

# DATA SHEET

**E20/10/5**

**E cores and accessories**

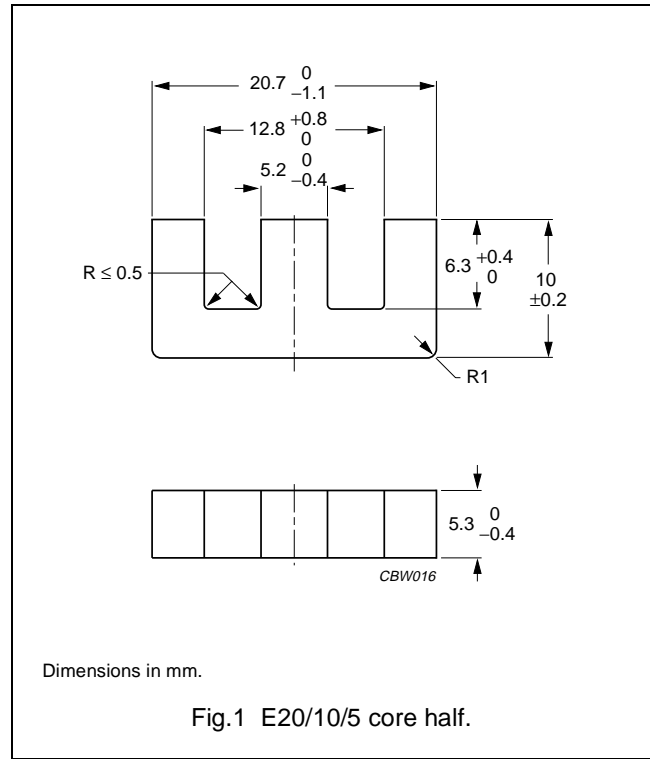
Supersedes data of February 2002

2004 Sep 01

**CORE SETS**

**Effective core parameters**

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



**Core halves**

Clamping force for  $A_L$  measurements, 20 ±10 N.

GRADE	$A_L$ (nH)	$\mu_e$	AIR GAP ( $\mu$ m)	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>prot</small>	1060 ±25%	≈1160	≈ 0	E20/10/5-3F35

## E cores and accessories

E20/10/5

## Core halves of high permeability grades

Clamping force for  $A_L$  measurements,  $20 \pm 10$  N.

GRADE	$A_L$ (nH)	$\mu_e$	AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3C11	$2600 \pm 25\%$	$\approx 2840$	$\approx 0$	E20/10/5-3C11
3E27	$2800 \pm 25\%$	$\approx 2870$	$\approx 0$	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	$\geq 330$	$\leq 0.15$	$\leq 0.17$	–	–
3C92	$\geq 370$	–	$\leq 0.13$	$\leq 0.7$	–
3C94	$\geq 320$	–	$\leq 0.13$	$\leq 0.7$	–
3C96	$\geq 340$	–	$\leq 0.1$	$\leq 0.56$	–
3F3	$\geq 320$	–	$\leq 0.16$	–	$\leq 0.28$
3F35	$\geq 300$	–	–	–	–

## 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	$\geq 330$	–	–	–	–
3C92	$\geq 370$	–	–	–	–
3C94	$\geq 320$	–	–	–	–
3C96	$\geq 340$	$\leq 0.5$	–	–	–
3F3	$\geq 320$	–	–	–	–
3F35	$\geq 300$	$\leq 0.18$	$\leq 1.4$	–	–

**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-lead alloy (SnPb) plated, transition to lead-free (Sn) ongoing.
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

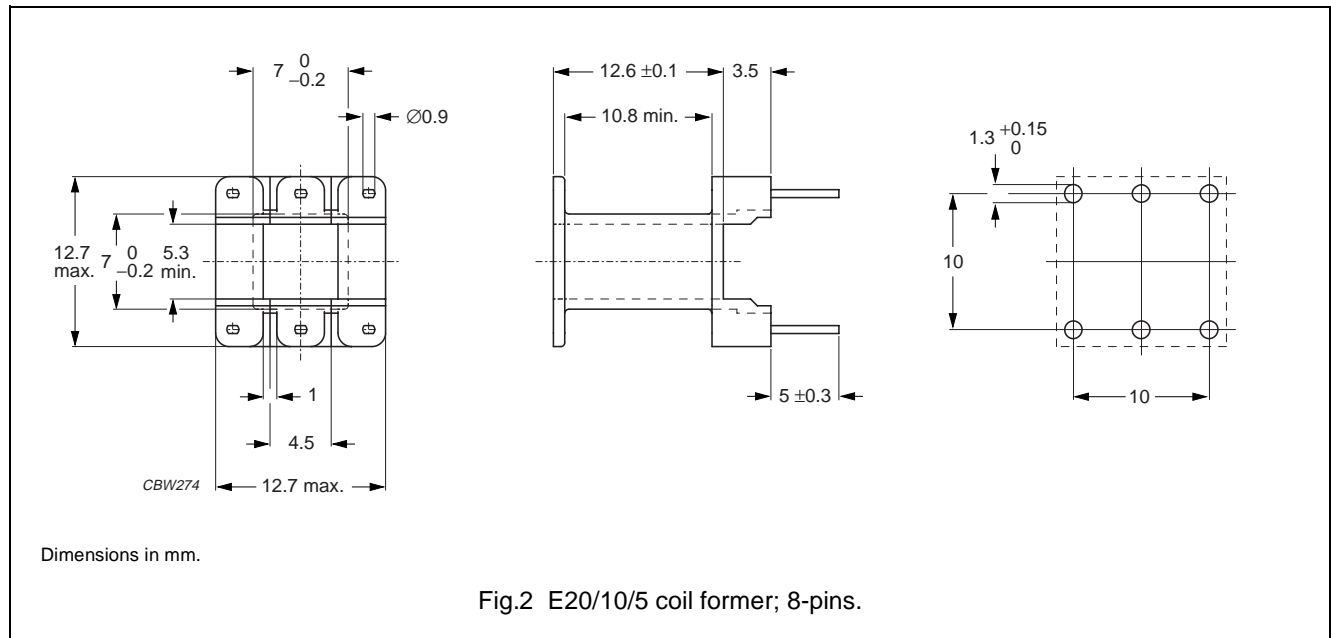


Fig.2 E20/10/5 coil former; 8-pins.

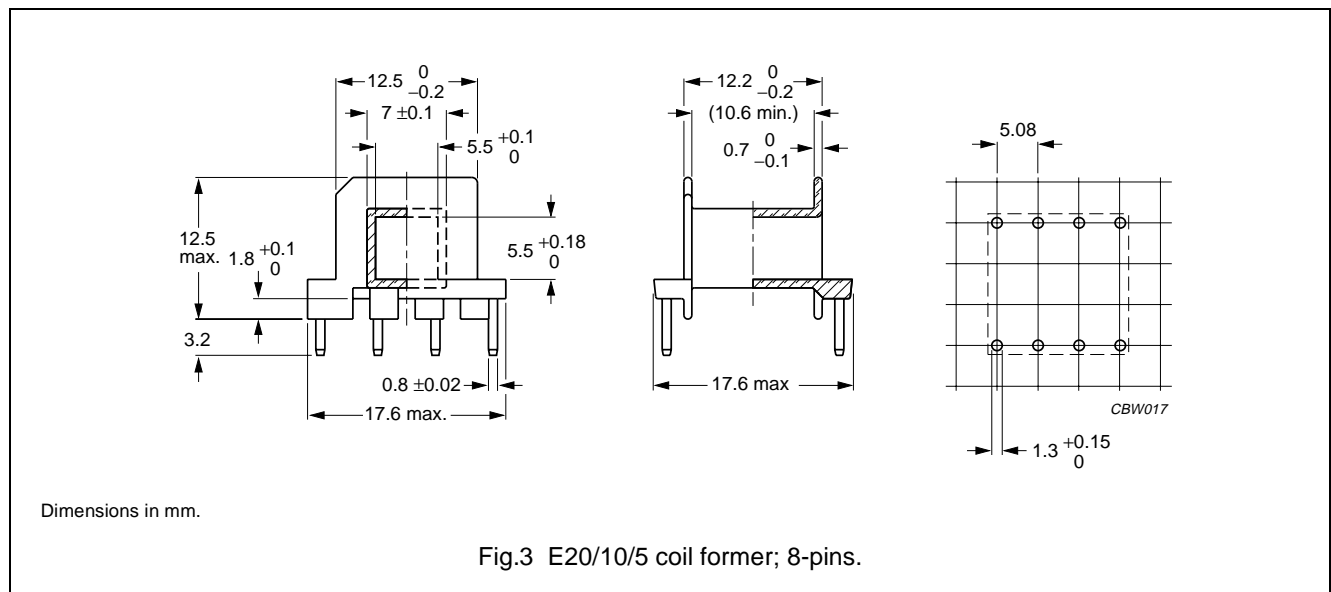
**Winding data for 8-pins E20/10/5 coil former**

NUMBER OF SECTIONS	WINDING AREA (mm <sup>2</sup> )	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	28.6	10.8	38.7	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-lead alloy (SnPb) plated, transition to lead-free (Sn) ongoing.
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



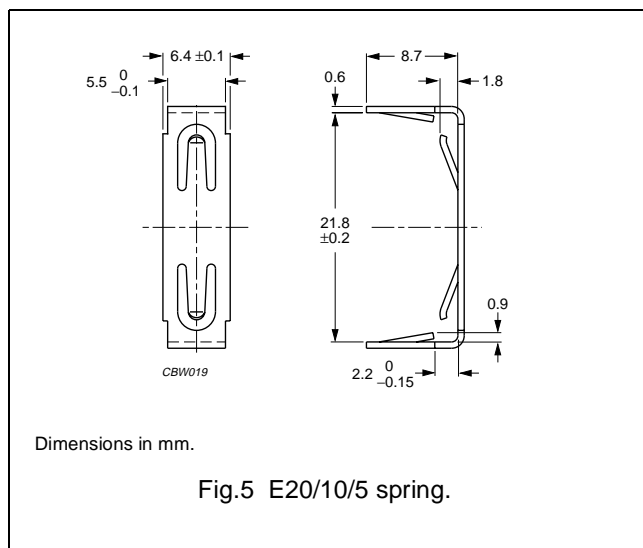
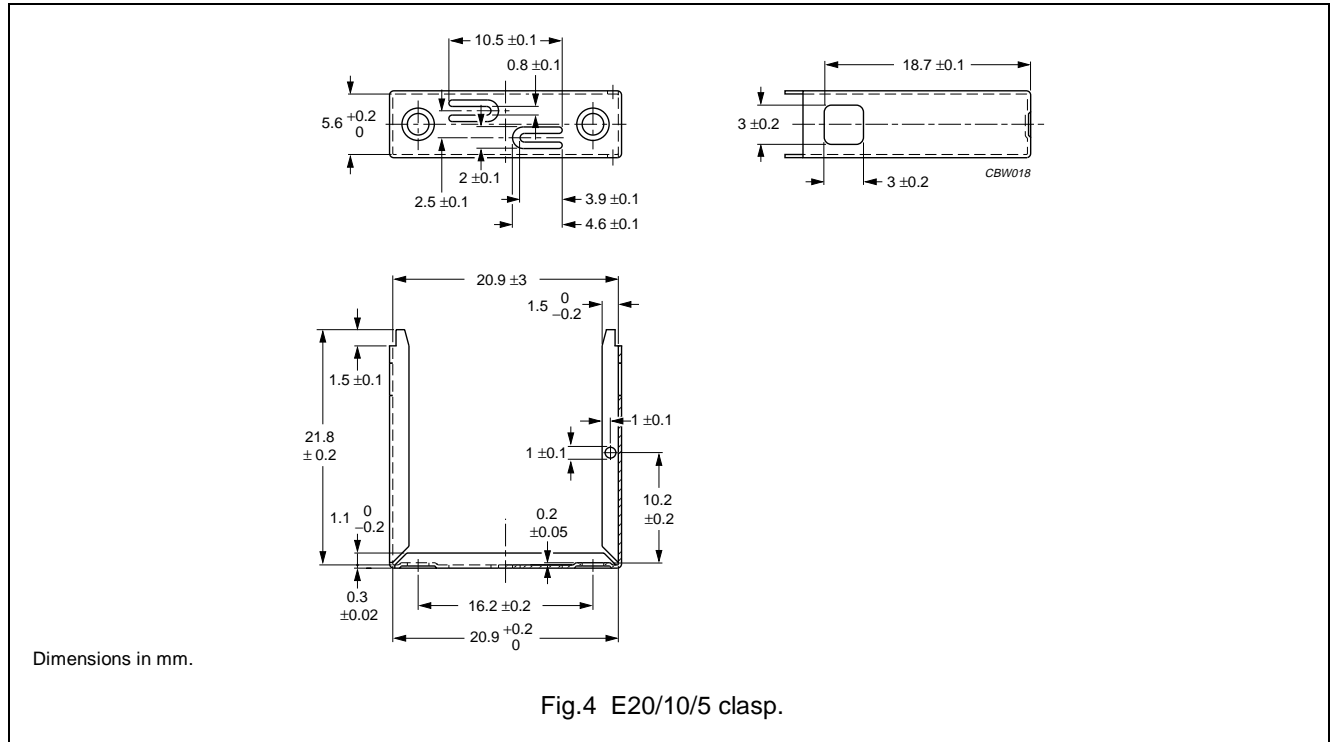
**Winding data for 8-pins E20/10/5 coil former**

NUMBER OF SECTIONS	WINDING AREA (mm <sup>2</sup> )	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	27	10.6	38	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.

**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
<b>Prototype</b>		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.
<b>Design-in</b>		These products are recommended for new designs.
<b>Preferred</b>		These products are recommended for use in current designs and are available via our sales channels.
<b>Support</b>		These products are <b>not</b> recommended for new designs and may not be available through all of our sales channels. Customers are advised to check for availability.