

DATA SHEET

E58/11/38

Planar E cores and accessories

Supersedes data of September 2004

2008 Sep 01

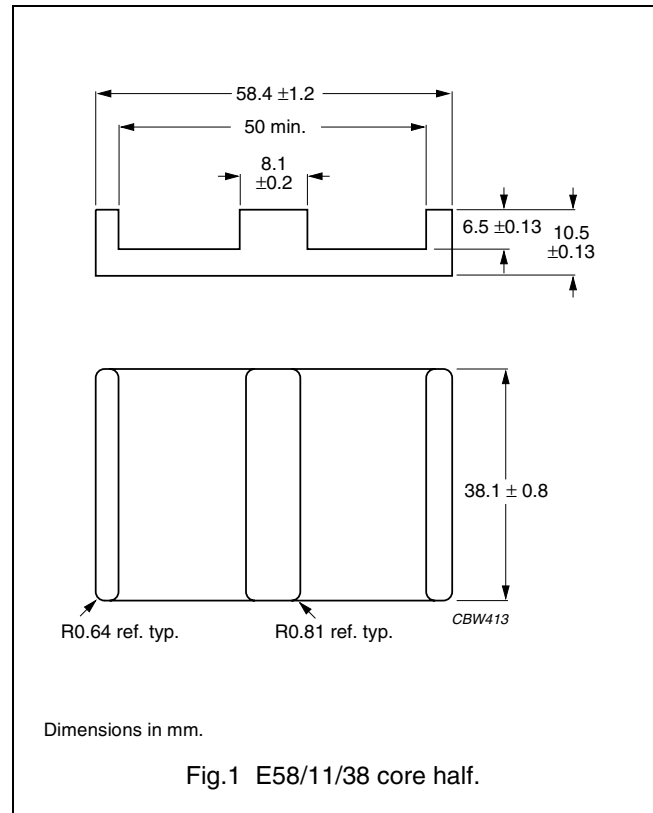


FERROXCUBE
A YAGEO COMPANY

CORES

Effective core parameters of a set of E cores

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.268	mm ⁻¹
V_e	effective volume	24600	mm ³
l_e	effective length	80.6	mm
A_e	effective area	308	mm ²
A_{min}	minimum area	308	mm ²
m	mass of core half	≈ 62	g

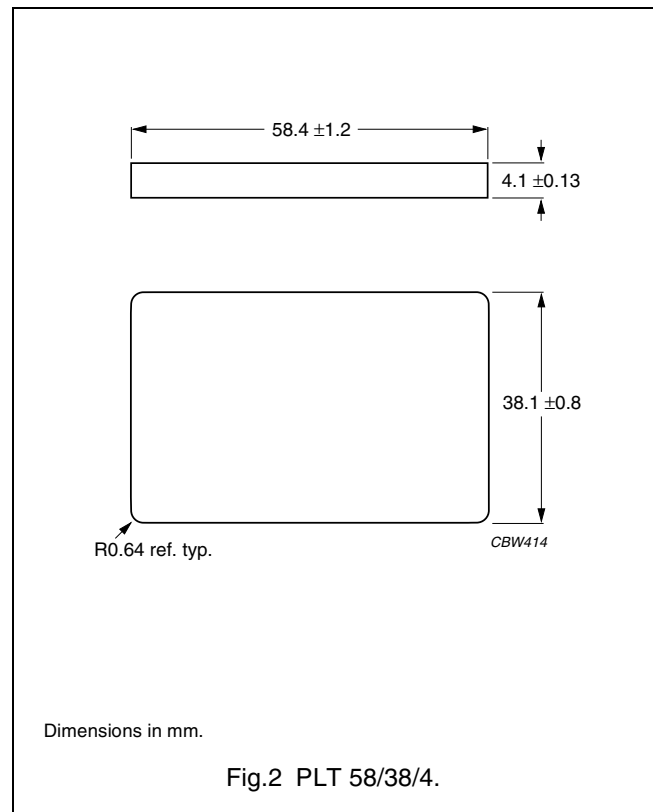


Effective core parameters of an E/PLT combination

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.224	mm ⁻¹
V_e	effective volume	20800	mm ³
l_e	effective length	67.7	mm
A_e	effective area	310	mm ²
A_{min}	minimum area	310	mm ²
m	mass of core half	≈ 44	g

Ordering information for plates

GRADE	TYPE NUMBER
3C90	PLT58/38/4-3C90
3C92 <small>des</small>	PLT58/38/4-3C92
3C93 <small>des</small>	PLT58/38/4-3C93
3C94	PLT58/38/4-3C94
3C95 <small>des</small>	PLT58/38/4-3C95
3F3	PLT58/38/4-3F3
3F4 <small>des</small>	PLT58/38/4-3F4



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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, 40 ± 20 N, unless stated otherwise.

GRADE	A_L (nH)	μ_e	TOTAL AIR GAP (μm)	TYPE NUMBER
3C90	$315 \pm 3\%^{(1)}$	≈ 67	≈ 1400	E58/11/38-3C90-E315-E
	$400 \pm 3\%^{(1)}$	≈ 85	≈ 1100	E58/11/38-3C90-E400-E
	$630 \pm 5\%^{(1)}$	≈ 134	≈ 650	E58/11/38-3C90-E630-E
	$1000 \pm 5\%$	≈ 213	≈ 400	E58/11/38-3C90-A1000-E
	$1600 \pm 10\%$	≈ 341	≈ 200	E58/11/38-3C90-A1600-E
	$8480 \pm 25\%$	≈ 1800	≈ 0	E58/11/38-3C90
3C92 <small>des</small>	$6600 \pm 25\%$	≈ 1410	≈ 0	E58/11/38-3C92
3C93 <small>des</small>	$7710 \pm 25\%$	≈ 1640	≈ 0	E58/11/38-3C93
3C94	$315 \pm 3\%^{(1)}$	≈ 67	≈ 1400	E58/11/38-3C94-E315-E
	$400 \pm 3\%^{(1)}$	≈ 85	≈ 1100	E58/11/38-3C94-E400-E
	$630 \pm 5\%^{(1)}$	≈ 134	≈ 650	E58/11/38-3C94-E630-E
	$1000 \pm 5\%$	≈ 213	≈ 400	E58/11/38-3C94-A1000-E
	$1600 \pm 10\%$	≈ 341	≈ 200	E58/11/38-3C94-A1600-E
	$8480 \pm 25\%$	≈ 1800	≈ 0	E58/11/38-3C94
3C95 <small>des</small>	$10330 \pm 25\%$	≈ 2150	≈ 0	E58/11/38-3C95
3F3	$315 \pm 3\%^{(1)}$	≈ 67	≈ 1400	E58/11/38-3F3-E315-E
	$400 \pm 3\%^{(1)}$	≈ 85	≈ 1100	E58/11/38-3F3-E400-E
	$630 \pm 5\%^{(1)}$	≈ 134	≈ 650	E58/11/38-3F3-E630-E
	$1000 \pm 5\%$	≈ 213	≈ 400	E58/11/38-3F3-A1000-E
	$1600 \pm 10\%$	≈ 341	≈ 200	E58/11/38-3F3-A1600-E
	$7710 \pm 25\%$	≈ 1640	≈ 0	E58/11/38-3F3
3F4 <small>des</small>	$315 \pm 3\%^{(1)}$	≈ 67	≈ 1400	E58/11/38-3F4-E315-E
	$400 \pm 3\%^{(1)}$	≈ 85	≈ 1100	E58/11/38-3F4-E400-E
	$630 \pm 5\%^{(1)}$	≈ 134	≈ 650	E58/11/38-3F4-E630-E
	$1000 \pm 5\%$	≈ 213	≈ 400	E58/11/38-3F4-A1000-E
	$1600 \pm 10\%$	≈ 341	≈ 200	E58/11/38-3F4-A1600-E
	$4030 \pm 25\%$	≈ 860	≈ 0	E58/11/38-3F4

Note

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

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	315 $\pm 3\%$	≈ 56	≈ 1400	E58/11/38-3C90-A315-P
	400 $\pm 3\%$	≈ 71	≈ 1100	E58/11/38-3C90-A400-P
	630 $\pm 5\%$	≈ 112	≈ 650	E58/11/38-3C90-A630-P
	1000 $\pm 5\%$	≈ 178	≈ 400	E58/11/38-3C90-A1000-P
	1600 $\pm 10\%$	≈ 285	≈ 200	E58/11/38-3C90-A1600-P
	9970 $\pm 25\%$	≈ 1780	≈ 0	E58/11/38-3C90
3C92 des	7770 $\pm 25\%$	≈ 1390	≈ 0	E58/11/38-3C92
3C93 des	9070 $\pm 25\%$	≈ 1620	≈ 0	E58/11/38-3C93
3C94	315 $\pm 3\%$	≈ 56	≈ 1400	E58/11/38-3C94-A315-P
	400 $\pm 3\%$	≈ 71	≈ 1100	E58/11/38-3C94-A400-P
	630 $\pm 5\%$	≈ 112	≈ 650	E58/11/38-3C94-A630-P
	1000 $\pm 5\%$	≈ 178	≈ 400	E58/11/38-3C94-A1000-P
	1600 $\pm 10\%$	≈ 285	≈ 200	E58/11/38-3C94-A1600-P
	9970 $\pm 25\%$	≈ 1780	≈ 0	E58/11/38-3C94
3C95 des	12090 $\pm 25\%$	≈ 2100	≈ 0	E58/11/38-3C95
3F3	315 $\pm 3\%$	≈ 56	≈ 1400	E58/11/38-3F3-A315-P
	400 $\pm 3\%$	≈ 71	≈ 1100	E58/11/38-3F3-A400-P
	630 $\pm 5\%$	≈ 112	≈ 650	E58/11/38-3F3-A630-P
	1000 $\pm 5\%$	≈ 178	≈ 400	E58/11/38-3F3-A1000-P
	1600 $\pm 10\%$	≈ 285	≈ 200	E58/11/38-3F3-A1600-P
	9070 $\pm 25\%$	≈ 1620	≈ 0	E58/11/38-3F3
3F4 des	315 $\pm 3\%$	≈ 56	≈ 1400	E58/11/38-3F4-A315-P
	400 $\pm 3\%$	≈ 71	≈ 1100	E58/11/38-3F4-A400-P
	630 $\pm 5\%$	≈ 112	≈ 650	E58/11/38-3F4-A630-P
	1000 $\pm 5\%$	≈ 178	≈ 400	E58/11/38-3F4-A1000-P
	1600 $\pm 10\%$	≈ 285	≈ 200	E58/11/38-3F4-A1600-P
	4780 $\pm 25\%$	≈ 850	≈ 0	E58/11/38-3F4

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+E58-3C90	≥320	≤ 3.0	–	–	–
E+PLT58-3C90	≥320	≤ 2.6	–	–	–
E+E58-3C92	≥370	≤ 2.4	–	≤ 15	–
E+PLT58-3C92	≥370	≤ 2.0	–	≤ 13	–
E+E58-3C93	≥320	≤ 2.4 ⁽¹⁾	–	≤ 15 ⁽¹⁾	–
E+PLT58-3C93	≥320	≤ 2.0 ⁽¹⁾	–	≤ 13 ⁽¹⁾	–
E+E58-3C94	≥320	≤ 2.4	–	≤ 15	–
E+PLT58-3C94	≥320	≤ 2.0	–	≤ 13	–
E+E58-3C95	≥320	–	≤ 15.5	≤ 14.8	–
E+PLT58-3C95	≥320	–	≤ 13.1	≤ 12.5	–
E+E58-3F3	≥300	≤ 3.0	–	–	≤ 4.7
E+PLT58-3F3	≥300	≤ 2.6	–	–	≤ 4.0
E+E58-3F4	≥250	–	–	–	–
E+PLT58-3F4	≥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+E58-3F4	≥250	–	–	≤ 7.4	≤ 12
E+PLT58-3F4	≥250	–	–	≤ 6.25	≤ 10




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.