DATA SHEET

EFD30/15/9
EFD cores and accessories

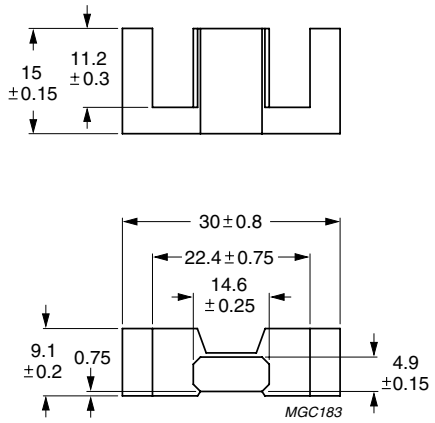
Supersedes data of September 2004 2008 Sep 01

FERROXCUBE
A YAGEO COMPANY

CORES

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.98	mm^{-1}
V_e	effective volume	4700	mm^3
l_e	effective length	68.0	mm
A_e	effective area	69.0	mm^2
A_{min}	minimum area	66.0	mm^2
m	mass of core half	≈ 12	g



Dimensions in mm.

Fig.1 EFD30/15/9 core half.

Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements 70 ±20 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	160 ±3%	≈ 125	≈ 690	EFD30/15/9-3C90-A160
	250 ±3%	≈ 196	≈ 390	EFD30/15/9-3C90-A250
	315 ±5%	≈ 247	≈ 290	EFD30/15/9-3C90-A315
	400 ±8%	≈ 314	≈ 210	EFD30/15/9-3C90-A400
	630 ±10%	≈ 494	≈ 120	EFD30/15/9-3C90-A630
	2100 ±25%	≈ 1720	≈ 0	EFD30/15/9-3C90
3C94	160 ±3%	≈ 125	≈ 690	EFD30/15/9-3C94-A160
	250 ±3%	≈ 196	≈ 390	EFD30/15/9-3C94-A250
	315 ±5%	≈ 247	≈ 290	EFD30/15/9-3C94-A315
	400 ±8%	≈ 314	≈ 210	EFD30/15/9-3C94-A400
	630 ±10%	≈ 494	≈ 120	EFD30/15/9-3C94-A630
	2100 ±25%	≈ 1720	≈ 0	EFD30/15/9-3C94
3C95 des	2520 ±25%	≈ 1980	≈ 0	EFD30/15/9-3C95
3C96 des	1900 ±25%	≈ 1560	≈ 0	EFD30/15/9-3C96

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3F3	160 ±3%	≈ 125	≈ 690	EFD30/15/9-3F3-A160
	250 ±3%	≈ 196	≈ 390	EFD30/15/9-3F3-A250
	315 ±5%	≈ 247	≈ 290	EFD30/15/9-3F3-A315
	400 ±8%	≈ 314	≈ 210	EFD30/15/9-3F3-A400
	630 ±10%	≈ 494	≈ 120	EFD30/15/9-3F3-A630
	1900 ±25%	≈ 1560	≈ 0	EFD30/15/9-3F3
3F35 des	1450 ±25%	≈ 1170	≈ 0	EFD30/15/9-3F35
3F4 des	160 ±3%	≈ 125	≈ 620	EFD30/15/9-3F4-A160
	250 ±3%	≈ 196	≈ 320	EFD30/15/9-3F4-A250
	315 ±5%	≈ 247	≈ 230	EFD30/15/9-3F4-A315
	400 ±8%	≈ 314	≈ 160	EFD30/15/9-3F4-A400
	630 ±10%	≈ 494	≈ 65	EFD30/15/9-3F4-A630
	1000 ±25%	≈ 780	≈ 0	EFD30/15/9-3F4
3F45 prot	1000 ±25%	≈ 780	≈ 0	EFD30/15/9-3F45

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at				
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; $\hat{B}$ = 200 mT; 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
3C90	≥330	≤ 0.50	≤ 0.54	–	–	–
3C94	≥330	–	≤ 0.43	–	≤ 2.6	–
3C95	≥330	–	–	≤ 2.77	≤ 2.63	–
3C96	≥340	–	≤ 0.32	–	≤ 2.0	≤ 0.82
3F35	≥300	–	–	–	–	≤ 0.4
3F3	≥315	–	≤ 0.54	–	–	≤ 0.91
3F4	≥300	–	–	–	–	–

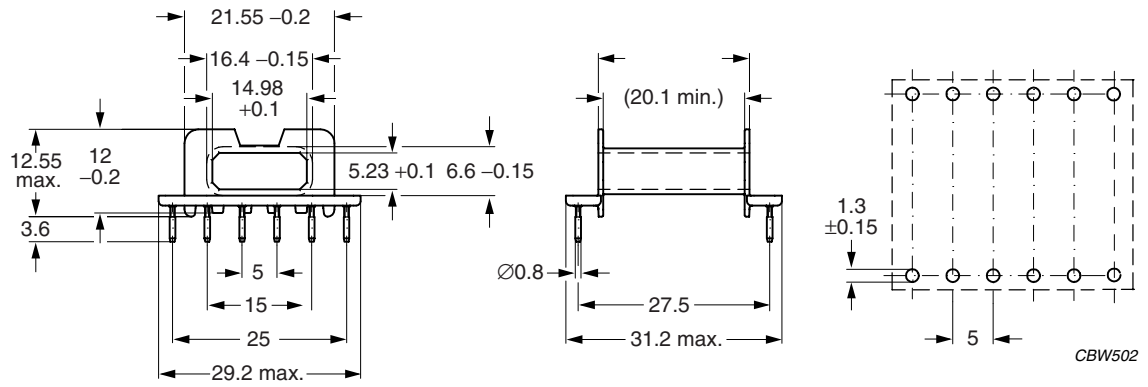
Properties of core sets under power conditions (continued)

GRADE	B (mT) at	CORE LOSS (W) at				
	H = 250 A/m; f = 25 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 = 1 MHz; $\hat{B}$ = 50 mT; T = 100 °C	f = 3 MHz; $\hat{B}$ = 10 mT; T = 100 °C
3C90	≥330	–	–	–	–	–
3C94	≥330	–	–	–	–	–
3C95	≥330	–	–	–	–	–
3C96	≥340	≤ 1.7	–	–	–	–
3F35	≥300	≤ 0.6	≤ 4.5	–	–	–
3F3	≥315	–	–	–	–	–
3F4	≥300	–	–	≤ 1.4	–	≤ 2.2
3F45	≥300	–	–	≤ 1.1	≤ 4.0	≤ 1.8

COIL FORMERS

General data

PARAMETER	SPECIFICATION
Coil former material	phenolformaldehyde (PF), glass-reinforced, flame retardant in accordance with *"UL 94V-0"*; UL file number E167521 (M)
Pin material	copper-tin alloy (CuSn), tin (Sn) plated, see note 1
Maximum operating temperature	180 °C, *"IEC 60085"*, class H
Resistance to soldering heat	*"IEC 60068-2-20"*, Part 2, Test Tb, method 1B, 350 °C, 3.5 s
Solderability	*"IEC 60068-2-20"*, Part 2, Test Ta, method 1: 235 °C, 2 s



Dimensions in mm.

Fig.2 EFD30/15/9 coil former; 12-pins.

Winding data and area product for EFD30/15/9 coil former with 12-pins

NUMBER OF SECTIONS	WINDING AREA (mm^2)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm^4)	TYPE NUMBER
1	52.3	20.1	52.9	3610	CSH-EFD30-1S-12P(1)

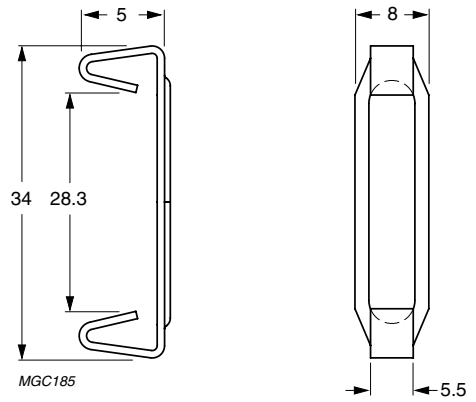
Note

1. Also available with post-inserted pins.

MOUNTING PARTS

General data

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clip	stainless steel (CrNi); clamping force ≈35 N	3	CLI-EFD30



Dimensions in mm.

Fig.3 CLI-EFD30 mounting clip.

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	prot	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	des	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	sup	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.