38-3C92	≥370	–	–	–	–
E+PLT38-3C92	≥370	–	–	–	–
E+E38-3C93	≥320	–	–	–	–
E+PLT38-3C93	≥320	–	–	–	–
E+E38-3C94	≥320	–	–	–	–
E+PLT38-3C94	≥320	–	–	–	–
E+E38-3F3	≥300	–	–	–	–
E+PLT38-3F3	≥300	–	–	–	–
E+E38-3F4	≥250	–	–	≤ 3.0	≤ 5.0
E+PLT38-3F4	≥250	–	–	≤ 2.5	≤ 4.0

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E38/8/25




## 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.
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<b>Preferred</b>		These products are recommended for use in current designs and are available via our sales channels.
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