

DATA SHEET

TN10/6/4
Ferrite toroids

Supersedes data of September 2004

2008 Sep 01

RING CORES (TOROIDS)

Effective core parameters

| SYMBOL | PARAMETER | VALUE | UNIT |
|---------------|------------------|--------|------------------|
| $\Sigma(I/A)$ | core factor (C1) | 3.07 | mm ⁻¹ |
| V_e | effective volume | 188 | mm ³ |
| l_e | effective length | 24.1 | mm |
| A_e | effective area | 7.8 | mm ² |
| m | mass of core | ≈ 0.95 | g |

Coating

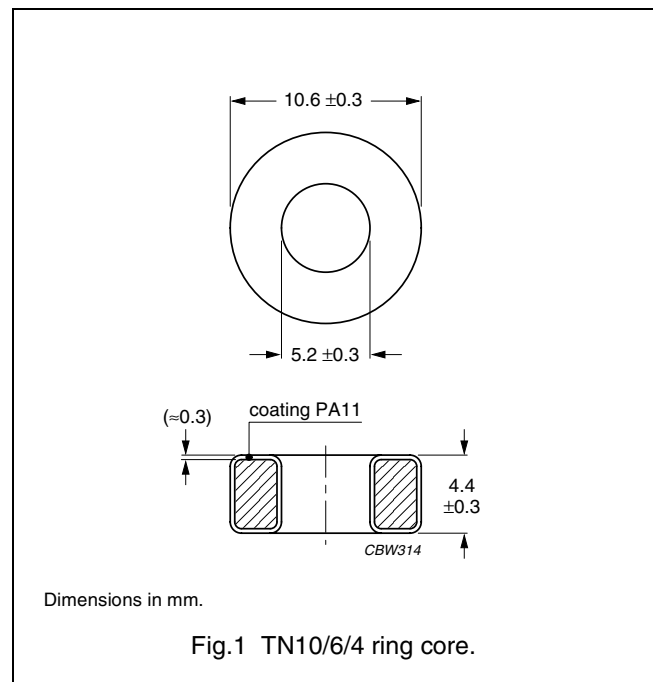
The cores are coated with polyamide 11 (PA11), flame retardant in accordance with "UL 94V-2"; UL file number E 45228 (M). The colour is white.

Maximum operating temperature is 160 °C.

Isolation voltage

DC isolation voltage: 1 000 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) | μ_i | TYPE NUMBER |
|--------------------|---------------|----------------------|---------------|
| 4C65 | 52 ± 25% | ≈ 125 | TN10/6/4-4C65 |
| 4A11 | 286 ± 25% | ≈ 700 ⁽¹⁾ | TN10/6/4-4A11 |
| 3D3 | 306 ± 25% | ≈ 750 | TN10/6/4-3D3 |
| 3R1 ⁽²⁾ | - | ≈ 800 | TN10/6/4-3R1 |
| 3F3 | 740 ± 25% | ≈ 1800 | TN10/6/4-3F3 |
| 3C90 | 940 ± 25% | ≈ 2300 | TN10/6/4-3C90 |
| 3C11 | 1 750 ± 25% | ≈ 4300 | TN10/6/4-3C11 |
| 3E25 | 2 250 ± 30% | ≈ 5500 | TN10/6/4-3E25 |

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.

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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 | ≤ 0.021 | ≤ 0.021 | – |
| 3F3 | ≥320 | – | ≤ 0.03 | ≤ 0.04 |




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. |