

# DATA SHEET

**EFD10/5/3**

**EFD cores and accessories**

Supersedes data of February 2002

2004 Sep 01

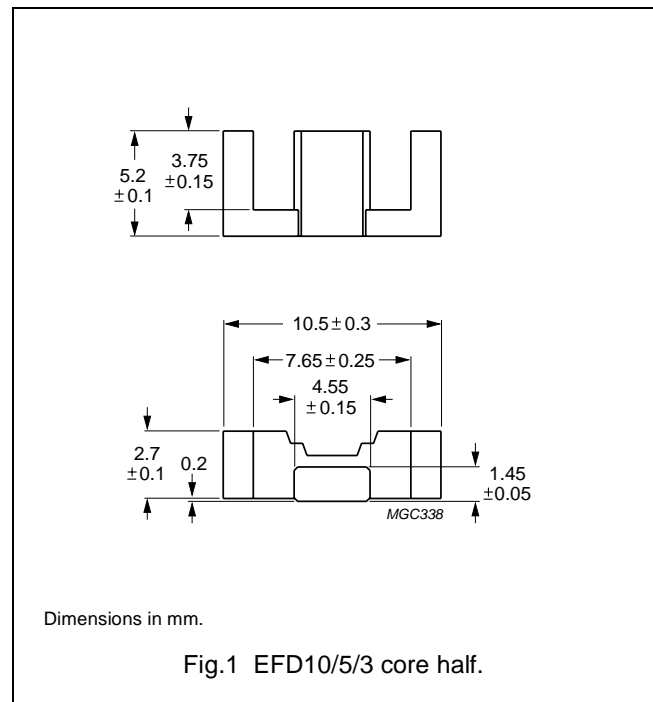


**FERROXCUBE**  
A YAGEO COMPANY

**CORES**

**Effective core parameters**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	3.29	mm <sup>-1</sup>
$V_e$	effective volume	171	mm <sup>3</sup>
$l_e$	effective length	23.7	mm
$A_e$	effective area	7.2	mm <sup>2</sup>
$A_{min}$	minimum area	6.5	mm <sup>2</sup>
$m$	mass of core half	≈ 0.45	g



**Core sets**

Clamping force for  $A_L$  measurements,  $10 \pm 5$  N.

GRADE	$A_L$ (nH)	$\mu_e$	AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3C90	25 ± 5%	≈ 66	≈ 610	EFD10/5/3-3C90-A25-S
	40 ± 8%	≈ 105	≈ 310	EFD10/5/3-3C90-A40-S
	63 ± 10%	≈ 165	≈ 170	EFD10/5/3-3C90-A63-S
	585 ± 25%	≈ 1510	≈ 0	EFD10/5/3-3C90-S
3C94	25 ± 5%	≈ 66	≈ 610	EFD10/5/3-3C94-A25-S
	40 ± 8%	≈ 105	≈ 310	EFD10/5/3-3C94-A40-S
	63 ± 10%	≈ 165	≈ 170	EFD10/5/3-3C94-A63-S
	585 ± 25%	≈ 1510	≈ 0	EFD10/5/3-3C94-S
3C96 <small>des</small>	525 ± 25%	≈ 1360	≈ 0	EFD10/5/3-3C96-S
3F3	25 ± 5%	≈ 66	≈ 610	EFD10/5/3-3F3-A25-S
	40 ± 8%	≈ 105	≈ 310	EFD10/5/3-3F3-A40-S
	63 ± 10%	≈ 165	≈ 170	EFD10/5/3-3F3-A63-S
	500 ± 25%	≈ 1290	≈ 0	EFD10/5/3-3F3-S
3F35 <small>prot</small>	400 ± 25%	≈ 1030	≈ 0	EFD10/5/3-3F35-S
3F4 <small>des</small>	25 ± 5%	≈ 66	≈ 570	EFD10/5/3-3F4-A25-S
	40 ± 8%	≈ 105	≈ 280	EFD10/5/3-3F4-A40-S
	63 ± 10%	≈ 165	≈ 150	EFD10/5/3-3F4-A63-S
	280 ± 25%	≈ 730	≈ 0	EFD10/5/3-3F4-S
3F45 <small>prot</small>	280 ± 25%	≈ 730	≈ 0	EFD10/5/3-3F45-S

## 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 = 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	f = 500 kHz; $\hat{B}$ = 50 mT; T = 100 °C
3C90	≥320	≤ 0.019	–	–	–
3C94	≥320	≤ 0.015	≤ 0.09	–	–
3C96	≥340	≤ 0.01	≤ 0.07	≤ 0.03	≤ 0.06
3F35	≥300	–	–	≤ 0.015	≤ 0.03
3F3	≥315	≤ 0.020	–	≤ 0.035	–
3F4	≥250	–	–	–	–

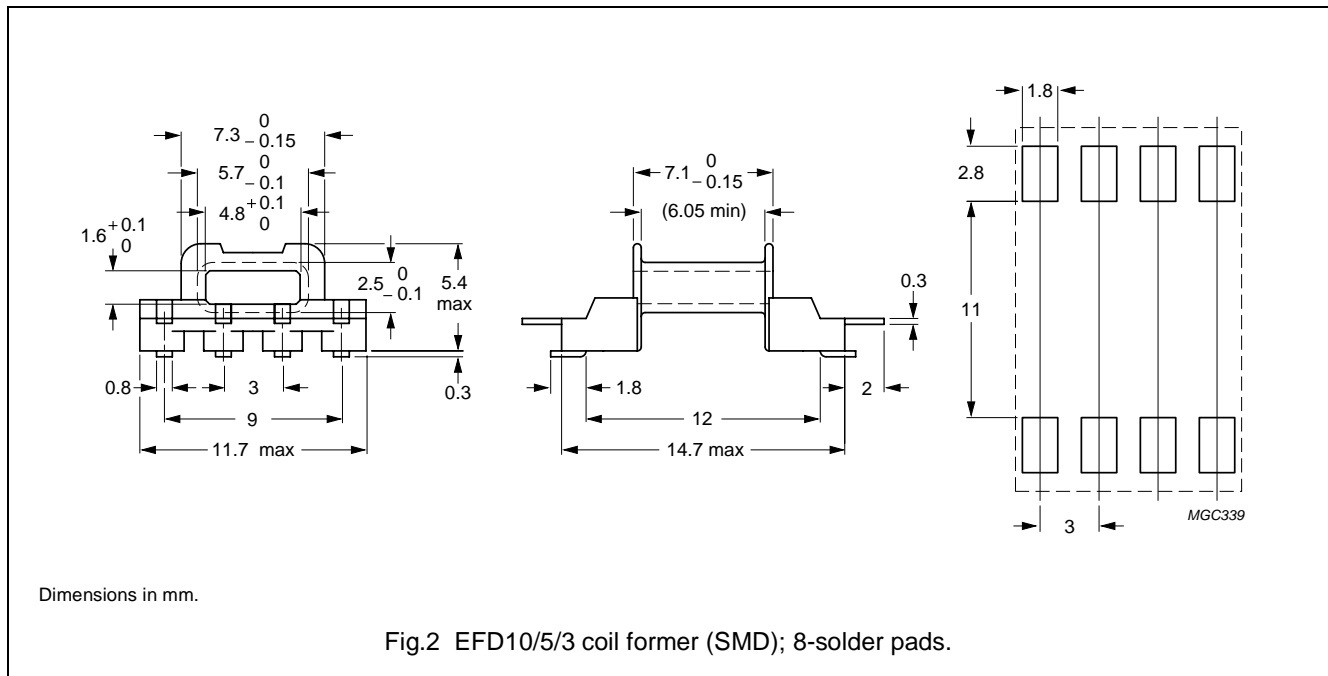
## Properties of core sets under power conditions (continued)

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 500 kHz; $\hat{B}$ = 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	≥320	–	–	–	–
3C94	≥320	–	–	–	–
3C96	≥320	–	–	–	–
3F35	≥300	≤ 0.2	–	–	–
3F3	≥315	–	–	–	–
3F4	≥250	–	≤ 0.05	–	≤ 0.08
3F45	≥250	–	≤ 0.034	≤ 0.086	≤ 0.06

**COIL FORMERS**

**General data**

PARAMETER	SPECIFICATION
Coil former material	liquid crystal polymer (LCP), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E83005(M)
Solder pad material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated, transition to lead-free (Sn) ongoing.
Maximum operating temperature	155 °C, "IEC 60085", class F
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



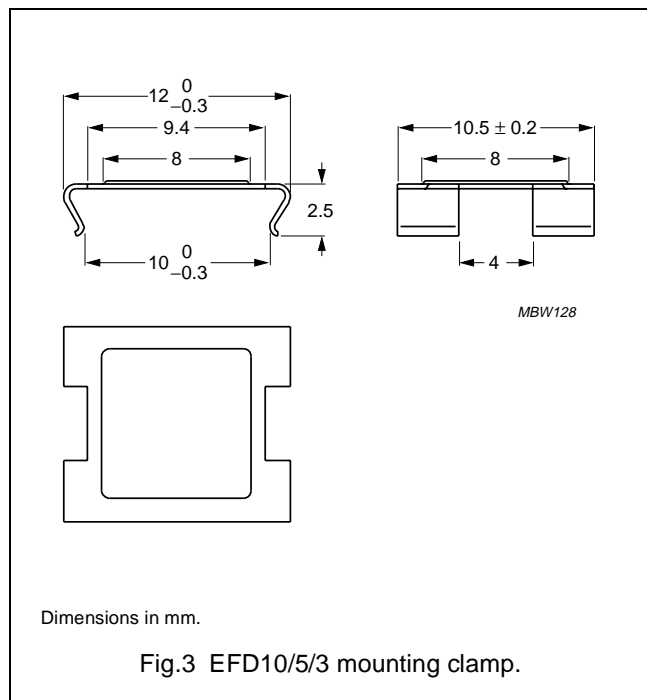
**Winding data for EFD10/5/3 coil former (SMD) with 8-solder pads**

NUMBER OF SECTIONS	NUMBER OF SOLDER PADS	MINIMUM WINDING AREA (mm <sup>2</sup> )	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	8	4.2	6.05	14.8	CPHS-EFD10-1S-8P

**MOUNTING PARTS**

**General data**

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clamp	stainless steel (CrNi); clamping force ≈15 N	3	CLM-EFD10






**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.

**DISCLAIMER**

**Life support applications** — These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Ferroxcube customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Ferroxcube for any damages resulting from such application.

**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.



**FERROXCUBE**

Description by Part  
Number List

# FERROXCUBE PART NUMBERS

## 12NC BREAKDOWN

<b>43</b>	<b>12</b>	<b>020</b>	<b>5593</b>	<b>0</b>
Magnetic for 3 <sup>rd</sup> party	Factory code	Pairs Halves Accessories	Drawing no.	Issue no. (changes with packaging at factory)

## FACTORY CODES

35 = Saugerties  
12 = Ferpol (mostly)  
22 = Eindhoven  
27 = Ferpol  
30 = Hispafer

## SET CODES

018 = single  
020 = single  
021 = accessory  
022 = pair  
025 = pair  
030 = single

## CLEAR TEXT CODING

**E 32 / 16 / 9 – 3E25**

Core Shape      Size      Material

- 1) Shape
- 2) Size – width, length, thickness
- 3) Material

**3**  
3 = MnZn (Manganese Zinc)  
4 = NiZn (Nickel Zinc)

**E**  
C = Power  
F = High frequency  
H = Telecom  
S = Suppression  
E = High permeability with a 3 prefix  
A = High permeability with a 4 prefix

**25**  
Just a number



## Ferroxcube Accessories

Issue A, Issue date 27/07/00. These tables are for reference only: Part Numbers should be checked using the Lotus Notes Databases or the most recent Data Handbook.

CLM: Clamp  
CLI: Clip  
COV: Cover  
CON: Container  
CLA: Clasp  
SPR: Spring  
TGP: Tag Plate

