

# DATA SHEET

**EQ30**

**EQ cores and accessories**

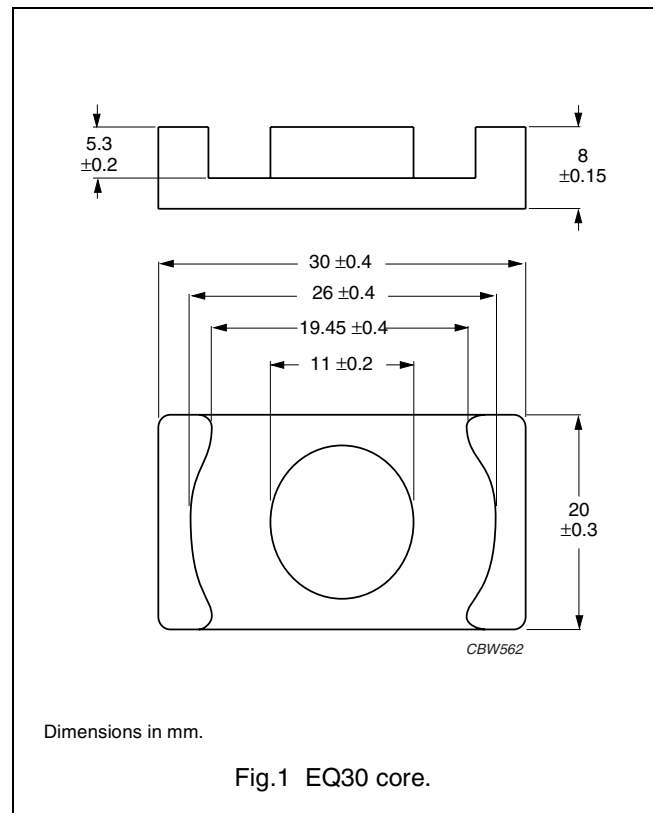
Supersedes data of September 2004

2008 Sep 01

**CORES**

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

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.426	mm <sup>-1</sup>
$V_e$	effective volume	4970	mm <sup>3</sup>
$l_e$	effective length	46.0	mm
$A_e$	effective area	108	mm <sup>2</sup>
$A_{min}$	minimum area	95.0	mm <sup>2</sup>
m	mass of core half	≈ 13.2	g

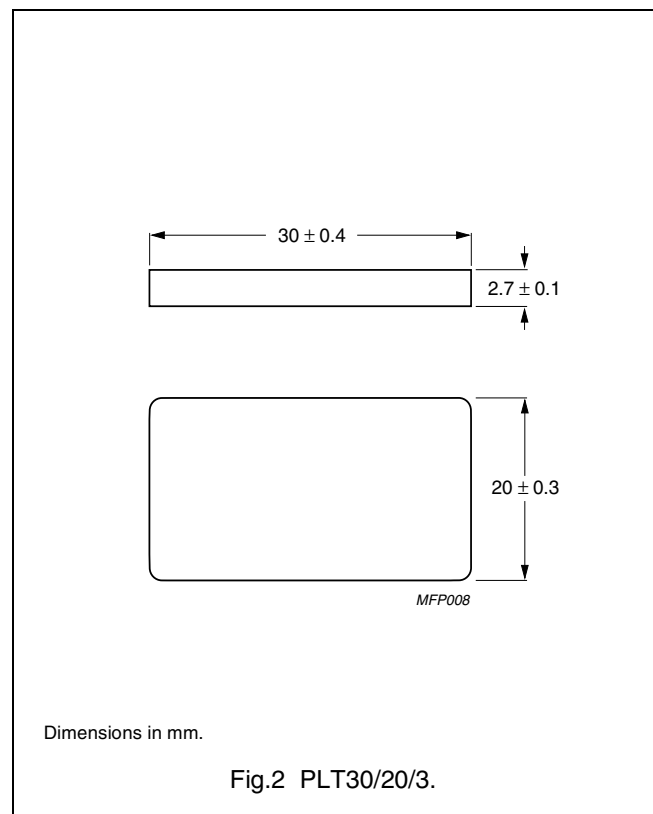


**Effective core parameters of an EQ/PLT combination**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.335	mm <sup>-1</sup>
$V_e$	effective volume	3910	mm <sup>3</sup>
$l_e$	effective length	36.2	mm
$A_e$	effective area	108	mm <sup>2</sup>
$A_{min}$	minimum area	95.0	mm <sup>2</sup>
m	mass of plate	≈ 7.6	g






**Ordering information for plates**

GRADE	TYPE NUMBER
3C94	PLT30/20/3-3C94
3C95 <small>des</small>	PLT30/20/3-3C95
3C96 <small>des</small>	PLT30/20/3-3C96
3F35 <small>des</small>	PLT30/20/3-3F35
3F4 <small>des</small>	PLT30/20/3-3F4
3F45 <small>prot</small>	PLT30/20/3-3F45








**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,  $40 \pm 20$  N.

GRADE	$A_L$ (nH)	$\mu_e$	AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3C94	$5400 \pm 25 \%$	$\approx 1830$	$\approx 0$	EQ30-3C94
3C95 	$6630 \pm 25 \%$	$\approx 2250$	$\approx 0$	EQ30-3C95
3C96 	$4900 \pm 25 \%$	$\approx 1660$	$\approx 0$	EQ30-3C96
3F35 	$3600 \pm 25 \%$	$\approx 1220$	$\approx 0$	EQ30-3F35
3F4 	$2400 \pm 25 \%$	$\approx 814$	$\approx 0$	EQ30-3F4
3F45 	$2400 \pm 25 \%$	$\approx 814$	$\approx 0$	EQ30-3F45

**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,  $40 \pm 20$  N.

GRADE	$A_L$ (nH)	$\mu_e$	AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3C94	$6550 \pm 25 \%$	$\approx 1750$	$\approx 0$	EQ30-3C94
3C95 	$7960 \pm 25 \%$	$\approx 2120$	$\approx 0$	EQ30-3C95
3C96 	$6000 \pm 25 \%$	$\approx 1600$	$\approx 0$	EQ30-3C96
3F35 	$4600 \pm 25 \%$	$\approx 1225$	$\approx 0$	EQ30-3F35
3F4 	$3200 \pm 25 \%$	$\approx 853$	$\approx 0$	EQ30-3F4
3F45 	$3200 \pm 25 \%$	$\approx 853$	$\approx 0$	EQ30-3F45

## 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+EQ30-3C94	≥ 320	≤ 0.45	–	≤ 3.0	–
EQ+PLT30-3C94	≥ 320	≤ 0.35	–	≤ 2.3	–
EQ+EQ30-3C95	≥ 320	–	≤ 2.93	≤ 2.78	–
EQ+PLT30-3C95	≥ 320	–	≤ 2.3	≤ 2.2	–
EQ+EQ30-3C96	≥ 340	≤ 0.34	–	≤ 2.3	≤ 1.9
EQ+PLT30-3C96	≥ 340	≤ 0.23	–	≤ 1.7	≤ 1.4
EQ+EQ30-3F35	≥ 300	–	–	–	≤ 0.67
EQ+PLT30-3F35	≥ 300	–	–	–	≤ 0.52

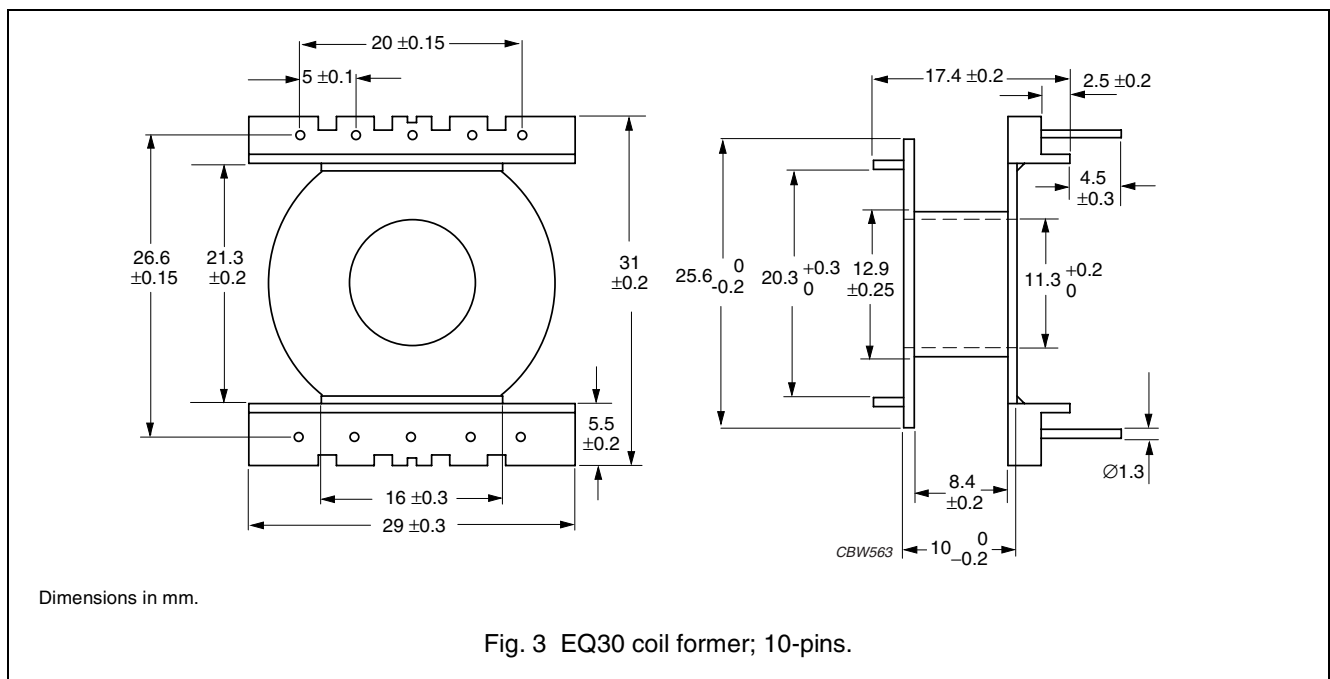
## Properties of core sets under power conditions (continued)

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+EQ30-3F35	≥ 300	≤ 5.2	–	–	–
EQ+PLT30-3F35	≥ 300	≤ 4.1	–	–	–
EQ+EQ30-3F4	≥ 300	–	≤ 1.5	–	≤ 2.4
EQ+PLT30-3F4	≥ 300	–	≤ 1.17	–	≤ 1.9
EQ+EQ30-3F45	≥ 300	–	≤ 1.15	≤ 4.3	≤ 2.0
EQ+PLT30-3F45	≥ 300	–	≤ 0.9	≤ 3.4	≤ 1.55

**COIL FORMERS**

**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 EQ30 coil former with 10 pins**

NUMBER OF SECTIONS	WINDING AREA (mm <sup>2</sup> )	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm <sup>4</sup> )	TYPE NUMBER
1	52.0	8.2	60	5620	CSV-EQ30-1S-10P




**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**

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<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.