

Figure 2

Part Number: 2944778102
 Frequency Range: Broadband Frequencies 10-300 MHz (44 material)
 Description: 44 PC BEAD
 Application: Suppression Components
 Where Used: Board Component
 Part Type: PC Beads (Through Hole)

Mechanical Specifications

Weight: 2.700 (g)

Part Type Information

Multiple single turn or multi-turn printed circuit EMI suppression beads are available in two Fair-Rite materials. The broadband 44 material and in the high frequency 52 material grade.

-PC Beads can be supplied with lower component heights 'C'. Also, the wire length 'F' can be modified to specific requirements.

-Wires are oxygen free high conductivity copper with a lead-free tin coating. Wires on top of the beads are covered with a layer of epoxy.

-PC Beads are controlled for impedance only. The impedances listed are typical values. Minimum impedance values are specified for the + marked frequencies. The minimum guaranteed impedance is the listed impedance less 20%.

-The PC Beads in 44 material are measured on the 4193A Vector Impedance Analyzer. The 52 PC Beads are tested for impedance on the 4191A RF Impedance Analyzer.

-Recommended operating and storage temperature for the PC Beads is -55°C to +125°C.

-Explanation of Part Numbers: Digits 1&2 = product class, 3&4 = material grade and last digit 1 = standard wire length 2.4 mm (.095") minimum.



Mechanical Specifications

| Dim | mm | mm tol | nominal inch | inch misc. |
|-----|-------|-----------|-----------------|---------------|
| A | 11.20 | -0.50 | 0.430 | - |
| B | 5.75 | -0.50 | 0.216 | - |
| C | 11.80 | Max | 0.464 | Max |
| D | 2.54 | ±0.10 | 0.100 | - |
| E | 2.54 | ±0.10 | 0.100 | - |
| F | 3.10 | Min | 0.122 | Min |
| G | 0.65 | - | - | 22 AWG |
| H | - | - | - | - |
| J | - | - | - | - |
| K | - | - | - | - |

Electrical Specifications

| Typical Impedance (Ω) | |
|-----------------------|-----|
| 10 MHz | 115 |
| 25 MHz+ | 188 |
| 100 MHz+ | 288 |
| 250 MHz | 305 |

| Electrical Properties |
|-----------------------|
| |

Land Patterns

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

Winding Information

| Turns | 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.

$\sum l/A$ - 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 | 10x10 ⁻³ cal/sec/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.



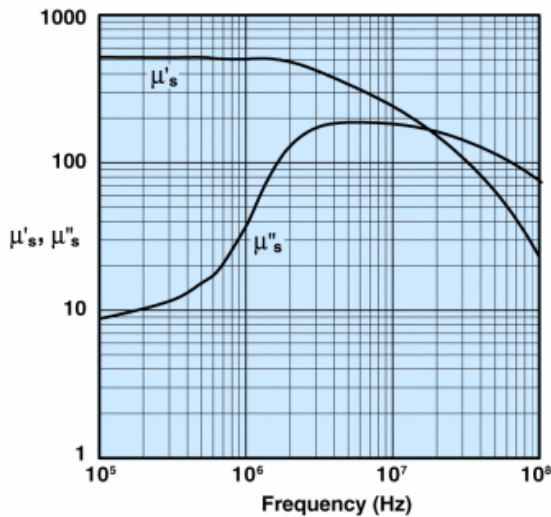
44 Material Characteristics:

| Property | Unit | Symbol | Value |
|--|------------------|---------------------|-----------------|
| Initial Permeability @ B < 10 gauss | | μ_i | 500 |
| Flux Density @ Field Strength | gauss oersted | B H | 3000 10 |
| Residual Flux Density | gauss | B_r | 1100 |
| Coercive Force | oersted | H_c | 0.45 |
| Loss Factor @ Frequency | 10^{-6} MHz | $\tan \delta \mu_i$ | 125 1.0 |
| Temperature Coefficient of Initial Permeability (20 -70°C) | %/°C | | 0.75 |
| Curie Temperature | °C | T_c | >160 |
| Resistivity | Ω cm | ρ | 1×10^9 |

A NiZn ferrite developed to combine a high suppression performance, from 30 MHz to 500 MHz, with a very high dc resistivity.

SM beads, PC beads, wound beads, round cable snap-its, and connector EMI suppression plates are all available in 44 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 2644000301 using the HP4291A.

Initial Permeability vs. Temperature



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

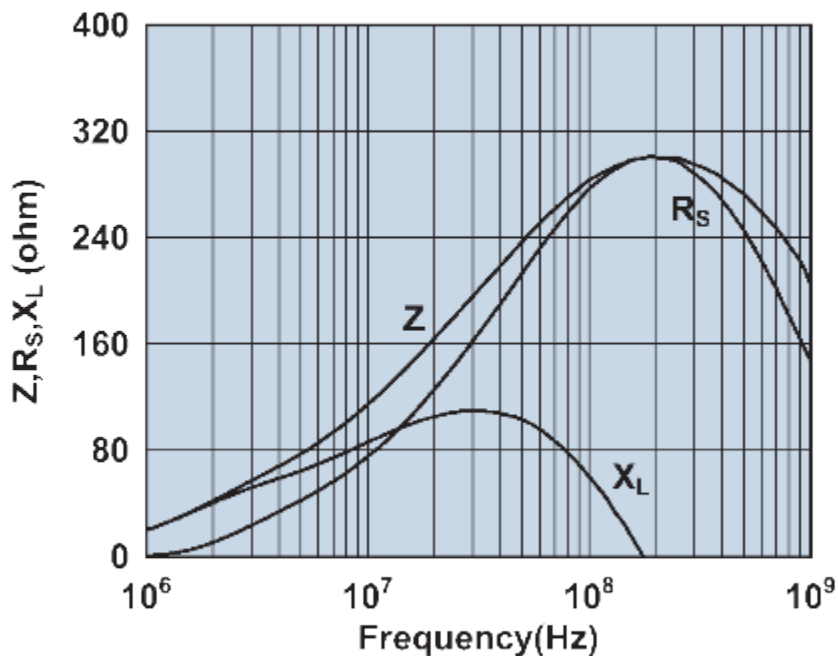
Hysteresis Loop



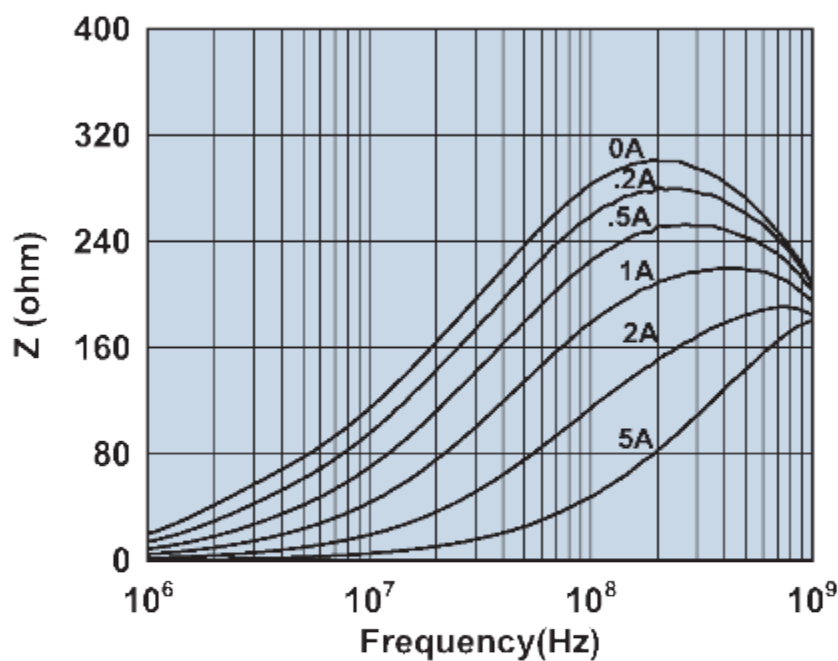
Measured on a 17/10/6mm toroid at 10kHz.



2944778102



Impedance, reactance, and resistance vs. frequency.



Impedance vs. frequency with dc bias.

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: org@lifeelectronics.ru