

DATA SHEET

EQ30

EQ cores and accessories

Supersedes data of September 2004

2008 Sep 01

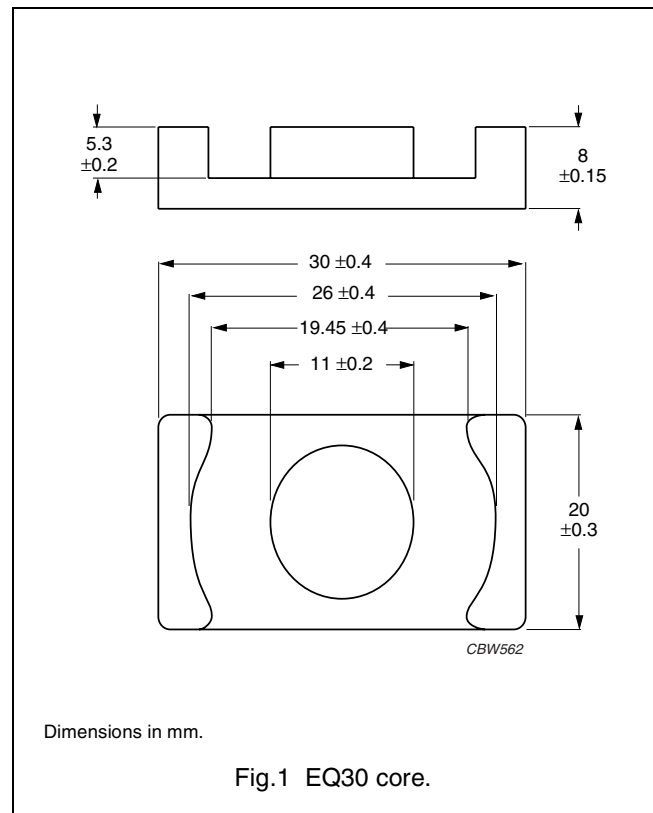


FERROXCUBE
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CORES

Effective core parameters of a set of EQ cores

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

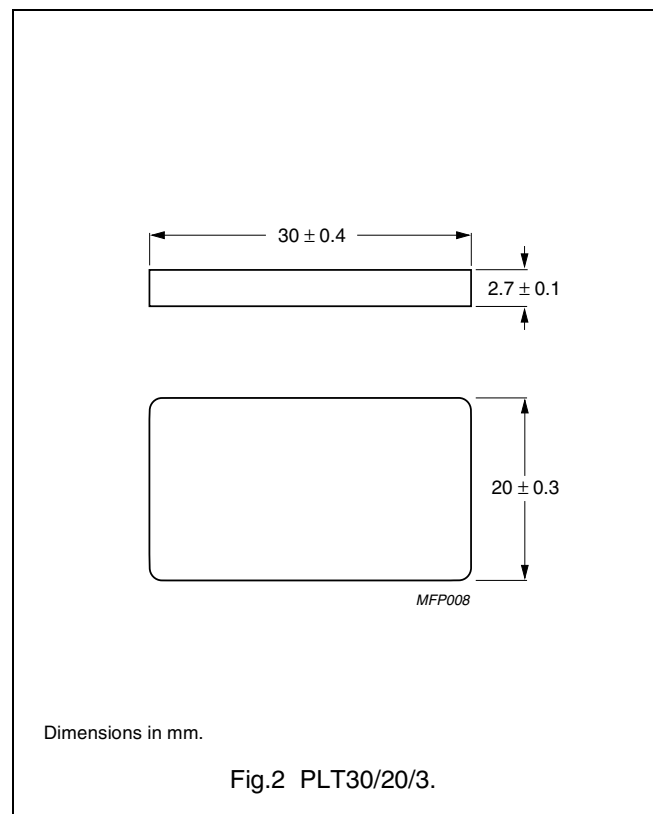


Effective core parameters of an EQ/PLT combination

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.335	mm ⁻¹
V_e	effective volume	3910	mm ³
l_e	effective length	36.2	mm
A_e	effective area	108	mm ²
A_{min}	minimum area	95.0	mm ²
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 ± 20 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C94	$5400 \pm 25 \%$	≈ 1830	≈ 0	EQ30-3C94
3C95 	$6630 \pm 25 \%$	≈ 2250	≈ 0	EQ30-3C95
3C96 	$4900 \pm 25 \%$	≈ 1660	≈ 0	EQ30-3C96
3F35 	$3600 \pm 25 \%$	≈ 1220	≈ 0	EQ30-3F35
3F4 	$2400 \pm 25 \%$	≈ 814	≈ 0	EQ30-3F4
3F45 	$2400 \pm 25 \%$	≈ 814	≈ 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 ± 20 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C94	$6550 \pm 25 \%$	≈ 1750	≈ 0	EQ30-3C94
3C95 	$7960 \pm 25 \%$	≈ 2120	≈ 0	EQ30-3C95
3C96 	$6000 \pm 25 \%$	≈ 1600	≈ 0	EQ30-3C96
3F35 	$4600 \pm 25 \%$	≈ 1225	≈ 0	EQ30-3F35
3F4 	$3200 \pm 25 \%$	≈ 853	≈ 0	EQ30-3F4
3F45 	$3200 \pm 25 \%$	≈ 853	≈ 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

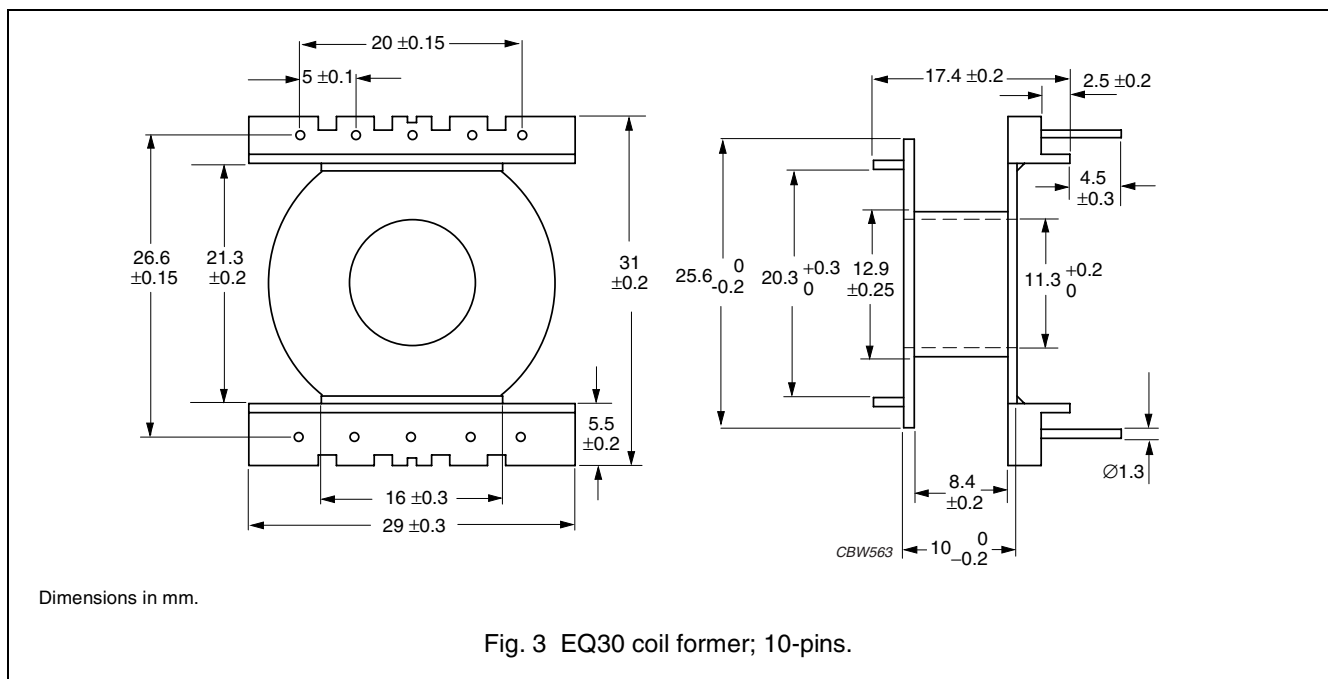
Properties of core sets under power conditions (continued)

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 ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm ⁴)	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

STATUS	INDICATION	DEFINITION
Prototype		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		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		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.