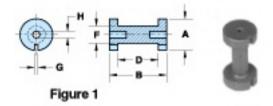


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# Fair-Rite Product's Catalog Part Data Sheet, 9677001165 Printed: 2013-07-03





Part Number:	9677001165
Frequency Range:	Power Applications
Description:	77 BOBBIN GROUND
Application:	Inductive Components
Where Used:	Open Magnetic Circuit
Part Type:	Bobbins

# **Mechanical Specifications**

Weight: 1.300 (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	nominal	inch
		tol	inch	misc.
А	5.05	-0.15	0.196	-
В	12.70	±0.25	0.500	-
С	-	-	-	-
D	10.00	+0.30	0.400	-
E	-	-	-	-
F	2.65	+0.10	0.107	-
G	0.50	±0.10	0.020	-
H	1.00	+0.10	0.042	-
J	-	-	-	-
К	-	-	-	-

# **Electrical Specifications**

Typical Impedance (Ω)		
Electrical Properties		
A <sub>L</sub> (nH)	18 ±10%	
A <sub>L</sub> min. @ NI (At)	15 - 90	
N/AWG	30/24	
A <sub>w</sub> (cm²)	.12	

# Land Patterns

$\vee$	W	Х	Y	Z
	ref			
-	-	-	-	-
-	-	-	-	-

# Winding Information

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

## **Reel Information**

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

LI/A - Core Constant

A<sub>e</sub>: Effective Cross-Sectional Area

 $A_{I}$  - Inductance Factor  $\left(\frac{L}{N^{2}}\right)$ 

N/AWG - Number of Turns/Wire Size for Test Coil

I e: Effective Path Length

V<sub>e</sub>: Effective Core Volume

NI - Value of dc Ampere-turns



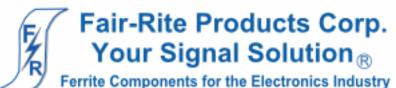
Fair-Rite Product's Catalog Part Data Sheet, 9677001165 Printed: 2013-07-03



# **Ferrite Material Constants**

Specific Heat	0.25 cal/g/ºC
Thermal Conductivity	3.5 - 4.5 mW/cm - °C
Coefficient of Linear Expansion	8 - 10x10 <sup>-6</sup> /ºC
Tensile Strength	4.9 kgf/mm <sup>2</sup>
Compressive Strength	42 kgf/mm <sup>2</sup>
Young's Modulus	15x10 <sup>3</sup> kgf/mm <sup>2</sup>
Hardness (Knoop)	650
Specific Gravity	$\approx$ 4.7 g/cm <sup>3</sup>
The above quoted properties are typical for Fair-Rit	e 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.

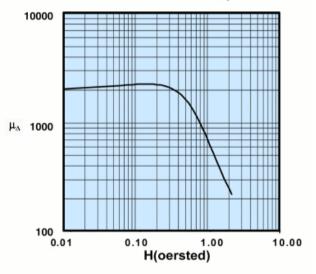
### Fair-Rite Product's Catalog Part Data Sheet, 9677001165 Printed: 2013-07-03



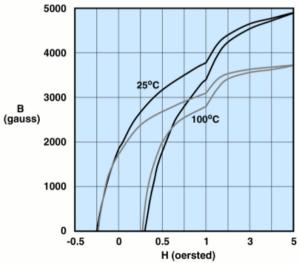
### 77 Material Characteristics:

Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ	2000
Flux Density	gauss	в	4900
@ Field Strength	oersted	н	5
Residual Flux Density	gauss	B,	1800
Coercive Force	oersted	Hc	0.30
Loss Factor	10-6	tan δ/μ,	15
@ Frequency	MHz		0.1
Temperature Coefficient of Initial Permeability (20 -70°C)	%/°C		0.7
Curie Temperature	°C	To	>200
Resistivity	Ωcm	ρ	1x10 <sup>2</sup>

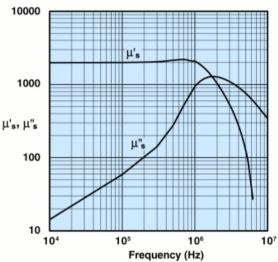
#### Incremental Permeability vs. H



Hysteresis Loop

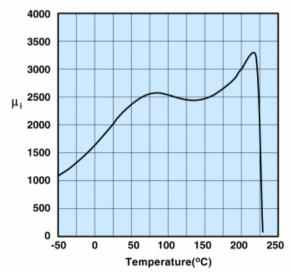


### Complex Permeability vs. Frequency



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

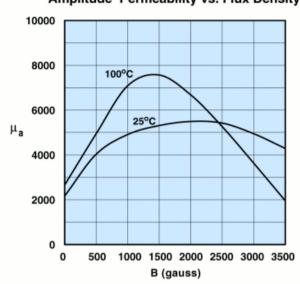
### Initial Permeability vs. Temperature



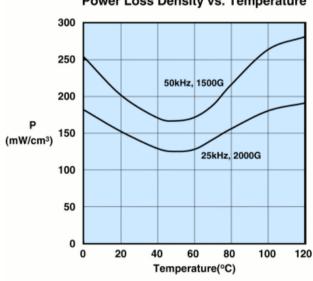
Measured on an 18/10/6mm toroid at 100kHz.

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

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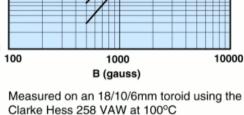


Measured on an 18/10/6mm toroid at 10kHz.

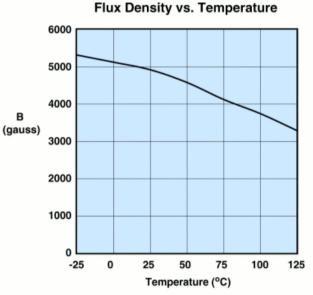


Measured on an 18/10/6mm toroid using the Clarke Hess 258 VAW.

### Fair-Rite Product's Catalog Part Data Sheet, 9677001165 Printed: 2013-07-03 Material Declaration Power Loss Density vs. Flux Density 10000 100kHz 1000 50kHz 20kHz P 100 (mW/cm3) 10kHz 10



1



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

### Power Loss Density vs. Temperature

# **Mouser Electronics**

Authorized Distributor

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