DATA SHEET

PQ32/20
PQ cores and accessories

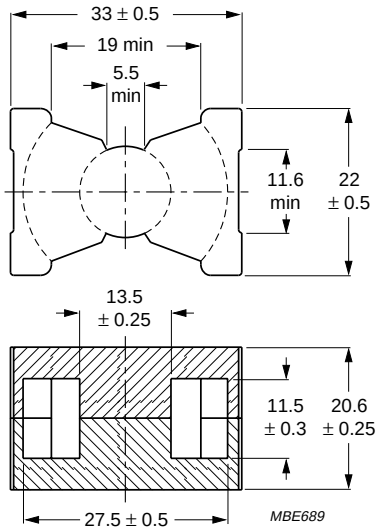
Supersedes data of February 2002 2004 Sep 01

FERROXCUBE
A YAGEO COMPANY

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.331	mm^{-1}
V_e	effective volume	9440	mm^3
l_e	effective length	55.9	mm
A_e	effective area	169	mm^2
A_{min}	minimum area	142	mm^2
m	mass of set	≈ 43	g



Dimensions in mm.

Fig.1 PQ32/20 core set.

Core sets for general purpose transformers and power applications

Clamping force for A_L measurements, 80 ±20 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C81	315 ±3%	≈ 83	≈ 790	PQ32/20-3C81-E315
	400 ±3%	≈ 105	≈ 600	PQ32/20-3C81-A400
	630 ±3%	≈ 166	≈ 350	PQ32/20-3C81-A630
	1000 ±3%	≈ 263	≈ 210	PQ32/20-3C81-A1000
	1600 ±5%	≈ 421	≈ 120	PQ32/20-3C81-A1600
	7560 ±25%	≈ 1990	≈ 0	PQ32/20-3C81
3C90	315 ±3%	≈ 83	≈ 790	PQ32/20-3C90-E315
	400 ±3%	≈ 105	≈ 600	PQ32/20-3C90-A400
	630 ±3%	≈ 166	≈ 350	PQ32/20-3C90-A630
	1000 ±3%	≈ 263	≈ 210	PQ32/20-3C90-A1000
	1600 ±5%	≈ 421	≈ 120	PQ32/20-3C90-A1600
	6000 ±25%	≈ 1580	≈ 0	PQ32/20-3C90
3C91 des	7560 ±25%	≈ 1990	≈ 0	PQ32/20-3C91
3C94	6800 ±25%	≈ 1790	≈ 0	PQ32/20-3C94
3C96 des	6000 ±25%	≈ 1580	≈ 0	PQ32/20-3C96

GRADE		A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3F3		315 ±3%	≈ 83	≈ 790	PQ32/20-3F3-E315
		400 ±3%	≈ 105	≈ 600	PQ32/20-3F3-A400
		630 ±3%	≈ 166	≈ 350	PQ32/20-3F3-A630
		1000 ±3%	≈ 263	≈ 210	PQ32/20-3F3-A1000
		1600 ±5%	≈ 421	≈ 120	PQ32/20-3F3-A1600
		6000 ±25%	≈ 1580	≈ 0	PQ32/20-3F3

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	$\hat{B}$ = 200 mT; f = 25 kHz; T = 100 °C	$\hat{B}$ = 100 mT; f = 100 kHz; T = 100 °C	$\hat{B}$ = 200 mT; f = 100 kHz; T = 100 °C	$\hat{B}$ = 50 mT; f = 400 kHz; T = 100 °C
3C81	≥320	≤ 1.9	–	–	–
3C90	≥320	≤ 1.2	≤ 1.3	–	–
3C91	≥320	–	≤ 0.7[1]	≤ 4.4[1]	–
3C94	≥320	–	≤ 0.9	≤ 5.5	–
3C96	≥340	–	≤ 0.7	≤ 4.4	≤ 1.7
3F3	≥320	–	≤ 1.0	–	≤ 1.8

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	$\hat{B}$ = 50 mT; f = 500 kHz; T = 100 °C	$\hat{B}$ = 100 mT; f = 500 kHz; T = 100 °C	$\hat{B}$ = 30 mT; f = 1 MHz; T = 100 °C	$\hat{B}$ = 10 mT; f = 3 MHz; T = 100 °C
3C81	≥320	–	–	–	–
3C90	≥320	–	–	–	–
3C91	≥320	–	–	–	–
3C94	≥320	–	–	–	–
3C96	≥340	≤ 3.5	–	–	–
3F3	≥320	–	–	–	–

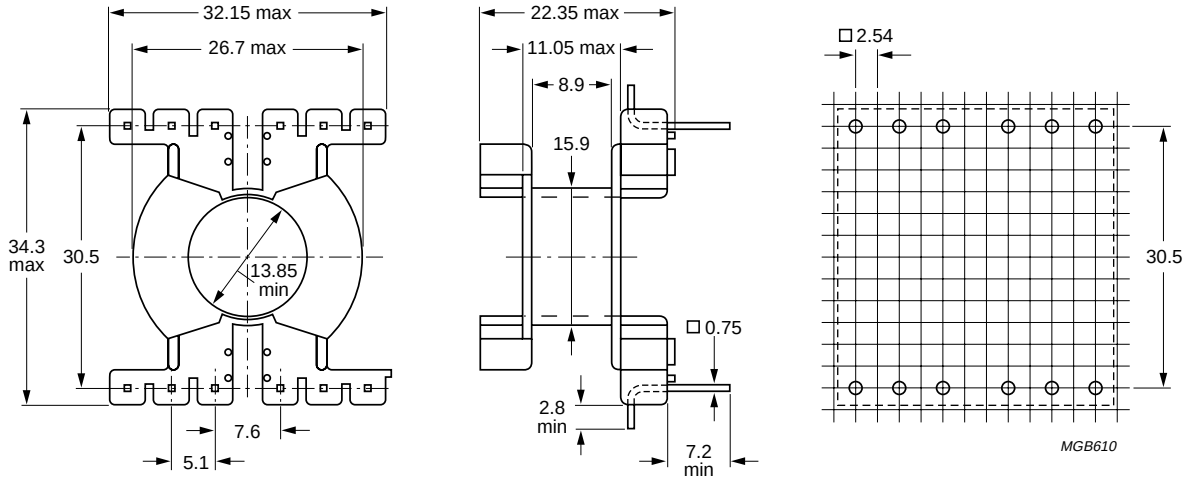
Note

1. Measured at 60 °C.

COIL FORMER

General data 12-pins PQ32/20 coil former

PARAMETER	SPECIFICATION
Coil former material	thermoplastic polyester, glass-reinforced, flame retardant in accordance with *"UL 94 V-0"*; UL file number E69578(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated, transition to lead-free (Sn) ongoing
Maximum operating temperature	155 °C, *"IEC 60085",* class F
Resistance to soldering heat	*"IEC 6068-2-20"*, Part 2, Test Tb, method 1B, 350 °C, 3.5 s
Solderability	*"IEC 60068-2-20"*, Part 2, Test Ta, method 1



Dimensions in mm.

Fig.2 PQ32/20 coil former; 12-pins.

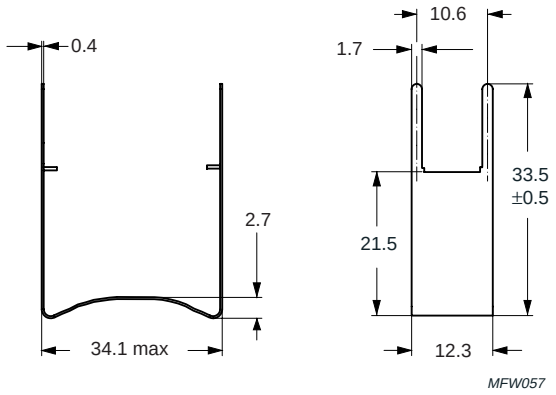
Winding data for 12-pins PQ32/20 coil former

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm^2)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	44.8	8.9	66.7	CPV-PQ32/20-1S-12P
1	44.8	8.9	66.7	CPV-PQ32/20-1S-12PD

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-PQ32/20



Dimensions in mm.

Fig.3 Clamp CLM/P-PQ32/20

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
Prototype	prot	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.
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Preferred		These products are recommended for use in current designs and are available via our sales channels.
Support	sup	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.