

# DATA SHEET

**EFD30/15/9**

**EFD cores and accessories**

Supersedes data of September 2004

2008 Sep 01

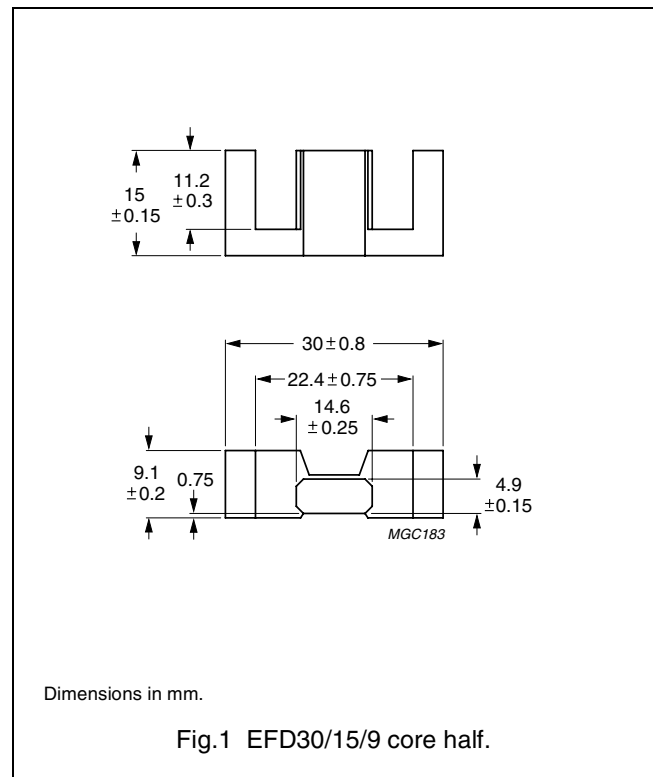


**FERROXCUBE**  
A YAGEO COMPANY

**CORES**

**Effective core parameters**

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



**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)	$\mu_e$	AIR GAP ( $\mu$ m)	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 <small>des</small>	2520 ± 25%	≈ 1980	≈ 0	EFD30/15/9-3C95
3C96 <small>des</small>	1900 ± 25%	≈ 1560	≈ 0	EFD30/15/9-3C96

## EFD cores and accessories

EFD30/15/9

GRADE	$A_L$ (nH)	$\mu_e$	AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3F3	160 $\pm$ 3%	$\approx$ 125	$\approx$ 690	EFD30/15/9-3F3-A160
	250 $\pm$ 3%	$\approx$ 196	$\approx$ 390	EFD30/15/9-3F3-A250
	315 $\pm$ 5%	$\approx$ 247	$\approx$ 290	EFD30/15/9-3F3-A315
	400 $\pm$ 8%	$\approx$ 314	$\approx$ 210	EFD30/15/9-3F3-A400
	630 $\pm$ 10%	$\approx$ 494	$\approx$ 120	EFD30/15/9-3F3-A630
	1900 $\pm$ 25%	$\approx$ 1560	$\approx$ 0	EFD30/15/9-3F3
3F35 <b>des</b>	1450 $\pm$ 25%	$\approx$ 1170	$\approx$ 0	EFD30/15/9-3F35
3F4 <b>des</b>	160 $\pm$ 3%	$\approx$ 125	$\approx$ 620	EFD30/15/9-3F4-A160
	250 $\pm$ 3%	$\approx$ 196	$\approx$ 320	EFD30/15/9-3F4-A250
	315 $\pm$ 5%	$\approx$ 247	$\approx$ 230	EFD30/15/9-3F4-A315
	400 $\pm$ 8%	$\approx$ 314	$\approx$ 160	EFD30/15/9-3F4-A400
	630 $\pm$ 10%	$\approx$ 494	$\approx$ 65	EFD30/15/9-3F4-A630
	1000 $\pm$ 25%	$\approx$ 780	$\approx$ 0	EFD30/15/9-3F4
3F45 <b>prot</b>	1000 $\pm$ 25%	$\approx$ 780	$\approx$ 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	$\geq$ 330	$\leq$ 0.50	$\leq$ 0.54	–	–	–
3C94	$\geq$ 330	–	$\leq$ 0.43	–	$\leq$ 2.6	–
3C95	$\geq$ 330	–	–	$\leq$ 2.77	$\leq$ 2.63	–
3C96	$\geq$ 340	–	$\leq$ 0.32	–	$\leq$ 2.0	$\leq$ 0.82
3F35	$\geq$ 300	–	–	–	–	$\leq$ 0.4
3F3	$\geq$ 315	–	$\leq$ 0.54	–	–	$\leq$ 0.91
3F4	$\geq$ 300	–	–	–	–	–

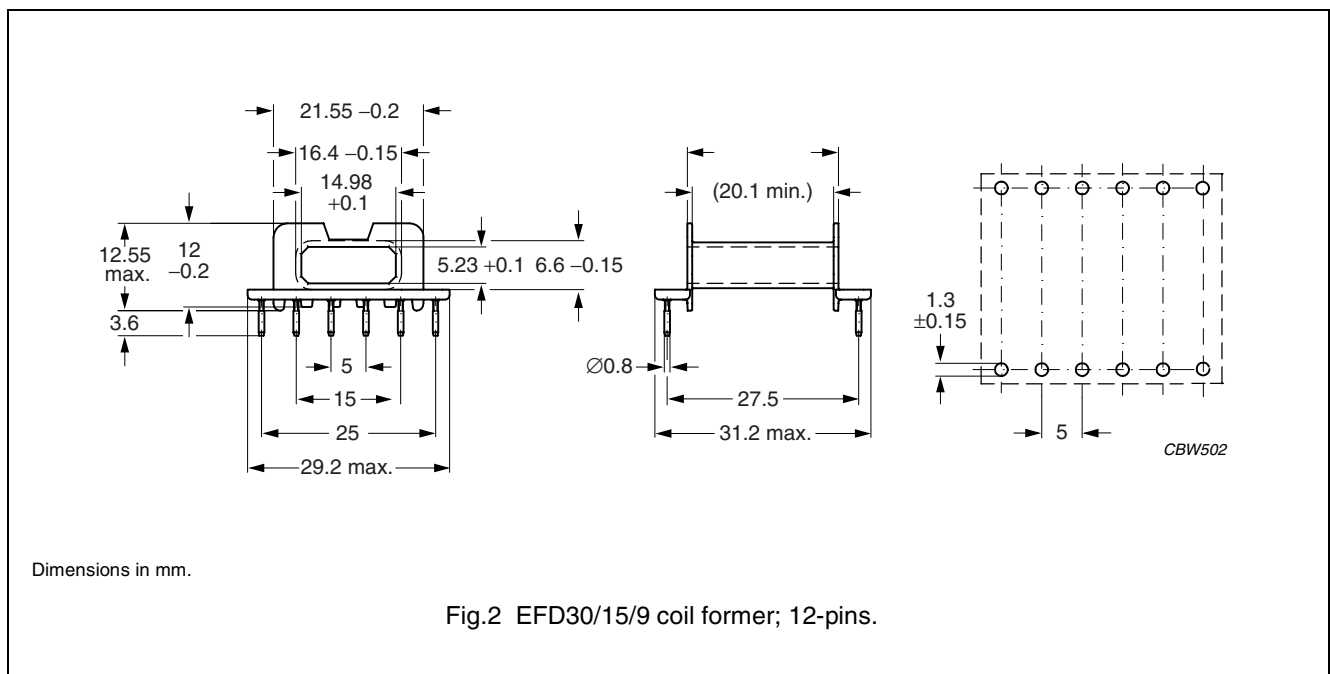
## Properties of core sets under power conditions (continued)

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	$\geq$ 330	–	–	–	–	–
3C94	$\geq$ 330	–	–	–	–	–
3C95	$\geq$ 330	–	–	–	–	–
3C96	$\geq$ 340	$\leq$ 1.7	–	–	–	–
3F35	$\geq$ 300	$\leq$ 0.6	$\leq$ 4.5	–	–	–
3F3	$\geq$ 315	–	–	–	–	–
3F4	$\geq$ 300	–	–	$\leq$ 1.4	–	$\leq$ 2.2
3F45	$\geq$ 300	–	–	$\leq$ 1.1	$\leq$ 4.0	$\leq$ 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



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

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

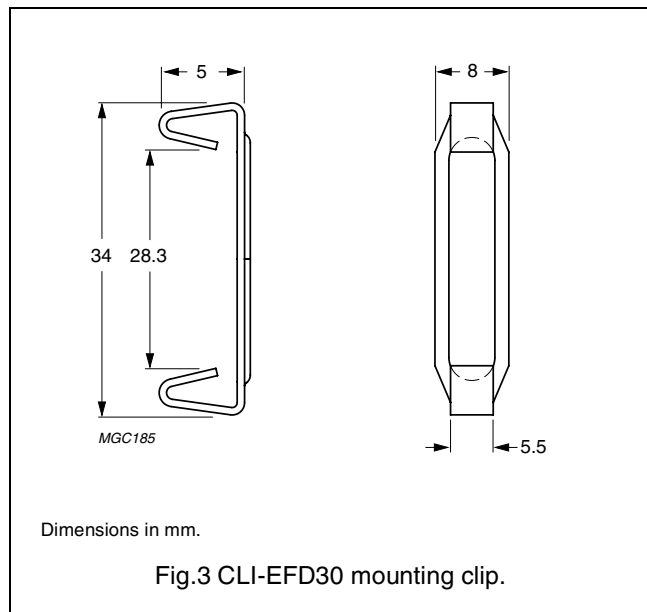
**Note**

1. Also available with post-inserted pins.

**MOUNTING PARTS**

**General data**

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



**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
<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.