# Ferrite ring cores (toroids) TN36/23/15

## RING CORES (TOROIDS)

### Effective core parameters

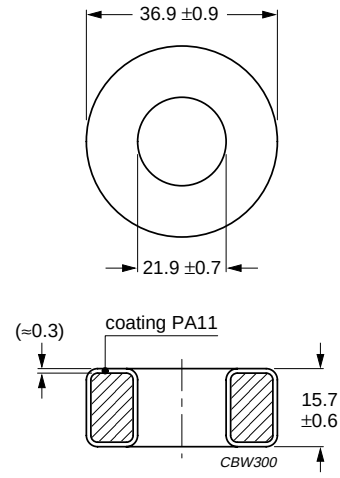
| SYMBOL | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| Σ(l/A) | core factor (C1) | 0.935 | $mm^{-1}$ |
| $V_e$ | effective volume | 8600 | $mm^3$ |
| $l_e$ | effective length | 89.6 | mm |
| $A_e$ | effective area | 95.9 | $mm^2$ |
| m | mass of core | ≈42 | g |

### Coating

The cores are coated with polyamide 11 (PA11), flame retardant in accordance with *"UL 94V-2"*.

### 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.




Dimensions in mm.

Fig.1 TN36/23/15 ring core.

### Ring core data

| GRADE | $A_L$ (nH) | $\mu_i$ | COLOUR CODE | TYPE NUMBER |
|---|---|---|---|---|
| 4C65 | 170 ±25% | ≈125 | violet | TN36/23/15-4C65 |
| 4A11 des | 940 ±25% | ≈700 | uncoated | T36/23/15-4A11(1) |
| 3R1 sup | – | ≈800 | black | TN36/23/15-3R1(2) |
| 3S4 des | 2285 ±25% | ≈1700 | uncoated | T36/23/15-3S4(1) |
| 3F3 sup | 2420 ±25% | ≈1800 | blue | TN36/23/15-3F3 |
| 3C85 sup | 2700 ±25% | ≈2000 | red | TN36/23/15-3C85 |
| 3C11 | 5800 ±25% | ≈4300 | white | TN36/23/15-3C11 |
| 3E25 | 7390 ±25% | ≈5500 | orange | TN36/23/15-3E25 |
| 3E5 | 11400 ±30% | ≈8500 | yellow/white | TL36/23/15-3E5(3) |

### Notes

1. Uncoated ring cores have the following dimensions: outer dimension = 36 ±0.7 mm; inner dimension = 25 ±0.5 mm; height = 15 ±0.3 mm.
2. Due to the rectangular BH-loop of grade 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.
3. Ring cores in grade 3E5 are lacquered (polyurethane) and have different dimensions:
   Outside diameter = 36.25 ±0.9 mm; inside diameter = 22.75 ±0.7 mm; height = 15.25 ±0.6 mm.

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

**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** |
| 3C85 | ≥320 | ≤1.4 | ≤1.6 | – |
| 3F3 | ≥320 | – | ≤0.95 | ≤1.7 |