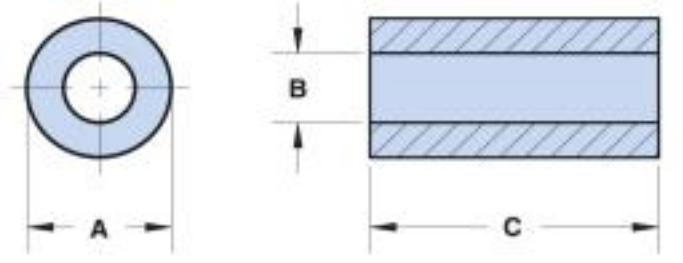
Fair-Rite Products Corp.
Your Signal Solution®
Ferrite Components for the Electronics Industry
Fair-Rite Products Corp. PO Box J,One Commercial Row, Wallkill, NY 12589-0288
Phone: (888) 324-7748 www.fair-rite.com

Fair-Rite Product's Catalog
Part Data Sheet, 2643251002
Printed: 2013-07-03



Part Number:	2643251002
Frequency Range:	Broadband Frequencies 25-300 MHz (43 material)
Description:	43 ROUND CABLE CORE
Application:	Suppression Components
Where Used:	Cable Component
Part Type:	Round Cable EMI Suppression Cores

Mechanical Specifications

Weight:	104.000(g)

Part Type Information

Fair-Rite offers a broad selection of ferrite EMI suppression cable cores in several materials with guaranteed minimum impedance specifications.

-All cable cores have been burnished to remove the sharp edges.

-The column 'H' (Oe) gives for each cable core 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-turns) product. For the effect of the dc bias on the impedance of the core material, see the figures 18-23 in the application note 'How to choose Ferrite Components for EMI Suppression'.

-Suppression cable cores are controlled for impedances only. Minimum impedance values are specified for the + marked frequencies. The minimum impedance is typically the listed impedance less 20%.

-Single turn impedance tests for 31, 43 and 46 material cores are performed on the 4193A Vector Impedance Meter. The 61 material parts are tested on the 4191A RF Impedance Analyzer. Cores are tested with the shortest Practical wire length.

-For smaller suppression parts, refer to the EMI Suppression Bead section of our catalog.

-For any cable suppression core not listed here, feel free to contact our customer service group for availability and pricing.

-The 'C' dimension, the core length, can be modified to suit specific applications.

-Our Expanded Cable and Suppressor Kit (part number 0199000005) Contains a selection of these suppression cores.

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

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Mechanical Specifications

Dim	mm	mm tol	nominal inch	inch misc.
A	39.10	±0.75	1.540	-
B	16.75	±0.50	0.660	-
C	22.20	±0.80	0.875	-
D	-	-	-	-
E	-	-	-	-
F	-	-	-	-
G	-	-	-	-
H	-	-	-	-
J	-	-	-	-
K	-	-	-	-

Electrical Specifications

Typical Impedance (Ω)	
10 MHz	85
25 MHz+	135
100 MHz+	230
250 MHz	325

Electrical Properties	
H(Oe)	.16

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.

$\Sigma l/A$ - 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	**3.5 - 4.5 mW/cm** - °C
Coefficient of Linear Expansion	8 - $10x10^{-6}$/°C
Tensile Strength	4.9 kgf/mm²
Compressive Strength	42 kgf/mm²
Young's Modulus	$15x10^3$ kgf/mm²
Hardness (Knoop)	650
Specific Gravity	≈ 4.7 g/cm³

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

See next page for further material specifications.

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

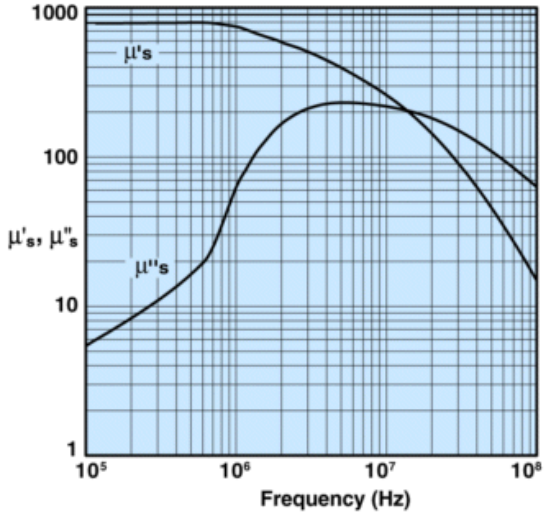
This NiZn is our most popular ferrite for suppression of conducted EMI from 20 MHz to 250 MHz. This material is also used for inductive applications such as high frequency common-mode chokes.

EMI suppression beads, beads on leads, SM beads, multi-aperture cores, round cable EMI suppression cores, round cable snap-its, flat cable EMI suppression cores, flat cable snap-its, miscellaneous suppression cores, bobbins, and toroids are all available in 43 material.

43 Material Characteristics:

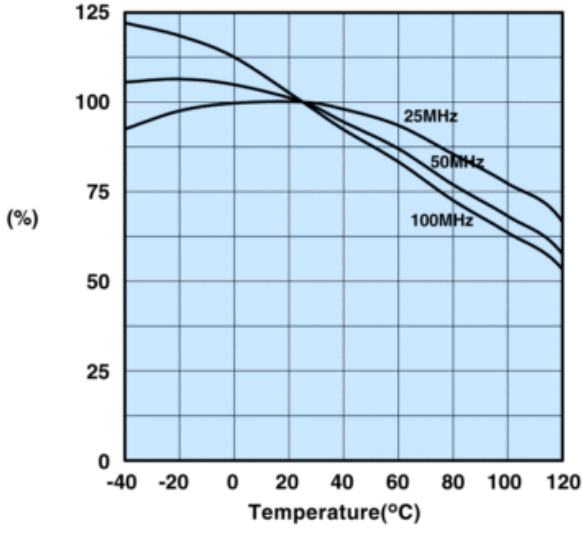
Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ_i	800
Flux Density @ Field Strength	gauss / oersted	B / H	2900 / 10
Residual Flux Density	gauss	B_r	1300
Coercive Force	oersted	H_c	0.45
Loss Factor @ Frequency	10^{-6} / MHz	$\tan\delta/\mu_i$	250 / 1.0
Temperature Coefficient of Initial Permeability (20 -70°C)	%/°C		1.25
Curie Temperature	°C	T_c	>130
Resistivity	Ω cm	ρ	$1x10^5$

Complex Permeability vs. Frequency



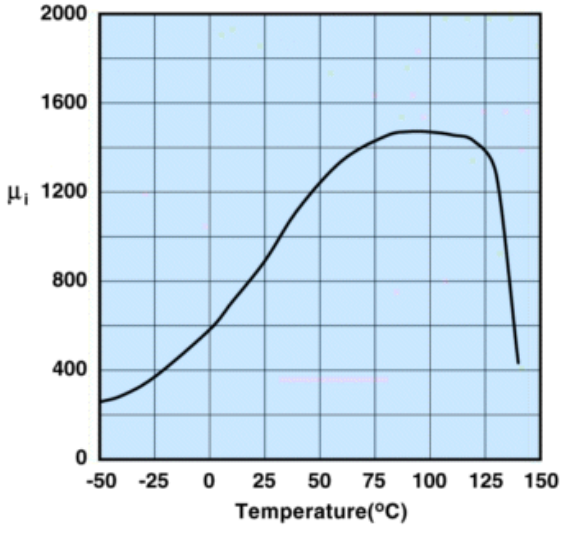
Measured on a 17/10/6mm toroid
using the HP 4284A and the HP 4291A.

Percent of Original Impedance vs. Temperature



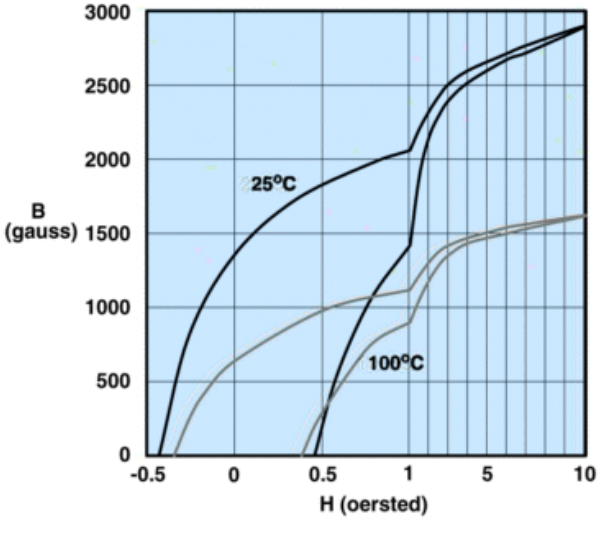
Measured on a 2643000301 using the HP4291A.

Initial Permeability vs. Temperature



Measured on a 17/10/6mm toroid at 100kHz.

Hysteresis Loop



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

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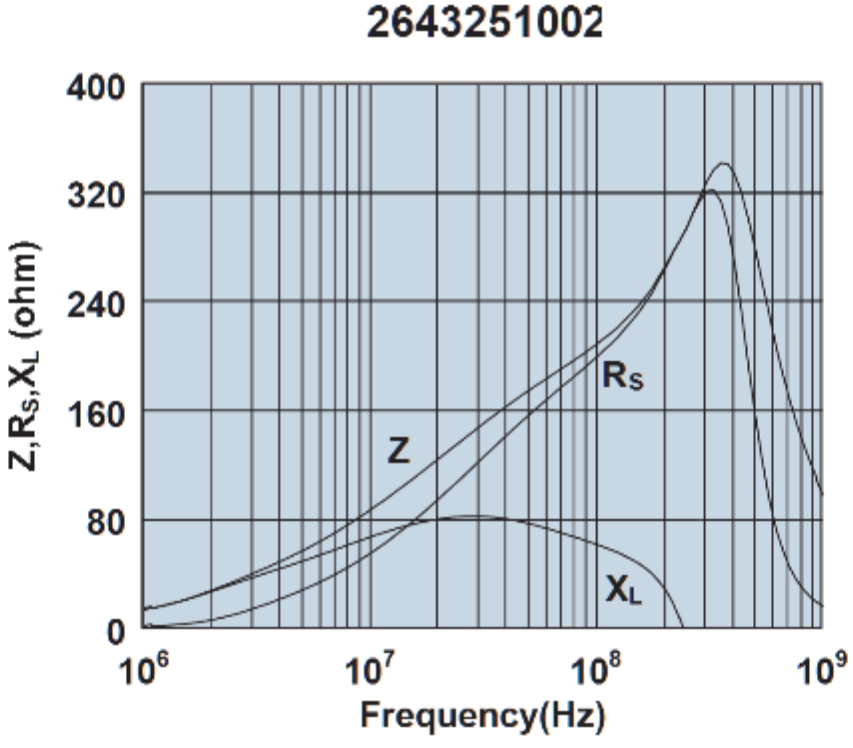

Impedance, reactance, and resistance vs. frequency.