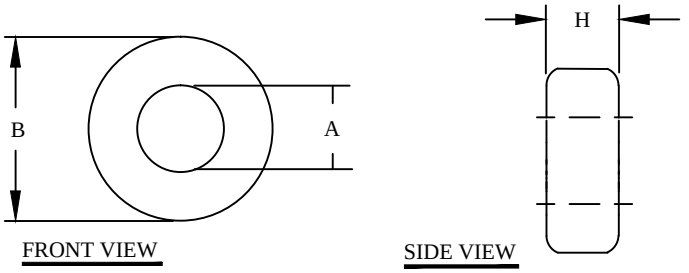
T50-18

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 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_L	nH/N^2	AC flux density of 10 gauss (1 mT) @10 kHz	24.0	± 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	6.6	Typ.
Permeability	μ_0	N/A	55	± 10%
Permeability with DC BIAS	$\%\mu_0$, $\mu_0$effective	HDC = 50 Oerstesd	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.



FRONT VIEW SIDE VIEW

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 2.36 g				

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

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

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

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

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	48	72	70	63	46	37

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			
SIGN	DATE		
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 B / DWG. NO. T50-18 / 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 [MILIMETERS].
TOLERANCE INCHES: .XXX=±.005 .XX=±.015 ∠=±0°30'
TOLERANCE METRICS: .XXX=±.127 .XX=±.38 ∠=±0°30'
ANGLE PROJECTION
DO NOT SCALE DRAWING

CAD–FILE: