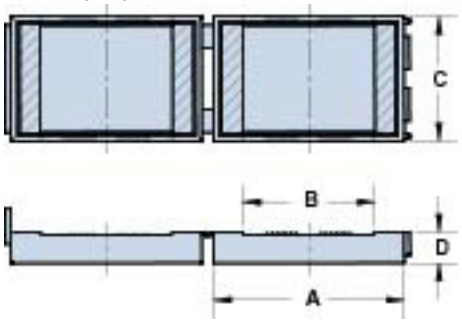
Fair-Rite Products Corp.
Your Signal Solution®
Ferrite Components for the Electronics Industry
Fair-Rite Products Corp. PO Box J,One Commercial Row, Wallkill, NY 12589-0288
Phone: (888) 324-7748 www.fair-rite.com

Fair-Rite Product's Catalog
Part Data Sheet, 0431163951
Printed: 2013-07-03




| | |
|---|---|
| Part Number: | 0431163951 |
| Frequency Range: | Lower & Broadband Frequencies 1-300 MHz (31 material) |
| Description: | 31 FLAT CABLE CORE ASSEMBLY |
| Application: | Suppression Components |
| Where Used: | Cable Component |
| Part Type: | Flat Cable Snap-Its |

## Mechanical Specifications

| | |
|---|---|
| Weight: | 110.000(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.

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## Mechanical Specifications

| Dim | mm | mm tol | nominal inch | inch misc. |
|---|---|---|---|---|
| A | 67.80 | - | 2.670 | - |
| B | 52.10 | - | 2.050 | - |
| C | 32.30 | - | 1.272 | - |
| D | 8.10 | - | 0.320 | - |
| E | - | - | - | - |
| F | - | - | - | - |
| G | - | - | - | - |
| H | - | - | - | - |
| J | - | - | - | - |
| K | - | - | - | - |

## Electrical Specifications

| Typical Impedance (Ω) | |
|---|---|
| 1 MHz | 13 |
| 5 MHz | 35 |
| 10 MHz+ | 54 |
| 25 MHz+ | 105 |
| 100 MHz+ | 300 |
| 250 MHz | 425 |

| 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
$l_e$: 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 | **3.5 - 4.5 mW/cm** - °C |
| Coefficient of Linear Expansion | 8 - $10 \times 10^{-6}$/°C |
| Tensile Strength | 4.9 kgf/mm$^2$ |
| Compressive Strength | 42 kgf/mm$^2$ |
| Young's Modulus | $15 \times 10^3$ 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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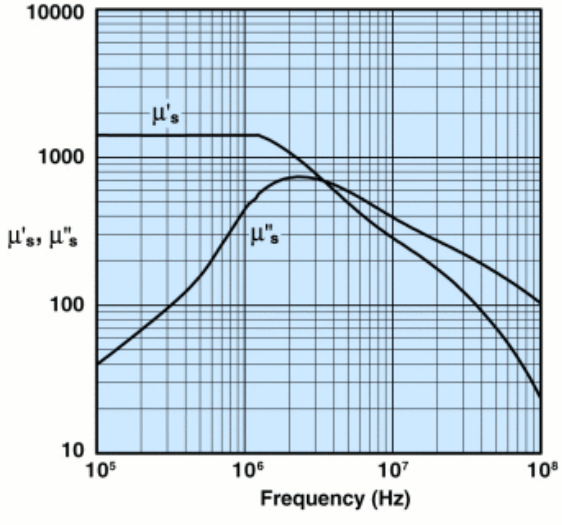
A MnZn ferrite designed specifically for EMI suppression applications from as low as 1 MHz up to 500 MHz. This material does not have the dimensional resonance limitations associated with conventional MnZn ferrite materials.

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.

## 31 Material Characteristics:

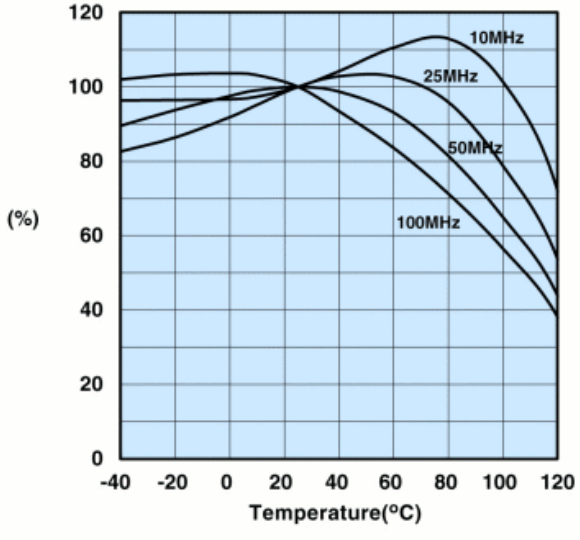
| Property | Unit | Symbol | Value |
|---|---|---|---|
| Initial Permeability @ B < 10 gauss | | $\mu_i$ | 1500 |
| Flux Density @ Field Strength | gauss oersted | B H | 3400 5 |
| Residual Flux Density | gauss | $B_r$ | 2500 |
| Coercive Force | oersted | $H_c$ | 0.35 |
| Loss Factor @ Frequency | $10^{-6}$ MHz | $\tan\delta/\mu_i$ | 20 0.1 |
| Temperature Coefficient of Initial Permeability (20 -70°C) | %/°C | | 1.6 |
| Curie Temperature | °C | $T_c$ | >130 |
| Resistivity | Ω cm | ρ | $3x10^3$ |

### Complex Permeability vs. Frequency



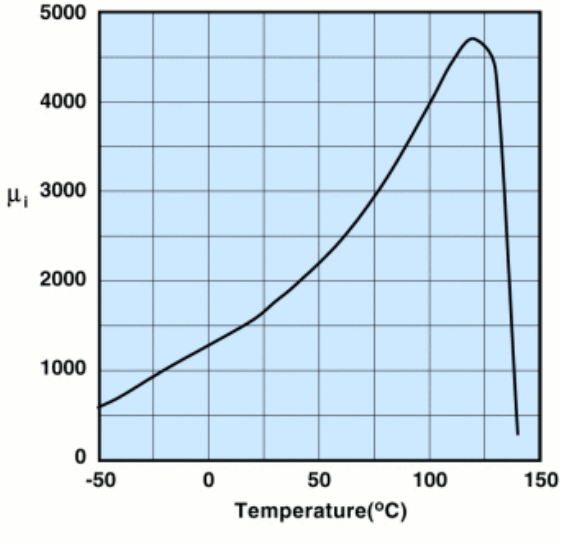

Measured on a 17/10/6mm toroid at 25°C using the HP 4284A and the HP 4291A.

### Percent of Original Impedance vs. Temperature



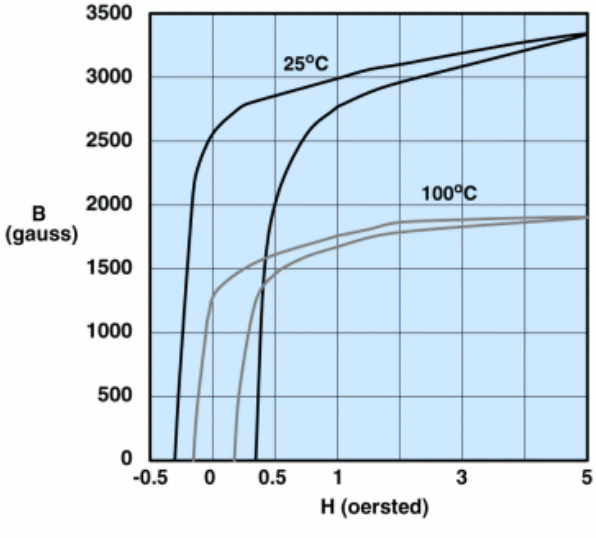

Measured on a 2631000301 using the HP4291A.

### Initial Permeability vs. Temperature




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

### Hysteresis Loop




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

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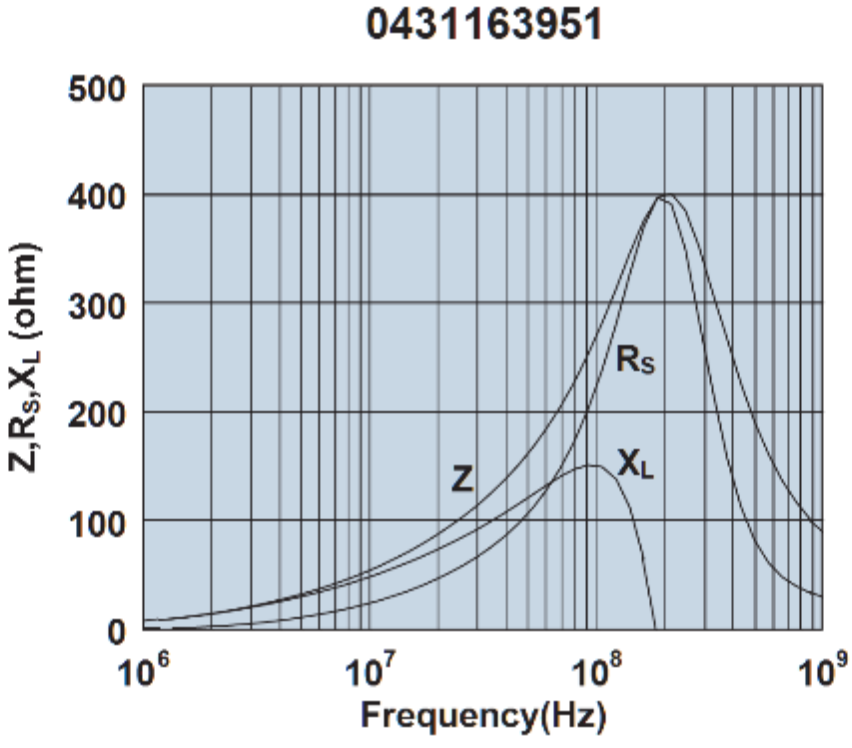



Impedance, reactance, and resistance vs. frequency.

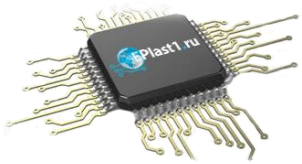
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.




**Как с нами связаться**

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