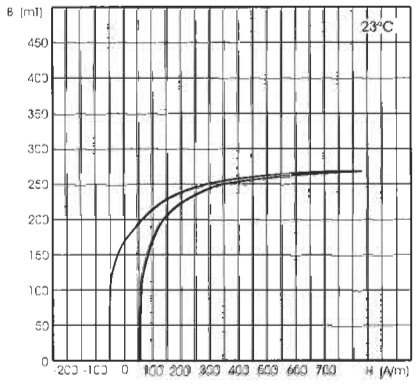
F53 Material

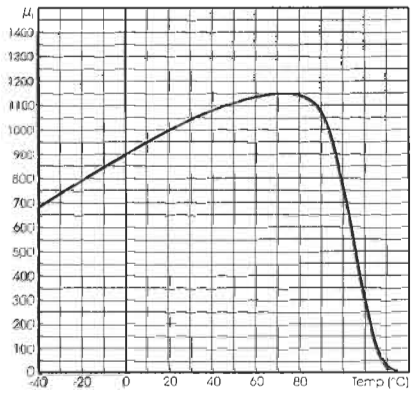
F53 exhibits an initial permeability of 1050. It is a high permeability Nickel-Zinc ferrite offering low losses in the frequency range 100 kHz to 2 MHz and having usable permeability out to 10 MHz and beyond. It can be used in broadband applications into the GHz region and provides high resistive impedance from 20 MHz to beyond 1 GHz for EMC suppression applications. F53 is available in a variety of toroidal multiaperture, and bead cores, coilforms, and bobbins.

Parameter	Symbol	Unit	Standard Test Conditions	Value
Initial Permeability (Nominal)	μ_i	—	B<0.1mT 10kHz 25°C	1050 ± 20%
Saturation Flux Density (typical)	B_{sat}	mT	H=1200 A/m =15 Oe 25°C, 100°C	210
Residual Flux Density (typical)	B_r	mT	H⇒0 (from near Saturation) 10kHz 25°C	130
Coercive force (typical)	H_c	A/m	B⇒0 (from near Saturation) 10kHz 25°C	50
Relative Loss Factor (maximum)	$Tan\delta/\mu_i$	10^{-6}	B<0.1mT 100kHz 25°C	30
Curie Temperature (minimum)	T_c	°C	B<0.1mT 1kHz	115°C
Normalized Impedance	Z	Ω	100 kHz	75
Volume Resistivity (typical)	ρ	Ω-cm	1V/cm 25°C	100

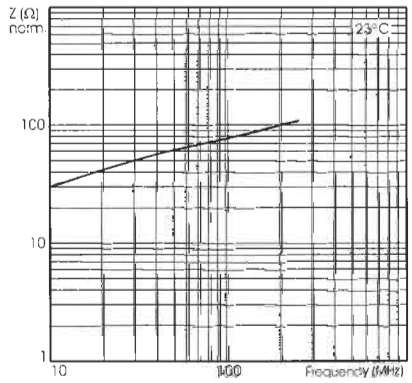
Dynamic Magnetization (BH) Loop



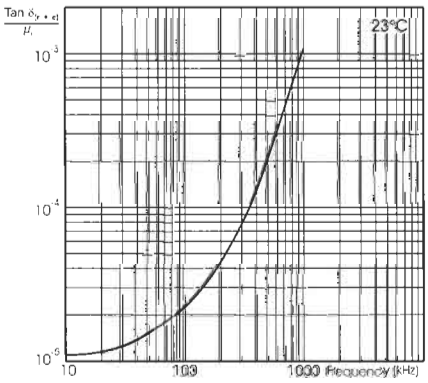
Initial Permeability vs. Temperature



Normalized Impedance vs Frequency



Relative Loss Factor vs. Frequency



Complex Permeability vs. Frequency