

DATA SHEET

E20/10/5

E cores and accessories

Supersedes data of September 2004

2008 Sep 01

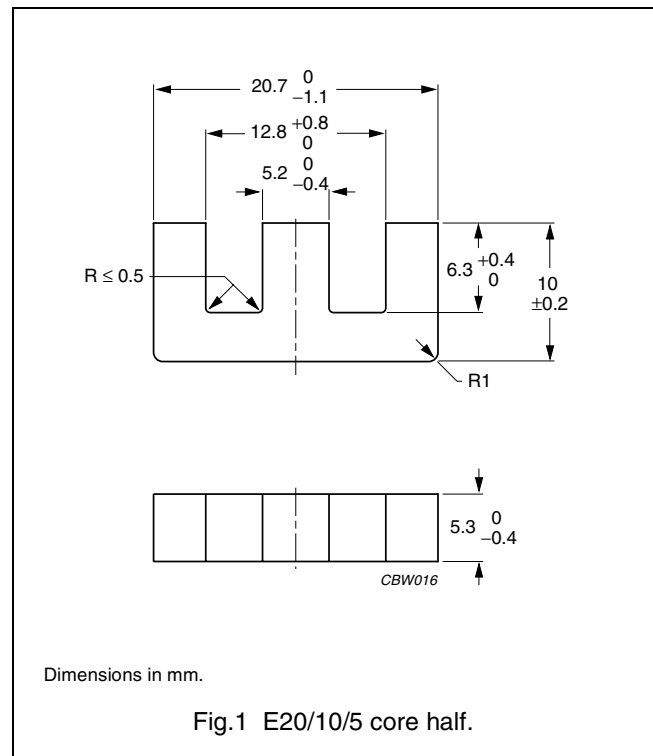


FERROXCUBE
A YAGEO COMPANY

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	1.37	mm ⁻¹
V_e	effective volume	1340	mm ³
l_e	effective length	42.8	mm
A_e	effective area	31.2	mm ²
A_{min}	minimum area	25.2	mm ²
m	mass of core half	≈ 4.0	g



Core halves

Clamping force for A_L measurements, 20 ±10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	63 ±5%	≈ 69	≈ 950	E20/10/5-3C90-A63
	100 ±8%	≈109	≈ 510	E20/10/5-3C90-A100
	160 ±8%	≈175	≈ 280	E20/10/5-3C90-A160
	250 ±15%	≈ 273	≈160	E20/10/5-3C90-A250
	315 ±15%	≈ 344	≈120	E20/10/5-3C90-A315
	1500 ±25%	≈1640	≈ 0	E20/10/5-3C90
3C92 <small>des</small>	1170 ±25%	≈1280	≈ 0	E20/10/5-3C92
3C94	1500 ±25%	≈1640	≈ 0	E20/10/5-3C94
3C96 <small>des</small>	1400 ±25%	≈1530	≈ 0	E20/10/5-3C96
3F3	63 ±5%	≈ 69	≈ 950	E20/10/5-3F3-A63
	100 ±8%	≈ 109	≈ 510	E20/10/5-3F3-A100
	160 ±8%	≈175	≈ 280	E20/10/5-3F3-A160
	250 ±15%	≈ 273	≈160	E20/10/5-3F3-A250
	315 ±15%	≈ 344	≈120	E20/10/5-3F3-A315
	1400 ±25%	≈1530	≈ 0	E20/10/5-3F3
3F35 <small>des</small>	1060 ±25%	≈1160	≈ 0	E20/10/5-3F35

E cores and accessories

E20/10/5

Core halves of high permeability gradesClamping force for A_L measurements, 20 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C11	2600 $\pm 25\%$	≈ 2840	≈ 0	E20/10/5-3C11
3E27	2800 $\pm 25\%$	≈ 2870	≈ 0	E20/10/5-3E27

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	≥ 330	≤ 0.15	≤ 0.17	–	–
3C92	≥ 370	–	≤ 0.13	≤ 0.7	–
3C94	≥ 320	–	≤ 0.13	≤ 0.7	–
3C96	≥ 340	–	≤ 0.1	≤ 0.56	–
3F3	≥ 320	–	≤ 0.16	–	≤ 0.28
3F35	≥ 300	–	–	–	–

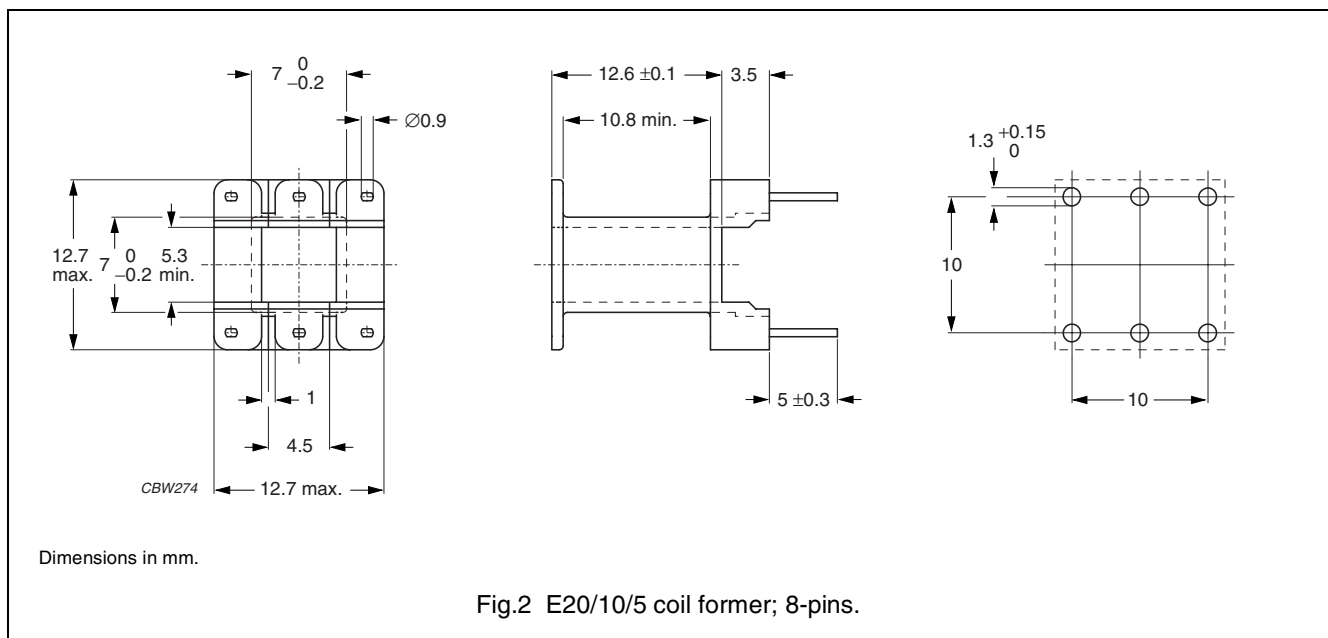
Properties of core sets under power conditions (continued)

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	≥ 330	–	–	–	–
3C92	≥ 370	–	–	–	–
3C94	≥ 320	–	–	–	–
3C96	≥ 340	≤ 0.5	–	–	–
3F3	≥ 320	–	–	–	–
3F35	≥ 300	≤ 0.18	≤ 1.4	–	–

COIL FORMER

General data for 6-pins E20/10/5 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94HB"; 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



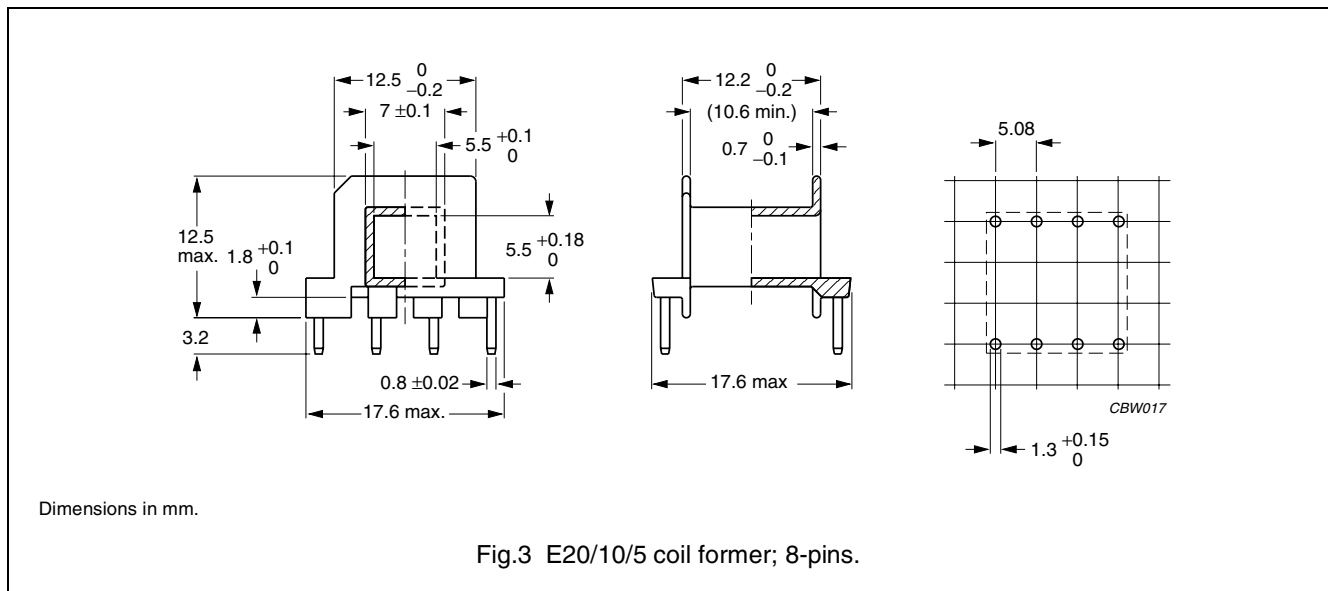
Winding data and area product for 8-pins E20/10/5 coil former

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	28.6	10.8	38.7	892	CPV-E20/10/5-1S-6P

COIL FORMER

General data for 8-pins E20/10/5 coil former

PARAMETER	SPECIFICATION
Coil former material	phenolformaldehyde (PF), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E167521(M)
Pin material	copper-tin alloy (CuSn), 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



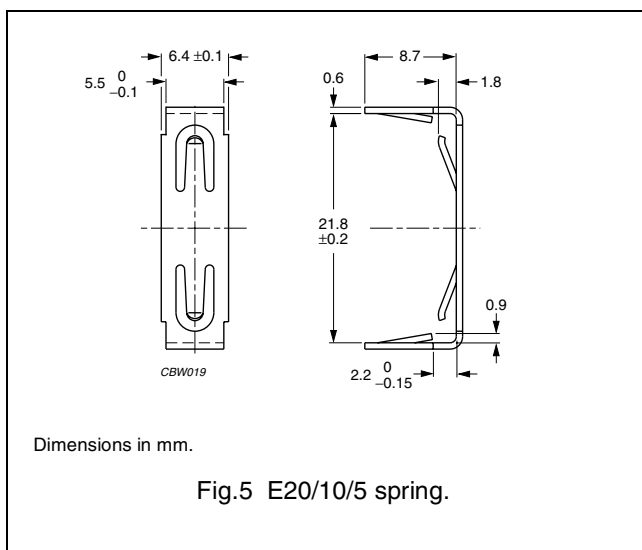
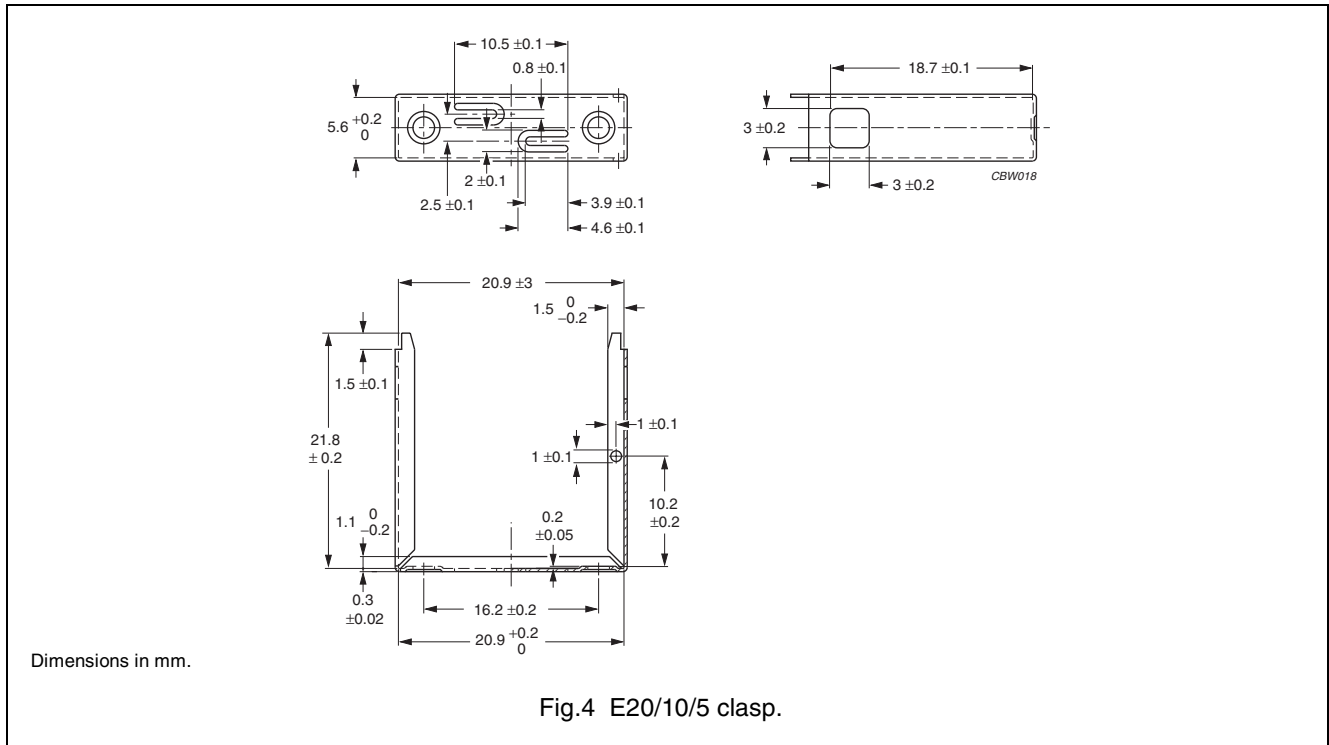
Winding data and area product for 8-pins E20/10/5 coil former

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	27	10.6	38	842	CSH-E20/10/5-1S-8P

MOUNTING PARTS

General data and ordering information

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clasp	copper-zinc alloy (CuZn), nickel (Ni) plated	4	CLA-E20/10/5
Spring	copper-tin alloy (CuSn), nickel (Ni) plated	5	SPR-E20/10/5






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.