



Figure 1

Part Number: 0431164281  
 Frequency Range: Lower & Broadband Frequencies 1-300 MHz (31 material)  
 Description: CSRA20/20/39-31-6.6 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: 26.00 (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	20.00	-	0.788	-	-	-	-	-	-	-	-	-	-	-
B	6.60	-	0.260	-	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	9.80	-	0.385	-	-	-	-	-	-	# Holes	# Rows			
E	-	-	-	-	Cable Information									
F	-	-	-	-	Max Diameter	Max Dimension	Solid Equivalent		Flat Cable Cores					
G	-	-	-	-	6.300	-	<a href="#">2631540002</a>		-					
H	-	-	-	-	.250	-								
J	-	-	-	-										
K	-	-	-	-										

**Electrical Specifications**

Typical Impedance (Ω)	
1 MHz	28
5 MHz	83
10 MHz <sup>+</sup>	105
25 MHz <sup>+</sup>	180
100 MHz <sup>+</sup>	310
250 MHz	240

Electrical Properties	
-	-

**Ferrite Material Constants**

Specific Heat .....	0.25 cal/g°C
Thermal Conductivity .....	10x10 <sup>-3</sup> cal/sec/cm <sup>2</sup> °C
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.*

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.

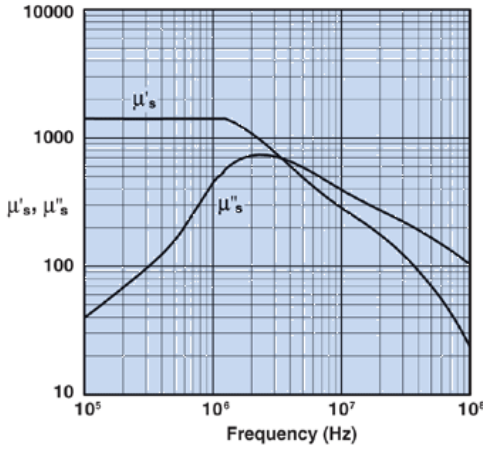
**31 Material Specifications:**

Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ <sub>i</sub>	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
@ Frequency	MHz		0.1
Temperature Coefficient of Initial Permeability (20 -70°C)	%/°C		1.6
Curie Temperature	°C	$T_c$	>130
Resistivity	$\Omega \text{ cm}$	$\rho$	$3 \times 10^3$

**Complex Permeability vs. Frequency**



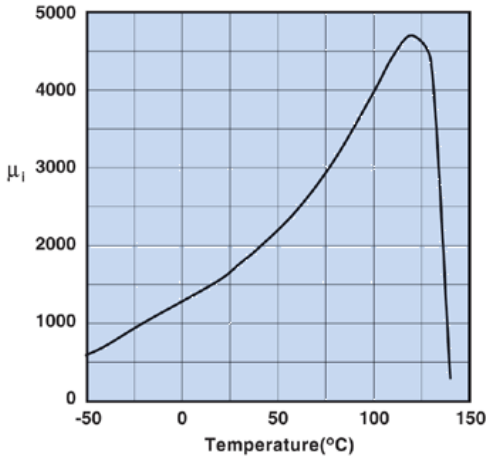
Measured on a 17/10/6mm toroid at 25°C using the HP 4284A and the HP 4291A.

**Percent of Original Impedance vs. Temperature**



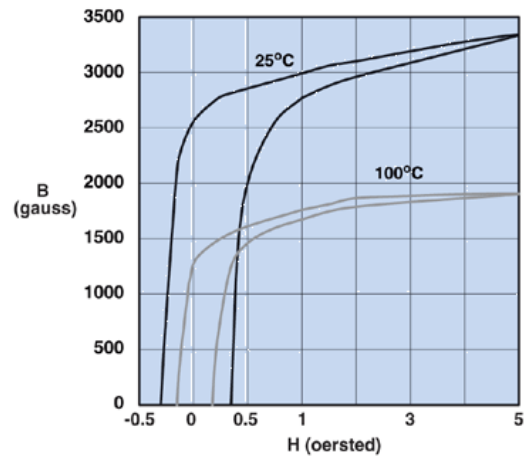
Measured on a 2631000301 using the HP4291A.

**Initial Permeability vs. Temperature**



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

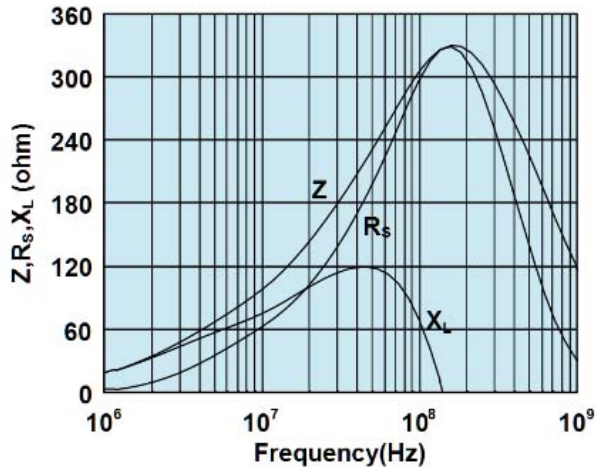
**Hysteresis Loop**



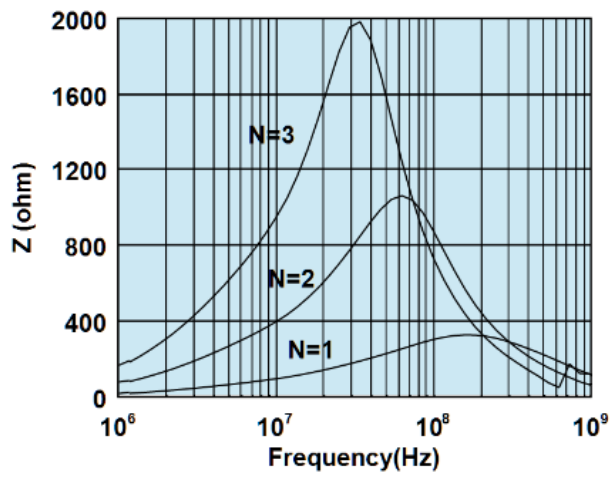
Measured on a 17/10/6mm toroid at 10kHz.

**Impedance Curve**

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Impedance, reactance, and resistance vs. frequency.



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