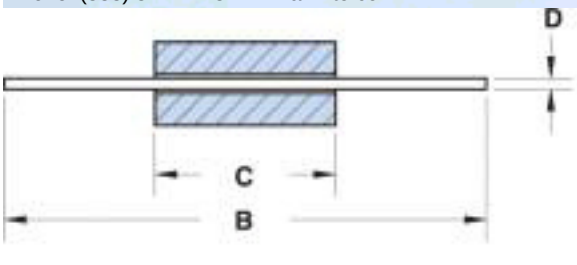
Fair-Rite Products Corp.
Your Signal Solution®
Ferrite Components for the Electronics Industry
Fair-Rite Products Corp. PO Box J,One Commercial Row, Wallkill, NY 12589-0288
Phone: (888) 324-7748 www.fair-rite.com

Fair-Rite Product's Catalog
Part Data Sheet, 2773001112
Printed: 2010-11-09





Part Number:	2773001112
Frequency Range:	Lower Frequencies < 50 MHz (73 material)
Description:	73 BEAD ON LEAD
Application:	Suppression Components
Where Used:	Board Component
Part Type:	Beads-on-Leads
Preferred Part:	✓

Mechanical Specifications

Weight: .400 (g)

Part Type Information

Ferrite suppression beads are supplied assembled on tinned copper wire for automated circuit board assembly.

-Parts with a '2' as the last digit of the part number are supplied taped and reeled per IEC 60286-1 and EIA RS-296-F standards. Taped and reeled parts are supplied 4500 pieces on a 14'' reel. Taping details: Component pitch 5 mm. Inside tape spacing 52.5 mm. Tape width 6 mm.

-Beads-on-leads can be supplied bulk packed. The last digit of bulk packed parts is a '1'.

-Wires are oxygen free high conductivity copper with a lead-free tin coating. The resistance of the wire is 3.5 mOhm for the 22 AWG and 2.2 mOhm for the 20 AWG wire.

-Beads-on-leads are controlled for impedances only. The impedances listed are typical values. Minimum impedance values are specified for the + marked frequencies. The minimum guaranteed impedance is the listed impedance less 20%. The impedances of the 73 & 43 beads-on-leads are measured on the 4193A Vector Impedance Analyzer. The 61 beads-on-leads are tested for impedance on the 4191A RF Impedance Analyzer.

-Preferred beads-on-leads are the suggested choice for new designs. Samples are readily available and orders have typically shorter lead times than other beads-on-leads. For any bead-on lead requirement not listed here, feel free to contact our customer service group for availability and pricing.

-Our 'Bead-on-Lead Suppression Kit' (part number 0199000028) is available for prototype evaluation.

-Explanation of Part Numbers: Digits 1&2 = product class, 3&4 = material grade and last digit 1 = bulk packed, 2 = taped and reeled.

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Mechanical Specifications

Dim	mm	mm tol	nominal inch	inch misc.
A	3.50	±0.25	0.138	-
B	62.00	±1.50	2.440	-
C	4.45	±0.25	0.175	-
D	0.65	-	-	22 AWG
E	-	-	-	-
F	-	-	-	-
G	-	-	-	-
H	-	-	-	-
J	-	-	-	-
K	-	-	-	-

Electrical Specifications

Typical Impedance (Ω)	
1 MHz	12
5 MHz	34
10 MHz+	48
25 MHz+	61

Electrical Properties	

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
6	5	-	-	4500

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

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Ferrite Material Constants

Specific Heat	0.25 cal/g/°C
Thermal Conductivity	$10x10^{-3}$ cal/sec/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	$\approx$ 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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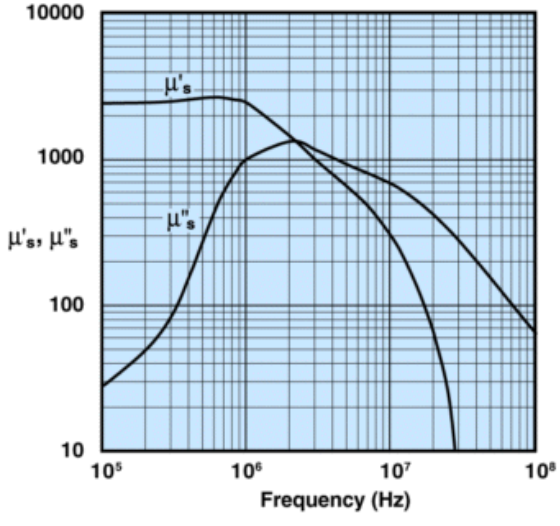
A MnZn ferrite, supplied only in small cores, to suppress conducted EMI frequencies below 50 MHz.

EMI suppression beads, beads on leads, SM beads, and multi-aperture cores are all available in 73 material.

73 Material Characteristics:

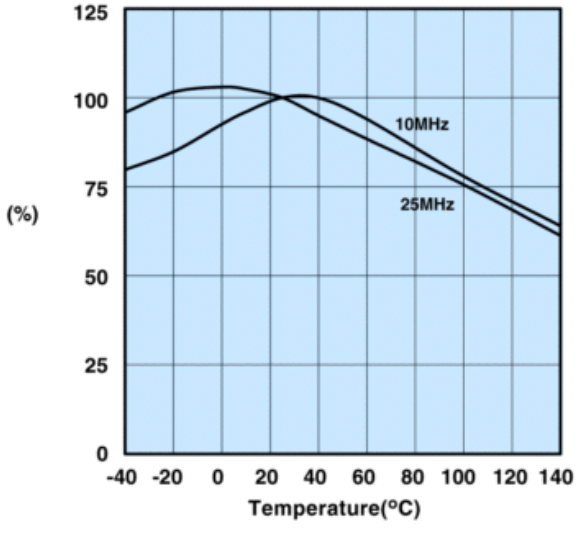
Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ_i	2500
Flux Density @ Field Strength	gauss oersted	B H	3900 5
Residual Flux Density	gauss	B_r	1500
Coercive Force	oersted	H_c	0.24
Loss Factor @ Frequency	10^{-6} MHz	$\tan\delta/\mu_i$	10 0.1
Temperature Coefficient of Initial Permeability (20 -70°C)	%/°C		0.65
Curie Temperature	°C	T_c	>160
Resistivity	Ω cm	ρ	$1x10^2$

Complex Permeability vs. Frequency



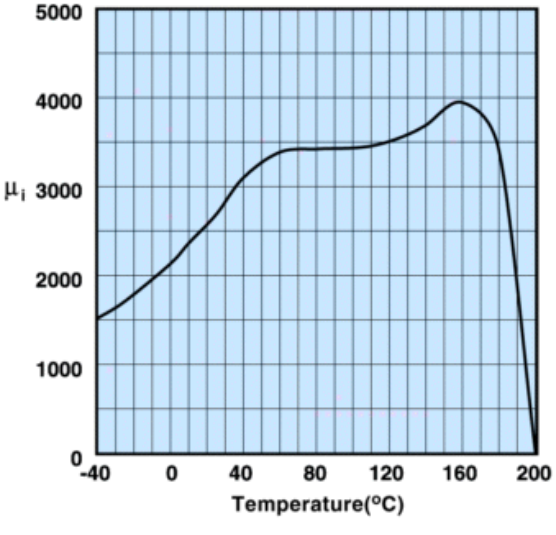
Measured on a 2673000301 bead using the HP 4284A and the HP 4291A.

Percent of Original Impedance vs. Temperature



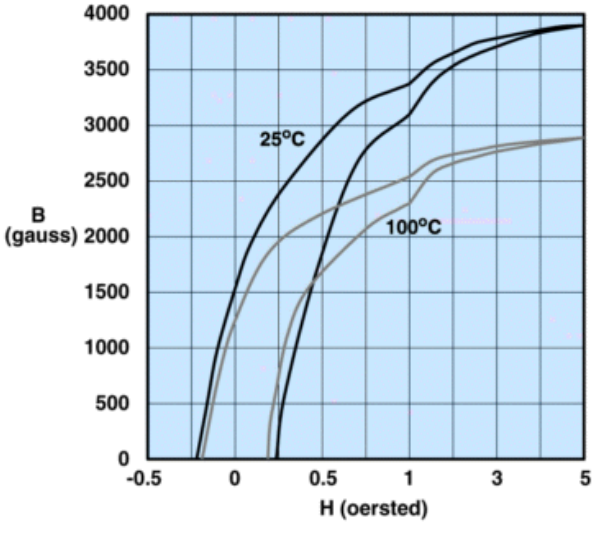
Measured on a 2673000301 using the HP4291A.

Initial Permeability vs. Temperature



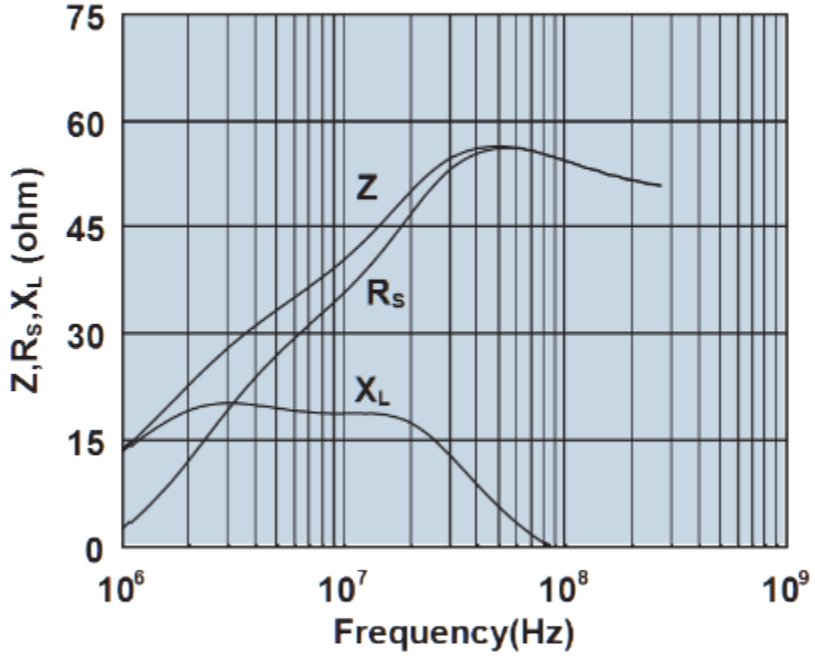
Measured on a 17/10/6mm toroid at 10kHz.

Hysteresis Loop

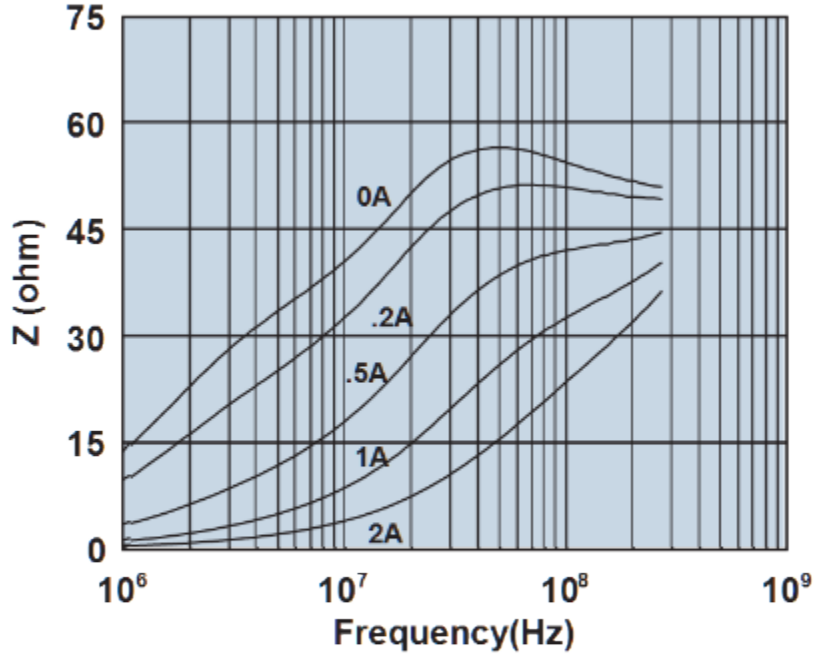


Measured on a 17/10/6mm toroid at 10kHz.

2773001112



Impedance, reactance, and resistance vs. frequency.



Impedance vs. frequency with dc bias.