

MF1 镍镁锌材料
NI-MG-ZN MATERIALS

MF1 为镍镁锌铁氧体材料，初始磁导率 (μ i) 约 180，饱和磁通密度 (Bs) 约 350 mT (25 °C) / 185 mT (100 °C)，居里温度高于 210 °C。低磁导率使其可用频率上限较高，配合高于 210 °C 的居里温度，在 MHz 级的 RF / IF 频段维持稳定；Bs 350 mT 亦具备一定的磁通承载。典型应用为 RF / IF 滤波器、谐振电感与高频信号线 EMI 抑制，属于以最低材料成本覆盖高频小信号用途的档位。MF 系编号与磁导率并非依序对应——MF1 是低 μ i 高频支、MF2 (μ i 约 800) 才是高磁导低频支、MF3 (约 350) 居中且损耗最低——选型时请以 μ i 与频段对应，勿以编号推测。

MF1 is a Ni-Mg-Zn ferrite with an initial permeability (μ i) of approx. 180, a saturation flux density (Bs) of approx. 350 mT at 25 °C (185 mT at 100 °C) and a Curie temperature above 210 °C. The low permeability raises its usable frequency ceiling, and with the Curie point above 210 °C it stays stable in the MHz-range RF/IF bands, while Bs of 350 mT retains a fair flux capability. Typical uses are RF/IF filters, resonant inductors and HF signal-line EMI suppression — the step that covers high-frequency small-signal duties at the lowest material cost. Note that MF numbering does not follow permeability: MF1 is the low- μ i high-frequency branch, MF2 (μ i approx. 800) is the high-permeability low-frequency branch, and MF3 (approx. 350) sits between with the lowest loss — select by μ i and band, not by the numeral.

- RF / IF Filter
- Resonant Inductor
- Signal-Line EMI Suppression

电磁特性 MAGNETIC CHARACTERISTICS

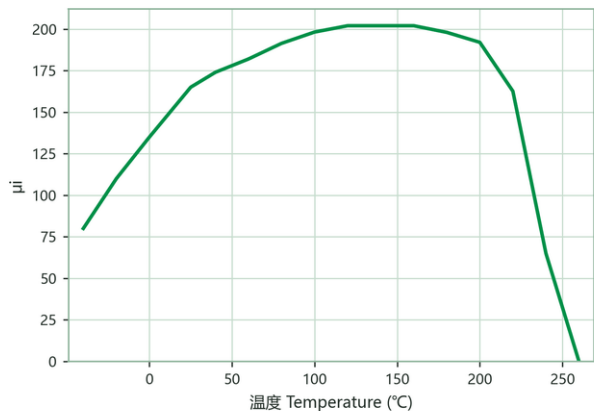
特性 Characteristic	条件 Condition	值 Value	单位 Unit
初始磁导率 μ i Initial Permeability	100 kHz & <0.2 mT	180±25%	
饱和磁通密度 Bs Saturation Flux Density	3000 A/m · 25 °C 100 Hz	350	mT
饱和磁通密度 Bs Saturation Flux Density	3000 A/m · 100 °C 100 Hz	185	mT
残留磁通密度 Br Remanence	3000 A/m · 25 °C 100 Hz	240	mT
残留磁通密度 Br Remanence	3000 A/m · 100 °C 100 Hz	85	mT
矫顽力 Hc Coercivity	3000 A/m · 25 °C 100 Hz	25	A/m
矫顽力 Hc Coercivity	3000 A/m · 100 °C 100 Hz	15	A/m
$\alpha\mu$ r (温度系数) Temperature coefficient of permeability	20 ~ 60 °C	35	×10 ⁻⁶ /K
相对损耗因子 tan δ / μ i Relative Loss Factor	0.1 MHz & <0.2 mT	55	×10 ⁻⁶
相对损耗因子 tan δ / μ i Relative Loss Factor	0.5 MHz & <0.2 mT	70	×10 ⁻⁶
居里温度 Tc Curie Temp.	100 kHz & <0.2 mT	>210	°C
密度 D Density	阿基米德法 Archimedes method	4.9	g/cm ³
电阻率 ρ Volume Resistivity	直流电流 DC Current	10 ⁷	Ω ·m

备注：各项数值均为环形磁芯T31×19×8测得的典型数值，由于几何形状和尺寸的影响，产品规格将与这些数据有所差异。
Note: all values are typical data measured on a T31×19×8 toroidal core; actual product specifications will vary with geometry and size.

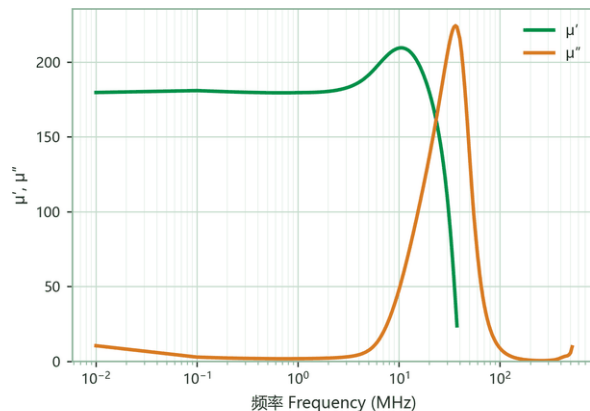
特性曲线详见次页 CHARACTERISTIC CURVES — SEE NEXT PAGE

MF1

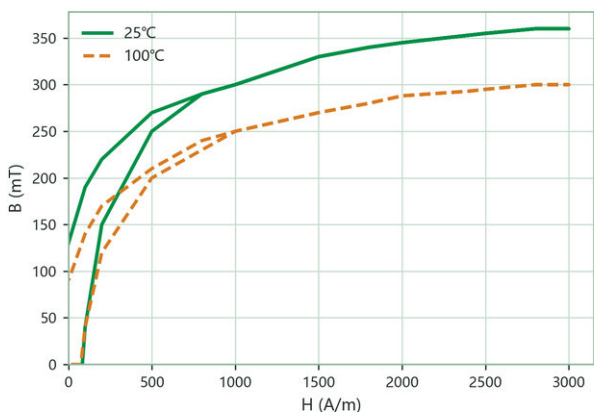
特性曲线 CHARACTERISTIC CURVES



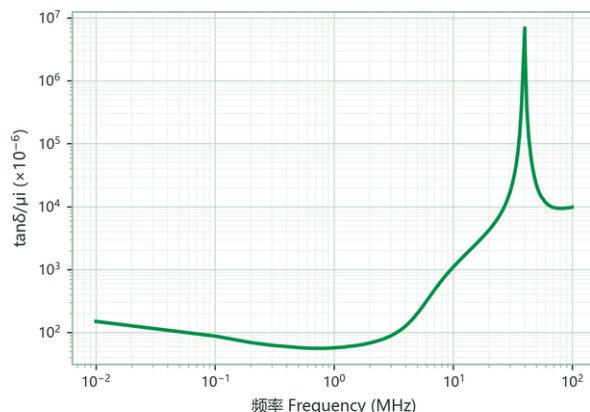
初始磁导率—温度特性
Initial Permeability vs. Temperature



复数磁导率—频率特性
Complex Permeability (μ' , μ'') vs. Frequency



静态磁化曲线
Static Magnetization Curves (B-H)



相对损耗因子—频率特性
Relative Loss Factor ($\tan\delta/\mu_i$) vs. Frequency