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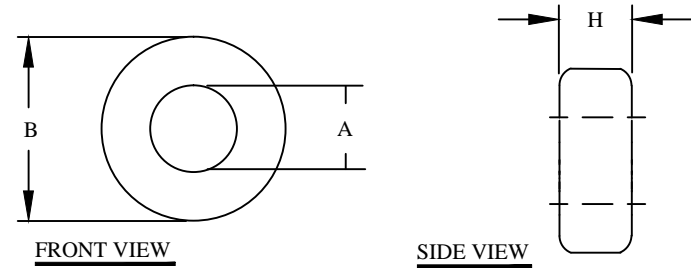
## T520-52

### Features

Low core loss and good results of general power conversion and line filter administration. Applicable (at  $\geq 50\text{kHz}$ ) for Power Factor Correction Chokes, DC Chokes and higher Et/N. Also applies for 60 Hz differential-mode EMI Line Chokes.

Electrical Specifications				
Item	Unit/Symbol	Condition	Value	Tol.
$A_L$	nH/N <sup>2</sup>	AC flux density of 10 gauss (1 mT) @ 10 kHz	137.0	$\pm 10\%$
$L_e$	cm	N/A	33.10	Typ.
$A_e$	cm <sup>2</sup>	N/A	5.240	Typ.
$V_e$	cm <sup>3</sup>	N/A	173.000	Typ.
Density	g/cm <sup>3</sup>	N/A	7.0	Typ.
Permeability	$\mu_0$	N/A	75	$\pm 10\%$
Permeability with DC BIAS	% $\mu_0$ , $\mu_0$ effective	HDC = 50 Oersted	59, 44.3	Typ.
Temp. Coef. of Permeability	+ppm/°C	N/A	650	Typ.
Coef. of Lin. Expansion	+ppm/°C	N/A	12	Typ.
Thermal Conductivity	mW/cm-°C	N/A	34	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)	5.200	0.050	132.00	1.27
A (Inner Diameter)	3.080	0.050	78.20	1.27
H (Height)	0.800	0.050	20.30	1.27
Weight	2.51 g			

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

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

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

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

L = inductance  
nH = nanohenries  
H = oersteds (Oe)  
N = Number of turns  
I = Current (amperes)  
 $\ell$  = Mean Magnetic Path (cm)  
A = Cross-sectional area (cm<sup>2</sup>)  
f = frequency (hertz)  
 $B_{pk}$  = 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	30	56	68	72	58	63

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 www.cwsbytemark.com	CWSBYTEMARK 353 West Grove Ave. Orange, CA. 92865
SOLIDWORKS			
DRAWN	EO 3/7/13	TITLE: Iron Powder Core Material Mix 52, Green/Blue	
CHECKED	JL 3/7/13		
ENGR.	JL 3/7/13		
APPR.	JL 3/7/13		
SIZE DWG. NO.		T520-52	REV A
SCALE		N/A	SHEET 1 OF 1