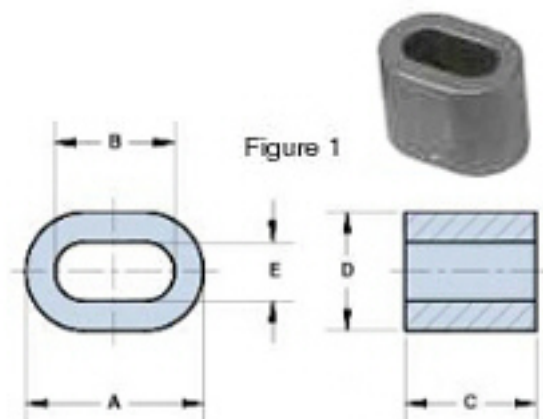




Part Number: 2643167851
 Frequency Range: Broadband Frequencies 25-300 MHz (43 material)
 Description: 43 FULL FLAT CABLE CORE
 Application: Suppression Components
 Where Used: Cable Component
 Part Type: Miscellaneous Suppression Cores

Mechanical Specifications

Weight: 85.000 (g)

Part Type Information

Fair-Rite has tooled several special core geometries in the 43 & 77 material for suppression of conducted EMI.

-These suppression cores are controlled for impedance only. The minimum impedance is typically the listed impedance less 20%. Single turns tests are performed on the 4193A Vector Impedance Analyzer with the shortest practical wire length.

-For any non-catalog suppression core design feel free to contact our customer service or application group for feasibility and availability.

-The 'C' dimension, the core length, can be modified to suit specific applications.

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

Mechanical Specifications

Dim	mm	mm tol	nominal inch	inch misc.
A	38.85	±0.75	1.530	-
B	26.15	±0.75	1.030	-
C	28.60	±0.70	1.125	-
D	26.00	±0.60	1.025	-
E	12.95	±0.25	0.510	-
F	-	-	-	-
G	-	-	-	-
H	-	-	-	-
J	-	-	-	-
K	-	-	-	-

Electrical Specifications

Typical Impedance (Ω)	
10 MHz	60
25 MHz+	94
100 MHz+	169
250 MHz	250

Electrical Properties

--	--

Land Patterns

V	W ref	X	Y	Z
-	-	-	-	-
-	-	-	-	-

Winding Information

Turns	Wire	1st Wire	2nd Wire
Tested	Size	Length	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	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.

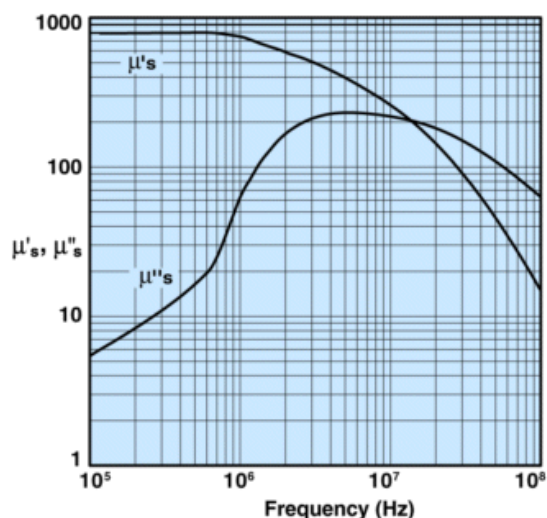
See next page for further material specifications.



43 Material Characteristics:

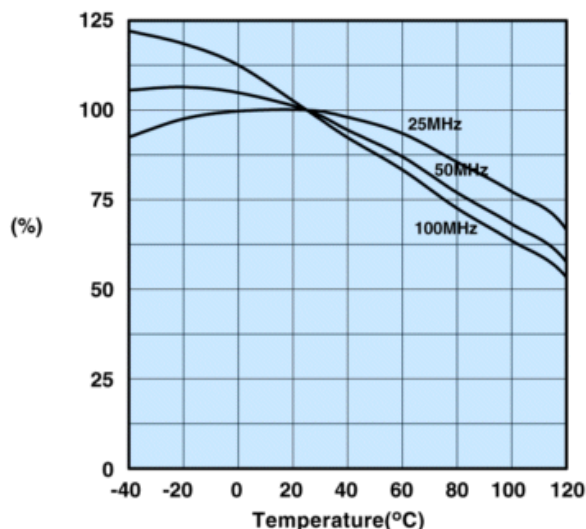
Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ_i	800
Flux Density @ Field Strength	gauss oersted	B H	2900 10
Residual Flux Density	gauss	B_r	1300
Coercive Force	oersted	H_c	0.45
Loss Factor @ Frequency	10^{-6} MHz	$\tan \delta / \mu_i$	250 1.0
Temperature Coefficient of Initial Permeability (20 -70°C)	%/°C		1.25
Curie Temperature	°C	T_c	>130
Resistivity	Ω cm	ρ	1×10^5

Complex Permeability vs. Frequency



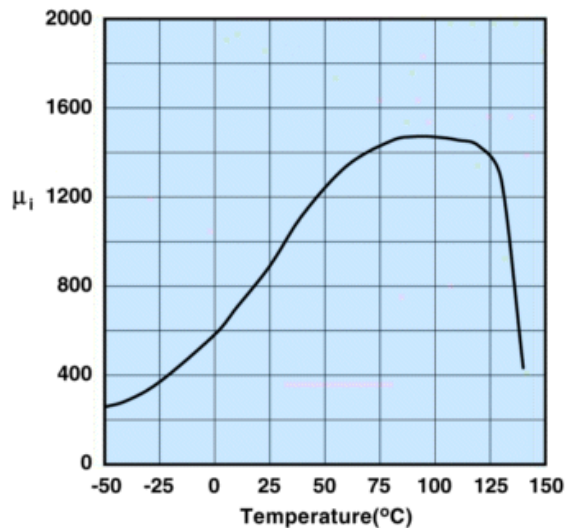
Measured on a 17/10/6mm toroid using the HP 4284A and the HP 4291A.

Percent of Original Impedance vs. Temperature



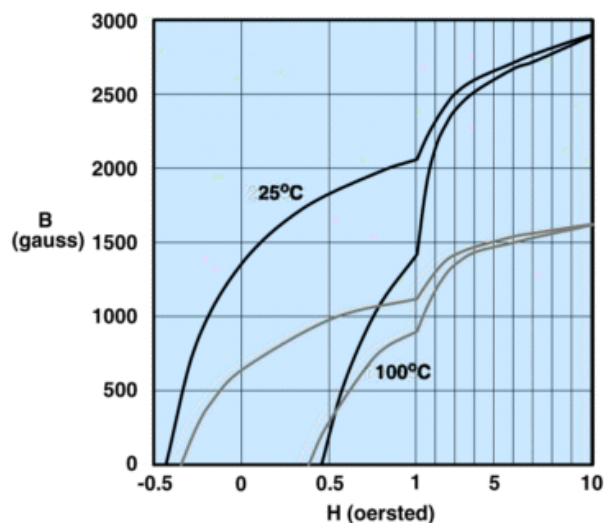
Measured on a 2643000301 using the HP4291A.

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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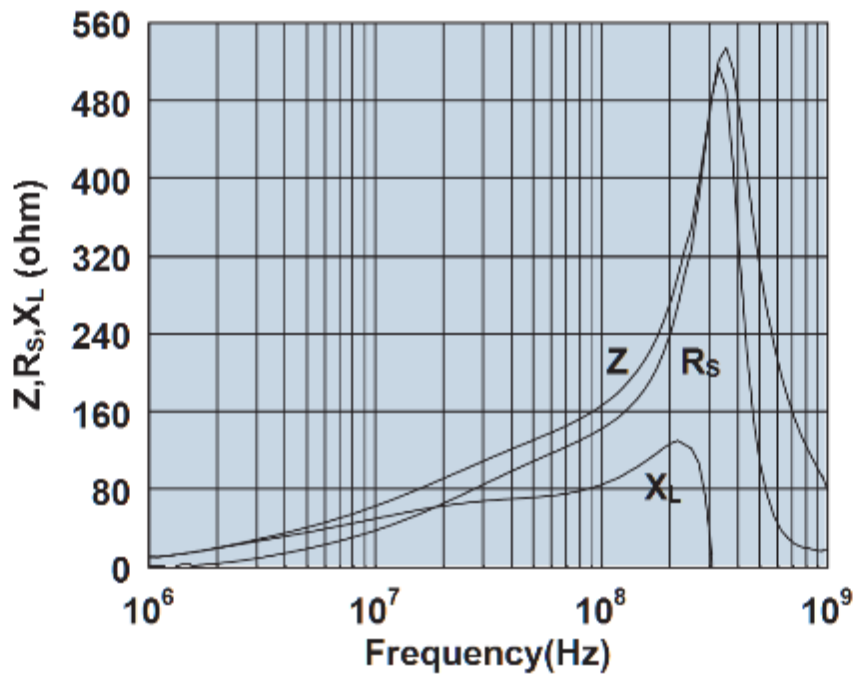
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Fair-Rite Product's Catalog
Part Data Sheet, 2643167851
Printed: 2013-07-03



RoHS
Material
Declaration

2643167851



Impedance, reactance, and resistance vs. frequency.