

DATA SHEET

EP20

EP cores and accessories

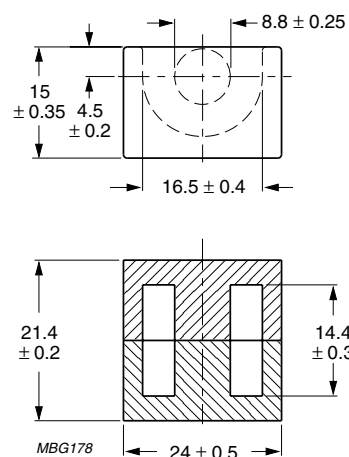
Supersedes data of September 2004

2008 Sep 01

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.520	mm^{-1}
V_e	effective volume	3230	mm^3
l_e	effective length	41.1	mm
A_e	effective area	78.7	mm^2
$A_{\min}$	minimum area	60.8	mm^2
m	mass of set	≈ 27	g



Dimensions in mm.

Fig.1 EP20 core set.

Core sets for general purpose transformers and power applications

Clamping force for A_L measurements, 60 ± 20 N.

GRADE	A_L (nH)	μ_e	TOTAL AIR GAP (μm)	TYPE NUMBER
3C81	160 $\pm 3\%$	≈ 67	≈ 790	EP20-3C81-E160
	250 $\pm 3\%$	≈ 104	≈ 460	EP20-3C81-A250
	315 $\pm 3\%$	≈ 131	≈ 350	EP20-3C81-A315
	400 $\pm 3\%$	≈ 166	≈ 260	EP20-3C81-A400
	630 $\pm 5\%$	≈ 262	≈ 150	EP20-3C81-A630
	4900 $\pm 25\%$	≈ 2040	≈ 0	EP20-3C81
3C91 des	4900 $\pm 25\%$	≈ 2040	≈ 0	EP20-3C91
3C94	160 $\pm 3\%$	≈ 67	≈ 790	EP20-3C94-E160
	250 $\pm 3\%$	≈ 104	≈ 460	EP20-3C94-A250
	315 $\pm 3\%$	≈ 131	≈ 350	EP20-3C94-A315
	400 $\pm 3\%$	≈ 166	≈ 260	EP20-3C94-A400
	630 $\pm 5\%$	≈ 262	≈ 150	EP20-3C94-A630
	4435 $\pm 25\%$	≈ 1840	≈ 0	EP20-3C94
3C96 des	3850 $\pm 25\%$	≈ 1600	≈ 0	EP20-3C96

EP cores and accessories

EP20

GRADE	A_L (nH)	μ_e	TOTAL AIR GAP (μm)	TYPE NUMBER
3F3	160 $\pm 3\%$	≈ 67	≈ 790	EP20-3F3-E160
	250 $\pm 3\%$	≈ 104	≈ 460	EP20-3F3-A250
	315 $\pm 3\%$	≈ 131	≈ 350	EP20-3F3-A315
	400 $\pm 3\%$	≈ 166	≈ 260	EP20-3F3-A400
	630 $\pm 5\%$	≈ 262	≈ 150	EP20-3F3-A630
	3550 $\pm 25\%$	≈ 1480	≈ 0	EP20-3F3

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	≥ 315	≤ 0.75	–	–	–
3C91	≥ 315	–	$\leq 0.2^{(1)}$	$\leq 1.3^{(1)}$	–
3C94	≥ 320	–	≤ 0.25	≤ 1.6	–
3C96	≥ 340	–	≤ 0.2	≤ 1.3	≤ 0.5
3F3	≥ 315	–	≤ 0.36	–	≤ 0.62

Properties of core sets under power conditions (continued)

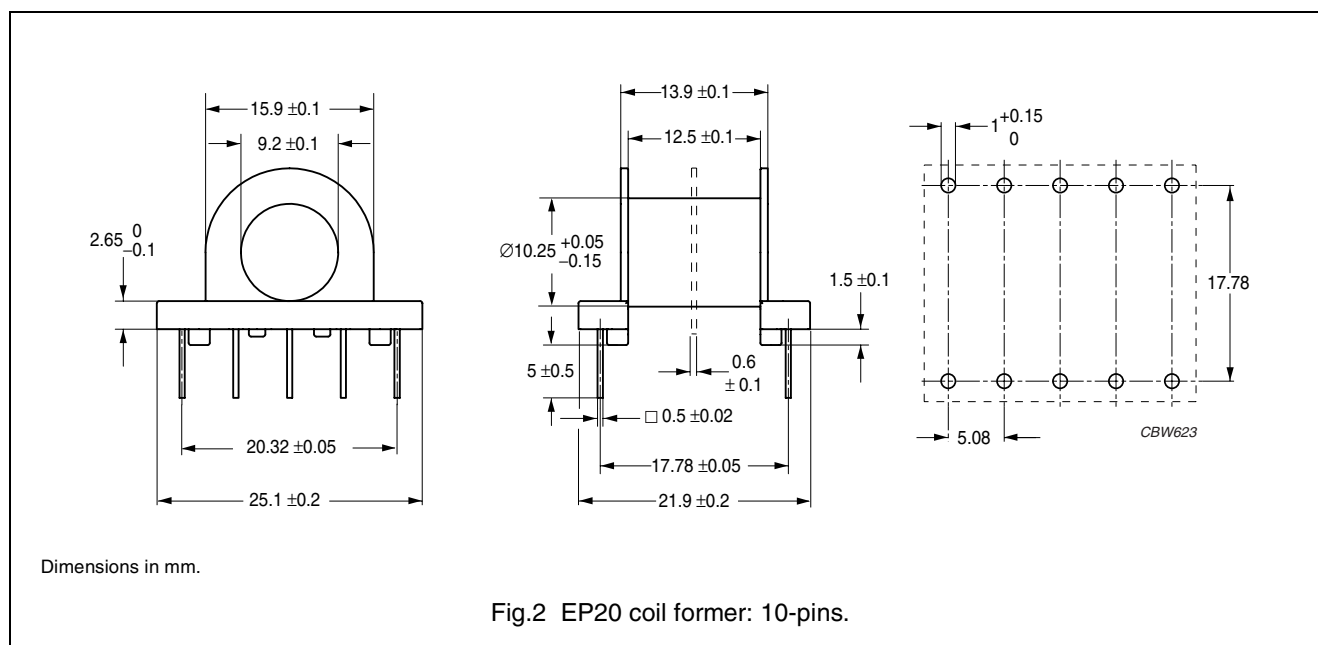
GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 500 kHz; $\hat{B} = 50$ mT; T = 100 °C	f = 500 kHz; $\hat{B} = 100$ mT; T = 100 °C	f = 1 MHz; $\hat{B} = 30$ mT; T = 100 °C	f = 3 MHz; $\hat{B} = 10$ mT; T = 100 °C
3C81	≥ 315	–	–	–	–
3C91	≥ 315	–	–	–	–
3C94	≥ 320	–	–	–	–
3C96	≥ 340	≤ 1.0	–	–	–
3F3	≥ 315	–	–	–	–

Note

1. Measured at 60 °C.

COIL FORMER**General data**

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

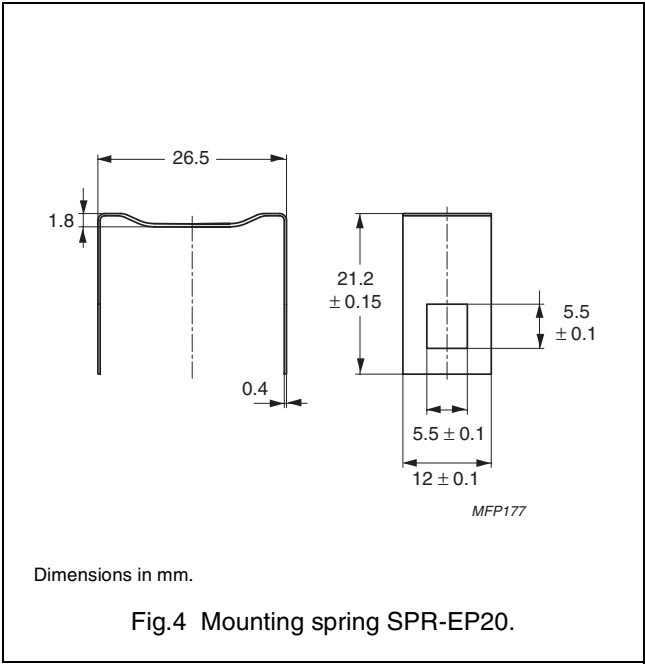
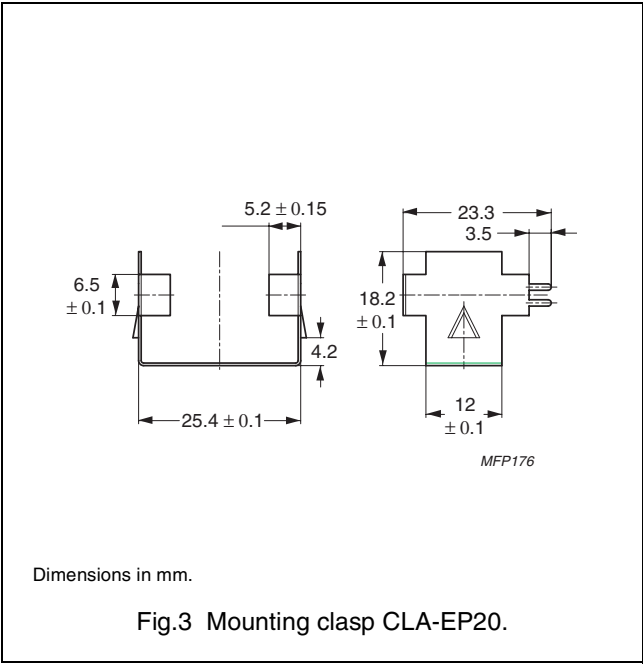
**Winding data and area product for 10-pins EP20 coil former**

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	40.3	12.4	39.4	3170	CSH-EP20-1S-10P-T
2	2 x 19.0	2 x 5.95	39.4	2 x 1500	CSH-EP20-2S-10P-T

MOUNTING PARTS

General data

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clasp	steel, tin (Sn) plated (thickness 3-5 microns)	3	CLA-EP20-Z
Spring	copper-tin alloy (CuSn), tin (Sn) plated	4	SPR-EP20-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
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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.