DATA SHEET

FRM20/5/15
Frame and Bar cores and accessories

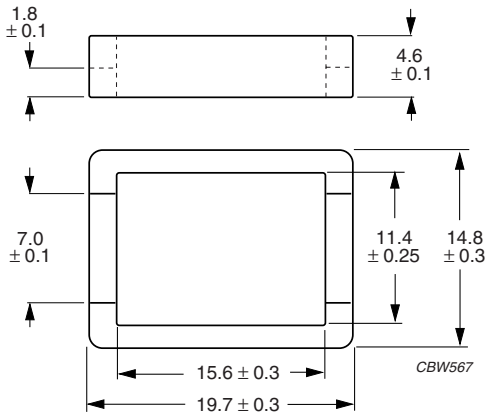
Supersedes data of September 2004 2008 Sep 01

FERROXCUBE
A YAGEO COMPANY

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	3.29	mm^{-1}
V_e	effective volume	655	mm^3
l_e	effective length	46	mm
A_e	effective area	14	mm^2
A_{min}	minimum area	7.4	mm^2
m	mass of frame	≈ 2.1	g
m	mass of bar	≈ 1.5	g

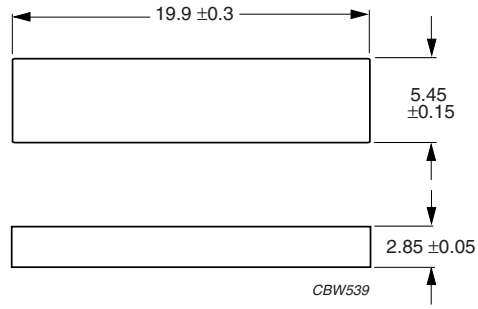


Dimensions in mm.

Fig.1 FRM20/5/15.

Ordering information for bar cores

GRADE	TYPE NUMBER
3C90	BAR20/3/5.5-3C90
3C91	BAR20/3/5.5-3C91



Dimensions in mm.

Fig.2 BAR20/3/5.5.

Frame cores for use in combination with matching bar cores

A_L measured in combination with bar core

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	500 ±25%	≈ 1310	≈ 0	FRM20/5/15-3C90
3C91	600 ±25%	≈ 1570	≈ 0	FRM20/5/15-3C91

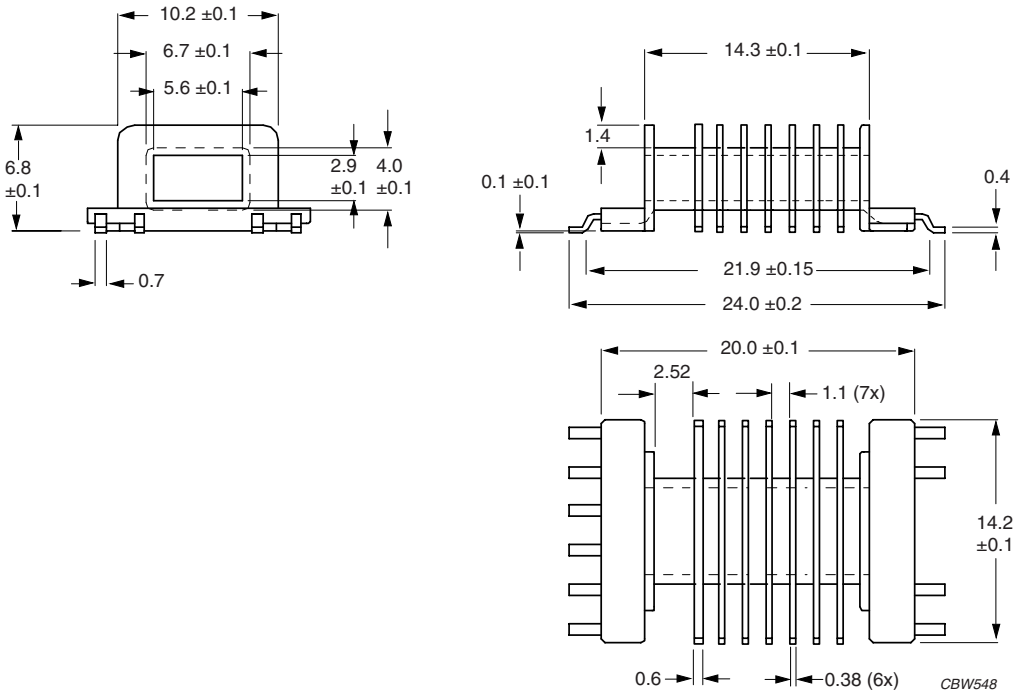
Properties of Frame and Bar combinations under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 10 kHz; T = 100 °C	f = 25 kHz; $\hat{B}$ = 200 mT; T = 100 °C	f = 100 kHz; $\hat{B}$ = 100 mT; T = 100 °C	f = 100 kHz; $\hat{B}$ = 100 mT; T = 60 °C	f = 100 kHz; $\hat{B}$ = 200 mT; T = 60 °C
3C90	≥ 320	≤ 0.073	≤ 0.080	–	–
3C91	≥ 320	–	–	≤ 0.033	≤ 0.26

COIL FORMERS

General data

PARAMETER	SPECIFICATION
Coil former material	liquid crystal polymer (LCP), glass-reinforced, flame retardant in accordance with *"UL 94V-0"*; UL file number E54705(M)
Pin material	copper-tin alloy (CuSn), tin (Sn) plated
Maximum operating temperature	155 °C, *"IEC 60085"*, class F
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



Dimensions in mm.

Fig.3 SMD coil former for FRM20/5/15.

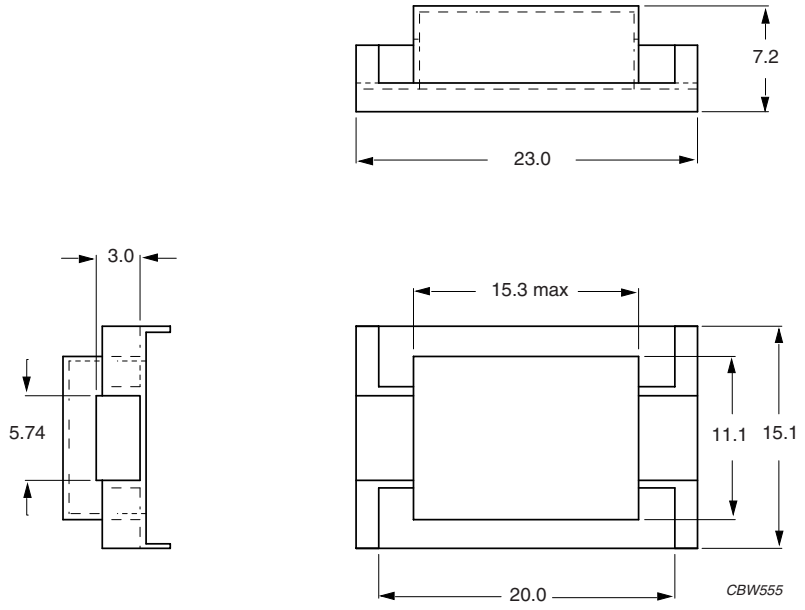
Winding data and area product

NUMBER OF SECTIONS	NUMBER OF SOLDER PADS	WINDING AREA (mm^2)	WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm^4)	TYPE NUMBER
8	10	3.5 + 7 × 1.5	2.52 + 7 × 1.1	27	25.9 + 7 x 11.1	CPHS-FRM20/15-8S-10P

MOUNTING PARTS

General data

PARAMETER	SPECIFICATION
Cover material	liquid crystal polymer (LCP), glass-reinforced, flame retardant in accordance with *"UL 94V-0"*; UL file number E54705(M)
Maximum operating temperature	155 °C, *"IEC 60085",* class F



Dimensions in mm.

Fig.4 Cover for FRM20/5/15.

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.