Fair-Rite Products Corp.
Your Signal Solution ®
Ferrite Components for the Electronics Industry

Fair-Rite Products Corp. PO Box J,One Commercial Row, Wallkill, NY 12589-0288
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Fair-Rite Product's Catalog
Part Data Sheet, 9677001015
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ISO 9001 Registered · TS 16949 Registered · Pb · RoHS Material Declaration

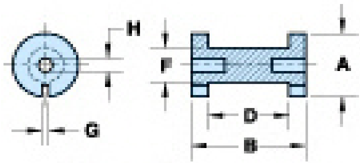

Figure 1

Part Number:	9677001015
Frequency Range:	Power Applications
Description:	77 BOBBIN GROUND
Application:	Inductive Components
Where Used:	Open Magnetic Circuit
Part Type:	Bobbins

Mechanical Specifications

Weight: 6.700 (g)

Part Type Information

Bobbins are an economical and well-proven core design for many applications where relatively low but stable inductance values are required.

-For higher frequency designs, use small bobbins in 43 material.

-For power applications, bobbins in 77 material are specified for AL and dc bias limits.

-Bobbins in Figures 2-5 can be supplied with a uniform coating of thermo-set plastic coating which can withstand a minimum breakdown of 500Vrms. This coating will change the dimensions a maximum of 0.5mm (.020"). The last digit of the thermo-set plastic coated part is an '8'.

-The listed dimensions are for assembled bobbins without thermo-set plastic.

-Bobbins are tested for AL value at 1kHz < 10 gauss.

-For any bobbin requirement not listed in the catalog, please contact our customer service group for availability and pricing.

-Explanation of Part Numbers: Digits 1&2 = product class, 3&4 = material grade, last digit 8 = coated bobbin.

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Mechanical Specifications

Dim	mm	mm tol	nominal inch	inch misc.
A	9.55	-0.15	0.373	-
B	19.00	±0.70	0.750	-
C	-	-	-	-
D	12.70	±0.15	0.500	-
E	-	-	-	-
F	4.65	+0.20	0.187	-
G	1.00	+0.25	0.045	-
H	1.03	+0.10	0.043	-
J	-	-	-	-
K	-	-	-	-

Electrical Specifications

Typical Impedance (Ω)	

Electrical Properties	
A_L (nH)	39 ±10%
$A_L$min. @ NI (At)	33 - 125
N/AWG	75/24
A_w(cm^2)	.30

Land Patterns

V	W ref	X	Y	Z
- -	- -	- -	- -	- -

Winding Information

Turns Tested	Wire Size	1st Wire Length	2nd Wire Length
-	-	-	-

Reel Information

Tape Width mm	Pitch mm	Parts 7 " Reel	Parts 13 " Reel	Parts 14 " Reel
-	-	-	-	-

Package Size

Pkg Size
- (-)

Connector Plate

# Holes	# Rows
-	-

Legend
+ Test frequency
Preferred parts, the suggested choice for new designs,have shorter lead times and are more readily available.
The column H(Oe) gives for each bead the calculated dc bias field in oersted for 1 turn and 1 ampere direct current. The actual dc H field in the application is this value of H times the actual NI (ampere-turn) product. For the effect of the dc bias on the impedance of the bead material, see figures 18-23 in the application note How to choose Ferrite Components for EMI Suppression.
A ½ turn is defined as a single pass through a hole.

Σl/A - Core Constant
A_e: Effective Cross-Sectional Area
A_L - Inductance Factor $\left(\frac{L}{N^2}\right)$
N/AWG - Number of Turns/Wire Size for Test Coil
l_e: Effective Path Length
V_e: Effective Core Volume
NI - Value of dc Ampere-turns

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Ferrite Material Constants

Specific Heat	0.25 cal/g/°C
Thermal Conductivity	**3.5 - 4.5 mW/cm** - °C
Coefficient of Linear Expansion	8 - 10x10^{-6}/°C
Tensile Strength	4.9 kgf/mm^2
Compressive Strength	42 kgf/mm^2
Young's Modulus	15x10^3 kgf/mm^2
Hardness (Knoop)	650
Specific Gravity	≈ 4.7 g/cm^3

The above quoted properties are typical for Fair-Rite MnZn and NiZn ferrites.

See next page for further material specifications.

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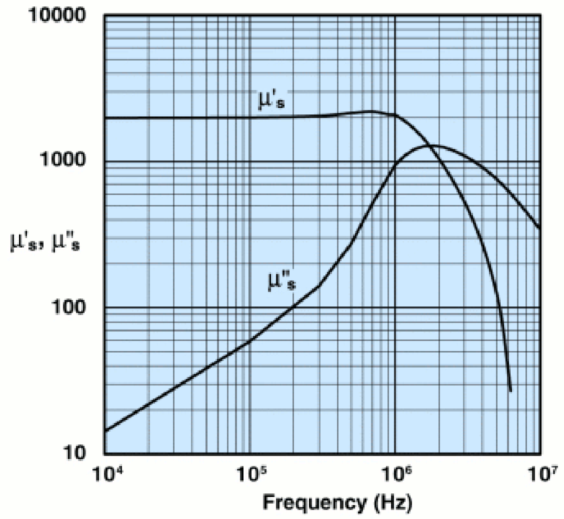
A MnZn ferrite for use in a wide range of high and low flux density inductive designs for frequencies up to 100 kHz.

Pot cores, E&I cores, U cores, rods, toroids, and bobbins are all available in 77 material.

77 Material Characteristics:

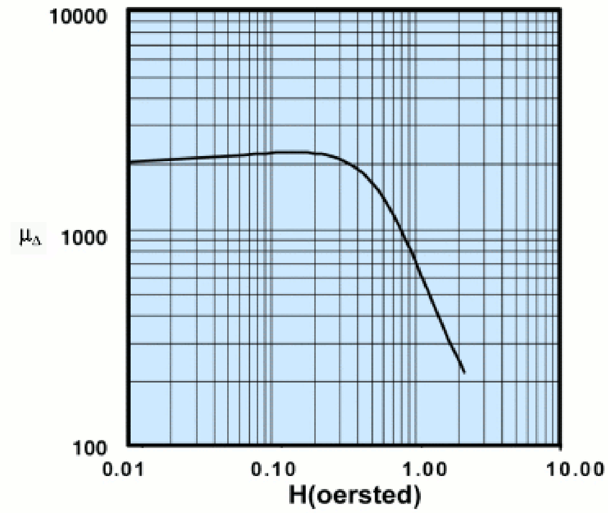
Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ_i	2000
Flux Density @ Field Strength	gauss oersted	B H	4900 5
Residual Flux Density	gauss	B_r	1800
Coercive Force	oersted	H_c	0.30
Loss Factor @ Frequency	10^{-6} MHz	$\tan\delta/\mu_i$	15 0.1
Temperature Coefficient of Initial Permeability (20 -70°C)	%/°C		0.7
Curie Temperature	°C	T_c	>200
Resistivity	Ω cm	ρ	1×10^2

Complex Permeability vs. Frequency

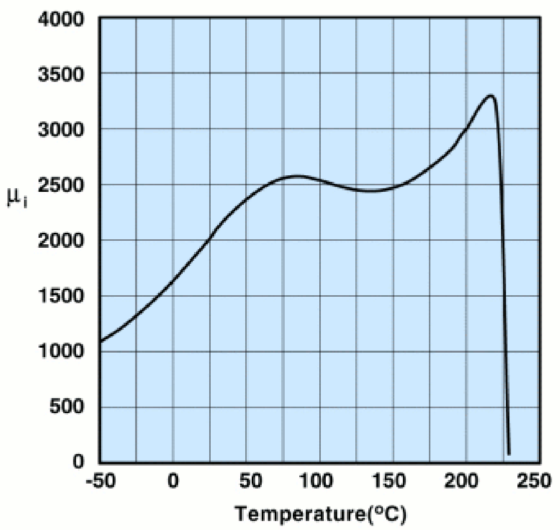


Measured on an 18/10/6mm toroid using the HP 4284A and the HP 4291A.

Incremental Permeability vs. H

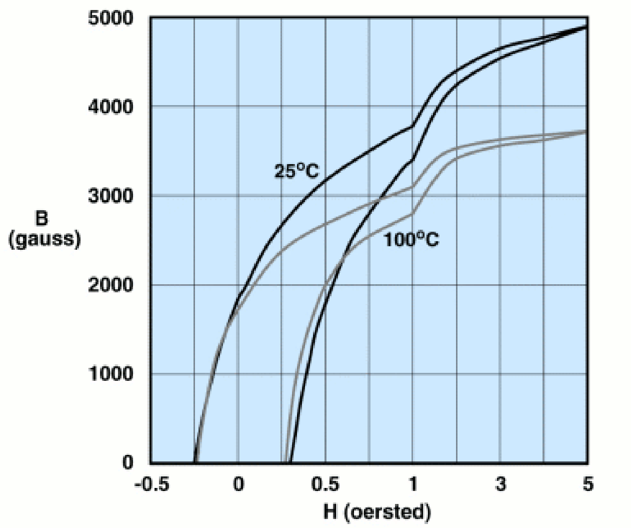


Initial Permeability vs. Temperature



Measured on an 18/10/6mm toroid at 100kHz.

Hysteresis Loop



Measured on an 18/10/6mm toroid at 10kHz.

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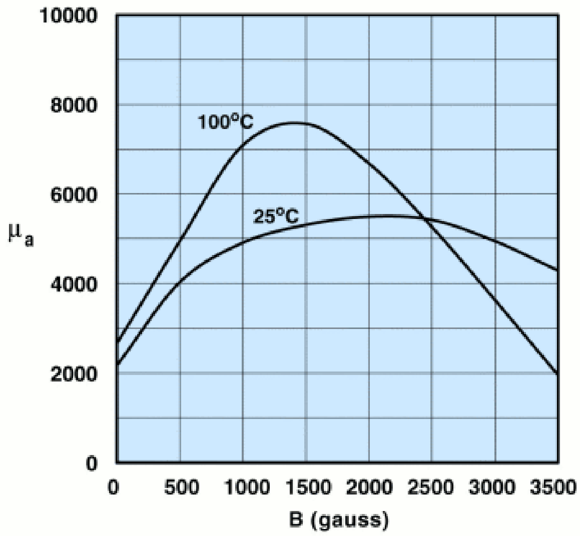
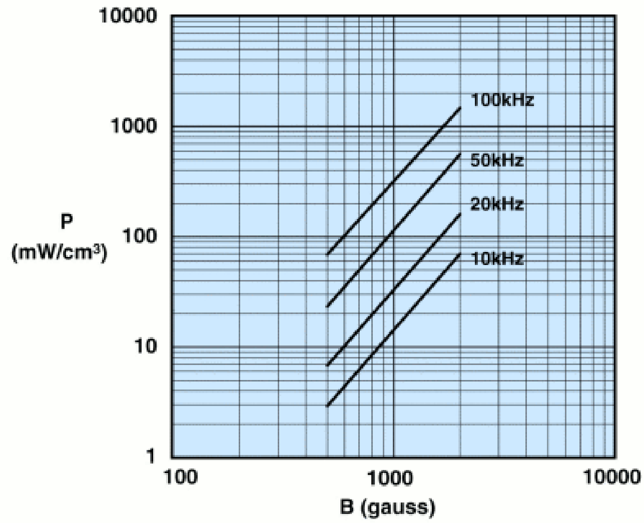
Amplitude Permeability vs. Flux Density



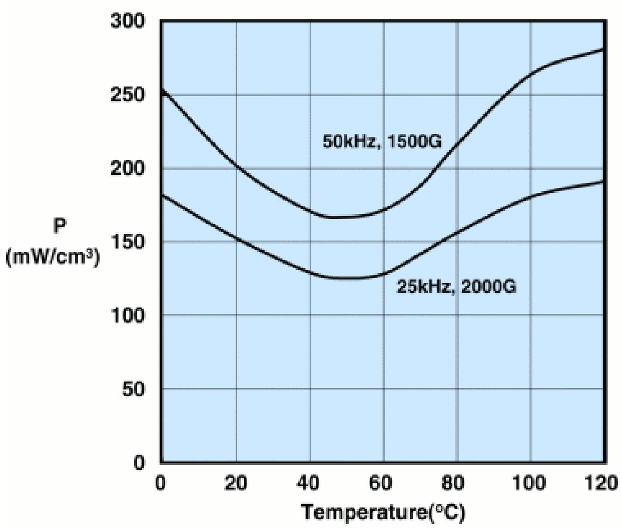
Measured on an 18/10/6mm toroid at 10kHz.

Power Loss Density vs. Flux Density



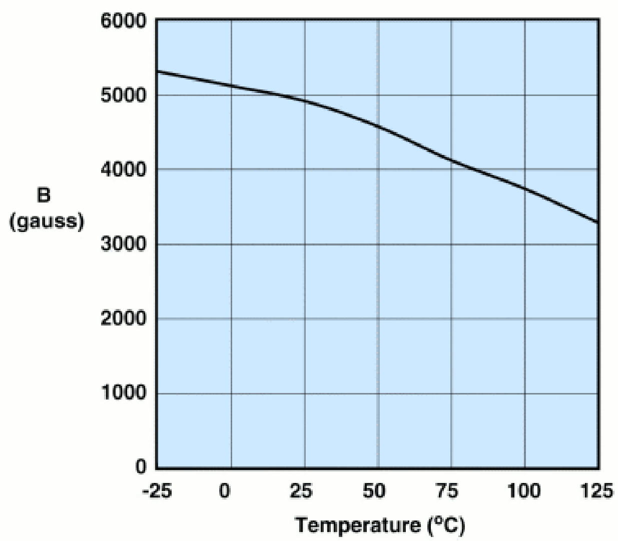
Measured on an 18/10/6mm toroid using the Clarke Hess 258 VAW at 100°C

Power Loss Density vs. Temperature



Measured on an 18/10/6mm toroid using the Clarke Hess 258 VAW.

Flux Density vs. Temperature



Measured on an 18/10/6mm toroid at 10kHz and H=5 oersted.