

Figure 1

Part Number: 0431167281
 Frequency Range: Lower & Broadband Frequencies 1-300 MHz (31 material)
 Description: CSRA24/23/39-31-10 31 ROUND CABLE CORE ASSEMBLY
 Application: Suppression Components
 Where Used: Cable Component
 Part Type: Round Cable Snap-Its
 Preferred Part: ✓

Part Type Information

Mechanical Specifications

Weight: 33.00 (g)

[View Chart Legend](#)

Dim	mm	mm tol	nominal inch	inch misc.	Land Patterns					Winding Information				
					V	W (ref)	X	Y	Z	Turns Tested	Wire Size	1st Wire Length	2nd Wire Length	
A	23.70	-	0.933	-	-	-	-	-	-	-	-	-	-	-
B	10.15	-	0.400	-	Reel Information					Pkg Size				
C	39.40	-	1.550	-	Tape Width mm	Pitch mm	Parts 7" Reel	Parts 13" Reel	Parts 14" Reel	Connector Plate				
D	11.70	-	0.461	-	-	-	-	-	-	# Holes	# Rows			
E	-	-	-	-	Cable Information									
F	-	-	-	-	Max Diameter	Max Dimension	Solid Equivalent		Flat Cable Cores					
G	-	-	-	-	9.850	-	2631626402		-					
H	-	-	-	-	.388	-								
J	-	-	-	-										
K	-	-	-	-										

Electrical Specifications

Typical Impedance (Ω)	
1 MHz	18
5 MHz	56
10 MHz ⁺	81
25 MHz ⁺	144
100 MHz ⁺	240
250 MHz	270

Electrical Properties	
-	-

Ferrite Material Constants

Specific Heat	0.25 cal/g°C
Thermal Conductivity	10x10 ⁻³ cal/sec/cm ² °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.

A MnZn ferrite designed specifically for EMI suppression applications from as low as 1 MHz up to 500 MHz. This material does not have the dimensional resonance limitations associated with conventional MnZn ferrite materials.

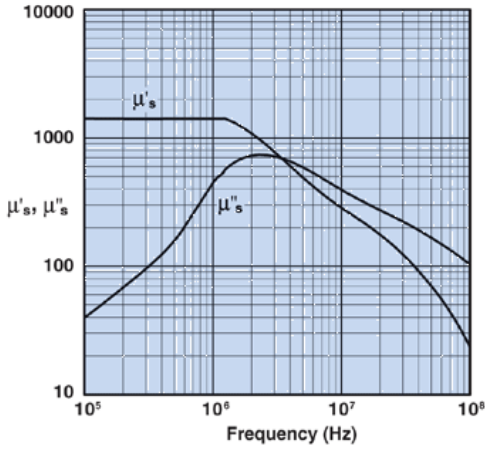
31 Material Specifications:

Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ _i	1500
Flux Density @ Field Strength	gauss oersted	B H	3400 5

Round cable EMI suppression cores, round cable snap-its, flat cable EMI suppression cores, and flat cable snap-its are all available in 31 material.

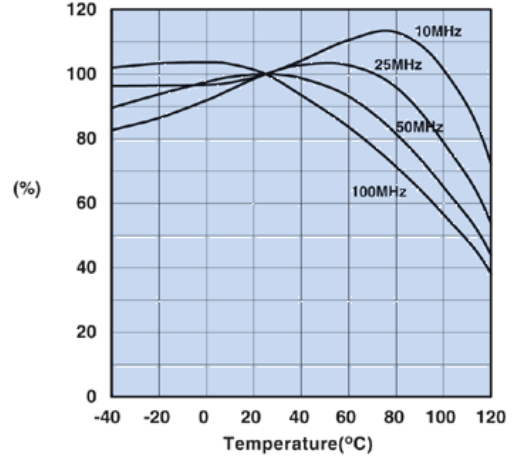
Residual Flux Density	gauss	B_r	2500
Coercive Force	oersted	H_c	0.35
Loss Factor	10^{-2}	$\tan \delta / \mu_i$	20
Loss Factor @ Frequency	MHz		0.1
Temperature Coefficient of Initial Permeability (20 -70°C)	%/°C		1.6
Curie Temperature	°C	T_c	>130
Resistivity	$\Omega \text{ cm}$	ρ	3×10^3

Complex Permeability vs. Frequency



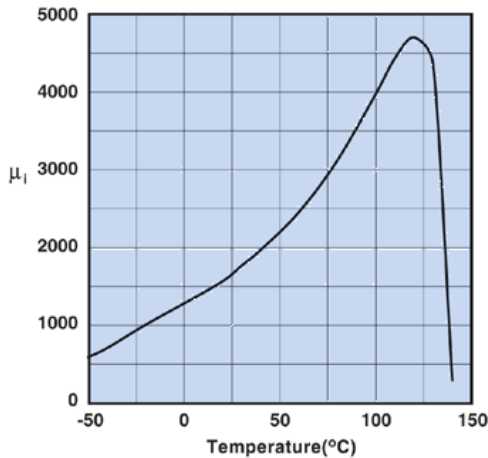
Measured on a 17/10/6mm toroid at 25°C using the HP 4284A and the HP 4291A.

Percent of Original Impedance vs. Temperature



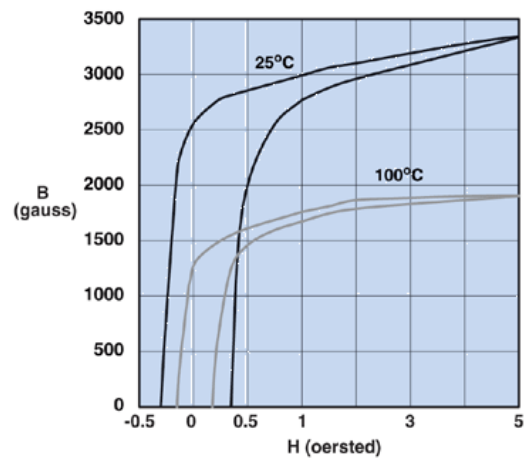
Measured on a 2631000301 using the HP4291A.

Initial Permeability vs. Temperature



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

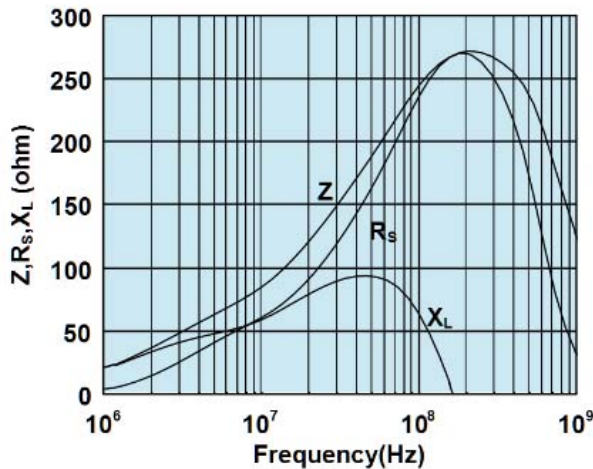
Hysteresis Loop



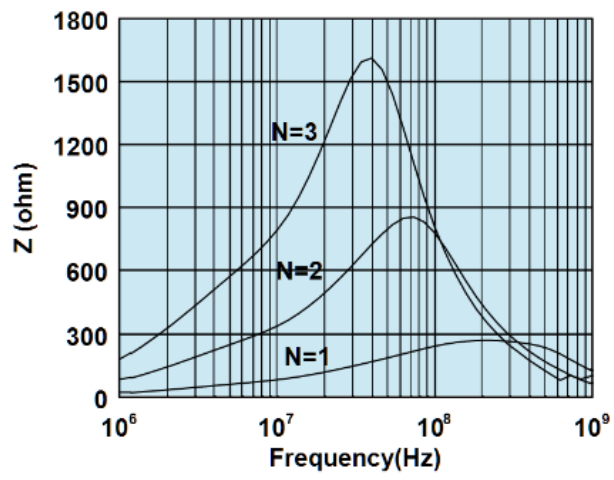
Measured on a 17/10/6mm toroid at 10kHz.

Impedance Curve

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Impedance, reactance, and resistance vs. frequency.



Impedance vs. frequency with one, two, and three turns.