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

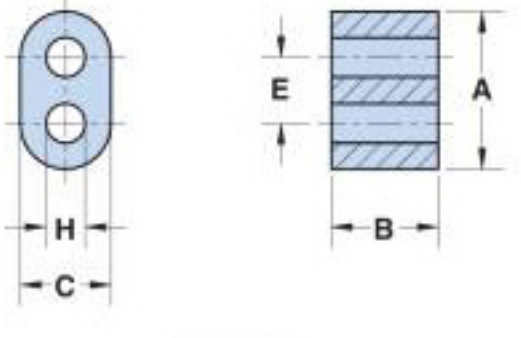

Figure 1

Part Number:	2873000302
Frequency Range:	Suppression Applications for Lower Frequencies < 50 MHz (73 material)
Description:	73 MULTI-APERTURE CORE
Application:	Suppression Components
Where Used:	Board Component
Part Type:	Multi-Aperture cores
Preferred Part:	✓

Mechanical Specifications

Weight:	2.600 (g)

Part Type Information

Multi-aperture cores are used in suppression applications and in balun (balance-unbalance) and other broadband transformers. They are also employed in airbag designs to prevent accidental activation.

-All multi-aperture cores are supplied burnished.

-Multi-aperture cores in 73 and 43 materials are controlled for impedance only. The 61 NiZn material is controlled for both impedance and AL value. The high frequency 67 material is controlled for AL value. All listed impedance values are typical values. Minimum impedance values are specified for the + marked frequencies. The minimum guaranteed impedance is the listed typical impedance less 20%.

-Multi-aperture cores in 73 and 43 material are measured for impedance on the 4193A Vector Impedance Analyzer. The 61 multi-aperture cores are tested on the 4191A Impedance Analyzer. All impedance measurements are performed with a single turn to both holes, using the shortest practical wire length.

-The 61 and 67 material multi-hole beads are tested for AL value. The test frequency is 10 kHz at < 10 gauss. The test winding is five turns wound through both holes.

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

-Our 'Multi-Aperture Core Kit' (part number 0199000036) is available for proto type evaluation.

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

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Fair-Rite Product's Catalog
Part Data Sheet, 2873000302
Printed: 2010-11-09

Mechanical Specifications

Dim	mm	mm tol	nominal inch	inch misc.
A	13.30	±0.60	0.525	-
B	10.30	±0.30	0.407	-
C	7.50	±0.35	0.295	-
D	-	-	-	-
E	5.70	±0.25	0.225	-
F	-	-	-	-
G	-	-	-	-
H	3.80	±0.25	0.150	-
J	-	-	-	-
K	-	-	-	-

Electrical Specifications

Typical Impedance (Ω)	
10 MHz	94
25 MHz+	75

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
-	-	-	-	-

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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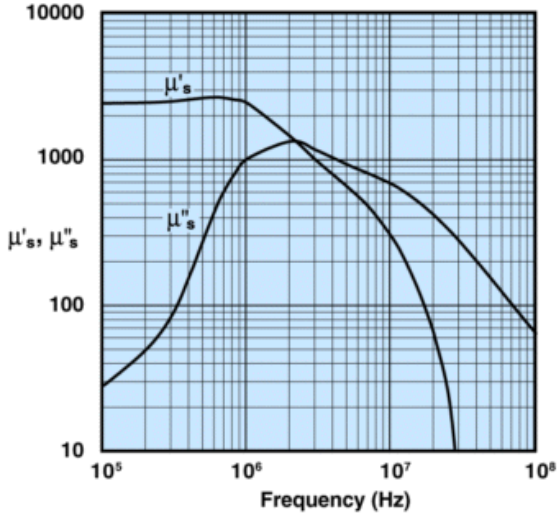
A MnZn ferrite, supplied only in small cores, to suppress conducted EMI frequencies below 50 MHz.

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

73 Material Characteristics:

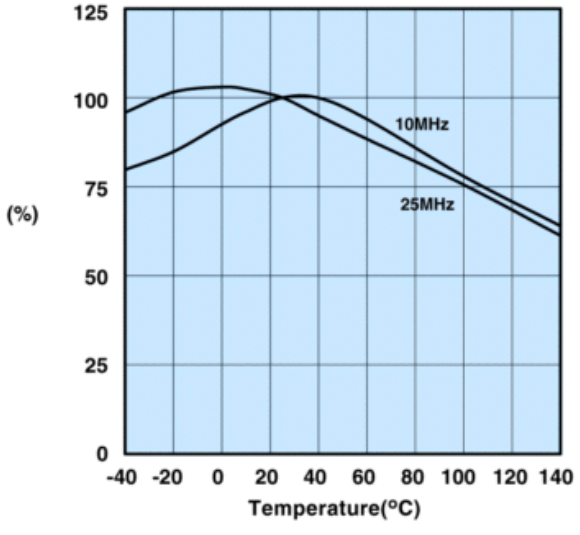
Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ_i	2500
Flux Density @ Field Strength	gauss oersted	B H	3900 5
Residual Flux Density	gauss	B_r	1500
Coercive Force	oersted	H_c	0.24
Loss Factor @ Frequency	10^{-6} MHz	$\tan\delta/\mu_i$	10 0.1
Temperature Coefficient of Initial Permeability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

Complex Permeability vs. Frequency



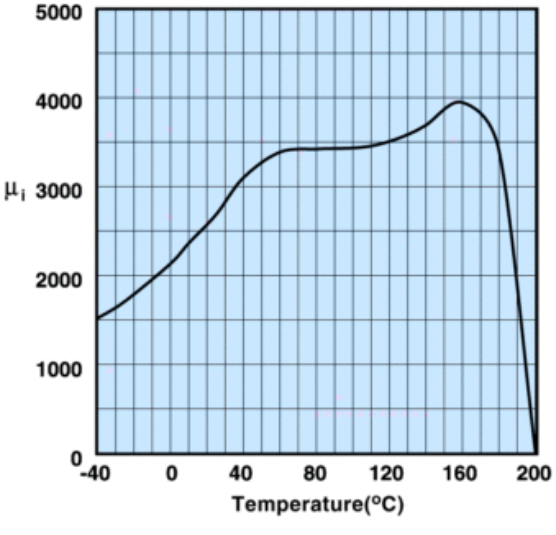
Measured on a 2673000301 bead using the HP 4284A and the HP 4291A.

Percent of Original Impedance vs. Temperature



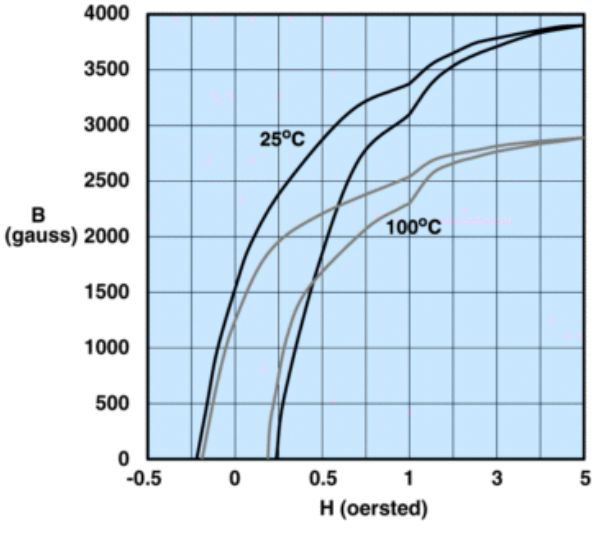
Measured on a 2673000301 using the HP4291A.

Initial Permeability vs. Temperature



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

Hysteresis Loop



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

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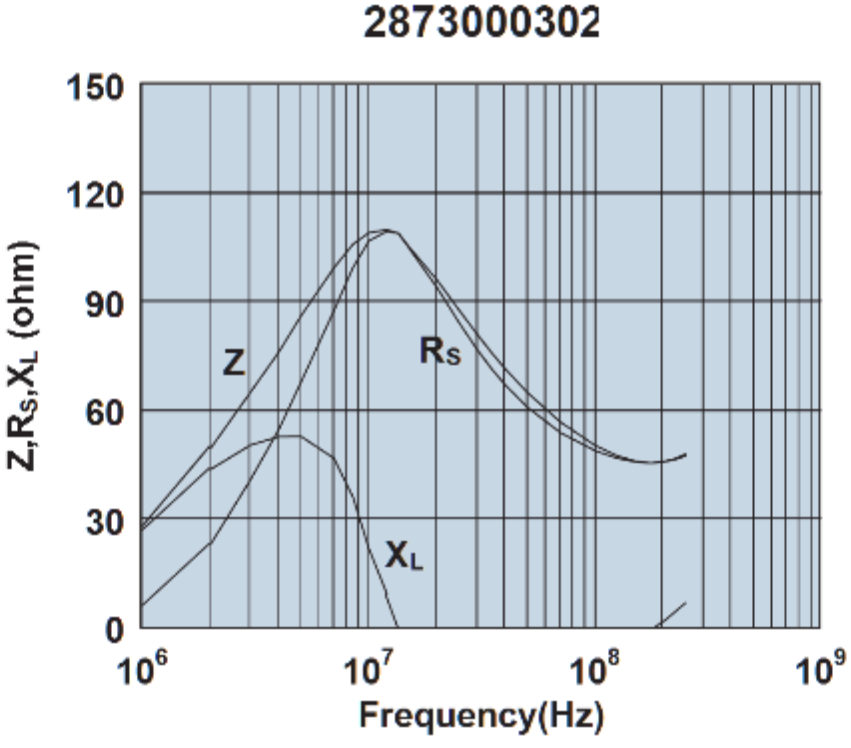

Impedance, reactance, and resistance vs. frequency.