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, 9595150602
Printed: 2013-07-03

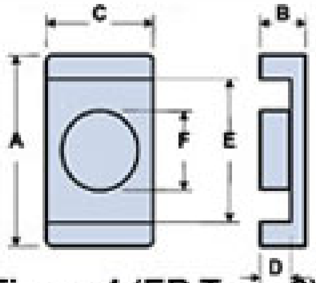


Figure 4 (ER Type 2)

Part Number:	9595150602
Frequency Range:	Dimensions
Description:	95 ER CORE
Application:	Inductive Components
Where Used:	Closed Magnetic Circuit
Part Type:	Planar Cores
Generic Name:	ER14.5

Mechanical Specifications

Weight: 1.800 (g) per Set

Part Type Information

EE14/7, EE18/8, EE22/11, EE32/13, EE38/16, EE43/19. EE64/21, EI 14/5, EI 18/6, EI 22/7, EI 32/10, E 64/15, ER9.5, ER11, ER14.5

Planar EE cores, and Planar EI cores, with their low profile are suitable for board level installation allowing assembly without the need for plastic coilformers and can also allow windings integrated into multi-level PCBs. Planar ER cores with their low mass and low profile are suitable for Surface Mount installations in low power filter and transformer applications.

-Planar EE, ER and EI cores can be supplied with the center post gapped to a mechanical dimension or an AL value.

-AL value is measured at 1 kHz, B < 10 gauss.

-Weight indicated is per pair or set.

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

Mechanical Specifications

Dim	mm	mm tol	nominal inch	inch misc.
A	14.50	± 0.2	0.571	-
B	2.95	± 0.1	0.116	-
C	6.70	± 0.1	0.264	-
D	1.65	± 0.1	0.065	-
E	11.80	± 0.2	0.465	-
F	4.70	± 0.1	0.185	-
G	-	n/a	-	n/a
H	-	-	-	-
J	-	-	-	-
K	-	-	-	-

Electrical Specifications

Typical Impedance (Ω)	

Electrical Properties	
A_L (nH)	1610 ±25%
Ae(cm^2)	0.17600
Σl/A(cm^{-1})	10.80
l_e (cm)	1.90
V_e (cm^3)	0.33300
A_{min}(cm^2)	.170

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

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

Ferrite Material Constants

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

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

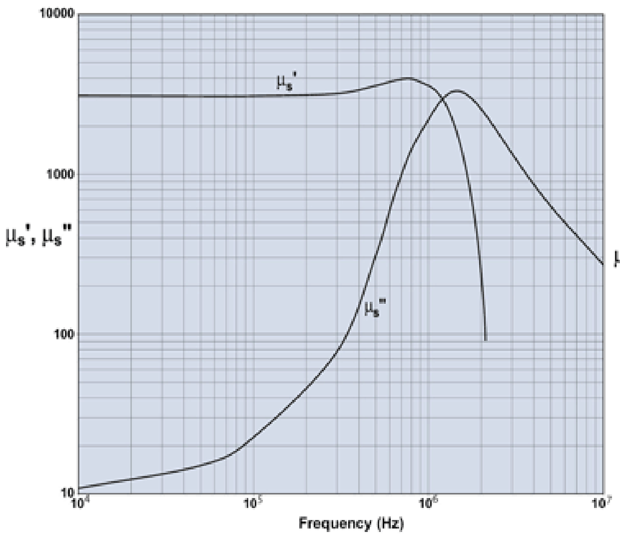
A low loss MnZn ferrite material for power applications up to 200 kHz with low temperature variation. New type 95 Material is a low loss power material, which features less power loss variation over temperature (25-120°C) at moderate flux densities for operation below 200 kHz.

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

95 Material Characteristics

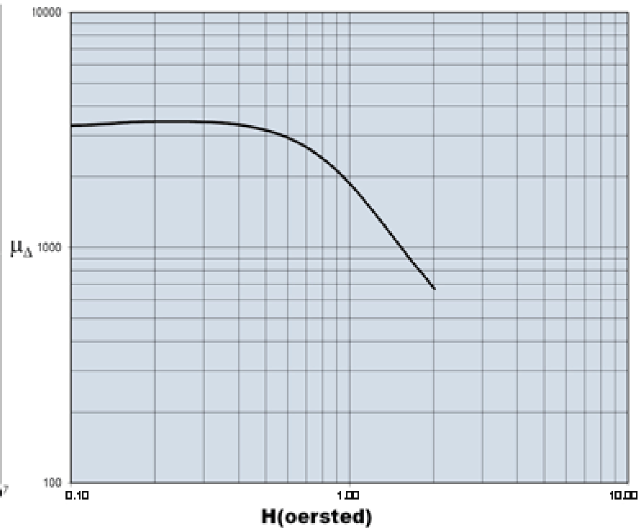
Property	Unit	Symbol	Value
Initial Permeability @ B < 10gauss		μ_i	3000
Flux Density @ Field Strength	gauss oersted	B H	5000 5
Residual Flux Density	gauss	B_r	800
Coercive Force	oersted	H_c	0.13
Loss Factor @ Frequency	10^{-6} MHz	$\tan\delta/\mu_i$	3.0 0.1
Temperature Coefficient of Initial Permeability (20 - 70°C)	% / °C		0.4
Curie Temperature	°C	T_c	> 220
Resistivity	ohm-cm	ρ	200

Complex Permeability vs. Frequency

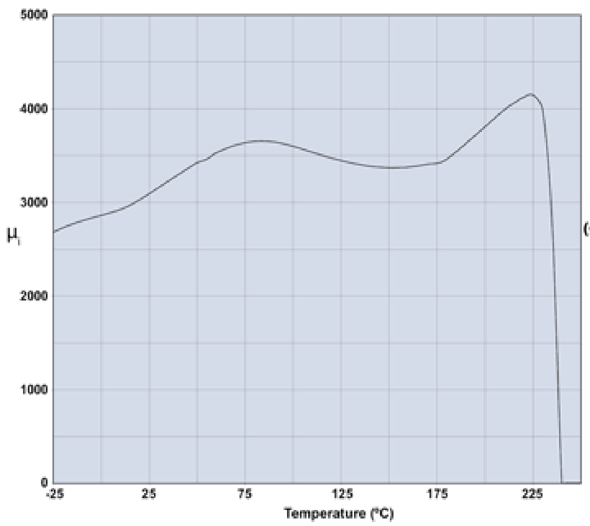


Measured on an 18/10/6mm toroid using HP 4284A and HP4291A.

Incremental Permeability vs. H

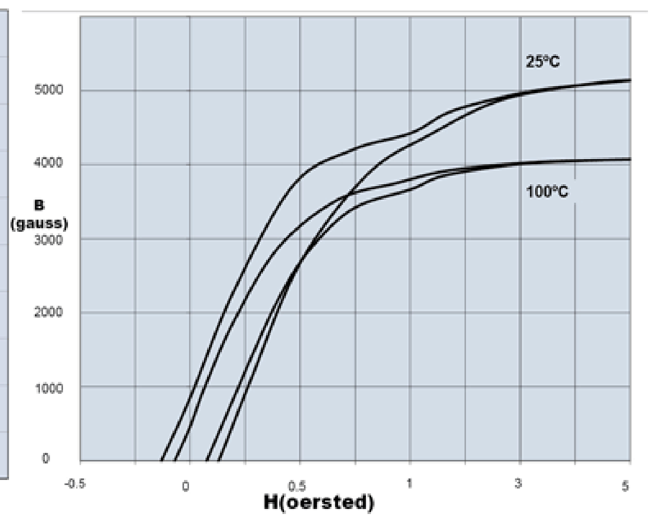


Initial Permeability vs. Temperature



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

Hysteresis Loop

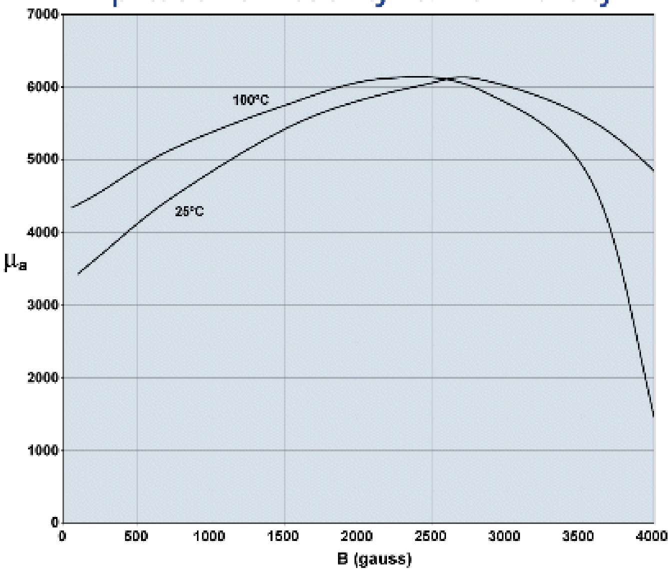


Measured on an 18/10/6mm toroid at 10kHz.

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

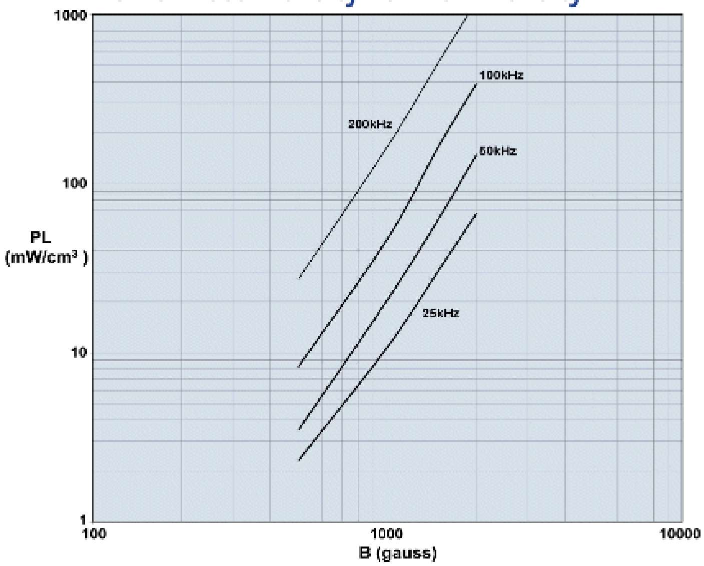
A low loss MnZn ferrite material for power applications up to 200kHz with low temperature variation.

Amplitude Permeability vs. Flux Density



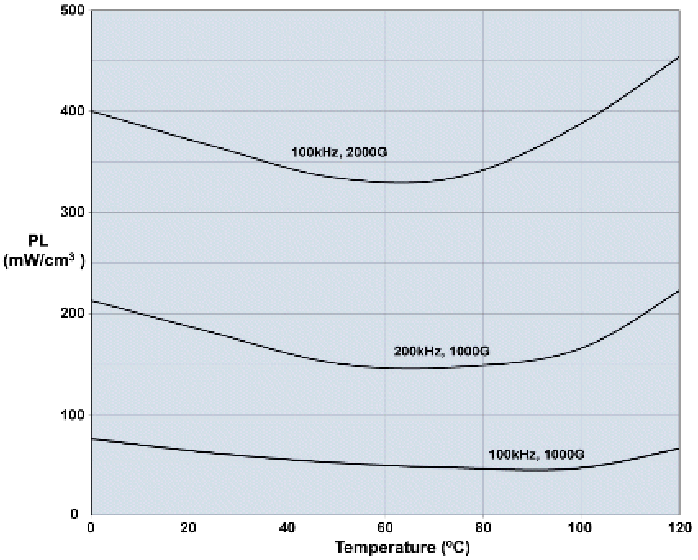
Measured on an 18/10/6mm toroid at 10kHz.

Power Loss Density vs. Flux Density



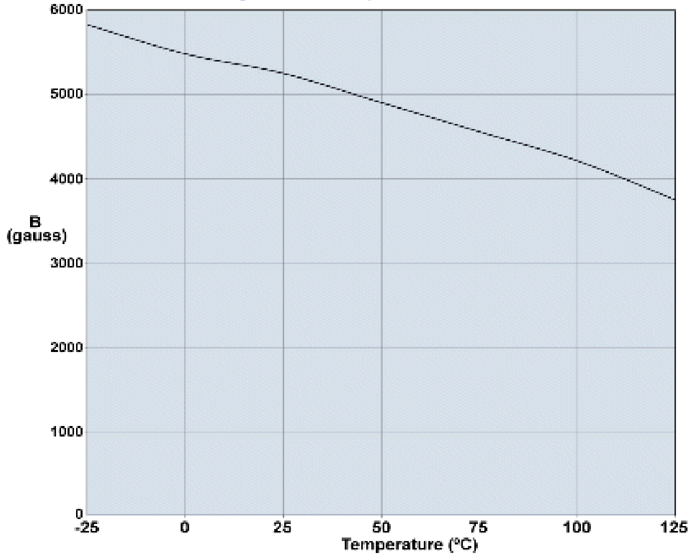
Measured on an 18/10/6mm toroid using the Clarke Hess 258 VAW at 100°C.

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.