



# Fair-Rite Products Corp. Your Signal Solution®

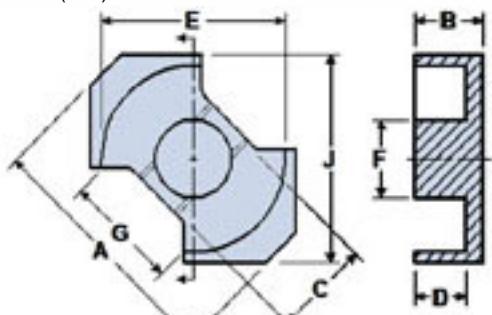
Ferrite Components for the Electronics Industry

Fair-Rite Products Corp. PO Box J, One Commercial Row, Wallkill, NY 12589-0288  
Phone: (888) 324-7748 www.fair-rite.com

Fair-Rite Product's Catalog  
Part Data Sheet, 6295420121  
Printed: 2013-02-27



RoHS  
Material  
Declaration



**Figure 1**

Part Number: 6295420121

Frequency Range: Dimensions

Description: 95 RM CORE

Application: Inductive Components

Where Used: Closed Magnetic Circuit

Part Type: RM Cores

Generic Name: RM14

## Mechanical Specifications

Weight: 69.000 (g)

## Part Type Information

RM4, RM5, RM6, RM8, RM10, RM12, RM14

RM (Rectangular Modulus) cores allow better shielding than E type geometries while also providing easier winding accessibility and better power dissipation than a pot core configuration. Fair-Rite's standard RM cores all have a solid center post and standard height, low profile and alternate materials are available upon request.

- RM cores can be supplied with the center post gapped to a mechanical dimension.
- RM cores can also be supplied to an AL value, these would be supplied in sets.



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### Mechanical Specifications

Dim	mm	mm tol	nominal inch	inch misc.
A	41.60	$\pm 0.6$	1.638	-
B	15.05	$\pm 0.1$	0.593	-
C	18.70	$\pm 0.3$	0.736	-
D	10.55	$\pm 0.2$	0.415	-
E	29.50	$\pm 0.5$	1.161	-
F	14.75	$\pm 0.25$	0.581	-
G	17.00	min	0.669	min
H	-	-	-	-
J	34.15	$\pm 0.65$	1.344	-
K	-	-	-	-

### Electrical Specifications

Typical Impedance ( $\Omega$ )	
-	-

Electrical Properties	
$A_L$ (nH)	7500 $\pm 25\%$
$A_e$ (cm $^2$ )	1.95000
$\sum I/A$ (cm $^{-1}$ )	3.80
$l_e$ (cm)	7.38
$V_e$ (cm $^3$ )	14.37000
$A_{min}$ (cm $^2$ )	1.709

### 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 "	Parts 13 "	Parts 14 "
-	-	-	-	-

### 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 1/2 turn is defined as a single pass through a hole.

$\sum I/A$  - Core Constant

$A_e$  - Effective Cross-Sectional Area

$A_L$  - Inductance Factor ( $\frac{L}{N^2}$ )

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 .....	10x10 <sup>-3</sup> cal/sec/cm/°C
Coefficient of Linear Expansion .....	8 - 10x10 <sup>-6</sup> /°C
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 .....	≈ 4.7 g/cm <sup>3</sup>

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

See next page for further material specifications.



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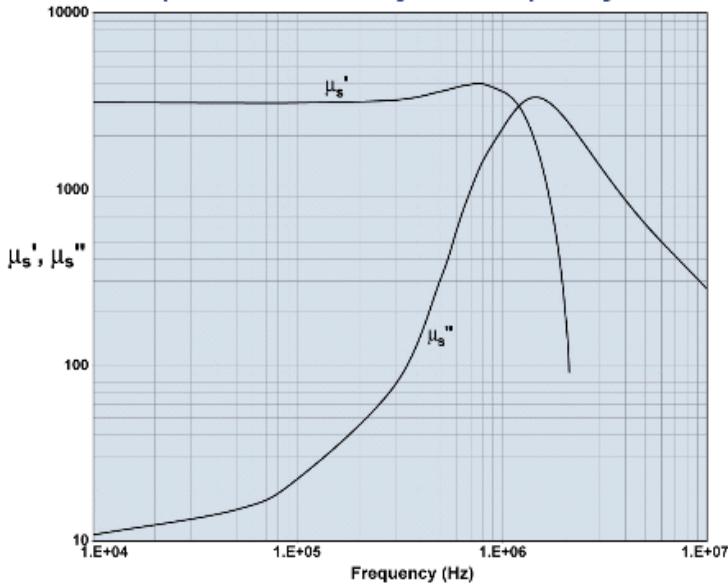
**A low loss MnZn ferrite material for power applications up to 200kHz with low temperature variation.**  
**New type 95 Material is a low loss power material, which features less power loss variation over temperature (25-120°C) at moderate flux densities for operation below 200 kHz.**

Shapes available in 95 material are Toroids, U cores, Pot Cores, RM, PQ, EFD, EP.

### 95 Material Characteristics

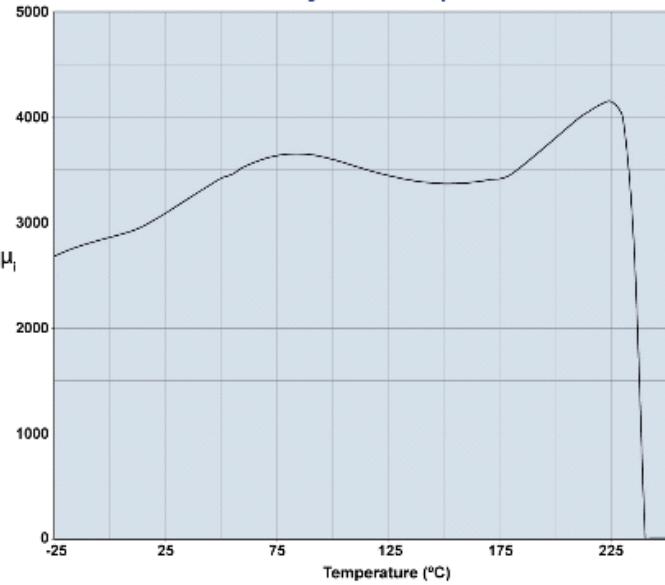
Property	Unit	Symbol	Value
Initial Permeability @ B < 10gauss		$\mu_i$	3000
Flux Density @ Field Strength	gauss oersted	B H	5000 5
Residual Flux Density	gauss	$B_r$	800
Coercive Force	oersted	$H_c$	0.13
Loss Factor @ Frequency	$10^{-6}$ MHz	$\tan\delta/\mu_i$	3.0 0.1
Temperature Factor of Initial Permeability (25 - 60°C)	$10^{-6} / ^\circ\text{C}$		2.5
Curie Temperature	$^\circ\text{C}$	$T_c$	> 220
Resistivity	ohm-cm	$\rho$	200

### Complex Permeability vs. Frequency



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

### Initial Permeability vs. Temperature



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



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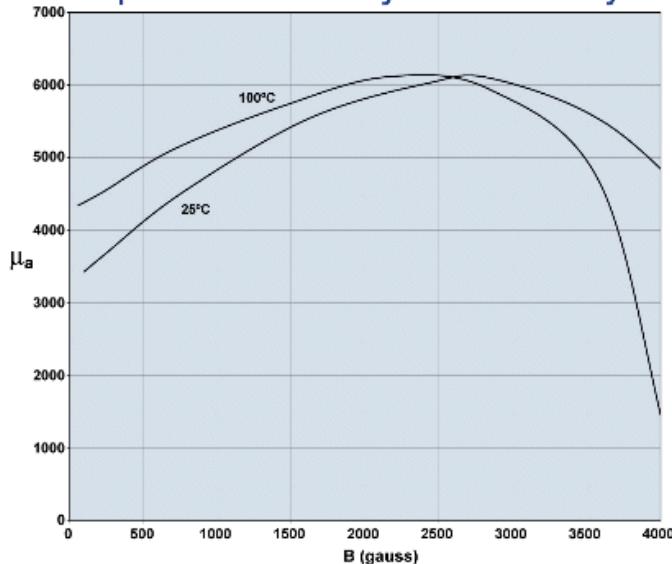
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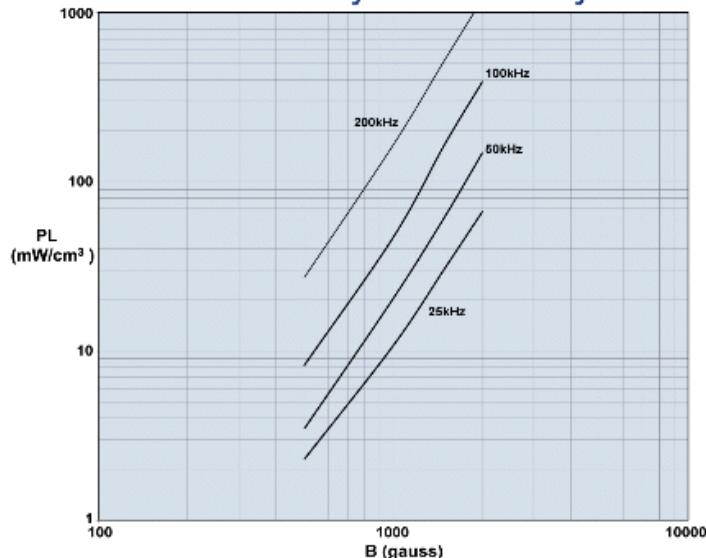
A low loss MnZn ferrite material for power applications up to 200kHz with low temperature variation.

## Amplitude Permeability vs. Flux Density



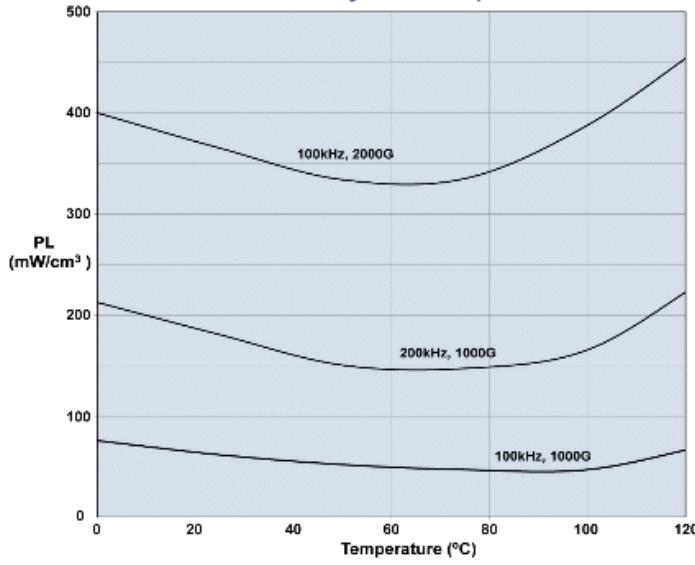
Measured on an 18/10/6mm toroid at 10kHz.

## Power Loss Density vs. Flux Density



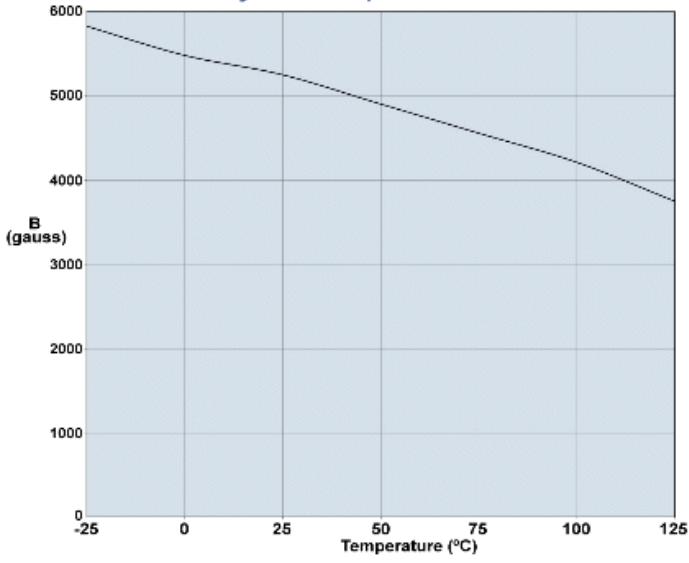
Measured on an 18/10/6mm toroid using the Clarke Hess 258 VAW at 100°C.

## Power Loss Density vs. Temperature



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

## Flux Density vs. Temperature



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