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## T225-8 or T225-8/90

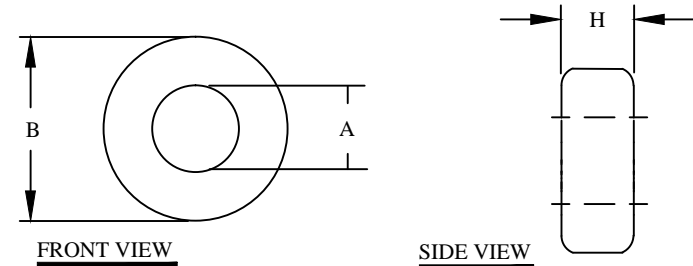
### Features

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 <sub>L</sub>              | nH/N <sup>2</sup>                          | AC flux density of 10 gauss (1 mT) @ 10 kHz | 42.5     | ± 10% |
| L <sub>e</sub>              | cm   | N/A   | 14.60    | Typ.  |
| A <sub>e</sub>              | cm <sup>2</sup>                            | N/A   | 1.420    | Typ.  |
| V <sub>e</sub>              | cm <sup>3</sup>                            | N/A   | 20.700   | Typ.  |
| Density                     | g/cm <sup>3</sup>                          | N/A   | 6.5      | Typ.  |
| Permeability                | μ <sub>0</sub>                             | N/A   | 35       | ± 10% |
| Permeability with DC BIAS   | %μ <sub>0</sub> , μ <sub>0</sub> effective | HDC = 50 Oersted                            | 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.  |

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



| Case Dimensional Tolerances |          |       |       |      |
|-----------------------------|----------|-------|-------|------|
|                             | in       | tol.  | mm    | tol. |
| B (Outer Diameter)          | 2.250    | 0.025 | 57.20 | 0.64 |
| A (Inner Diameter)          | 1.405    | 0.025 | 35.70 | 0.64 |
| H (Height)                  | 0.550    | 0.030 | 14.00 | 0.76 |
| Weight                      | 134.55 g |       |       |      |

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

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

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

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

L = inductance  
nH = nanohenries  
H = oersteds (Oe)  
N = Number of turns  
I = Current (amperes)  
ℓ = Mean Magnetic Path (cm)  
A = Cross-sectional area (cm<sup>2</sup>)  
f = frequency (hertz)  
B<sub>pk</sub> = Gauss (G)

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

[http://www.bytemark.com/products/IPCores\\_index.html](http://www.bytemark.com/products/IPCores_index.html)

| Core Loss in mW/cm <sup>3</sup> (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 [MILLIMETERS].  
TOLERANCE INCHES:  
.XXX=±.005 .XX=±.015 <math>\angle=±0^{\circ}30'</math>  
TOLERANCE METRICS:  
.XXX=±.127 .XX=±.38 <math>\angle=±0^{\circ}30'</math>  
ANGLE PROJECTION   
DO NOT SCALE DRAWING

| CODE IDENT    | MFG. P/N  | DESCRIPTION  | ITEM NO.  |
|---------------|-----------|--|---|
| PARTS LIST    |           |  |   |
| AUTOCAD       | X         | www.coilws.com<br>www.cwsbytemark.com                                | CWSBYTEMARK<br>353 West Grove Ave. Orange, CA.<br>92865 |
| SOLIDWORKS    |           |  |   |
| DRAWN         | EO 3/7/13 | TITLE:<br><b>Iron Powder Core Material Mix 8 or 8/90, Yellow/Red</b> |   |
| CHECKED       | JL 3/7/13 |  |   |
| ENGR.         | JL 3/7/13 |  |   |
| APPR.         | JL 3/7/13 |  |   |
| SIZE DWG. NO. |           | T225-8 or T225-8/90  | REV   |
| SCALE         |           |  | N/A   |
|               |           | SHEET 1 OF 1   |   |