DATA SHEET

ER11/2.5/6
Planar ER cores and accessories

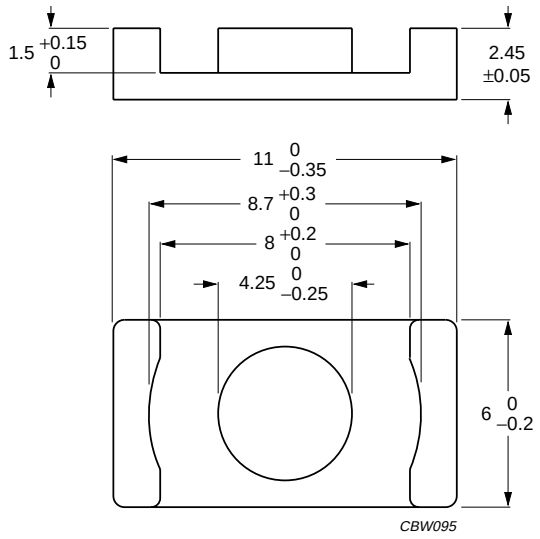
Supersedes data of February 2002 2004 Sep 01

FERROXCUBE
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CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
Σ(l/A)	core factor (C1)	1.23	mm^{-1}
V_e	effective volume	174	mm^3
l_e	effective length	14.7	mm
A_e	effective area	11.9	mm^2
A_{min}	minimum area	10.3	mm^2
m	mass of core half	≈ 0.5	g



Dimensions in mm.

Fig.1 ER11/2.5/6 core half.

Core sets for general purpose transformers and power applications

Clamping force for A_L measurements, 15 ±5 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C92 des	1050 ±25%	≈ 1030	≈ 0	ER11/2.5/6-3C92-S
3C93 des	1200 ±25%	≈ 1170	≈ 0	ER11/2.5/6-3C93-S
3C94	100 ±3%	≈ 98	≈ 170	ER11/2.5/6-3C94-A100-S
	160 ±5%	≈ 157	≈ 100	ER11/2.5/6-3C94-A160-S
	250 ±8%	≈ 246	≈ 60	ER11/2.5/6-3C94-A250-S
	1400 ±25%	≈ 1370	≈ 0	ER11/2.5/6-3C94-S
3C96 des	1250 ±25%	≈ 1220	≈ 0	ER11/2.5/6-3C96-S
3F3	100 ±3%	≈ 98	≈ 170	ER11/2.5/6-3F3-A100-S
	160 ±5%	≈ 157	≈ 100	ER11/2.5/6-3F3-A160-S
	250 ±8%	≈ 246	≈ 60	ER11/2.5/6-3F3-A250-S
	1200 ±25%	≈ 1170	≈ 0	ER11/2.5/6-3F3-S
3F35 prot	1000 ±25%	≈ 980	≈ 0	ER11/2.5/6-3F35-S
3F4 des	63 ±3%	≈ 62	≈ 280	ER11/2.5/6-3F4-A63-S
	100 ±5%	≈ 98	≈ 160	ER11/2.5/6-3F4-A100-S
	160 ±8%	≈ 157	≈ 85	ER11/2.5/6-3F4-A160-S
	725 ±25%	≈ 710	≈ 0	ER11/2.5/6-3F4-S
3F45 prot	725 ±25%	≈ 710	≈ 0	ER11/2.5/6-3F45-S

Core sets of high permeability grades

Clamping force for A_L measurements,15 ±5 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E5	5000 +40/–30%	≈ 4920	≈ 0	ER11/2.5/6-3E5-S
3E6	6700 +40/–30%	≈ 6590	≈ 0	ER11/2.5/6-3E6-S

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 100 kHz; $\hat{B}$ = 100 mT; T = 100 °C	f = 100 kHz; $\hat{B}$ = 200 mT; T = 100 °C	f = 400 kHz; $\hat{B}$ = 50 mT; T = 100 °C	f = 500 kHz; $\hat{B}$ = 50 mT; T = 100 °C
3C92	≥370	≤ 0.018	≤ 0.1	–	–
3C93	≥320	≤ 0.018[1]	≤ 0.1[1]	–	–
3C94	≥320	≤ 0.018	≤ 0.1	–	–
3C96	≥340	≤ 0.014	≤ 0.08	≤ 0.033	≤ 0.065
3F3	≥300	≤ 0.025	–	≤ 0.04	–
3F35	≥300	–	–	≤ 0.016	≤ 0.023
3F4	≥250	–	–	–	–

1. Measured at 140 °C.

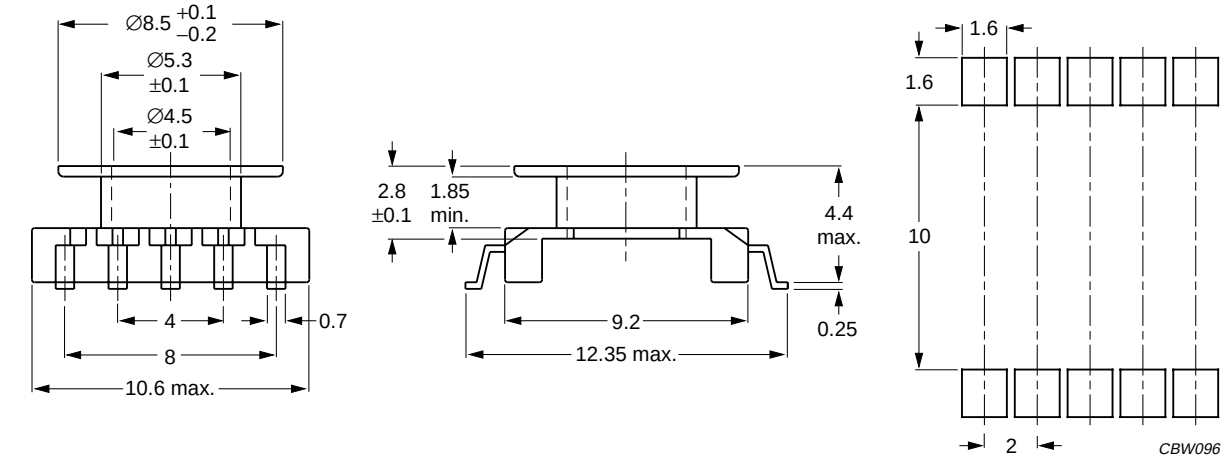
Properties of core sets under power conditions (continued)

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 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
3C92	≥370	–	–	–	–
3C93	≥320	–	–	–	–
3C94	≥320	–	–	–	–
3C96	≥340	–	–	–	–
3F3	≥300	–	–	–	–
3F35	≥300	≤ 0.18	–	–	–
3F4	≥250	–	≤ 0.052	–	≤ 0.084
3F45	≥250	–	≤ 0.035	≤ 0.087	≤ 0.06

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 for 10P, tin-lead alloy (SnPb) plated for 12P, transition to lead-free ongoing
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.2 ER11/2.5/6 coil former (SMD); 10-solder pads.

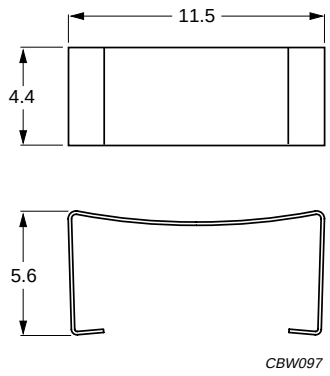
Winding data for ER11/2.5/6 coil former (SMD)

NUMBER OF SECTIONS	WINDING AREA (mm^2)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	2.8	1.85	21.6	CPVS-ER11-1S-10P-Z
1	2.8	1.85	21.6	CPVS-ER11-1S-12P

MOUNTING PARTS

General data and ordering information

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clamp	stainless steel (CrNi); clamping force ≈25 N	3	CLM-ER11



Dimensions in mm.

Fig.3 ER11/2.5/6 clamp.

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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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.
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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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