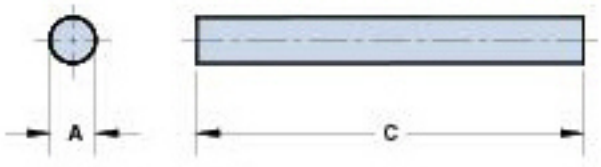
Fair-Rite Products Corp.
Your Signal Solution®
Ferrite Components for the Electronics Industry
Fair-Rite Products Corp. PO Box J,One Commercial Row, Wallkill, NY 12589-0288
Phone: (888) 324-7748 www.fair-rite.com

Fair-Rite Product's Catalog
Part Data Sheet, 3061990871
Printed: 2013-07-03



Part Number:	3061990871
Frequency Range:	Low Permeability, 61 (ui=125) material
Description:	61 ROD
Application:	Inductive Components
Where Used:	Open Magnetic Circuit
Part Type:	Antenna/RFID Rods

Mechanical Specifications

Weight: .850 (g)

Part Type Information

These rods are designed for use in antenna and RFID transponder applications. Rods are available in three materials to cover a frequency range from 50 kHz to 25 MHz. Suggested frequency ranges: 78 material < 200 kHz, 61 material 0.2 -5.0 MHz and 61 material > 5.0 MHz.

-See www.fair-rite.com/newfair/catalog_rodinfo.htm graphs for temperature information for these rods.

-Rods can be supplied with a Parylene C coating. Parylene coated rods have a '4' as the last digit. Parylene C is RoHS compliant.

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

-The Antenna/RFID Kit (part number 0199000024) contains a selection of these rods.

-Explanation of Part Numbers: Digits 1&2 = product class, 3&4 = material grade, the last digit 1 = uncoated rod and 4 = Parylene coated rod.

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Mechanical Specifications

Dim	mm	mm tol	nominal inch	inch misc.
A	3.00	±0.04	0.118	-
B	-	-	-	-
C	25.00	±0.70	0.984	-
D	-	-	-	-
E	-	-	-	-
F	-	-	-	-
G	-	-	-	-
H	-	-	-	-
J	-	-	-	-
K	-	-	-	-

Electrical Specifications

Typical Impedance (Ω)	

Electrical Properties	
U_{ROD}	29
Ae(cm^2)	0.07070

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

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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/mm^2
Compressive Strength	42 kgf/mm^2
Young's Modulus	$15x10^3$ kgf/mm^2
Hardness (Knoop)	650
Specific Gravity	≈ 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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ISO 9001 Registered · TS 16949 Registered · Pb · RoHS Material Declaration

A high frequency NiZn ferrite developed for a range of inductive applications up to 25 MHz. This material is also used in EMI applications for suppression of noise frequencies above 200 MHz.

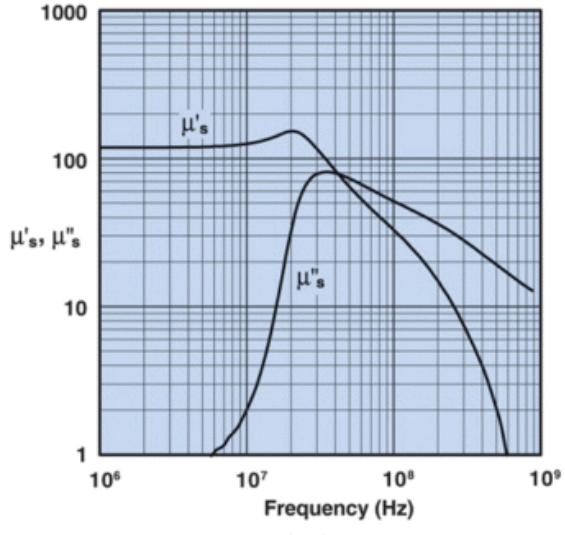
EMI suppression beads, beads on leads, SM beads, wound beads, multi-aperture cores, round cable snap-its, rods, antenna/RFID rods, and toroids are all available in 61 material.

Strong magnetic fields or excessive mechanical stresses may result in irreversible changes in permeability and losses.

61 Material Characteristics:

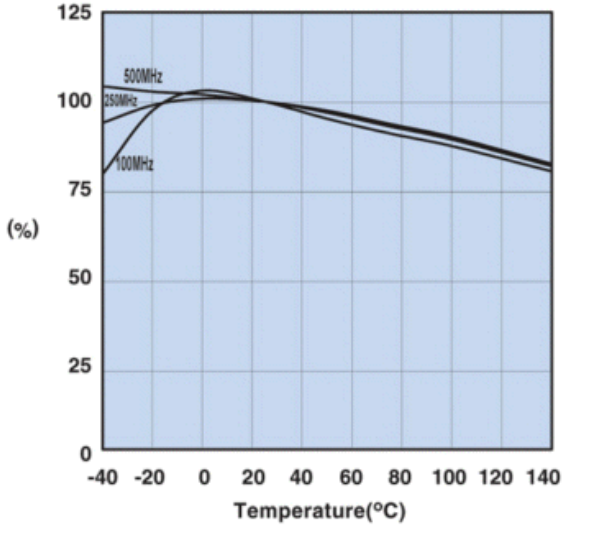
Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ_i	125
Flux Density @ Field Strength	gauss / oersted	B / H	2350 / 15
Residual Flux Density	gauss	B_r	1200
Coercive Force	oersted	H_c	1.8
Loss Factor @ Frequency	10^{-6} / MHz	$\tan\delta/\mu_i$	30 / 1.0
Temperature Coefficient of Initial Permeability (20 -70°C)	%/°C		0.10
Curie Temperature	°C	T_c	>300
Resistivity	Ω cm	ρ	$1x10^8$

Complex Permeability vs. Frequency



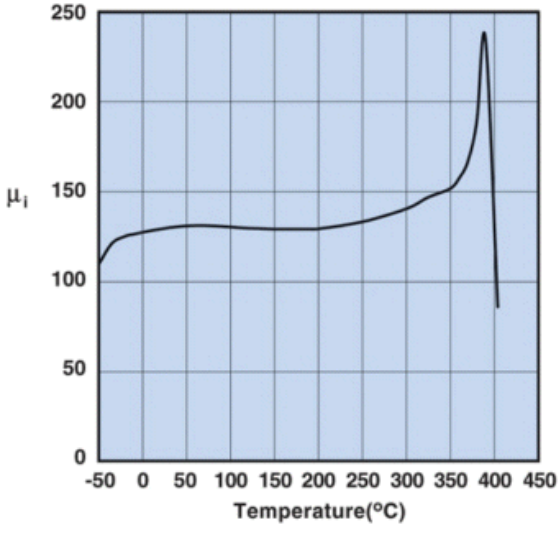
Measured on a 19/10/6mm toroid using the HP 4284A and the HP 4291A.

Percent of Original Impedance vs. Temperature



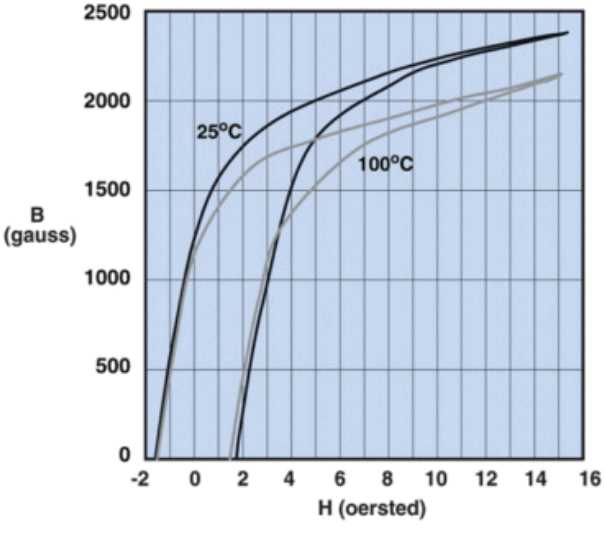
Measured on a 2661000301 using the HP4291A.

Initial Permeability vs. Temperature



Measured on a 19/10/6mm toroid at 100kHz.

Hysteresis Loop



Measured on a 19/10/6mm toroid at 10kHz.