DATA SHEET

E5.3/2.7/2
E cores and accessories

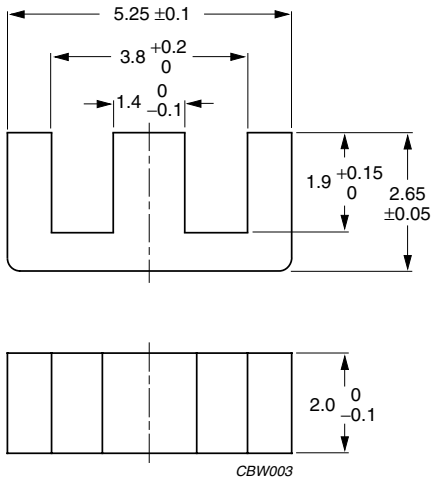
Supersedes data of September 2004 2008 Sep 01

FERROXCUBE
A YAGEO COMPANY

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	4.70	mm^{-1}
V_e	effective volume	33.3	mm^3
l_e	effective length	12.5	mm
A_e	effective area	2.66	mm^2
A_{min}	minimum area	2.63	mm^2
m	mass of core half	≈ 0.08	g



Dimensions in mm.

Fig.1 E5.3/2.7/2 core half.

Core halves for general purpose transformers and power applications

Clamping force for A_L measurements, 5 ±2 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C96 des	275 ±25%	≈ 1030	≈ 0	E5.3/2.7/2-3C96
3F3	265 ±25%	≈ 990	≈ 0	E5.3/2.7/2-3F3
3F35 des	225 ±25%	≈ 840	≈ 0	E5.3/2.7/2-3F35
3F4 des	165 ±25%	≈ 615	≈ 0	E5.3/2.7/2-3F4

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
3C96	≥340	≤ 0.0024	≤ 0.016	≤ 0.007
3F3	≥300	≤ 0.005	–	≤ 0.008
3F35	≥300	–	–	≤ 0.003
3F4	≥250	–	–	–

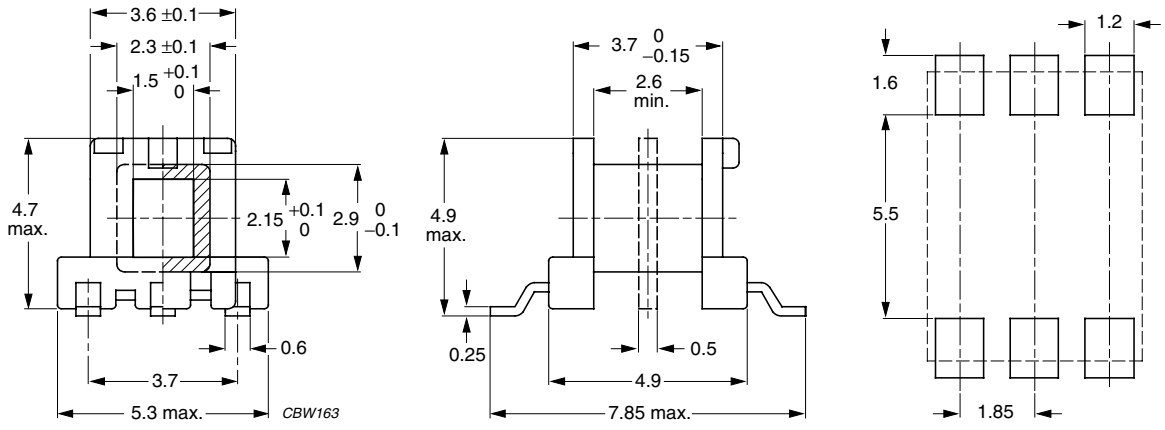
Properties of core sets under power conditions (continued)

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 500 kHz; $\hat{B}$ = 50 mT; T = 100 °C	f = 500 kHz; $\hat{B}$ = 100 mT; T = 100 °C	f = 1 MHz; $\hat{B}$ = 30 mT; T = 100 °C	f = 3 MHz; $\hat{B}$ = 10 mT; T = 100 °C
3C96	≥340	≤ 0.012	–	–	–
3F3	≥300	–	–	–	–
3F35	≥300	≤ 0.004	≤ 0.035	–	–
3F4	≥250	–	–	≤ 0.01	≤ 0.015

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.2 E5.3/2.7/2 coil former (SMD); 6-solder pads.

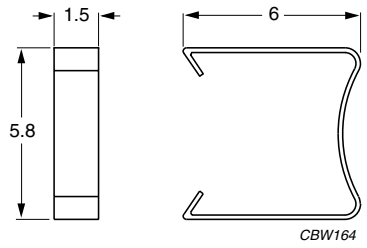
Winding data and area product for E5.3/2.7/2 coil former (SMD) with 6 solder pads

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	1.5	2.6	12.6	3.99	CPHS-E5.3/2-1S-4P-Z
1	1.5	2.6	12.6	3.99	CPHS-E5.3/2-1S-6P-Z
2	2×0.6	2×1.0	12.6	2 x 1.60	CPHS-E5.3/2-2S-6P-Z

MOUNTING PARTS

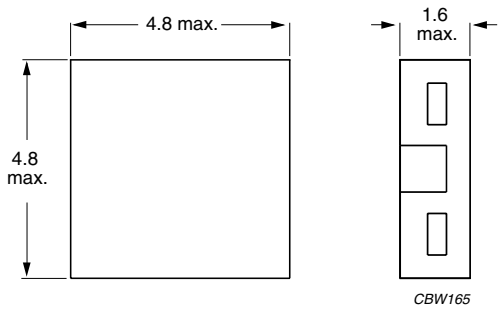
General data for mounting parts

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clamp	stainless steel (CrNi); clamping force ≈5 N	3	CLM-E5.3/2
Cover	liquid crystal polymer (LCP)	4	COV-E5.3/2



Dimensions in mm.

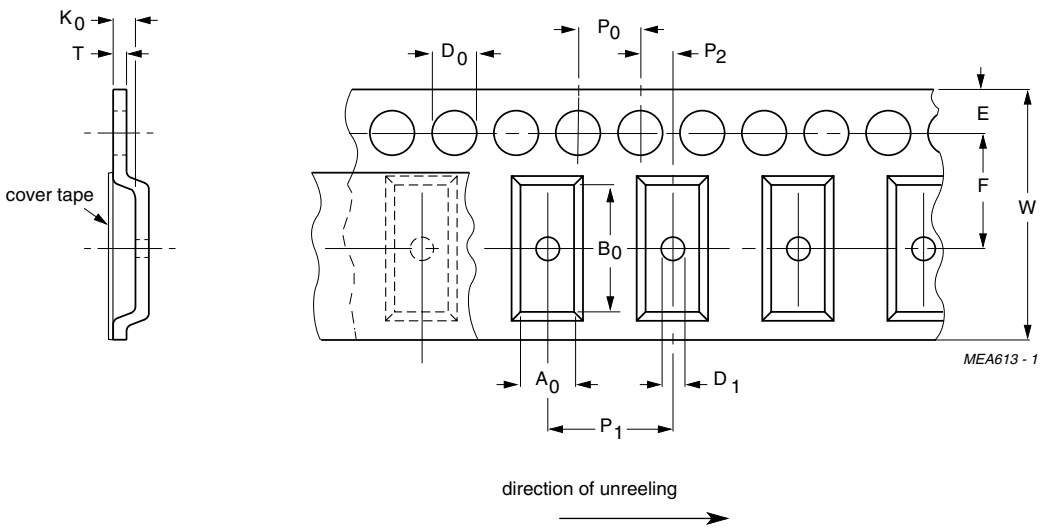
Fig.3 E5.3/2.7/2 clamp.



Dimensions in mm.

Fig.4 E5.3/2.7/2 cover.

BLISTER TAPE AND REEL DIMENSIONS



For dimensions see Table 1.

Fig.5 Blister tape.

Table 1 Physical dimensions of blister tape; see Fig.5

SIZE	DIMENSIONS (mm)
A_0	3.0 ±0.1
B_0	5.7 ±0.1
K_0	2.2 ±0.1
T	0.25 ±0.05
W	12.0 ±0.3
E	1.75 ±0.1
F	5.5 ±0.05
D_0	1.5 +0.1
D_1	≥1.5
P_0	4.0 ±0.1
P_1	8.0 ±0.1
P_2	2.0 ±0.1

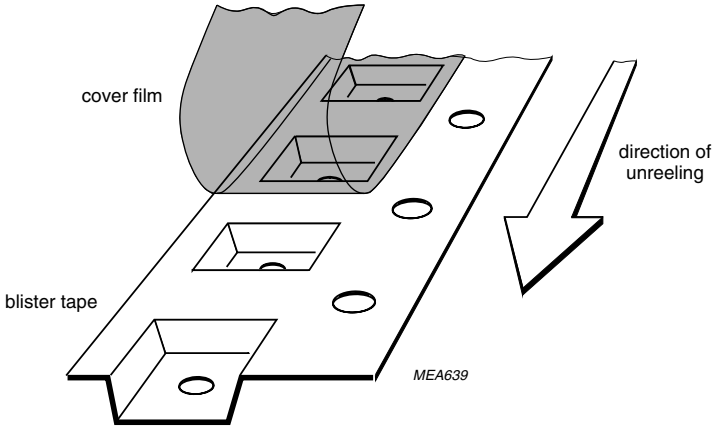
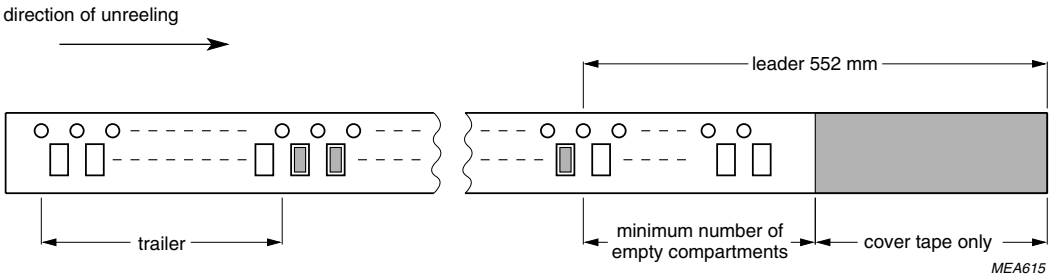
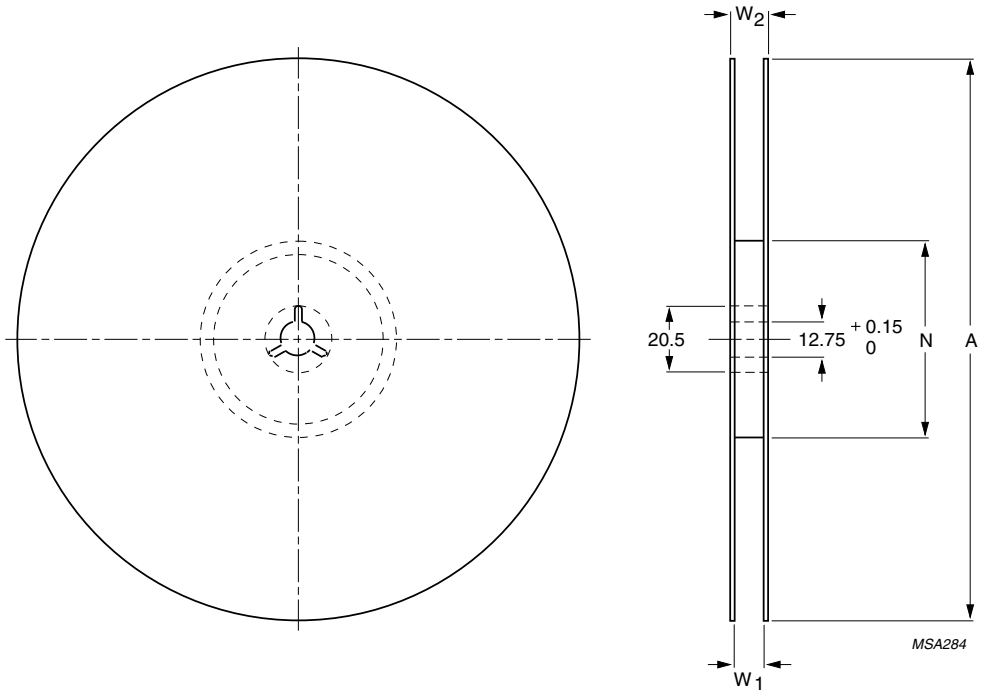


Fig.6 Construction of blister tape.



Leader: length of leader tape is 552 mm minimum covered with cover tape.
Trailer: 160 mm minimum (secured with tape).
Storage temperature range for tape: −25 to +45 °C.

Fig.7 Leader/trailer tape.



Dimensions in mm.
For dimensions see Table 2.

Fig.8 Reel.

Table 2 Reel dimensions; see Fig.8

SIZE	DIMENSIONS (mm)			
	A	**N**	**W_1**	**W_2**
12	330	100 ±5	12.4	≤16.4

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.

DISCLAIMER

Life support applications — These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Ferroxcube customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Ferroxcube for any damages resulting from such application.

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.