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, 8998252521
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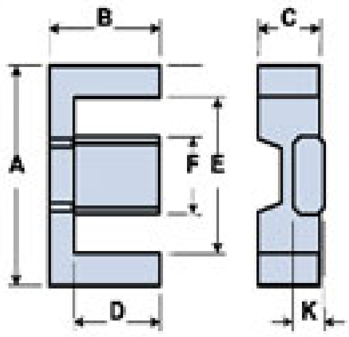

Part Number:	8998252521
Frequency Range:	Dimensions
Description:	98 EFD CORE
Application:	Inductive Components
Where Used:	Closed Magnetic Circuit
Part Type:	EFD Cores
Genaric Name:	EFD25

Mechanical Specifications

Weight: 16.000 (g)

Part Type Information

EFD10, EFD12, EFD15, EFD20, EFD25, EFD30

EFD (Economical Flat Design) cores have been designed to maximize volume in a low profile geometry. EFD cores allow maximum throughput power density with reasonably low mass for board level installation.

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

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ISO 9001 Registered | TS 16949 Registered | Pb | RoHS Material Declaration

Mechanical Specifications

Dim	mm	mm tol	nominal inch	inch misc.
A	25.00	± 0.5	0.984	-
B	12.50	± 0.25	0.492	-
C	9.10	± 0.3	0.358	-
D	9.30	± 0.25	0.366	-
E	18.70	± 0.6	0.736	-
F	11.40	± 0.2	0.449	-
G	-	-	-	-
H	-	-	-	-
J	-	-	-	-
K	5.20	± 0.2	0.205	-

Electrical Specifications

Typical Impedance (Ω)	

Electrical Properties	
A_L (nH)	2250 ±25%
Ae(cm^2)	0.58000
ΣI/A(cm^{-1})	10.40
l_e (cm)	5.88
V_e (cm^3)	3.32000
A_{min}(cm^2)	.550

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.

ΣI/A - Core Constant
A_e: Effective Cross-Sectional Area
A_L - Inductance Factor $\left(\frac{L}{N2}\right)$
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	10×10^{-3} cal/sec/cm/°C
Coefficient of Linear Expansion	$8 - 10\times10^{-6}$/°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.

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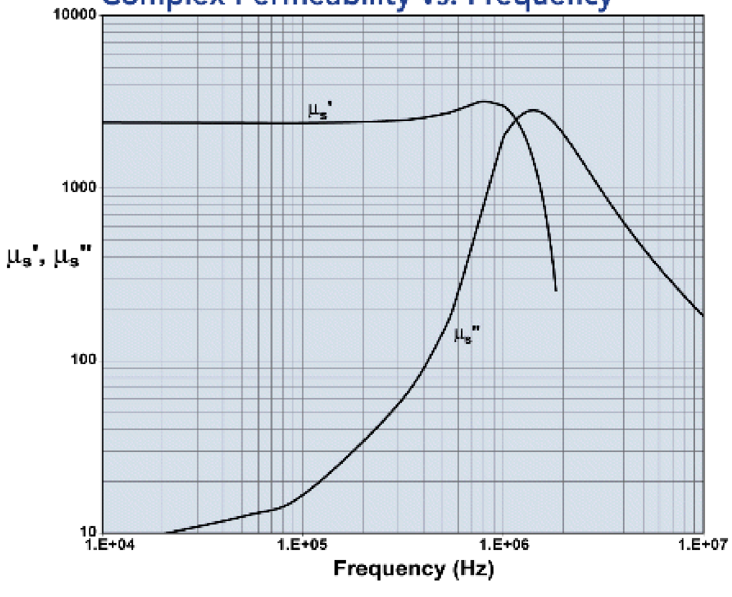
A low loss MnZn ferrite material for power applications up to 200kHz.
New type 98 Material is an improved version of Fair-Rite's 78 Material, this material supplies lower power loss at 100˚C at moderate flux densities for operation below 200kHz.

Shapes available in 98 material are Toroids, U Cores, E&I Cores, Pot Cores, RM, PQ, ETD, EFD, EP, EER.

98 Material Characteristics

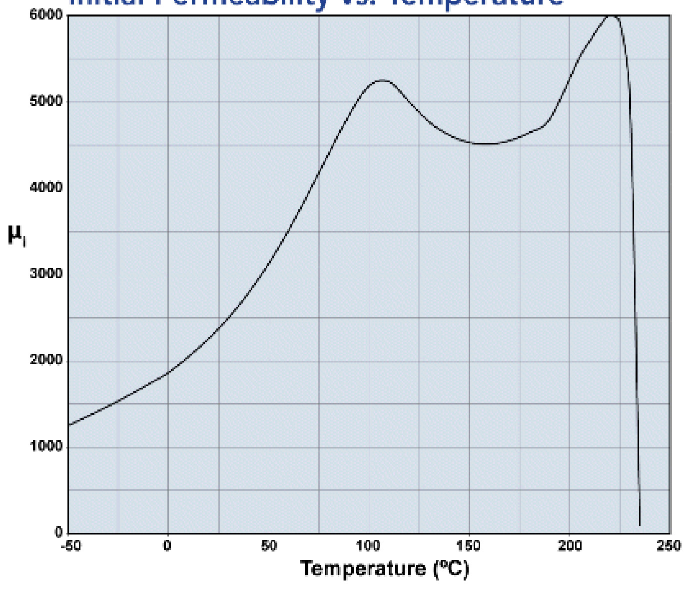
Property	Unit	Symbol	Value
Initial Permeability @ B < 10gauss		μ_i	2400
Flux Density @ Field Strength	gauss oersted	B H	5000 5
Residual Flux Density	gauss	B_r	1800
Coercive Force	oersted	H_C	0.17
Loss Factor @ Frequency	10^{-6} MHz	$\tan\delta/\mu_i$	3.5 0.1
Temperature Factor of Initial Permeability (25 - 60ºC)	10^{-6} / ºC		5.8
Curie Temperature	ºC	T_C	> 215
Resistivity	ohm-cm	ρ	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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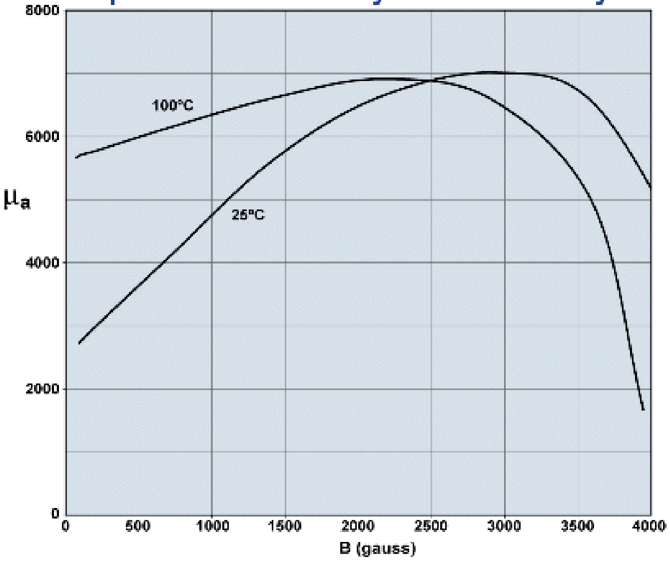
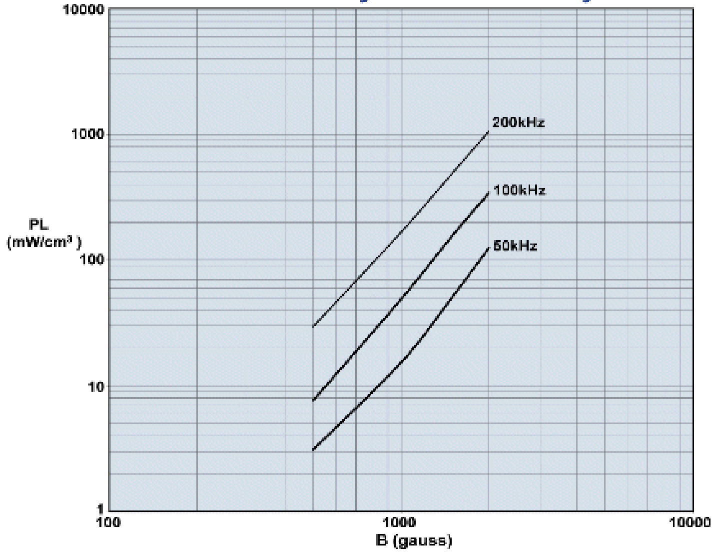
A low loss MnZn ferrite material for power applications up to 200kHz.

Amplitude Permeability vs. Flux Density



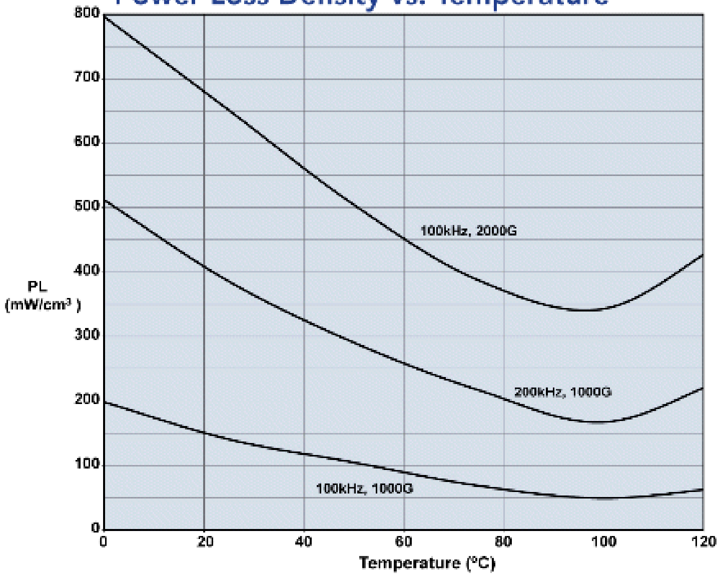
Measured on an 18/10/6mm toroid at 10kHz.

Power Loss Density vs. Flux Density



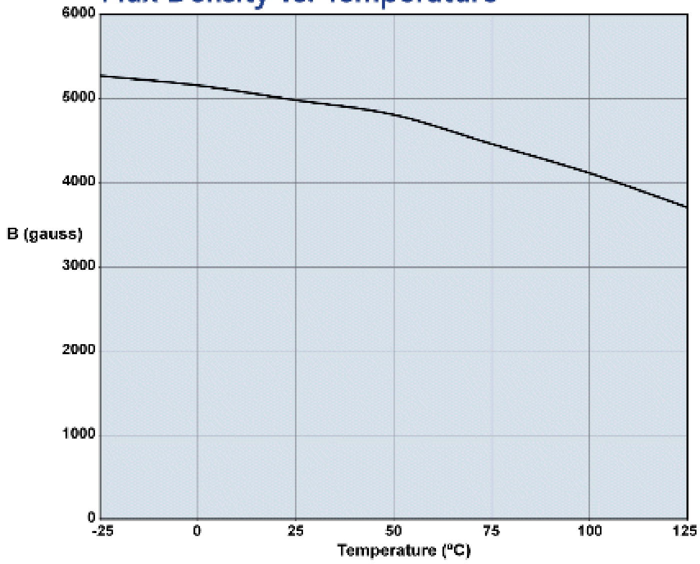
Measured on an 18/10/6mm toroid using the Clarke Hess 258 VAW at 100°C.

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.