

Part Number: 0443166651  
Frequency Range: Broadband Frequencies 25-300 MHz (43 material)  
Description: 43 FLAT CABLE CORE ASSEMBLY  
Application: Suppression Components  
Where Used: Cable Component  
Part Type: Flat Cable Snap-Its

## Mechanical Specifications

Weight: 80.000 (g)

## Part Type Information

Flat cable snap-its for use on multi-conductor flat cables to suppress common-mode conducted EMI from 1MHz to hundreds of MHz. These flat cable snap-its are available in two ferrite materials, 31 and 43. The polypropylene cases are meeting the RoHS restrictions of hazardous substances and have a flammability rating of UL94 V-0.

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

-Centered, single turn impedance tests on the 31 and 43 material parts are performed on the 4193A Vector Impedance Analyzer. Cores are tested with the shortest practical wire length.

-The 'Expanded Cable and Suppressor Kit' (Part number 0199000005) contains several flat cable snap-it assemblies.

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

## Mechanical Specifications

Dim	mm	mm tol	nominal inch	inch misc.
A	49.50	-	1.950	-
B	34.40	-	1.350	-
C	32.30	-	1.272	-
D	8.10	-	0.320	-
E	-	-	-	-
F	-	-	-	-
G	-	-	-	-
H	-	-	-	-
J	-	-	-	-
K	-	-	-	-

## Electrical Specifications

Typical Impedance ( $\Omega$ )	
10 MHz	60
25 MHz+	110
100 MHz+	290
250 MHz	435

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.

$\Sigma$ l/A - Core Constant

$A_e$  - Effective Cross-Sectional Area

$A_L$  - Inductance Factor ( $\frac{L}{N^2}$ )

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



## Ferrite Material Constants

Specific Heat .....	0.25 cal/g/°C
Thermal Conductivity .....	<b>3.5 - 4.5 mW/cm - °C</b>
Coefficient of Linear Expansion .....	8 - 10x10 <sup>-6</sup> /°C
Tensile Strength .....	4.9 kgf/mm <sup>2</sup>
Compressive Strength .....	42 kgf/mm <sup>2</sup>
Young's Modulus .....	15x10 <sup>3</sup> kgf/mm <sup>2</sup>
Hardness (Knoop) .....	650
Specific Gravity .....	≈ 4.7 g/cm <sup>3</sup>

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

See next page for further material specifications.



**43 Material Characteristics:**

Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		$\mu_i$	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	$\Omega$ cm	$\rho$	$1 \times 10^5$

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.

**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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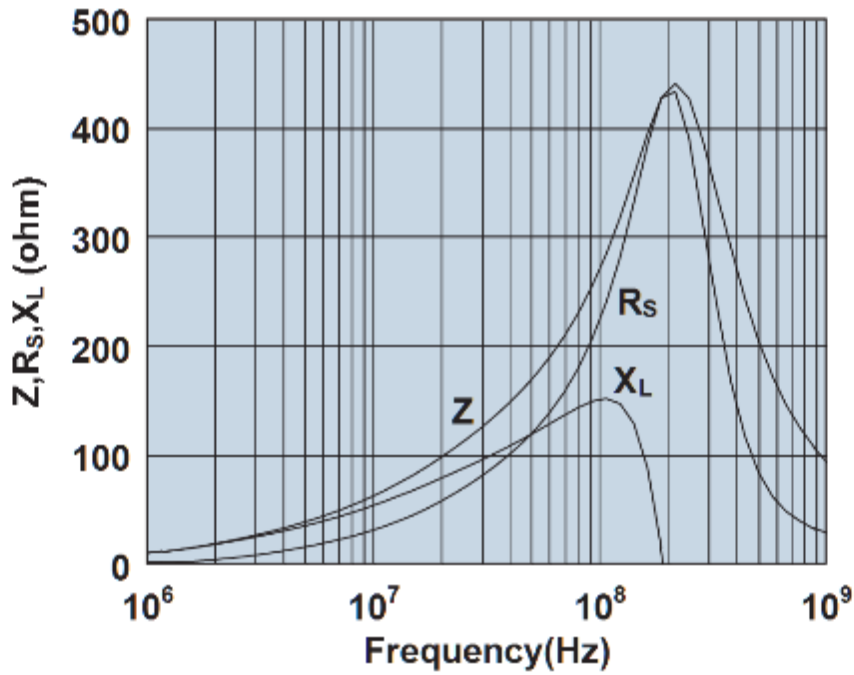
Ferrite Components for the Electronics Industry

Fair-Rite Products Corp. PO Box J, One Commercial Row, Wallkill, NY 12589-0288  
Phone: (888) 324-7748 www.fair-rite.com

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Impedance, reactance, and resistance vs. frequency.