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## T184-18

### Features

Low core loss with linearity and good results through high permeability at lower cost.  
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	116.0	± 10%
L <sub>e</sub>	cm	N/A	11.20	Typ.
A <sub>e</sub>	cm <sup>2</sup>	N/A	1.880	Typ.
V <sub>e</sub>	cm <sup>3</sup>	N/A	21.000	Typ.
Density	g/cm <sup>3</sup>	N/A	6.6	Typ.
Permeability	μ <sub>0</sub>	N/A	55	± 10%
Permeability with DC BIAS	%μ <sub>0</sub> , μ <sub>0</sub> effective	HDC = 50 Oersted	74, 40.7	Typ.
Temp. Coef. of Permeability	+ppm/°C	N/A	385	Typ.
Coef. of Lin. Expansion	+ppm/°C	N/A	11	Typ.
Thermal Conductivity	mW/cm-°C	N/A	21	Typ.

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

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

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

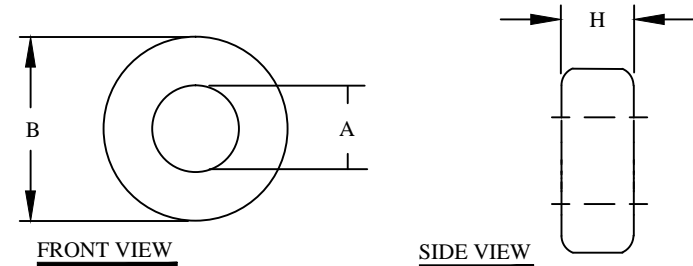
$$\text{Magnetizing Force: } H = \frac{0.4\pi NI}{\ell}$$

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)

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	48	72	70	63	46	37

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)	1.840	0.025	46.70	0.64
A (Inner Diameter)	0.950	0.025	24.10	0.64
H (Height)	0.710	0.030	18.00	0.76
Weight	138.60 g			

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

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

CODE IDENT	MFG. P/N	DESCRIPTION	ITEM NO.
PARTS LIST			
AUTOCAD	X	www.coilws.com www.cwsbytemark.com	CWSBYTEMARK 353 West Grove Ave. Orange, CA. 92865
SOLIDWORKS			
DRAWN	EO 3/7/13	TITLE: Iron Powder Core Material Mix 18, Green/Red	
CHECKED	JL 3/7/13		
ENGR.	JL 3/7/13		
APPR.	JL 3/7/13		
SIZE DWG. NO.		T184-18	REV A
SCALE		N/A	SHEET 1 OF 1

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°30'</math>
TOLERANCE METRICS: .XXX=±.127 .XX=±.38 <math>\angle=±0°30'</math>
ANGLE PROJECTION
DO NOT SCALE DRAWING