

DATA SHEET

E42/21/20

E cores and accessories

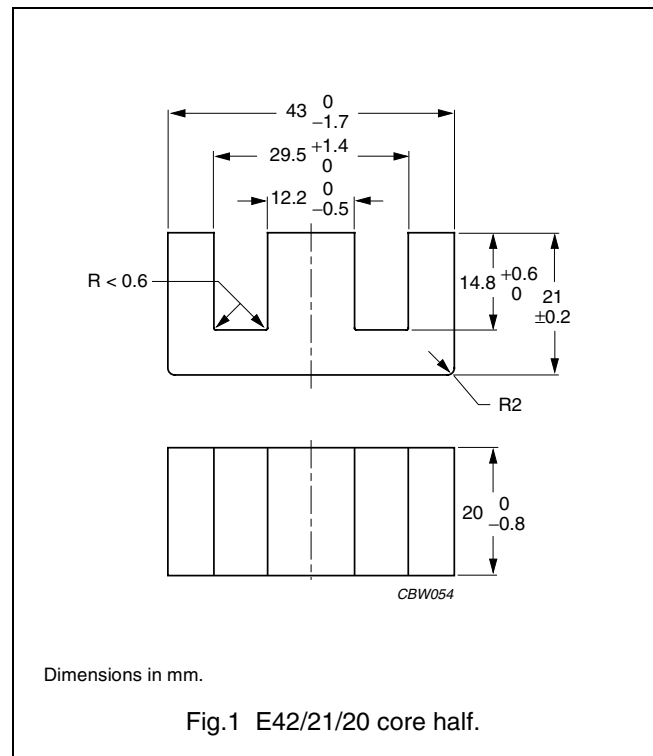
Supersedes data of September 2004

2008 Sep 01

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.417	mm ⁻¹
V_e	effective volume	22700	mm ³
l_e	effective length	97.0	mm
A_e	effective area	233	mm ²
A_{min}	minimum area	233	mm ²
m	mass of core half	≈ 56	g



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	TOTAL AIR GAP (μm)	TYPE NUMBER
3C81	100 $\pm 5\%$ ⁽¹⁾	≈ 33	≈ 5320	E42/21/20-3C81-E100
	160 $\pm 5\%$ ⁽¹⁾	≈ 53	≈ 2800	E42/21/20-3C81-E160
	250 $\pm 5\%$ ⁽¹⁾	≈ 83	≈ 1540	E42/21/20-3C81-E250
	315 $\pm 5\%$ ⁽¹⁾	≈ 104	≈ 1160	E42/21/20-3C81-E315
	400 $\pm 8\%$	≈ 133	≈ 850	E42/21/20-3C81-A400
	630 $\pm 15\%$	≈ 209	≈ 490	E42/21/20-3C81-A630
	6950 $\pm 25\%$	≈ 2300	≈ 0	E42/21/20-3C81
3C90	100 $\pm 5\%$ ⁽¹⁾	≈ 33	≈ 5320	E42/21/20-3C90-E100
	160 $\pm 5\%$ ⁽¹⁾	≈ 53	≈ 2800	E42/21/20-3C90-E160
	250 $\pm 5\%$ ⁽¹⁾	≈ 83	≈ 1540	E42/21/20-3C90-E250
	315 $\pm 5\%$ ⁽¹⁾	≈ 104	≈ 1160	E42/21/20-3C90-E315
	400 $\pm 8\%$	≈ 133	≈ 850	E42/21/20-3C90-A400
	630 $\pm 15\%$	≈ 209	≈ 490	E42/21/20-3C90-A630
	5000 $\pm 25\%$	≈ 1660	≈ 0	E42/21/20-3C90
3C91 des	6950 $\pm 25\%$	≈ 2300	≈ 0	E42/21/20-3C91
3C92 des	4100 $\pm 25\%$	≈ 1360	≈ 0	E42/21/20-3C92
3C94	5200 $\pm 25\%$	≈ 1720	≈ 0	E42/21/20-3C94

GRADE	A_L (nH)	μ_e	TOTAL AIR GAP (μm)	TYPE NUMBER
3C95 <small>des</small>	6950 \pm 25%	\approx 2300	\approx 0	E42/21/20-3C95
3F3	100 \pm 5% ⁽¹⁾	\approx 33	\approx 5320	E42/21/20-3F3-E100
	160 \pm 5% ⁽¹⁾	\approx 53	\approx 2800	E42/21/20-3F3-E160
	250 \pm 5% ⁽¹⁾	\approx 83	\approx 1540	E42/21/20-3F3-E250
	315 \pm 5% ⁽¹⁾	\approx 104	\approx 1160	E42/21/20-3F3-E315
	400 \pm 8%	\approx 133	\approx 850	E42/21/20-3F3-A400
	630 \pm 15%	\approx 209	\approx 490	E42/21/20-3F3-A630
	4600 \pm 25%	\approx 1520	\approx 0	E42/21/20-3F3

Note

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

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
3C81	\geq 320	\leq 4.7	–	–	–	–
3C90	\geq 320	\leq 2.4	\leq 2.9	–	–	–
3C91	\geq 320	–	\leq 1.8 ⁽¹⁾	–	\leq 9.4 ⁽¹⁾	–
3C92	\geq 370	–	\leq 2.3	–	\leq 12	–
3C94	\geq 320	–	\leq 2.3	–	\leq 12	–
3C95	\geq 320	–	–	\leq 14.3	\leq 13.6	–
3F3	\geq 320	–	\leq 2.7	–	–	\leq 5.0

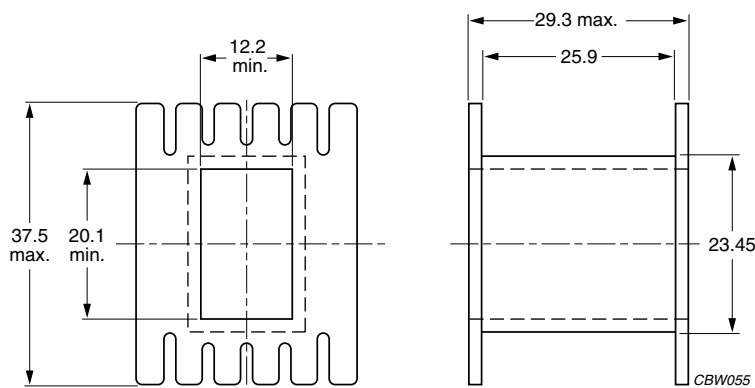
Note

1. Measured at 60 °C.

COIL FORMER

General data for E42/21/20 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



Dimensions in mm.

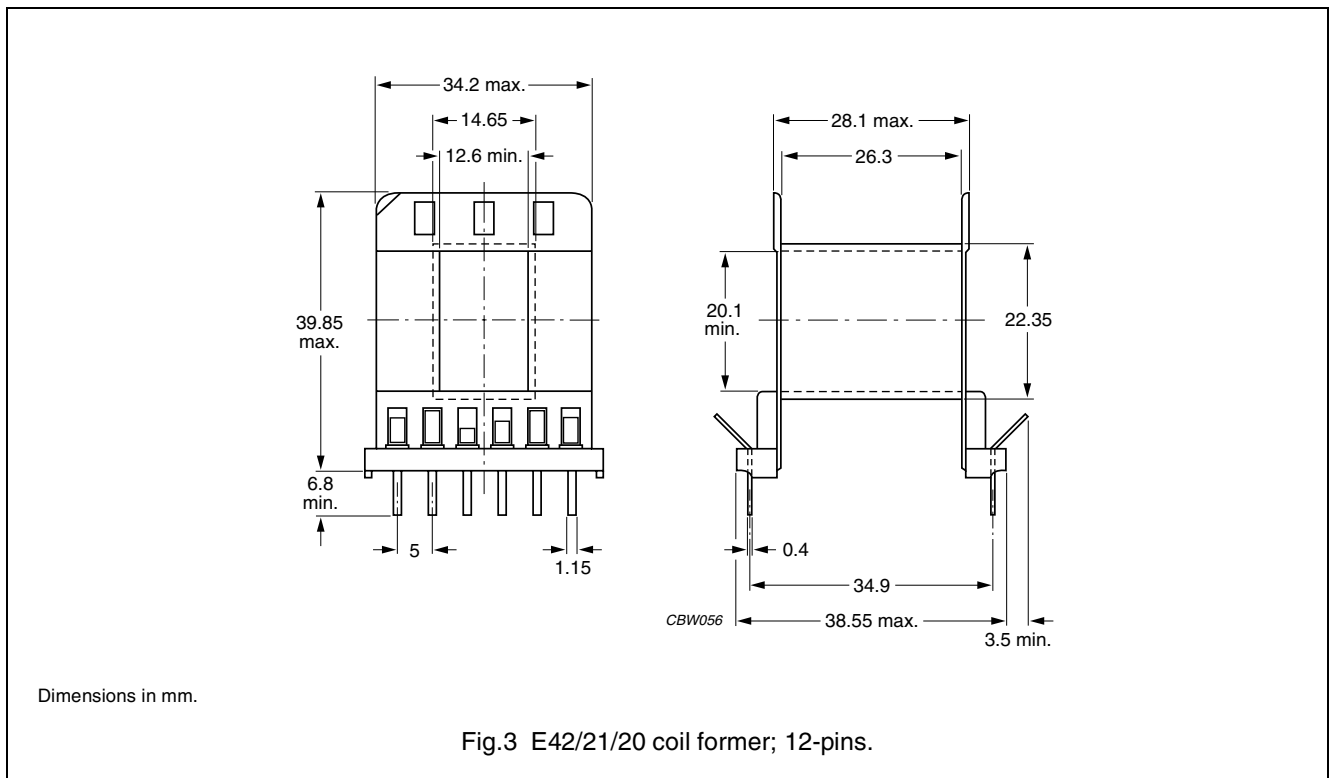
Fig.2 E42/21/20 coil former.

Winding data and area product for E42/21/20 coil former without pins

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm ⁴)	TYPE NUMBER
1	173	25.9	100	40300	CP-E42/21/20-1S

General data for 12-pins E42/21/20 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)
Pin material	copper-tin alloy (CuSn), tin (Sn) plated
Maximum operating temperature	105 °C, "IEC 60085", class A
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 12-pins E42/21/20 coil former

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm ⁴)	TYPE NUMBER
1	255	26.3	78.5	59400	CPH-E42/20-1S-12PD-Z




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		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		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		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.