DATA SHEET

E55/28/21
E cores and accessories

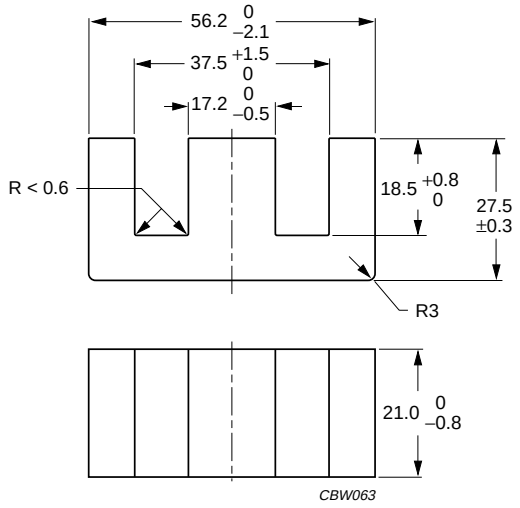
Supersedes data of February 2002 2004 Sep 01

FERROXCUBE
A YAGEO COMPANY

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.350	mm^{-1}
V_e	effective volume	44000	mm^3
l_e	effective length	124	mm
A_e	effective area	353	mm^2
A_{min}	minimum area	345	mm^2
m	mass of core half	≈ 108	g



Dimensions in mm.

Fig.1 E55/28/21 core half.

Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements 40 ±20 N, unless stated otherwise.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C81	100 ±5%(1)	≈ 28	≈ 8740	E55/28/21-3C81-E100
	160 ±5%(1)	≈ 45	≈ 4560	E55/28/21-3C81-E160
	250 ±5%(1)	≈ 70	≈ 2500	E55/28/21-3C81-E250
	315 ±5%(1)	≈ 88	≈ 1840	E55/28/21-3C81-E315
	400 ±8%(1)	≈ 112	≈ 1360	E55/28/21-3C81-E400
	630 ±10%(1)	≈ 176	≈ 780	E55/28/21-3C81-E630
	8625 ±25%	≈ 2410	≈ 0	E55/28/21-3C81
3C90	100 ±5%(1)	≈ 28	≈ 8740	E55/28/21-3C90-E100
	160 ±5%(1)	≈ 45	≈ 4560	E55/28/21-3C90-E160
	250 ±5%(1)	≈ 70	≈ 2500	E55/28/21-3C90-E250
	315 ±5%(1)	≈ 88	≈ 1840	E55/28/21-3C90-E315
	400 ±8%(1)	≈ 112	≈ 1360	E55/28/21-3C90-E400
	630 ±10%(1)	≈ 176	≈ 780	E55/28/21-3C90-E630
	6300 ±25%	≈ 1760	≈ 0	E55/28/21-3C90
3C91 des	8625 ±25%	≈ 2410	≈ 0	E55/28/21-3C91
3C92 des	4700 ±25%	≈ 1310	≈ 0	E55/28/21-3C92
3C94	6400 ±25%	≈ 1790	≈ 0	E55/28/21-3C94

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3F3	100 ±5%(1)	≈ 28	≈ 8740	E55/28/21-3F3-E100
	160 ±5%(1)	≈ 45	≈ 4560	E55/28/21-3F3-E160
	250 ±5%(1)	≈ 70	≈ 2500	E55/28/21-3F3-E250
	315 ±5%(1)	≈ 88	≈ 1840	E55/28/21-3F3-E315
	400 ±8%(1)	≈ 112	≈ 1360	E55/28/21-3F3-E400
	630 ±10%(1)	≈ 176	≈ 780	E55/28/21-3F3-E630
	5700 ±25%	≈1590	≈ 0	E55/28/21-3F3

Note

1. Measured in combination with an equal gapped core half.

Core halves of high permeability grades

Clamping force for A_L measurements 40 ±20 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C11	12800 ±25%	≈ 3580	≈ 0	E55/28/21-3C11
3E27	15400 ±25%	≈ 4300	≈ 0	E55/28/21-3E27

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
3C81	≥320	≤ 9.0	–	–	–
3C90	≥320	≤ 4.8	≤ 5.9	–	–
3C91	≥320	–	≤ 3.5(1)	≤ 20(1)	–
3C92	≥370	–	≤ 3.8	≤ 27	–
3C94	≥320	–	≤ 3.8	≤ 27	–
3F3	≥320	–	≤ 5.6	–	≤ 10

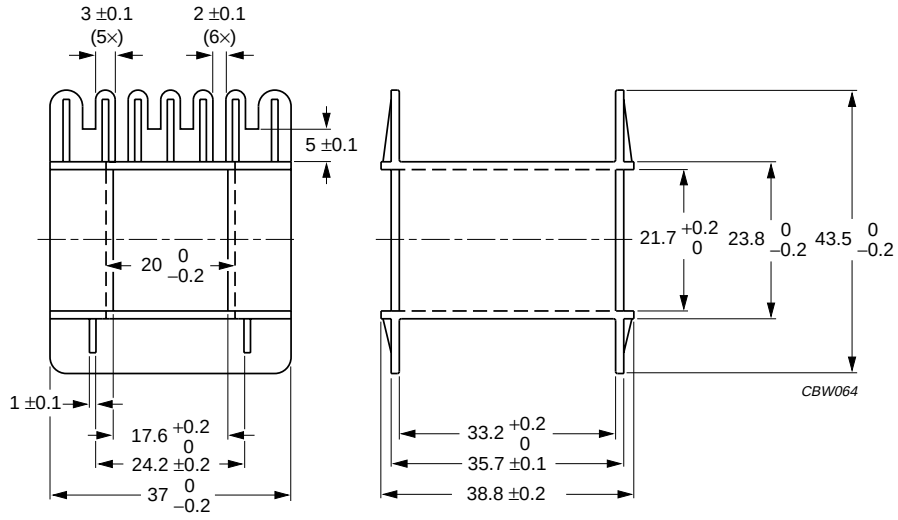
Note

1. Measured at 60 °C.

COIL FORMERS

General data for E55/28/21 coil former without pins

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with *"UL 94-HB"*; UL file number E41613(M)
Maximum operating temperature	130 °C, *"IEC 60085",* class B



Dimensions in mm.

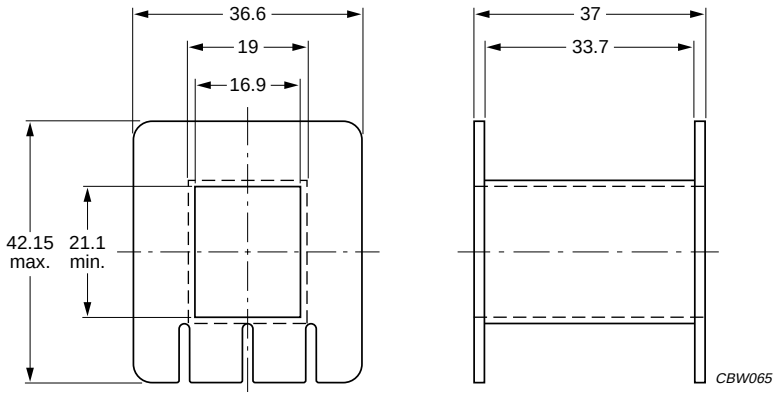
Fig.2 E55/28/21 coil former (E).

Winding data for E55/28/21 coil former without pins (E)

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm^2)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	250	33.2	116	CP-E55/28/21-1S

General data for E55/28/21 coil former without pins (A)

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with *"UL 94-HB"*; UL file number E41938(M)
Maximum operating temperature	130 °C, *"IEC 60085",* class B



Dimensions in mm.

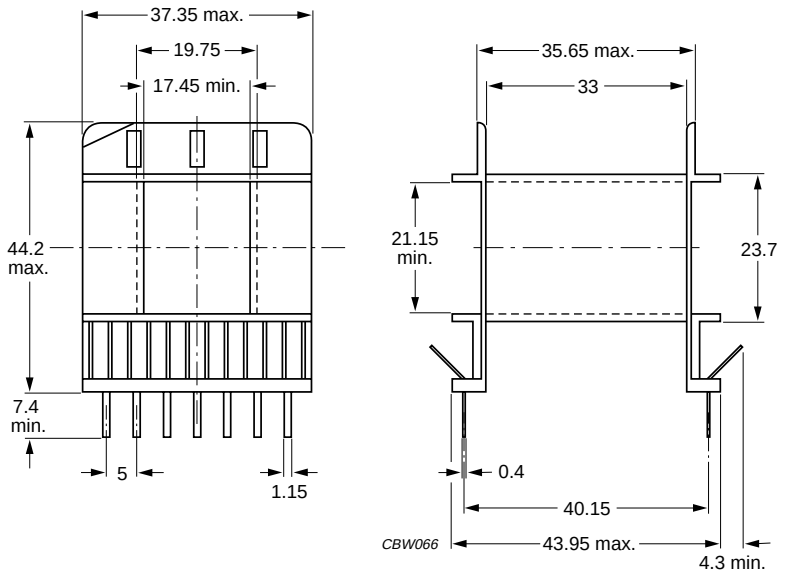
Fig.3 E55/28/21 coil former (A).

Winding data for E55/28/21 coil former without pins (A)

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm^2)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	277	33.7	113	CP-E55/28/21-1S-A

General data for 14-pins E55/28/21 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with *"UL 94-HB"*; UL file number E41938(M)
Maximum operating temperature	105 °C, *"IEC 60085",* class A
Pin material	copper-zinc alloy (CuZn), tin-lead alloy (SnPb) plated, transition to lead-free (Sn) ongoing.
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.

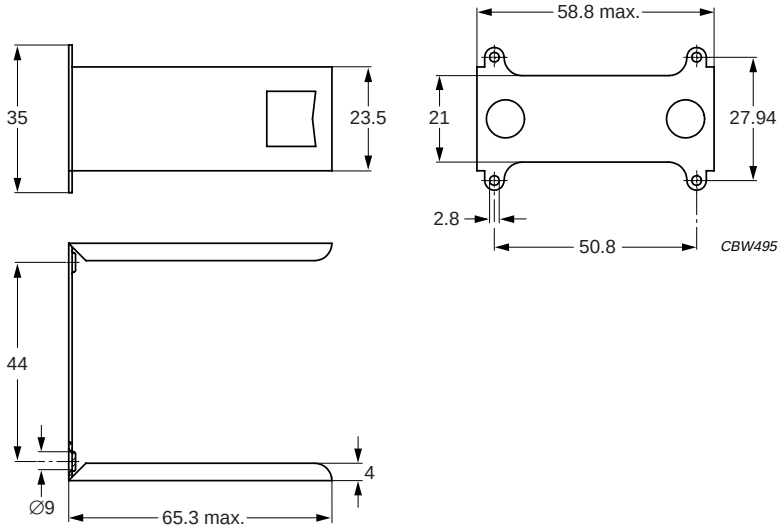
Fig.4 E55/28/21 coil former; 14-pins.

Winding data for 14-pins E55/28/21 coil former

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm^2)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	278	33	119	CPH-E55/28/21-1S-14P

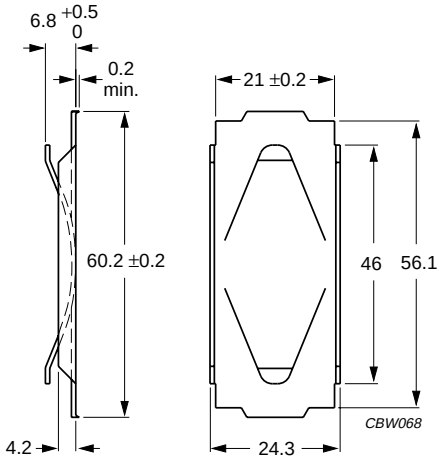
MOUNTING PARTS **GENERAL DATA FOR MOUNTING PARTS**

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clasp	steel, zinc (Zn) plated	5	CLA-E55/28/21
Spring	steel, zinc (Zn) plated	6	SPR-E55/28/21



Dimensions in mm.

Fig.5 E55/28/21 clasp.



Dimensions in mm.

Fig.6 E55/28/21 spring.

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.