

# DATA SHEET

## **PQ20/20** PQ cores and accessories

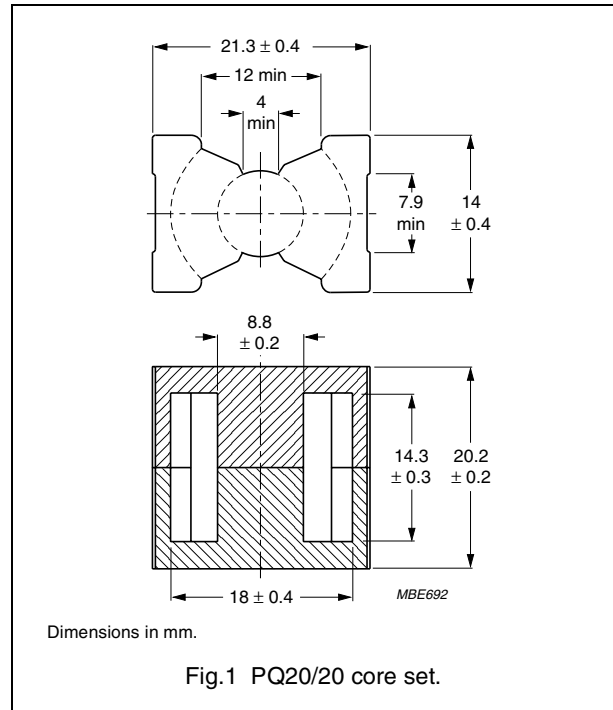
Supersedes data of September 2004

2008 Sep 01

**CORE SETS**

**Effective core parameters**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.731	mm <sup>-1</sup>
$V_e$	effective volume	2850	mm <sup>3</sup>
$l_e$	effective length	45.7	mm
$A_e$	effective area	62.6	mm <sup>2</sup>
$A_{min}$	minimum area	59.1	mm <sup>2</sup>
m	mass of set	≈ 16	g



**Core sets for general purpose transformers and power applications**

Clamping force for  $A_L$  measurements, 30 ± 10 N.

GRADE	$A_L$ (nH)	$\mu_e$	AIR GAP ( $\mu$ m)	TYPE NUMBER
3C81	160 ± 3%	≈ 93	≈ 620	PQ20/20-3C81-A160
	250 ± 3%	≈ 145	≈ 360	PQ20/20-3C81-A250
	315 ± 3%	≈ 183	≈ 270	PQ20/20-3C81-A315
	400 ± 3%	≈ 232	≈ 200	PQ20/20-3C81-A400
	630 ± 5%	≈ 366	≈ 120	PQ20/20-3C81-A630
	3580 ± 25%	≈ 2080	≈ 0	PQ20/20-3C81
3C90	160 ± 3%	≈ 93	≈ 620	PQ20/20-3C90-A160
	250 ± 3%	≈ 145	≈ 360	PQ20/20-3C90-A250
	315 ± 3%	≈ 183	≈ 270	PQ20/20-3C90-A315
	400 ± 3%	≈ 232	≈ 200	PQ20/20-3C90-A400
	630 ± 5%	≈ 366	≈ 120	PQ20/20-3C90-A630
	3150 ± 25%	≈ 1830	≈ 0	PQ20/20-3C90
3C91 <b>des</b>	3580 ± 25%	≈ 2080	≈ 0	PQ20/20-3C91
3C94	3150 ± 25%	≈ 1830	≈ 0	PQ20/20-3C94
3C95 <b>des</b>	3580 ± 25%	≈ 2080	≈ 0	PQ20/20-3C95
3C96 <b>des</b>	2820 ± 25%	≈ 1640	≈ 0	PQ20/20-3C96

GRADE	$A_L$ (nH)	$\mu_e$	AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3F3	160 $\pm$ 3%	$\approx$ 93	$\approx$ 620	PQ20/20-3F3-A160
	250 $\pm$ 3%	$\approx$ 145	$\approx$ 360	PQ20/20-3F3-A250
	315 $\pm$ 3%	$\approx$ 183	$\approx$ 270	PQ20/20-3F3-A315
	400 $\pm$ 3%	$\approx$ 232	$\approx$ 200	PQ20/20-3F3-A400
	630 $\pm$ 5%	$\approx$ 366	$\approx$ 120	PQ20/20-3F3-A630
	2650 $\pm$ 25%	$\approx$ 1540	$\approx$ 0	PQ20/20-3F3

#### 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; B = 200 mT; T = 100 °C	f = 100 kHz; B = 100 mT; T = 100 °C	f = 100 kHz; B = 200 mT; T = 25 °C	f = 100 kHz; B = 200 mT; T = 100 °C	f = 400 kHz; B = 50 mT; T = 100 °C	f = 500 kHz; B = 50 mT; T = 100 °C
3C81	$\geq$ 320	$\leq$ 0.66	–	–	–	–	–
3C90	$\geq$ 320	$\leq$ 0.35	$\leq$ 0.37	–	–	–	–
3C91	$\geq$ 320	–	$\leq$ 0.2 <sup>(1)</sup>	–	$\leq$ 1.3 <sup>(1)</sup>	–	–
3C94	$\geq$ 320	–	$\leq$ 0.27	–	$\leq$ 1.7	–	–
3C95	$\geq$ 320	–	–	$\leq$ 1.68	$\leq$ 1.6	–	–
3C96	$\geq$ 340	–	$\leq$ 0.2	–	$\leq$ 1.3	$\leq$ 0.53	$\leq$ 1.1
3F3	$\geq$ 320	–	$\leq$ 0.31	–	–	$\leq$ 0.54	–

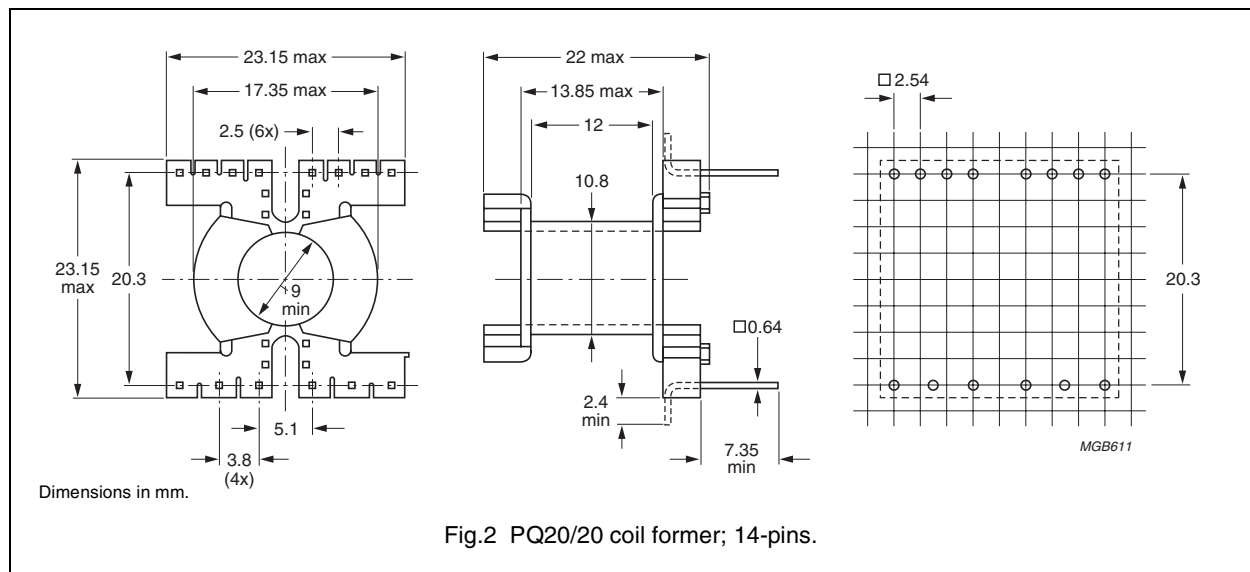
#### Note

1. Measured at 60 °C.

**COIL FORMER**

**General data 14-pins PQ20/20 coil former**

PARAMETER	SPECIFICATION
Coil former material	Polyethylene terephthalate (PET), glass-reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E41938
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



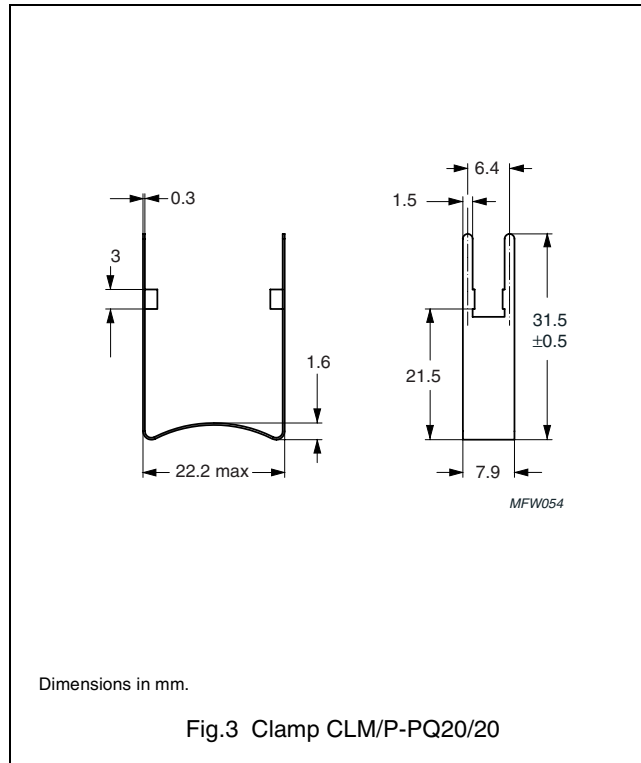
**Winding data and area product for 14-pins PQ20/20 coil former**

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm <sup>2</sup> )	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm <sup>4</sup> )	TYPE NUMBER
1	36.0	12.0	44.0	2250	CPV-PQ20/20-1S-14P-Z
1	36.0	12.0	44.0	2250	CPV-PQ20/20-1S-14PD-Z

**MOUNTING PARTS**

**General data**

ITEM	REMARKS	TYPE NUMBER
Clamp	phosphorbronze, Sn plated, earth pins solderability acc. to "IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s	CLM/P-PQ20/20






**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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