L43

高磁导EMI材料
HIGH PERM. & EMI MATERIALS

鐵研 TAK

L43 为镍锌铁氧体材料，初始磁导率（μi）约 800，饱和磁通密度（Bs）约 350 mT（25 ℃）/ 245 mT（100 ℃），居里温度高于 160 ℃。本材料是 EMI 抑制取向的主力：低磁通下损耗因子仅 20×10⁻⁶（0.1 MHz），而进入数十 MHz 后 μ″ 损耗成分快速升高、阻抗转为电阻主导，把共模噪声转为热耗散而非反射回线路。标准化阻抗曲线同时提供 T31×19×8 环形与 RH5×1.5×10 磁珠两种夹具的实测（见次页）——共模扼流圈与大尺寸磁环请参照环形数据，磁珠与套管请参照磁珠数据。典型应用为 EMI 抑制滤波器、共模扼流圈、信号线抗干扰磁环与电源输入端滤波，亦用于 RFID 天线。同为标称 μi≈800 的三种材料中，L43 以宽频抑制见长（全温域低漂移选 SL80、高 Bs 差模 / 功率选 G5A）；在 L 系阶梯中 L43 频带最宽，需要更低频段的更高阻抗时，依序选 L6A（μi 约 1200）、L8A（约 1600）、L22A / L28A（2200 / 2800）。

L43 is a NiZn ferrite with an initial permeability (μi) of approx. 800, a saturation flux density (Bs) of approx. 350 mT at 25 °C (245 mT at 100 °C) and a Curie temperature above 160 °C. It is the mainstay EMI-suppression grade: the loss factor is only 20×10⁻⁶ at 0.1 MHz under low flux, while above a few tens of MHz the μ″ loss component rises rapidly and the impedance becomes resistance-dominated, dissipating common-mode noise as heat instead of reflecting it back into the line. Its normalized-impedance curves are given for two fixtures — a T31×19×8 toroid and an RH5×1.5×10 bead (see next page): consult the toroid data for common-mode chokes and larger rings, the bead data for beads and sleeves. Typical uses are EMI suppression filters, common-mode chokes, signal-line suppression rings and power-inlet filtering, as well as RFID antennas. Among the three grades at a nominal μi of approx. 800, L43 leads in broadband suppression (choose SL80 for temperature stability, G5A for high-Bs differential-mode/power); within the L family L43 has the widest band — for higher impedance at lower frequencies step up to L6A (μi approx. 1200), L8A (approx. 1600) or L22A/L28A (2200/2800).

EMI Suppression Bead | Common-Mode Choke | Signal-Line Ring | Power-Inlet Filter | RFID Antenna

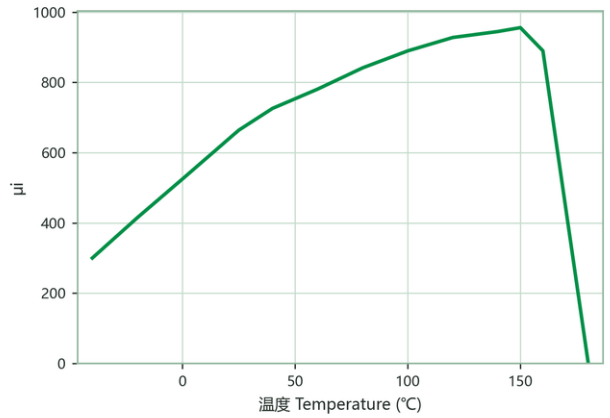
电磁特性 MAGNETIC CHARACTERISTICS

特性 Characteristic	条件 Condition	值 Value	单位 Unit
初始磁导率 μi Initial Permeability	100 kHz & <0.2 mT	800±25%	
饱和磁通密度 Bs Saturation Flux Density	3000 A/m · 25 ℃ 100 Hz	350	mT
饱和磁通密度 Bs Saturation Flux Density	3000 A/m · 100 ℃ 100 Hz	245	mT
残留磁通密度 Br Remanence	3000 A/m · 25 ℃ 100 Hz	100	mT
残留磁通密度 Br Remanence	3000 A/m · 100 ℃ 100 Hz	60	mT
矫顽力 Hc Coercivity	3000 A/m · 25 ℃ 100 Hz	22	A/m
矫顽力 Hc Coercivity	3000 A/m · 100 ℃ 100 Hz	17	A/m
αμr（温度系数） Temperature coefficient of permeability	20 ~ 60 ℃	4	$\times10^{-6}$/K
相对损耗因子 tanδ/μi Relative Loss Factor	0.1 MHz & <0.2 mT	20	$\times10^{-6}$
相对损耗因子 tanδ/μi Relative Loss Factor	0.5 MHz & <0.2 mT	30	$\times10^{-6}$
居里温度 Tc Curie Temp.	100 kHz & <0.2 mT	>160	℃
密度 D Density	阿基米德法 Archimedes method	5.0	g/cm³
电阻率 ρ Volume Resistivity	直流电流 DC Current	10^7	Ω·m

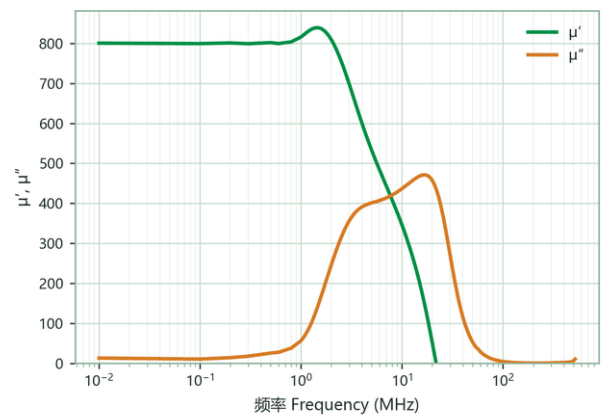
备注：各项数值均为环形磁芯T31×19×8测得的典型数值，由于几何形状和尺寸的影响，产品规格将与这些数据有所差异。
Note: all values are typical data measured on a T31×19×8 toroidal core; actual product specifications will vary with geometry and size.

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

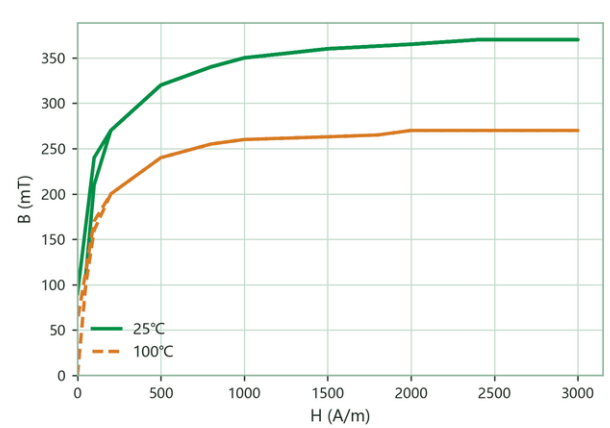
L43 特性曲线 CHARACTERISTIC CURVES



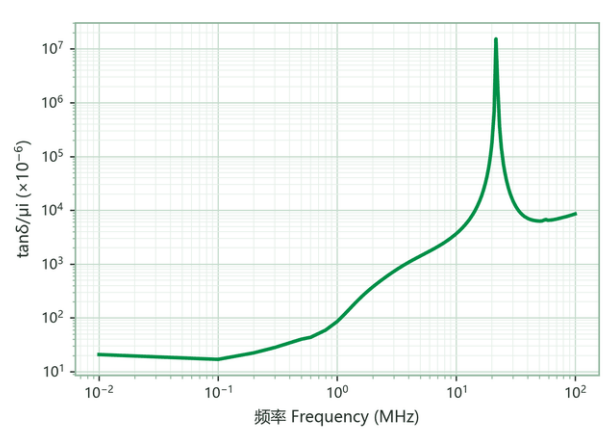
初始磁导率—温度特性
Initial Permeability vs. Temperature



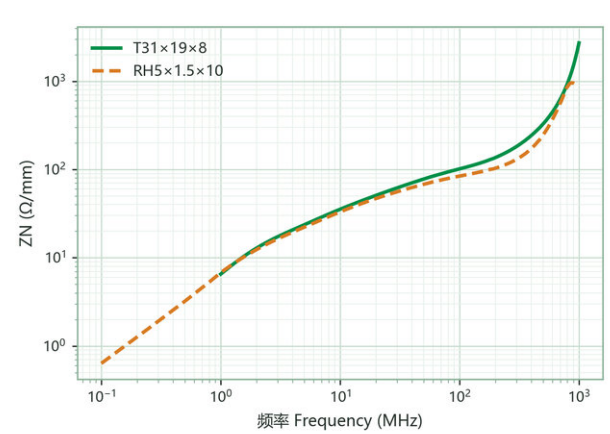
复数磁导率—频率特性
Complex Permeability (μ′, μ″) vs. Frequency



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



相对损耗因子—频率特性
Relative Loss Factor (tanδ/μi) vs. Frequency



标准化阻抗—频率特性（Φ0.5 mm 漆包线 100 mm · 单圈测量）
Normalized Impedance ZN vs. Frequency (single turn of Φ0.5 mm wire, 100 mm long)