L6A

高磁导EMI材料
HIGH PERM. & EMI MATERIALS

鐵研 TAK

L6A 为镍锌铁氧体材料，初始磁导率（μi）约 1200，饱和磁通密度（Bs）约 320 mT（25 ℃）/ 205 mT（100 ℃），居里温度高于 150 ℃。磁导率较 L43 高五成，使共模阻抗的重心移往较低频段——在数 MHz 至数十 MHz 的数据通信频段可用较少匝数取得足够阻抗；低磁通损耗因子 15×10^{-6}（0.1 MHz）/ 30×10^{-6}（0.5 MHz），插入损耗维持低位。高电阻率（约 10^{7} Ω·m）有利于长期绝缘可靠性。典型应用为信号线共模滤波器、数据通信 EMI 抑制与低频抑制磁环。在 L 系阶梯中，L6A 介于 L43（μi 约 800、频带最宽）与 L8A（约 1600、低频阻抗更高）之间；μi 越高的档位低频阻抗越高、居里温度越低，选型时以“需要抑制的最低频率”与“工作温度裕度”权衡。

L6A is a NiZn ferrite with an initial permeability (μi) of approx. 1200, a saturation flux density (Bs) of approx. 320 mT at 25 °C (205 mT at 100 °C) and a Curie temperature above 150 °C. Its permeability, 50 % above L43's, shifts the impedance toward lower frequencies — in the data-communication range of a few to a few tens of MHz it reaches sufficient impedance with fewer turns; the low-flux loss factor is 15×10^{-6} at 0.1 MHz / 30×10^{-6} at 0.5 MHz, keeping insertion loss low, and the high resistivity of about 10^{7} Ω·m supports long-term insulation reliability. Typical uses are signal-line common-mode filters, data-communication EMI suppression and low-frequency suppression rings. In the L-family ladder, L6A sits between L43 (μi approx. 800, widest band) and L8A (approx. 1600, higher low-frequency impedance); higher-μi steps give more low-frequency impedance at a lower Curie temperature — balance the lowest frequency to be suppressed against the operating-temperature margin.

Signal-Line Common-Mode Filter | Data-Line EMI Suppression | Low-Frequency Suppression Ring

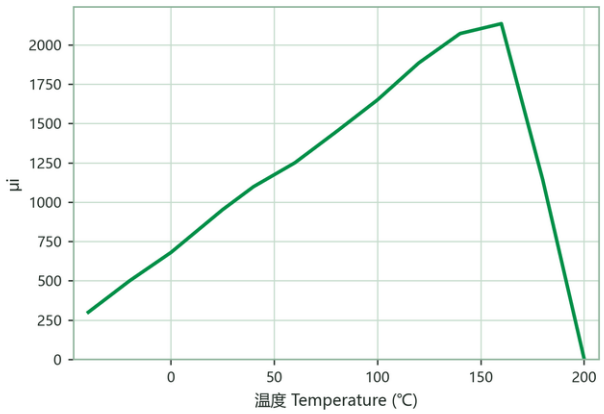
电磁特性 MAGNETIC CHARACTERISTICS

特性 Characteristic	条件 Condition	值 Value	单位 Unit
初始磁导率 μi Initial Permeability	100 kHz & <0.2 mT	1200±25%	
饱和磁通密度 Bs Saturation Flux Density	3000 A/m · 25 ℃ 100 Hz	320	mT
饱和磁通密度 Bs Saturation Flux Density	3000 A/m · 100 ℃ 100 Hz	205	mT
残留磁通密度 Br Remanence	3000 A/m · 25 ℃ 100 Hz	210	mT
残留磁通密度 Br Remanence	3000 A/m · 100 ℃ 100 Hz	40	mT
矫顽力 Hc Coercivity	3000 A/m · 25 ℃ 100 Hz	20	A/m
矫顽力 Hc Coercivity	3000 A/m · 100 ℃ 100 Hz	15	A/m
αμr（温度系数） Temperature coefficient of permeability	20 ~ 60 ℃	15	$\times10^{-6}$/K
相对损耗因子 tanδ/μi Relative Loss Factor	0.1 MHz & <0.2 mT	15	$\times10^{-6}$
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	>150	℃
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

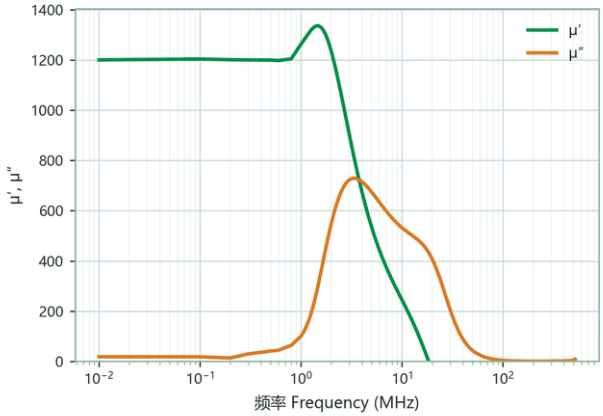
备注：各项数值均为环形磁芯T31×19×8测得的典型数值，由于几何形状和尺寸的影响，产品规格将与这些数据有所差异。
Note: all values are typical data measured on a T31×19×8 toroidal core; actual product specifications will vary with geometry and size.

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

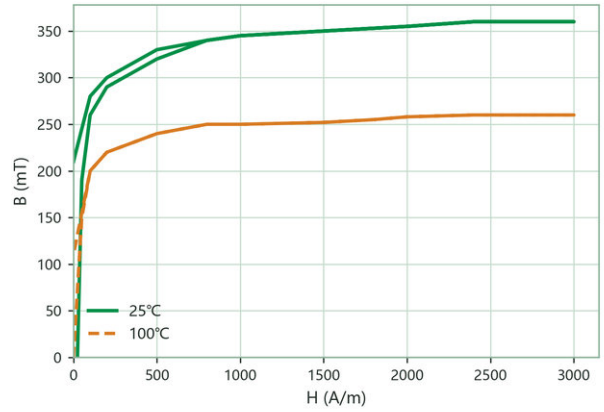
L6A 特性曲线
CHARACTERISTIC CURVES



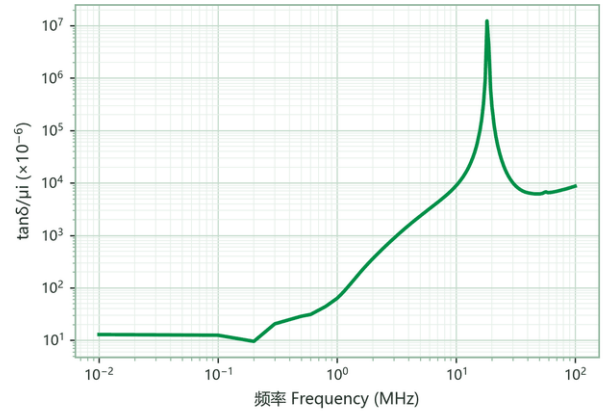
初始磁导率—温度特性
Initial Permeability vs. Temperature



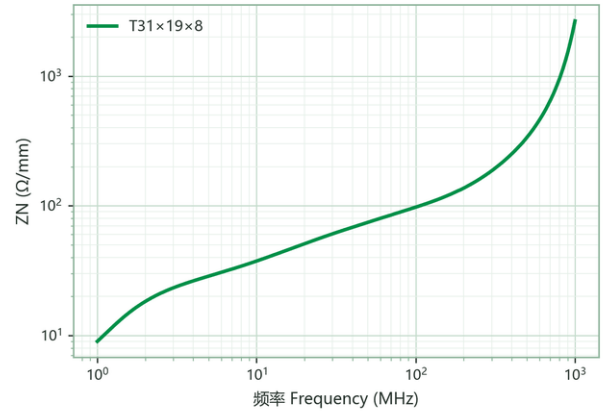
复数磁导率—频率特性
Complex Permeability (μ′, μ″) vs. Frequency



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)