鐵研 TAK

MGB1

镍镁锌材料

NI-MG-ZN MATERIALS

MGB1 为镍镁锌铁氧体材料，初始磁导率（μi）约 350，饱和磁通密度（Bs）约 380 mT（25 ℃）/ 320 mT（100 ℃），居里温度高于 200 ℃。以镁取代部分镍的配方在降低材料成本的同时，保住了相当完整的特性组合：Bs 达 380 mT、Tc 高于 200 ℃，低磁通损耗因子 15×10⁻⁶（0.1 MHz）/ 35×10⁻⁶（2.0 MHz）与纯镍锌通用材同级，是镍镁锌组的性能上限。典型应用为宽频 EMI 抑制、高速数据线磁珠与中高频滤波电感，亦用于一般 choke 与 RFID 天线等对成本敏感的量产场合。与同标称 μi 350 的 DL3 相比，MGB1 的定位是成本效率（DL3 主打耐热冲击与 SMD 回流焊可靠性）；镍镁锌 / 镁锌组内需要更低成本可退至 MG2 或 MF 系，但损耗与温度特性亦随之让步。

MGB1 is a Ni-Mg-Zn ferrite with an initial permeability (μi) of approx. 350, a saturation flux density (Bs) of approx. 380 mT at 25 °C (320 mT at 100 °C) and a Curie temperature above 200 °C. Substituting part of the nickel with magnesium lowers material cost while retaining a remarkably complete property set: Bs of 380 mT, Tc above 200 °C, and a low-flux loss factor of 15×10⁻⁶ at 0.1 MHz / 35×10⁻⁶ at 2.0 MHz on par with the standard NiZn grades — the performance ceiling of the Ni-Mg-Zn group. Typical uses are broadband EMI suppression, high-speed data-line beads and mid/high-frequency filter inductors, as well as cost-sensitive volume parts such as standard chokes and RFID antennas. Against DL3 at the same nominal μi of 350, MGB1 is positioned for cost efficiency (DL3 leads in thermal-shock and SMD reflow reliability); within the Ni-Mg-Zn / Mg-Zn group, MG2 or the MF grades cut cost further at the expense of loss and temperature behaviour.

Broadband EMI Suppression | Data-Line Bead | Mid/High-Frequency Filter Inductor | Standard Choke

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	350±25%	
饱和磁通密度 Bs Saturation Flux Density	3000 A/m · 25 ℃ 100 Hz	380	mT
饱和磁通密度 Bs Saturation Flux Density	3000 A/m · 100 ℃ 100 Hz	320	mT
残留磁通密度 Br Remanence	3000 A/m · 25 ℃ 100 Hz	250	mT
残留磁通密度 Br Remanence	3000 A/m · 100 ℃ 100 Hz	180	mT
矫顽力 Hc Coercivity	3000 A/m · 25 ℃ 100 Hz	18	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 ℃	25	$\times10^{-6}$/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	2.0 MHz & <0.2 mT	35	$\times10^{-6}$
居里温度 Tc Curie Temp.	100 kHz & <0.2 mT	>200	℃
密度 D Density	阿基米德法 Archimedes method	5.1	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

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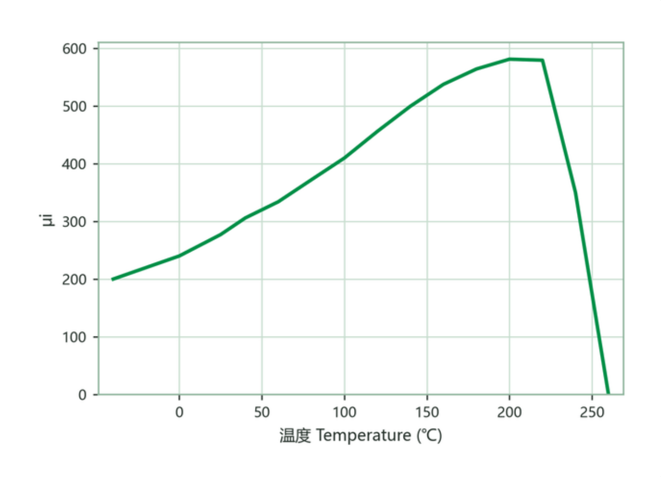
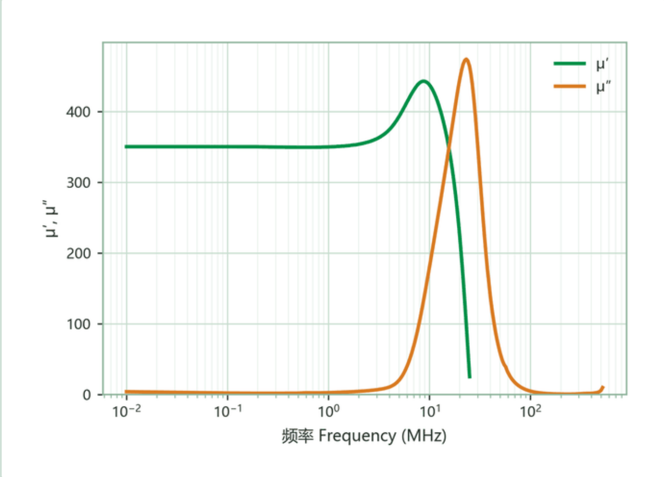
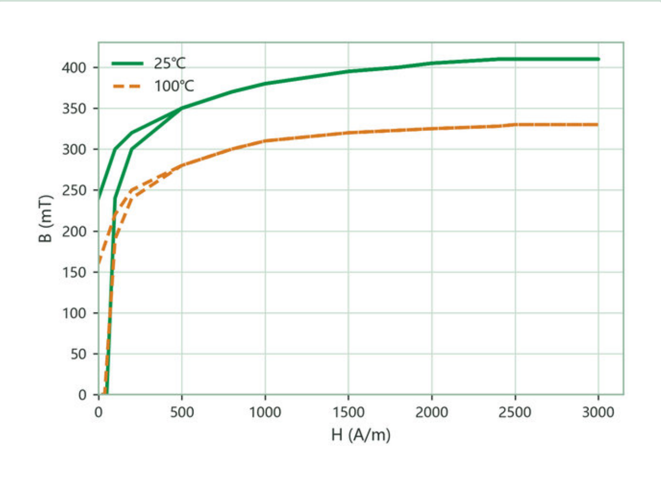
特性曲线 CHARACTERISTIC CURVES



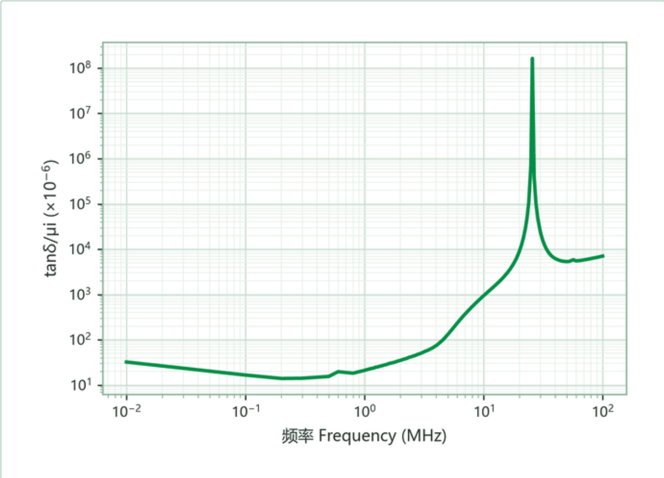
初始磁导率—温度特性
Initial Permeability vs. Temperature



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