## T68-40

## **Features**

Good results of general power conversion and line filter administration. Applicable (at <50kHz) for Power Factor Correction Chokes, DC Chokes and lower Et/N. Also applies for 60 Hz differential-mode EMI Line Chokes, and light dimmer 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		± 10%				
Le	cm	N/A	4.23	Тур.				
Ae	cm <sup>2</sup>	N/A	0.179	Тур.				
Ve	cm <sup>3</sup>	N/A	0.759	Тур.				
Density	g/cm <sup>3</sup>	N/A	6.9	Typ.				
Permeability	$\mu_0$	N/A	60	± 10%				
Permeability with DC BIAS	%μ <sub>0</sub> , μ <sub>0</sub> effective	HDC = 50 Oerstesd	62, 37.2	Тур.				
Temp. Coef. of Permeability	+ppm/°C	N/A	950	Тур.				
Coef. of Lin. Expansion	+ppm/°C	N/A	11	Тур.				
Thermal Conductivity mW/cm-°C		N/A	36	Тур.				

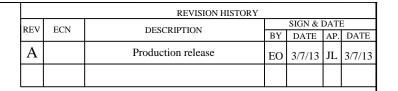
$$Temperature \ Rise: \Delta T(^{\circ}C) = \left[\frac{Total \ Power \ Dissipation \ (milliwatts)}{Surface \ Area \ (cm^{2})}\right]^{0.833}$$

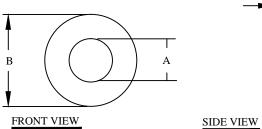
Required turns = 
$$\left[\frac{\text{desired L (nH)}}{A_L \left(\frac{nH}{N^2}\right)}\right]^{\frac{1}{2}}$$

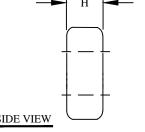
Peak AC Flux Density: 
$$B_{pk} = \frac{E_{avg} 10^8}{4ANf}$$

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

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	29	62	93	130	127	223	







Case Dimensional Tolerances								
	in	tol.	mm	tol.				
B (Outer Diameter)	0.690	0.020	17.50	0.51				
A (Inner Diameter)	0.370	0.020	9.40	0.51				
H (Height)	0.190	0.020	4.83	0.51				
Weight 5.24 g								

## For additional detail, specifications and charts see:

http://www.bytemark.com/products/IPCores index.html

ℓ = Mean Magnetic Path (cm) A = Cross-sectional area (cm <sup>2</sup> )			CODE MFG.		. P/I	N	DESCRIPTION		ON	ITEM NO.
f = frequency (hertz)			PARTS LIST							I NO.
B <sub>pk</sub> = Gauss (G)		AUTOCAD		Χ			CWSBYTEMARK		<u> </u>	
		SOLID	WORKS		www.coilws.com		353 West Grove Ave. Orange, CA			
	UNLESS OTHERWISE SPECIFIED	SIGN		DATE	www.cwsbytemark.cor		temark.com	m 92865		unge, er i.
	DIMENSIONING AND TOLERANCE PER ANSI Y14.5M	DRAWN	ЕО	3/7/13	TITLE:	Iron F	Powder Core Material Mix 4			
	ALL DIMENSIONS ARE IN INCHES AND [MILIMETERS].	CHECKED	JL	3/7/13	'	non i			<del>-</del> 0,	
	TOLERANCE INCHES: .XXX=±.005 .XX=±.015 < √=±0'30' TOLERANCE METRICS:	ENGR.	JL	3/7/13	CIZE I	DWG. NO.	Green/Yellow			DCV
	.XXX=±.127 .XX=±.38 <  ✓=±0°30°  ANGLE PROJECTION		JL	3/7/13	B	DWG. NO.	T6		A REV	
	DO NOT SCALE DRAWING				SCALE		N/A		SHEET 1 O	F 1
							040 511	_		

EP FORM0005 REV 3 10/01 CAD-FILE:

L = inductancenH = nanohenries

H = oersteds (Oe)N = Number of turns

I = Current (amperes)