

# DATA SHEET

## **TN14/9/5** **Ferrite ring cores (toroids)**

Product specification  
Supersedes data of 1997 Nov 21  
File under Ferrite Ceramics, MA01

2000 Apr 20

## Ferrite ring cores (toroids)

TN14/9/5

## RING CORES (TOROIDS)

## Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(I/A)$	core factor (C1)	2.84	mm <sup>-1</sup>
$V_e$	effective volume	430	mm <sup>3</sup>
$l_e$	effective length	35	mm
$A_e$	effective area	12.3	mm <sup>2</sup>
m	mass of core	≈2.1	g

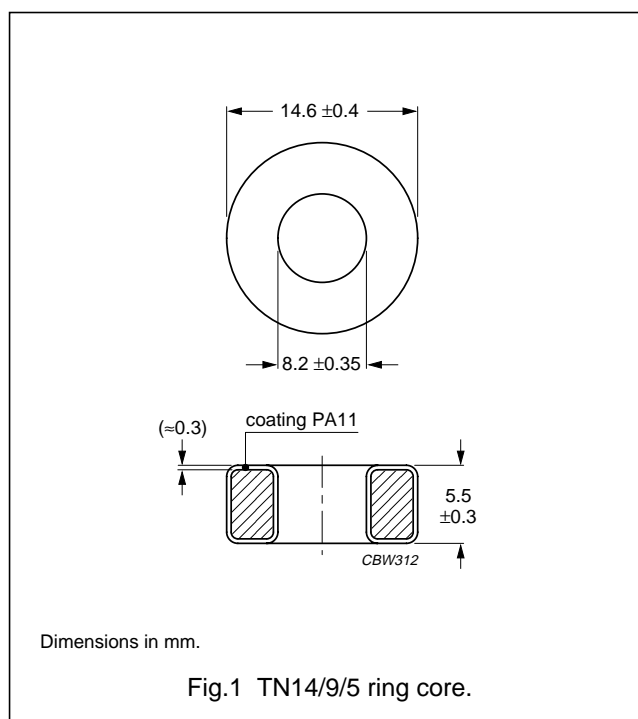
## Coating

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

## Isolation voltage

DC isolation voltage: 1 500 V.

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



## Ring core data

GRADE	$A_L$ (nH)	$\mu_i$	COLOUR CODE	TYPE NUMBER
4C65	55 ±25%	≈125	violet	TN14/9/5-4C65
4A11	310 ±25%	≈700	pink	TN14/9/5-4A11
3R1 <sup>(1)</sup>	–	≈800	black	TN14/9/5-3R1
3F3	790 ±25%	≈1800	blue	TN14/9/5-3F3
3C90 <small>des</small>	1015 ±25%	≈2300	ultramarine	TN14/9/5-3C90
3C11	1900 ±25%	≈4300	white	TN14/9/5-3C11
3E25	2430 ±30%	≈5500	orange	TN14/9/5-3E25
3E5 <sup>(2)</sup>	3760 ±30%	≈8500	yellow/white	TL14/9/5-3E5
3E6 <sup>(2)</sup> <small>des</small>	4415 ±30%	≈10000	purple/white	TL14/9/5-3E6

## Notes

- 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.
- Ring cores in 3E5 and 3E6 are lacquered (polyurethane) and have different dimensions: Outside diameter = 14.25 ±0.4 mm; inside diameter = 8.75 ±0.35 mm; height = 5.25 ±0.3 mm; flame retardant in accordance with "UL 94V-2"; UL file number E 192048.

## 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 ring cores (toroids)

TN14/9/5

## 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; B̂ = 200 mT; T = 100 °C	f = 100 kHz; B̂ = 100 mT; T = 100 °C	f = 400 kHz; B̂ = 50 mT; T = 100 °C
3C90	≥320	≤0.048	≤0.048	–
3F3	≥320	–	≤0.05	≤0.08

# Ferrite ring cores (toroids)

TN14/9/5




## DATA SHEET STATUS DEFINITIONS

DATA SHEET STATUS	PRODUCT STATUS	DEFINITIONS
Preliminary specification	Development	This data sheet contains preliminary data. Philips Components 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. Philips Components 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. Philips Components customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips Components 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.