The information contained in this drawing is the sole property of Coil Winding Specialist Inc (CWS).
Any reproduction in part or whole without written permission of CWS is prohibited.

# T50-8 or T50-8/90

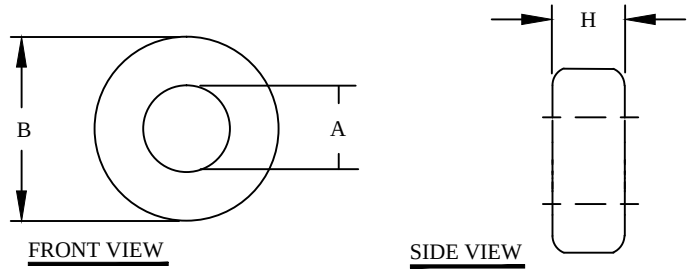
REVISION HISTORY

| REV | ECN | DESCRIPTION | SIGN & DATE BY | DATE | AP. | DATE |
|---|---|---|---|---|---|---|
| A | | Production release | EO | 3/7/13 | JL | 3/7/13 |
| | | | | | | |

**Features**

Low core loss and good results of linearity through high bias administration.
Applicable (at ≥50kHz) for Power Factor Correction Chokes, DC Chokes and higher Et/N.

| Electrical Specifications | | | | |
|---|---|---|---|---|
| Item | Unit/Symbol | Condition | Value | Tol. |
| $A_L$ | $nH/N^2$ | AC flux density of 10 gauss (1 mT) @10 kHz | 17.5 | ± 10% |
| $L_e$ | cm | N/A | 3.19 | Typ. |
| $A_e$ | $cm^2$ | N/A | 0.112 | Typ. |
| $V_e$ | $cm^3$ | N/A | 0.358 | Typ. |
| Density | $g/cm^3$ | N/A | 6.5 | Typ. |
| Permeability | $\mu_0$ | N/A | 35 | ± 10% |
| Permeability with DC BIAS | $\%\mu_0$, $\mu_0$effective | HDC = 50 Oerstesd | 91, 31.9 | Typ. |
| Temp. Coef. of Permeability | +ppm/°C | N/A | 255 | Typ. |
| Coef. of Lin. Expansion | +ppm/°C | N/A | 10 | Typ. |
| Thermal Conductivity | mW/cm-°C | N/A | 29 | Typ. |




| Case Dimensional Tolerances | | | | |
|---|---|---|---|---|
| | in | tol. | mm | tol. |
| B (Outer Diameter) | 0.500 | 0.020 | 12.70 | 0.51 |
| A (Inner Diameter) | 0.303 | 0.020 | 7.70 | 0.51 |
| H (Height) | 0.190 | 0.020 | 4.83 | 0.51 |
| Weight 2.33 g | | | | |

$$\text{Temperature Rise}: \Delta T(°C) = \left[\frac{\text{Total Power Dissipation (milliwatts)}}{\text{Surface Area } (cm^2)}\right]^{0.833}$$

$$\text{Required turns} = \left[\frac{\text{desired L (nH)}}{A_L\left(\frac{nH}{N^2}\right)}\right]^{\frac{1}{2}}$$

$$\text{Peak AC Flux Density}: B_{pk} = \frac{E_{avg}10^8}{4ANf}$$

$$\text{Magnetizing Force}: H = \frac{0.4\pi N I}{\ell}$$

L = inductance
nH = nanohenries
H = oersteds (Oe)
N = Number of turns
I = Current (amperes)
ℓ = Mean Magnetic Path (cm)
A = Cross-sectional area ($cm^2$)
f = frequency (hertz)
$B_{pk}$ = Gauss (G)

**For additional detail, specifications and charts see:**

http://www.bytemark.com/products/IPCores_index.html

| Core Loss in $mW/cm^3$ (extrapolated data from high frequency testing) | | | | | | |
|---|---|---|---|---|---|---|
| Frequency | 60 Hz | 1kHz | 10kHz | 50kHz | 100kHz | 500kHz |
| Condition | @ 5000G | @ 1500G | @ 500G | @ 225G | @ 140G | @ 50G |
| Value | 45 | 64 | 59 | 50 | 35 | 28 |

UNLESS OTHERWISE SPECIFIED
DIMENSIONING AND TOLERANCE PER ANSI Y14.5M
ALL DIMENSIONS ARE IN INCHES AND [MILIMETERS].
TOLERANCE INCHES: .XXX=±.005 .XX=±.015 ∢=±0°30'
TOLERANCE METRICS: .XXX=±.127 .XX=±.38 ∢=±0°30'
ANGLE PROJECTION
DO NOT SCALE DRAWING

| | CODE IDENT | MFG. P/N | DESCRIPTION | ITEM NO. |
|---|---|---|---|---|
| PARTS LIST | | | | |

| | | |
|---|---|---|
| AUTOCAD | X | |
| SOLIDWORKS | | |
| SIGN | | DATE |
| DRAWN | EO | 3/7/13 |
| CHECKED | JL | 3/7/13 |
| ENGR. | JL | 3/7/13 |
| APPR. | JL | 3/7/13 |

www.coilws.com
www.cwsbytemark.com

CWSBYTEMARK
353 West Grove Ave. Orange, CA. 92865

TITLE: Iron Powder Core Material Mix 8 or 8/90, Yellow/Red

SIZE B | DWG. NO. T50-8 or T50-8/90 | REV A

SCALE N/A | SHEET 1 OF 1

EP FORM0005 REV 3 10/01

CAD–FILE: