DATA SHEET

E16/8/5
E cores and accessories

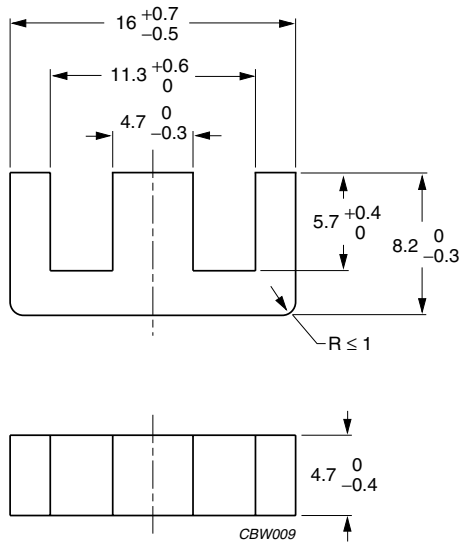
Supersedes data of September 2004 2008 Sep 01

FERROXCUBE
A YAGEO COMPANY

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
Σ(l/A)	core factor (C1)	1.87	mm^{-1}
V_e	effective volume	750	mm^3
l_e	effective length	37.6	mm
A_e	effective area	20.1	mm^2
A_{min}	minimum area	19.3	mm^2
m	mass of core half	≈ 2.0	g



Dimensions in mm.

Fig.1 E16/8/5 core half.

Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements, 20 ±10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	63 ±5%	≈ 95	≈ 570	E16/8/5-3C90-A63
	100 ±8%	≈ 150	≈ 310	E16/8/5-3C90-A100
	160 ±8%	≈ 240	≈ 170	E16/8/5-3C90-A160
	250 ±15%	≈ 370	≈ 95	E16/8/5-3C90-A250
	315 ±15%	≈ 470	≈ 70	E16/8/5-3C90-A315
	1100 ±25%	≈1640	≈ 0	E16/8/5-3C90
3C92 des	840 ±25%	≈ 1250	≈ 0	E16/8/5-3C92
3C94	1100 ±25%	≈ 1640	≈ 0	E16/8/5-3C94
3C96 des	980 ±25%	≈ 1460	≈ 0	E16/8/5-3C96
3F3	63 ±5%	≈ 95	≈ 570	E16/8/5-3F3-A63
	100 ±8%	≈ 150	≈ 310	E16/8/5-3F3-A100
	160 ±8%	≈ 240	≈ 170	E16/8/5-3F3-A160
	250 ±15%	≈ 370	≈ 95	E16/8/5-3F3-A250
	315 ±15%	≈ 470	≈ 70	E16/8/5-3F3-A315
	980 ±25%	≈ 1460	≈ 0	E16/8/5-3F3
3F35 des	760 ±25%	≈ 1130	≈ 0	E16/8/5-3F35

Core halves of high permeability grades

Clamping force for A_L measurements, 20 ±10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E27	2200 ±25%	≈ 3300	≈ 0	E16/8/5-3E27

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 = 100 °C	f = 400 kHz; $\hat{B}$ = 50 mT; T = 100 °C
3C90	≥320	≤ 0.1	≤ 0.1	–	–
3C92	≥370	–	≤ 0.075	≤ 0.38	–
3C94	≥320	–	≤ 0.075	≤ 0.38	–
3C96	≥340	–	≤ 0.055	≤ 0.3	–
3F3	≥320	–	≤ 0.1	–	≤ 0.15
3F35	≥300	–	–	–	–

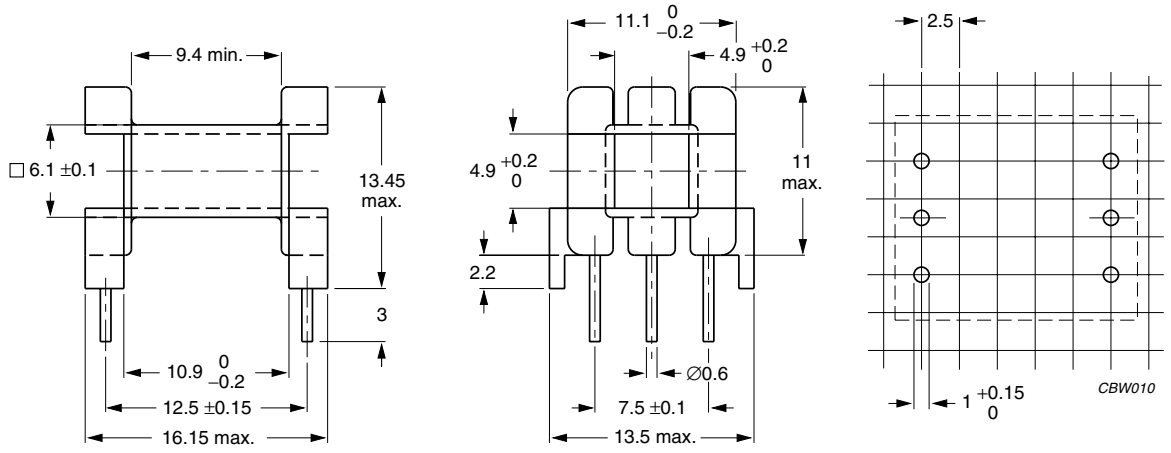
Properties of core sets under power conditions (continued)

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 = 3 MHz; $\hat{B}$ = 10 mT; T = 100 °C
3C90	≥320	–	–	–	–
3C92	≥370	–	–	–	–
3C94	≥320	–	–	–	–
3C96	≥340	≤ 0.28	–	–	–
3F3	≥315	–	–	–	–
3F35	≥300	≤ 0.1	≤ 0.8	–	–

COIL FORMER

General data for 6-pins E16/8/5 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with *"UL 94V-0"*; UL file number E41871(M)
Pin material	copper-tin alloy (CuSn), tin (Sn) plated
Maximum operating temperature	130 °C, *"IEC 60085",* class B
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 E16/8/5 coil former; 6-pins.

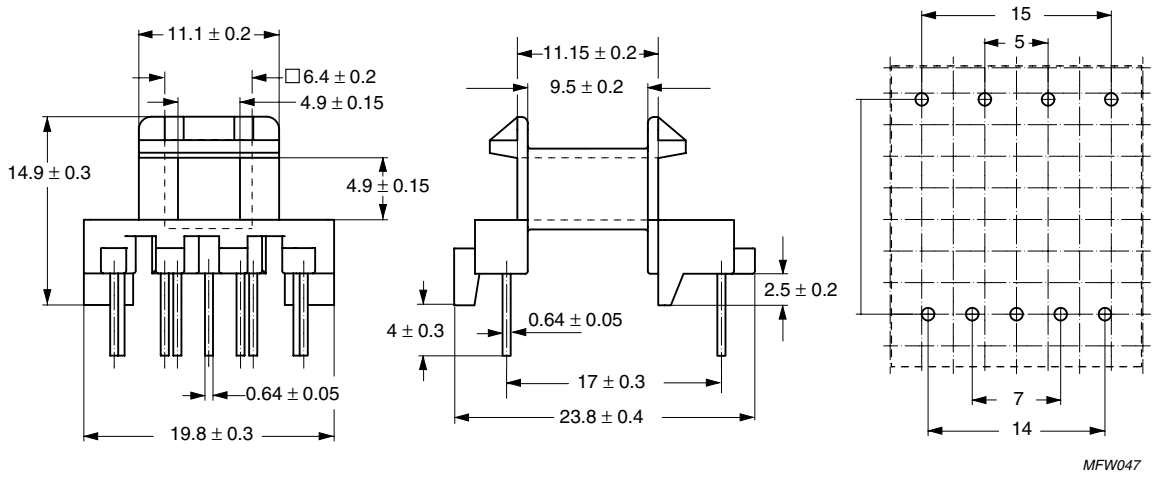
Winding data and area product for 6-pins E16/8/5 coil former

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	21.6	9.4	33	434	CPH-E16/8/5-1S-6P-Z

COIL FORMER

General data for 9-pins E16/8/5 coil former

PARAMETER	SPECIFICATION
Coil former material	phenolformaldehyde (PF), glass reinforced, flame retardant in accordance with *"UL 94V-0";* UL file number E41429 (M)
Pin material	copper-clad steel, tin (Sn) plated
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.3 E16/8/5 coil former; 9-pins.

Winding data and area product for 9-pins E16/8/5 coil former; note 1

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	20.2	9.6	35	406	CSH-E16/8/5-1S-9P

Note

1. This coil former is optimized for the use of triple-isolated wire. This wire is approved for safety isolation without the usual creepage distance.

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.