

# DATA SHEET

**EQ13**

**EQ cores and accessories**

Supersedes data of September 2004

2008 Sep 01

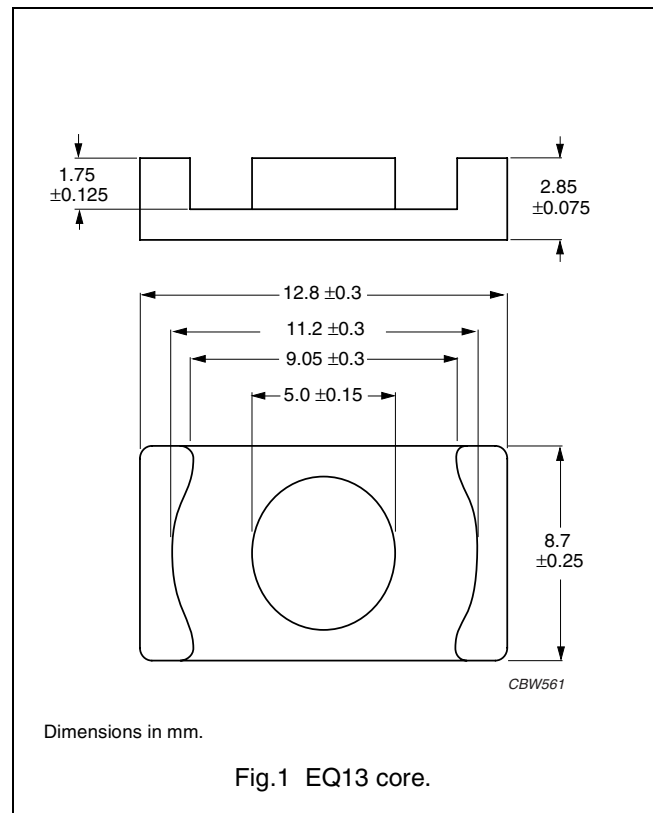


**FERROXCUBE**  
A YAGEO COMPANY

**CORES**

**Effective core parameters of a set of EQ cores**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.911	mm <sup>-1</sup>
$V_e$	effective volume	348	mm <sup>3</sup>
$l_e$	effective length	17.5	mm
$A_e$	effective area	19.9	mm <sup>2</sup>
$A_{min}$	minimum area	19.2	mm <sup>2</sup>
m	mass of core half	≈ 0.8	g

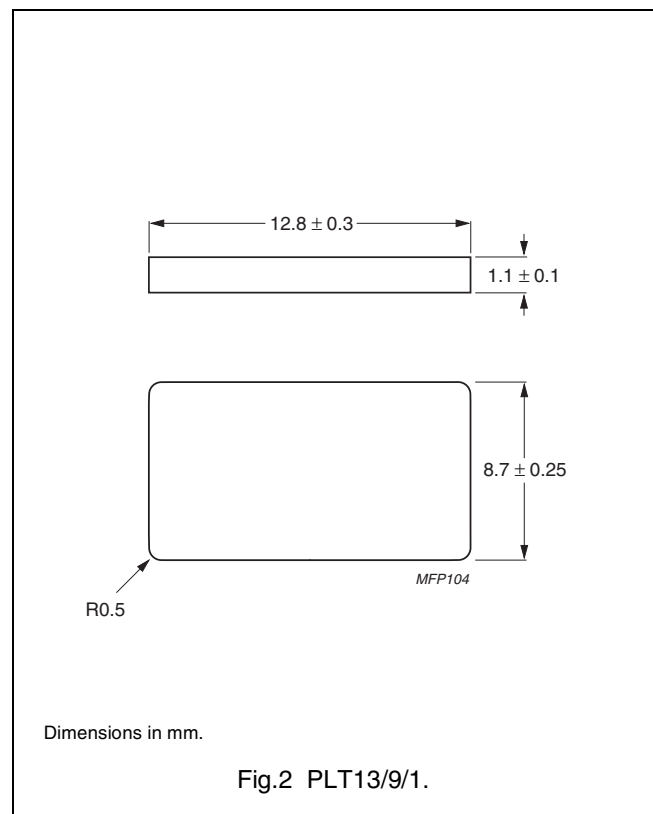


**Effective core parameters of an EQ/PLT combination**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.803	mm <sup>-1</sup>
$V_e$	effective volume	315	mm <sup>3</sup>
$l_e$	effective length	15.9	mm
$A_e$	effective area	19.8	mm <sup>2</sup>
$A_{min}$	minimum area	19.2	mm <sup>2</sup>
m	mass of plate	≈ 0.6	g

**Ordering information for plates**

GRADE	TYPE NUMBER
3C94	PLT13/9/1-3C94
3C95 <small>des</small>	PLT13/9/1-3C95
3C96 <small>des</small>	PLT13/9/1-3C96
3F35 <small>des</small>	PLT13/9/1-3F35
3F4 <small>des</small>	PLT13/9/1-3F4
3F45 <small>prot</small>	PLT13/9/1-3F45



**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,  $10 \pm 5$  N.

GRADE	$A_L$ (nH)	$\mu_e$	AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3C94	$1700 \pm 25 \%$	$\approx 1230$	$\approx 0$	EQ13-3C94
3C95 <small>des</small>	$1930 \pm 25 \%$	$\approx 1350$	$\approx 0$	EQ13-3C95
3C96 <small>des</small>	$1600 \pm 25 \%$	$\approx 1160$	$\approx 0$	EQ13-3C96
3F35 <small>des</small>	$1300 \pm 25 \%$	$\approx 942$	$\approx 0$	EQ13-3F35
3F4 <small>des</small>	$950 \pm 25 \%$	$\approx 689$	$\approx 0$	EQ13-3F4
3F45 <small>prot</small>	$950 \pm 25 \%$	$\approx 689$	$\approx 0$	EQ13-3F45

**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,  $10 \pm 5$  N.

GRADE	$A_L$ (nH)	$\mu_e$	AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3C94	$1800 \pm 25 \%$	$\approx 1150$	$\approx 0$	EQ13-3C94
3C95 <small>des</small>	$2030 \pm 25 \%$	$\approx 1300$	$\approx 0$	EQ13-3C95
3C96 <small>des</small>	$1700 \pm 25 \%$	$\approx 1085$	$\approx 0$	EQ13-3C96
3F35 <small>des</small>	$1350 \pm 25 \%$	$\approx 863$	$\approx 0$	EQ13-3F35
3F4 <small>des</small>	$1000 \pm 25 \%$	$\approx 639$	$\approx 0$	EQ13-3F4
3F45 <small>prot</small>	$1000 \pm 25 \%$	$\approx 639$	$\approx 0$	EQ13-3F45

## 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+EQ13-3C94	≥ 320	≤ 0.031	–	≤ 0.21	–
EQ+PLT13-3C94	≥ 320	≤ 0.028	–	≤ 0.19	–
EQ+EQ13-3C95	≥ 320	–	≤ 0.19	≤ 0.18	–
EQ+PLT13-3C95	≥ 320	–	≤ 0.17	≤ 0.16	–
EQ+EQ13-3C96	≥ 340	≤ 0.023	–	≤ 0.16	≤ 0.13
EQ+PLT13-3C96	≥ 340	≤ 0.021	–	≤ 0.14	≤ 0.12
EQ+EQ13-3F35	≥ 300	–	–	–	≤ 0.047
EQ+PLT13-3F35	≥ 300	–	–	–	≤ 0.043

## 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+EQ13-3F35	≥ 300	≤ 0.36	–	–	–
EQ+PLT13-3F35	≥ 300	≤ 0.33	–	–	–
EQ+EQ13-3F4	≥ 300	–	≤ 0.1	–	≤ 0.17
EQ+PLT13-3F4	≥ 300	–	≤ 0.095	–	≤ 0.15
EQ+EQ13-3F45	≥ 300	–	≤ 0.08	≤ 0.3	≤ 0.14
EQ+PLT13-3F45	≥ 300	–	≤ 0.07	≤ 0.26	≤ 0.12




**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
<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.