DATA SHEET

EQ20/R

EQ cores and accessories

Supersedes data of September 2004

2008 Sep 01

FERROXCUBE

A YAGEO COMPANY

EQ cores and accessories

CORES

Effective core parameters of a set of EQ cores

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.563	mm^{-1}
V_e	effective volume	1960	mm^3
l_e	effective length	33.2	mm
A_e	effective area	59.0	mm^2
A_{min}	minimum area	55.0	mm^2
m	mass of core half	≈ 5.1	g
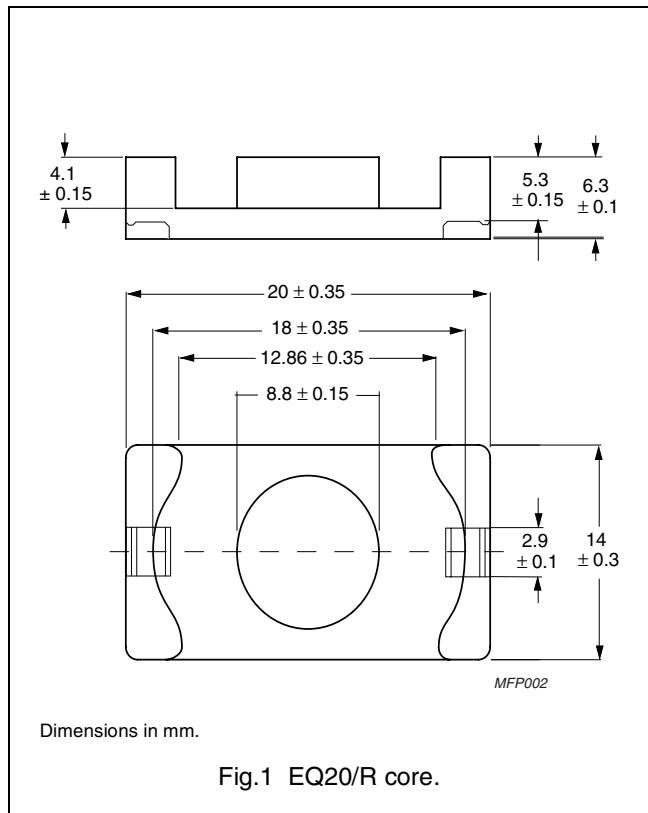
Effective core parameters of an EQ/PLT combination

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.420	mm^{-1}
V_e	effective volume	1500	mm^3
l_e	effective length	25.1	mm
A_e	effective area	59.8	mm^2
A_{min}	minimum area	55.0	mm^2
m	mass of plate	≈ 3.0	g

Ordering information for plates

GRADE	TYPE NUMBER
3C94	PLT20/14/2/S-3C94
3C95 des	PLT20/14/2/S-3C95
3C96 des	PLT20/14/2/S-3C96
3F35 des	PLT20/14/2/S-3F35
3F4 des	PLT20/14/2/S-3F4
3F45 prot	PLT20/14/2/S-3F45

Dimensions in mm.

Fig.1 EQ20/R core.

Dimensions in mm.
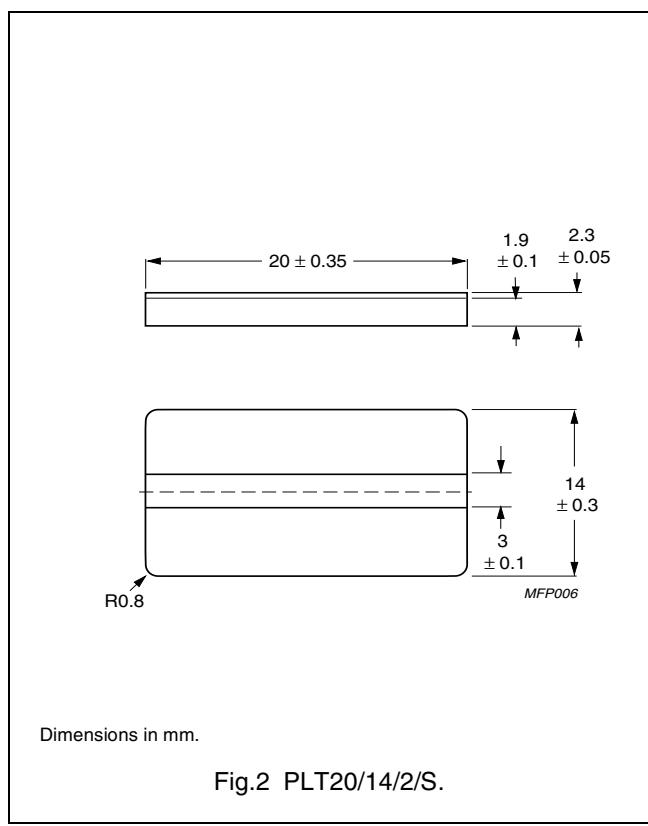
Fig.2 PLT20/14/2/S.

EQ cores and accessories $\hspace{6cm}$ EQ20/R

Core halves for use in combination with an EQ core

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements, 30 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C94	3500 ± 25 %	≈ 1570	≈ 0	EQ20/R-3C94
3C95 des	4160 ± 25 %	≈ 1865	≈ 0	EQ20/R-3C95
3C96 des	3150 ± 25 %	≈ 1410	≈ 0	EQ20/R-3C96
3F35 des	2400 ± 25 %	≈ 1075	≈ 0	EQ20/R-3F35
3F4 des	1700 ± 25 %	≈ 762	≈ 0	EQ20/R-3F4
3F45 prot	1700 ± 25 %	≈ 762	≈ 0	EQ20/R-3F45

Core halves for use in combination with a plate (PLT)

A_L measured in combination with a plate (PLT), clamping force for A_L measurements, 30 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C94	4750 ± 25 %	≈ 1590	≈ 0	EQ20/R-3C94
3C95 des	5660 ± 25 %	≈ 1890	≈ 0	EQ20/R-3C95
3C96 des	4350 ± 25 %	≈ 1450	≈ 0	EQ20/R-3C96
3F35 des	3300 ± 25 %	≈ 1100	≈ 0	EQ20/R-3F35
3F4 des	2200 ± 25 %	≈ 735	≈ 0	EQ20/R-3F4
3F45 prot	2200 ± 25 %	≈ 735	≈ 0	EQ20/R-3F45

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Properties of core sets under power conditions

CORE COMBINATION	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 10 kHz; T = 100 °C	f = 100 kHz; $\hat{B}$ = 100 mT; T = 100 °C	f = 100 kHz; $\hat{B}$ = 200 mT; T = 25 °C	f = 100 kHz; $\hat{B}$ = 200 mT; T = 100 °C	f = 500 kHz; $\hat{B}$ = 50 mT; T = 100 °C
EQ+EQ20/R-3C94	≥ 320	≤ 0.17	–	≤ 1.2	–
EQ+PLT20/S-3C94	≥ 320	≤ 0.13	–	≤ 0.9	–
EQ+EQ20/R-3C95	≥ 320	–	≤ 1.16	≤ 1.1	–
EQ+PLT20/S-3C95	≥ 320	–	≤ 0.89	≤ 0.84	–
EQ+EQ20/R-3C96	≥ 340	≤ 0.13	–	≤ 0.9	≤ 0.74
EQ+PLT20/S-3C96	≥ 340	≤ 0.091	–	≤ 0.68	≤ 0.56
EQ+EQ20/R-3F35	≥ 300	–	–	–	≤ 0.27
EQ+PLT20/S-3F35	≥ 300	–	–	–	≤ 0.2
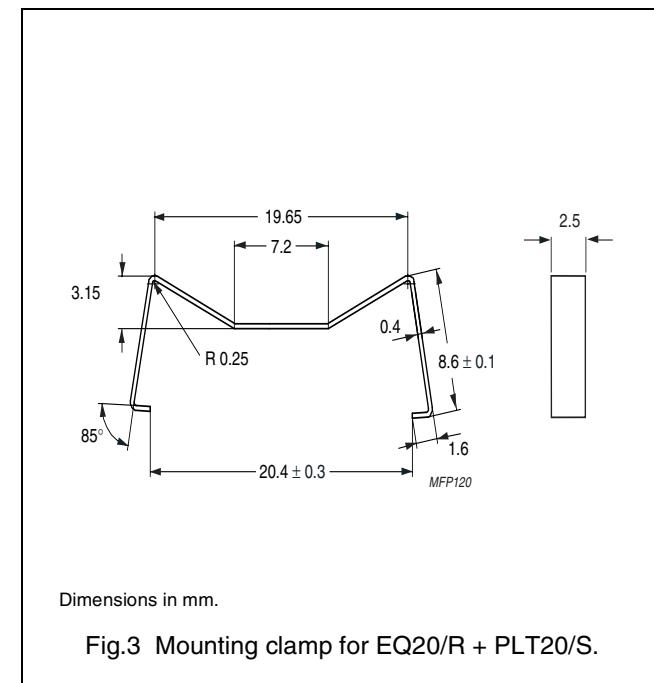
Properties of core sets under power conditions (continued)

CORE COMBINATION	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 10 kHz; T = 100 °C	f = 500 kHz; $\hat{B}$ = 100 mT; T = 100 °C	f = 1 MHz; $\hat{B}$ = 30 mT; T = 100 °C	f = 1 MHz; $\hat{B}$ = 50 mT; T = 100 °C	f = 3 MHz; $\hat{B}$ = 10 mT; T = 100 °C
EQ+EQ20/R-3F35	≥ 300	≤ 2.1	–	–	–
EQ+PLT20/S-3F35	≥ 300	≤ 1.6	–	–	–
EQ+EQ20/R-3F4	≥ 300	–	≤ 0.6	–	≤ 0.94
EQ+PLT20/S-3F4	≥ 300	–	≤ 0.45	–	≤ 0.72
EQ+EQ20/R-3F45	≥ 300	–	≤ 0.45	≤ 1.7	≤ 0.75
EQ+PLT20/S-3F45	≥ 300	–	≤ 0.35	≤ 1.3	≤ 0.6

MOUNTING PARTS

General data

ITEM	SPECIFICATION
Clamping force	≈ 30 N
Clamp material	corrosion resisting steel (CrNi)
Type number	CLM-EQ20/PLT20

Dimensions in mm.

Fig.3 Mounting clamp for EQ20/R + PLT20/S.

EQ cores and accessories

EQ20/R

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.
Design-in	**des**	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	**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.

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