DATA SHEET

EFD12/6/3.5
EFD cores and accessories

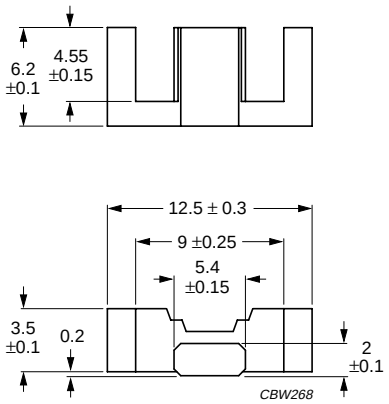
Supersedes data of February 2002 2004 Sep 01

FERROXCUBE
A YAGEO COMPANY

CORES

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	2.50	mm^{-1}
V_e	effective volume	325	mm^3
l_e	effective length	28.5	mm
A_e	effective area	11.4	mm^2
A_{min}	minimum area	10.7	mm^2
m	mass of core half	≈ 0.9	g



Dimensions in mm.

Fig.1 EFD12/6/3.5 core half.

Core sets

Clamping force for A_L measurements, 15 ±5 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	40 ±5%	≈ 80	≈ 540	EFD12/6/3.5-3C90-A40-S
	63 ±8%	≈ 125	≈ 290	EFD12/6/3.5-3C90-A63-S
	100 ±10%	≈ 200	≈ 160	EFD12/6/3.5-3C90-A100-S
	825 ±25%	≈ 1610	≈ 0	EFD12/6/3.5-3C90-S
3C94	40 ±5%	≈ 80	≈ 540	EFD12/6/3.5-3C94-A40-S
	63 ±8%	≈ 125	≈ 290	EFD12/6/3.5-3C94-A63-S
	100 ±10%	≈ 200	≈ 160	EFD12/6/3.5-3C94-A100-S
	825 ±25%	≈ 1610	≈ 0	EFD12/6/3.5-3C94-S
3C96 des	750 ±25%	≈ 1460	≈ 0	EFD12/6/3.5-3C96-S
3F3	40 ±5%	≈ 80	≈ 540	EFD12/6/3.5-3F3-A40-S
	63 ±8%	≈ 125	≈ 290	EFD12/6/3.5-3F3-A63-S
	100 ±10%	≈ 200	≈ 160	EFD12/6/3.5-3F3-A100-S
	700 ±25%	≈ 1370	≈ 0	EFD12/6/3.5-3F3-S
3F35 prot	550 ±25%	≈ 1070	≈ 0	EFD12/6/3.5-3F35-S
3F4 des	40 ±5%	≈ 80	≈ 500	EFD12/6/3.5-3F4-A40-S
	63 ±8%	≈ 125	≈ 260	EFD12/6/3.5-3F4-A63-S
	100 ±10%	≈ 200	≈ 130	EFD12/6/3.5-3F4-A100-S
	380 ±25%	≈ 730	≈ 0	EFD12/6/3.5-3F4-S
3F45 prot	380 ±25%	≈ 730	≈ 0	EFD12/6/3.5-3F45-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	≤ 0.036	–	–	–
3C94	≥320	≤ 0.029	≤ 0.2	–	–
3C96	≥340	≤ 0.022	≤ 0.15	≤ 0.06	≤ 0.12
3F35	≥300	–	–	≤ 0.03	≤ 0.045
3F3	≥315	≤ 0.04	–	≤ 0.065	–
3F4	≥250		–	–	–

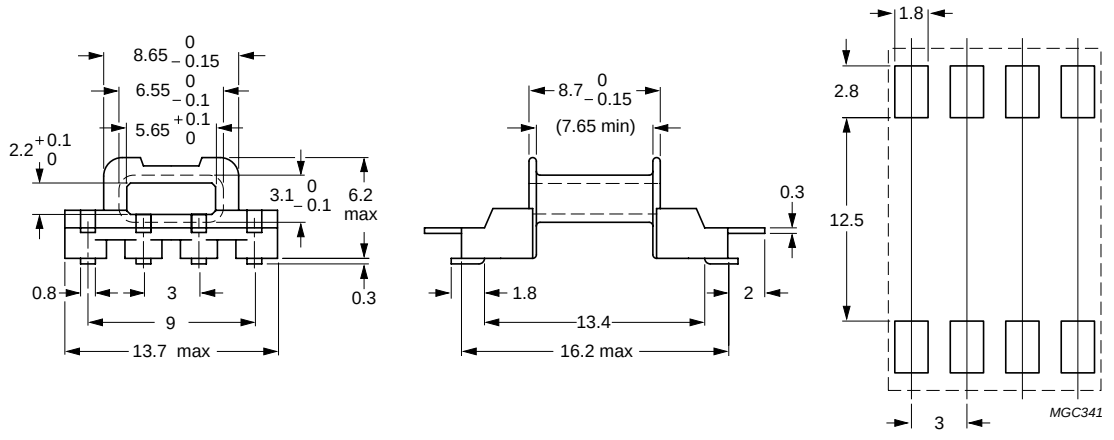
Properties of core sets under power conditions (continued)

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	≥340	–	–	–	–
3F35	≥300	≤ 0.35	–	–	–
3F3	≥315	–	–	–	–
3F4	≥250	–	≤ 0.09	–	≤ 0.15
3F45	≥250	–	≤ 0.065	≤ 0.16	≤ 0.11

COIL FORMERS

General data

ITEM	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 (Sn) plated
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



Dimensions in mm.

Fig.2 EFD12/6/3.5 coil former (SMD); 8-solder pads.

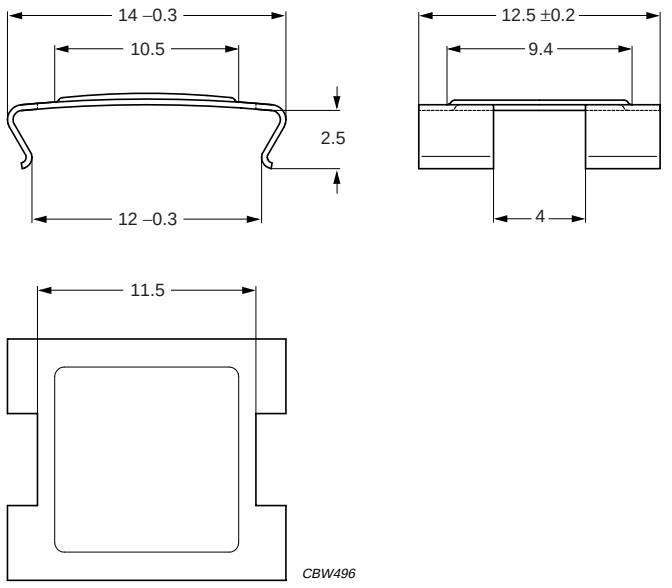
Winding data for EFD12/6/3.5 coil former (SMD) with 8-solder pads

NUMBER OF SECTIONS	NUMBER OF SOLDER PADS	MINIMUM WINDING AREA (mm^2)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	8	6.5	7.65	18.6	CPHS-EFD12-1S-8P-Z

MOUNTING PARTS

General data

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clamp	stainless steel (CrNi); clamping force ≈20 N	3	CLM-EFD12



Dimensions in mm.

Fig.3 EFD12/6/3.5 mounting clamp.

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
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.

FERROXCUBE

Description by Part Number List

FERROXCUBE PART NUMBERS

12NC BREAKDOWN

43	12	020	5593	0
Magnetic for 3rd 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	E	25
3 = MnZn (Manganese Zinc) 4 = NiZn (Nickel Zinc)	C = Power F = High frequency H = Telecom S = Suppression E = High permeability with a 3 prefix A = High permeability with a 4 prefix	Just a number

Pcl_fpl\dept\Ferrite\csg\12nc

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