

# DATA SHEET

**TN23/14/7**  
Ferrite toroids

Supersedes data of September 2004

2008 Sep 01

**RING CORES (TOROIDS)**

**Effective core parameters**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	1.81	mm <sup>-1</sup>
$V_e$	effective volume	1722	mm <sup>3</sup>
$l_e$	effective length	55.8	mm
$A_e$	effective area	30.9	mm <sup>2</sup>
m	mass of core	≈ 8.4	g

**Coating**

The cores are coated with polyamide 11 (PA11), flame retardant in accordance with "UL 94V-2"; UL file number E 45228 (M).

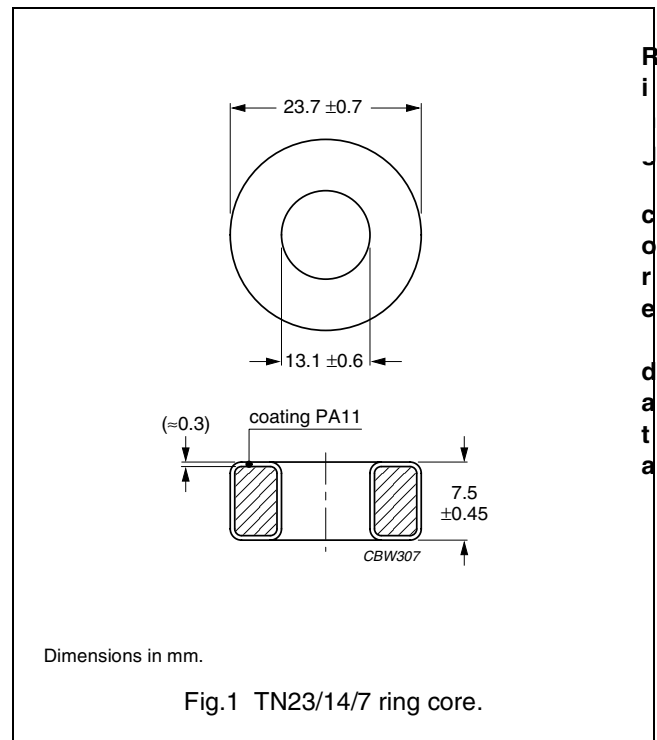
The colour is white.

Maximum operating temperature is 160 °C.

**Isolation voltage**

DC isolation voltage: 2000 V.

Contacts are applied on the edge of the ring core, which is also the critical point for the winding operation.



GRADE	$A_L$ (nH)	$\mu_i$	TYPE NUMBER
4C65	87 ± 25%	≈ 125	TN23/14/7-4C65
4A11	486 ± 25%	≈ 700 <sup>(1)</sup>	TN23/14/7-4A11
3R1 <sup>(2)</sup>	–	≈ 800	TN23/14/7-3R1
3F3	1250 ± 25%	≈ 1800	TN23/14/7-3F3
3C90	1600 ± 25%	≈ 2300	TN23/14/7-3C90
3C11 <small>des</small>	3000 ± 25%	≈ 4300	TN23/14/7-3C11
3E25	3820 ± 25%	≈ 5500	TN23/14/7-3E25

1. Old permeability specification maintained.
2. Due to the rectangular BH-loop of 3R1, inductance values strongly depend on the magnetic state of the ring core and measuring conditions. Therefore no  $A_L$  value is specified. For the application in magnetic amplifiers  $A_L$  is not a critical parameter.

**WARNING**

Do not use 3R1 cores close to their mechanical resonant frequency. For more information refer to "3R1" material specification in this data handbook.

## Ferrite toroids

TN23/14/7

## Properties of cores under power conditions

GRADE	B (mT) at	CORE LOSS (W) at		
	H = 250 A/m; f = 25 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 = 400 kHz; $\hat{B}$ = 50 mT; T = 100 °C
3C90	≥320	≤ 0.19	≤ 0.19	
3F3	≥320		≤ 0.19	≤ 0.33




**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
<b>Prototype</b>		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.
<b>Design-in</b>		These products are recommended for new designs.
<b>Preferred</b>		These products are recommended for use in current designs and are available via our sales channels.
<b>Support</b>		These products are <b>not</b> recommended for new designs and may not be available through all of our sales channels. Customers are advised to check for availability.