TYPES OF FERRITE MATERIALS

MATERIAL 33

An economical MnZn ferrite designed for use in open circuit applications for frequencies up to 3.0 MHz.

Rods are available in 33 material.

Specifications:

Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ_i	600
Flux Density @ Field Strength	gauss oersted	B H	2800 5
Residual Flux Density	gauss	B_r	1200
Coercive Force	oersted	H_c	0.60
Loss Factor @ Frequency	10^{-6} MHz	tan δ/μ_i	25 0.2
Temperature Coefficient of Initial Permeability (20-70°C)	%/°C		0.10
Curie Temperature	°C	T_c	>150
Resistivity	Ω cm	ρ	$1x10^2$

MATERIAL 43

This NiZn is our most popular ferrite for suppression of conducted EMI from 20 MHz to 250 MHz. This material is also used for inductive applications such as high frequency common-mode chokes.

EMI suppression beads, beads on leads, SM beads, multi-aperture cores, round cable EMI suppression cores, split round EMI suppression cores, round cable snap-its, flat cable EMI suppression cores, flat cable snap-its, miscellaneous suppression cores, bobbins, and toroids are all available in 43 material.

Specifications:

Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ_i	850
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 δ/μ_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	$1x10^5$

MATERIAL 61

A high frequency NiZn ferrite developed for a range of inductive applications up to 25 MHz. This material is also used in EMI applications for suppression of noise frequencies above 200 MHz.

EMI suppression beads, beads on leads, SM beads, wound beads, multi-aperture cores, round cable EMI suppression cores, round cable snap-its, rods, antenna/RFID rods, and toroids are all available in 61 material.

Strong magnetic fields or excessive mechanical stresses may result in irreversible changes in permeability and losses.

Specifications:

Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ_i	125
Flux Density @ Field Strength	gauss oersted	B H	2350 15
Residual Flux Density	gauss	B_r	1200
Coercive Force	oersted	H_c	1.8
Loss Factor @ Frequency	10^{-6} MHz	tan δ/μ_i	30 1.0
Temperature Coefficient of Initial Permeability (20-70°C)	%/°C		0.10
Curie Temperature	°C	T_c	>350
Resistivity	Ω cm	ρ	$1x10^8$

TYPES OF FERRITE MATERIALS

MATERIAL 67

A high frequency NiZn ferrite for the design of broadband transformers, antennas and HF, high Q inductor applications up to 50 MHz. Toroids, multi-aperture cores and antenna/RFID rods are available in this material.

Strong magnetic fields or excessive mechanical stresses may result in irreversible changes in permeability and losses.

Specifications:

Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ_i	40
Flux Density @ Field Strength	gauss oersted	B H	2300 20
Residual Flux Density	gauss	B_r	800
Coercive Force	oersted	H_c	3.5
Loss Factor @ Frequency	10^{-6} MHz	tan δ/μ_i	150 50
Temperature Coefficient of Initial Permeability (20-70°C)	%/°C		0.05
Curie Temperature	°C	T_c	>475
Resistivity	Ω cm	ρ	$1x10^7$

MATERIAL 68

Our highest frequency NiZn ferrite intended for broadband transformers, antennas and HF high Q inductor applications up to 100 MHz. This material is only supplied to customer-specific requirements and close consultation with our application staff is suggested.

Strong magnetic fields or excessive mechanical stresses may result in irreversible changes in permeability and losses.

Specifications:

Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ_i	20
Flux Density @ Field Strength	gauss oersted	B H	2700 40
Residual Flux Density	gauss	B_r	1000
Coercive Force	oersted	H_c	7.0
Loss Factor @ Frequency	10^{-6} MHz	tan δ/μ_i	500 100
Temperature Coefficient of Initial Permeability (20-70°C)	%/°C		0.10
Curie Temperature	°C	T_c	>500
Resistivity	Ω cm	ρ	$1x10^7$

MATERIAL 73

A MnZn ferrite, supplied only in small cores, to suppress conducted EMI frequencies below 30 MHz.

EMI suppression beads, beads on leads, SM beads, and multi-aperture cores are all available in 73 material.

Specifications:

Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ_i	2500
Flux Density @ Field Strength	gauss oersted	B H	3900 5
Residual Flux Density	gauss	B_r	1500
Coercive Force	oersted	H_c	0.24
Loss Factor @ Frequency	10^{-6} MHz	tan δ/μ_i	10 0.1
Temperature Coefficient of Initial Permeability (20-70°C)	%/°C		0.65
Curie Temperature	°C	T_c	>160
Resistivity	Ω cm	ρ	$1x10^2$

TYPES OF FERRITE MATERIALS

MATERIAL 77

A MnZn ferrite for use in a wide range of high and low flux density inductive designs for frequencies up to 100 kHz.

EP cores, PQ cores, ETD cores, E&I cores, U cores, rods, tack bobbin cores, toroids, and bobbins are all available in 77 material.

Specifications:

Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ_i	2000
Flux Density @ Field Strength	gauss oersted	B H	4900 5
Residual Flux Density	gauss	B_r	1800
Coercive Force	oersted	H_c	0.30
Loss Factor @ Frequency	10^{-6} MHz	tan δ/μ_i	15 0.1
Temperature Coefficient of Initial Permeability (20-70°C)	%/°C		0.7
Curie Temperature	°C	T_c	>200
Resistivity	Ω cm	ρ	$1x10^2$

MATERIAL 78

A MnZn ferrite specifically designed for power applications for frequencies up to 200 kHz.

RFID rods, toroids, pot cores, EP cores, PQ cores, ETD cores, and E&I cores are all available in 78 material.

Specifications:

Property	Unit	Symbol	Value
Initial Permeability @ B < 10 gauss		μ_i	2300
Flux Density @ Field Strength	gauss oersted	B H	4800 5
Residual Flux Density	gauss	B_r	1500
Coercive Force	oersted	H_c	0.20
Loss Factor @ Frequency	10^{-6} MHz	tan δ/μ_i	4.5 0.1
Temperature Coefficient of Initial Permeability (20-70°C)	%/°C		1.0
Curie Temperature	°C	T_c	>200
Resistivity	Ω cm	ρ	$2x10^2$

MATERIAL F

Saturation Flux Density - gausses 4900 (at 15 oersted, 25°C) (490 mT)
Coercive Force - oersted 0.20 (16A/m)
Curie Temperature . . . . . .250°C

MATERIAL H

Saturation Flux Density - gausses 4200 (at 15 oersted, 25°C) (420 mT)
Coercive Force - oersted 0.04 (3A/m)
Curie Temperature . . . . . .120°C
Disaccommodation Factor . . . . . .<2.5 x 10^{-6} Typical

TYPES OF FERRITE MATERIALS

MATERIAL J

Saturation Flux Density - gausses 4300 (at 15 oersted, 25°C) (430 mT)
Coercive Force - oersted 0.1 (8A/m)
Curie Temperature . . . . . .140°C
Disaccommodation Factor . . . . . .<3 x 10^{-6}

MATERIAL K

Saturation Flux Density - gausses 4600 (at 15 oersted, 25°C) (460 mT)
Coercive Force - oersted 0.2 (8A/m)
Curie Temperature . . . . . .230°C

MATERIAL P

Saturation Flux Density - gausses 5000 (at 15 oersted, 25°C) (500 mT)
Coercive Force - oersted 0.18 (14A/m)
Curie Temperature . . . . . .230°C

MATERIAL W

Saturation Flux Density - gausses 4300 (at 15 oersted, 25°C) (430 mT)
Coercive Force - oersted 0.04 (3A/m)
Curie Temperature . . . . . .125°C
Disaccommodation Factor . . . . . .<3 x 10^{-6}