

DATA SHEET

IIC2-14/4

Integrated inductive components

New data

2008 Sep 01



FERROXCUBE
A YAGEO COMPANY

IIC2P-14/4

Effective core parameters

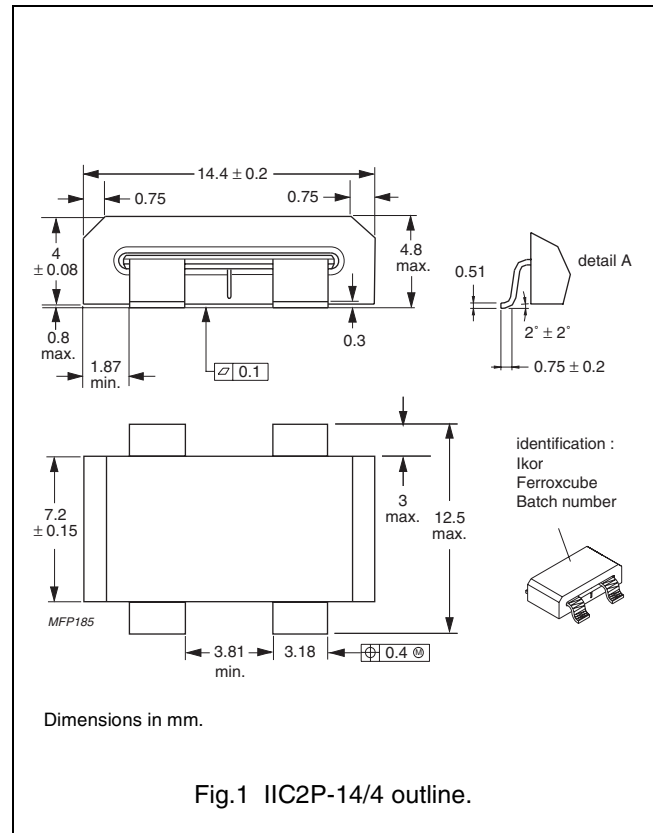
SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	2.47	mm ⁻¹
V_e	effective volume	338	mm ³
l_e	effective length	28.9	mm
A_e	effective area	11.7	mm ²
m	mass of core	≈1.85	g

FEATURES

- Inductive SMD component that looks like a standard IC.
- Windings are completed by PCB tracks.
- Suitable for reflow soldering.
- Partial air gap to resist saturation.

APPLICATIONS

- Coupled inductor (1)



IICs with partial air gap for use as power inductors

GRADE	L (μH) FOR 2 TURNS NO BIAS CURRENT			TYPE NUMBER
	f = 100 kHz; T = 25 °C	f = 500 kHz; T = 25 °C	f = 1 MHz; T = 25 °C	
3F35 <small>des</small>	–	2.8 ± 25 %	–	IIC2P-14/4-3F35-E

IICs with partial air gap under power conditions

GRADE	CORE LOSS (mW) at			TYPE NUMBER
	f = 100 kHz; B = 100 mT; T = 100 °C	f = 500 kHz; B = 50 mT; T = 100 °C	f = 1 MHz; B = 30 mT; T = 100 °C	
3F35	–	≤ 40	–	IIC2P-14/4-3F35-E

(1) The technology utilized in conjunction with the coupled inductor ("the CL") described in this data sheet includes intellectual property (the "IP") owned by iWatt, Inc. and is covered by one or more of the following U.S. patents : 6,545,450 ; 6,686,727 ; 6,696,823. In connection with the end customer's purchase of the CL from "Ferroxcube USA", the end customer is hereby granted a non-exclusive, worldwide, royalty-free license (without rights to sublicense) to use and incorporate the IP in the end customer's product that also incorporates the CL. In no way does this license extend to customer end products which do not incorporate the CL to implement the IP.

GENERAL DATA

ITEM	SPECIFICATION
Leadframe material	copper (Cu), nickel (Ni) strike & tin (Sn) plated (4-8 mm)
Moulding material	liquid crystal polymer (LCP), flame retardant in accordance with "ULV94-0"
Solderability	"IEC 60068-2-58", Part 2, Test Ta, method 1
Taping method	"IEC 60286-3" and "EIA 481-1"

Leakage inductance

2 windings of 1 turn :
 $\approx 70 \text{ nH}$

Maximum continuous current (DC)

20 A (depending on copper track thickness on PCB).

Maximum peak current

20 A

R_{dc}

$\leq 110 \mu\Omega$ per turn at 10 A

Isolation voltage

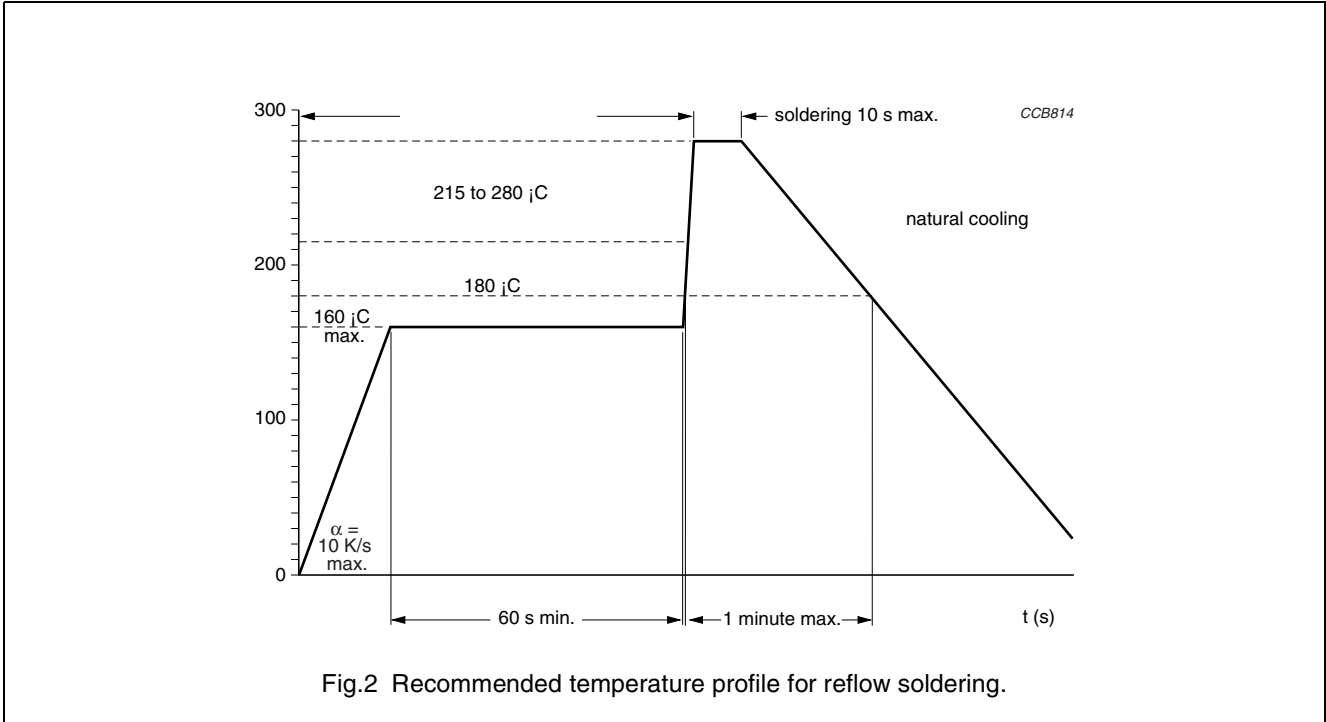
> 500 V (DC) between leads and between leads and ferrite core.

Isolation resistance

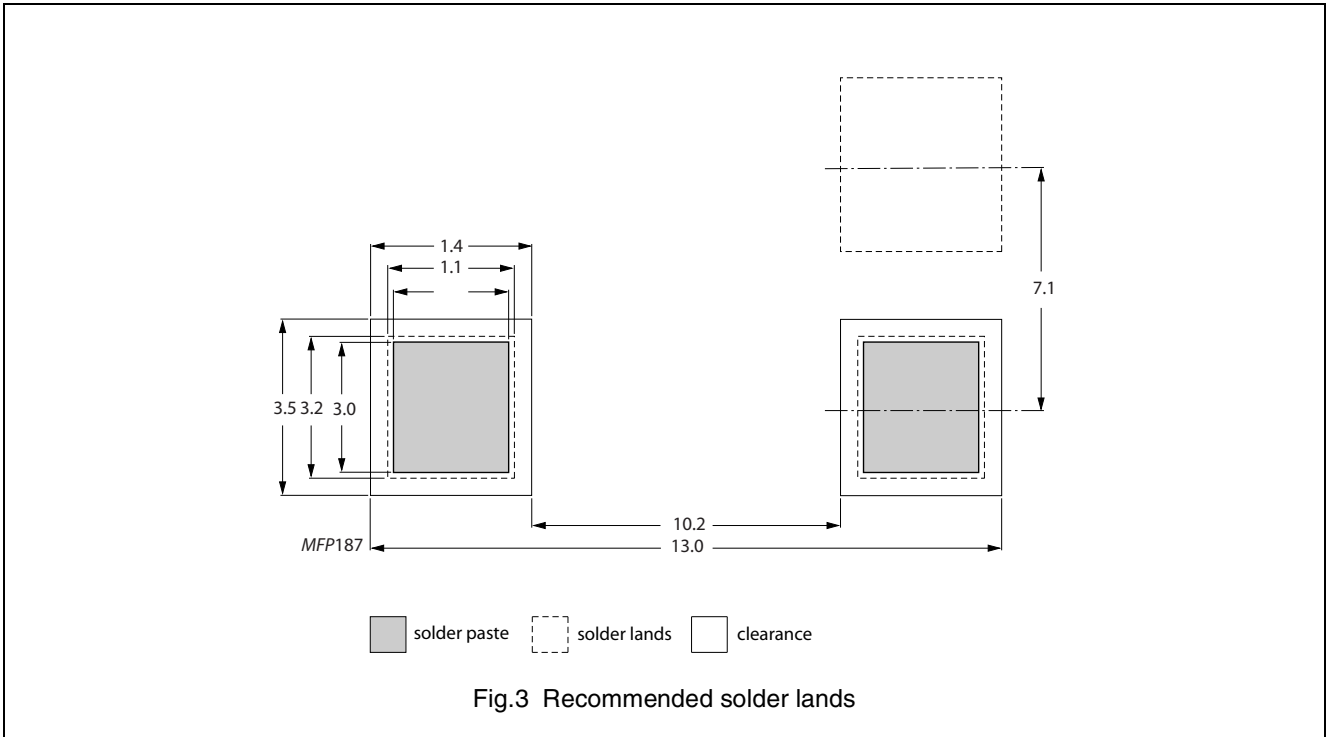
>100 M Ω between leads.

MOUNTING

Soldering information



RECOMMENDED SOLDER LANDS



PACKAGING

Tape and reel specifications

All tape and reel specifications are in accordance with the second edition of "IEC 60286-3". Basic dimensions are given in Figs 4 and 5, and Table 1.

Blister tape

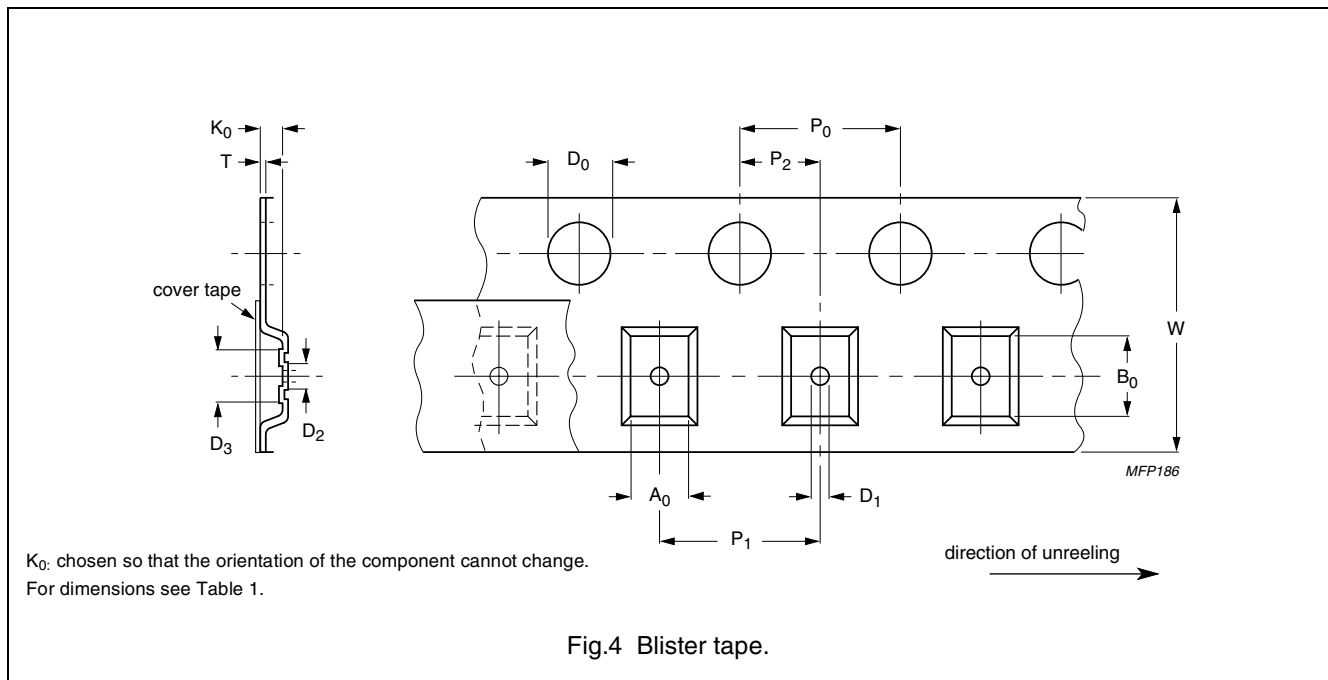


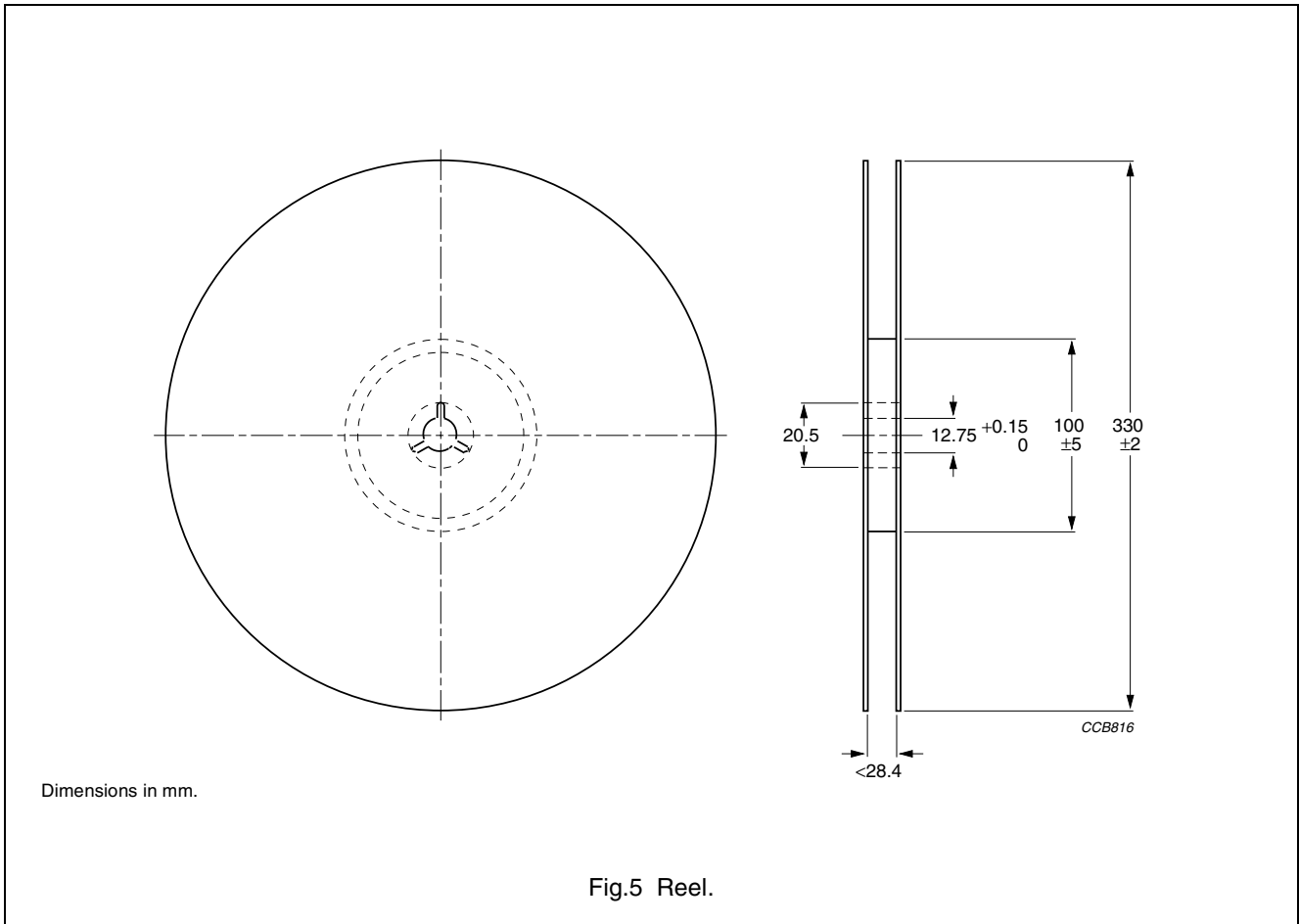
Table 1 Dimensions of blister tape; see Fig.4

SYMBOL	DIMENSIONS	TOL.	UNIT
A_0	12.65	± 0.1	mm
B_0	14.75	± 0.1	mm
K_0	4.85	± 0.1	mm
K_1	4.27	± 0.1	mm
W	24	± 0.3	mm
D_0	1.55	± 0.05	mm
D_1	1.5	± 0.25	mm
D_2	3		mm
D_3	6.85		mm
P_0 ; note 1	4	± 0.1	mm
P_1	16	± 0.1	mm
P_2	2	± 0.1	mm
T	0.35	± 0.1	mm

Note

1. P_0 pitch tolerance over any 10 pitches is ± 0.2 mm.

Reel specifications



Storage requirements

These storage requirements should be observed in order to ensure the soldering of the exposed electrode:

- Maximum ambient temperature shall not exceed 40 °C. Storage temperature higher than 40 °C could result in the deformation of packaging materials.
- Maximum relative humidity recommended for storage is 70% RH. High humidity with high temperature can accelerate the oxidation of the tin-lead plating on the termination and reduce the solderability of the components.
- Products shall not be stored in environments with the presence of harmful gases containing sulfur or chlorine.




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.