E02

宽频高磁导率材料
WIDEBAND HIGH-PERMEABILITY FERRITE

鐵研 TAK

E02 为宽频高磁导率锰锌铁氧体，初始磁导率（μi）2000，饱和磁通密度（Bs）370 mT（25 ℃）/ 210 mT（100 ℃），居里温度高于 130 ℃。于高磁导率系列中，E02 之 μi 最低而电阻率最高（3.0 Ω·m）：较低之 μi 与较高之电阻率提高磁导率交越频率（μ″ = μ′）并降低涡流损耗，宽频信号变压器之高频端因而延伸；100 kHz 相对损耗因子低于 30×10⁻⁶，磁滞常数 ηB 2.0×10⁻⁶/mT，矫顽力（Hc）10 A/m（25 ℃）/ 5 A/m（100 ℃）。其残留磁通密度（Br）270 mT（25 ℃）偏高，用于电流互感器时应注意直流暂态后之残磁。典型应用为宽频信号与脉冲变压器、电流互感器、宽频电感与信号滤波。于高磁导率系列中，E02 以带宽区隔：需较高电感量与较低失真者采 T05（μi 5000，ηB 0.3×10⁻⁶/mT）；需最高共模阻抗者采 T10 / T12。居里温度 130 ℃ 与 100 ℃ 时 210 mT 之 Bs，限制其适用于低磁通、中低温之场合。

E02 is a wideband high-permeability MnZn ferrite with an initial permeability (μi) of 2000, a saturation flux density (Bs) of 370 mT at 25 °C (210 mT at 100 °C) and a Curie temperature above 130 °C. Within the high-permeability family it has the lowest μi and the highest resistivity (3.0 Ω·m): the lower μi and higher resistivity raise the permeability cut-off frequency and reduce eddy-current loss, extending the high-frequency end of wideband signal transformers; its relative loss factor at 100 kHz is below 30×10⁻⁶, the hysteresis constant ηB 2.0×10⁻⁶/mT and the coercivity (Hc) 10 A/m at 25 °C (5 A/m at 100 °C). Its remanence (Br) of 270 mT at 25 °C is relatively high, so residual magnetisation after a DC transient should be considered in current-transformer applications. Typical applications are wideband signal and pulse transformers, current transformers, wideband inductors and signal filtering. Within the high-permeability family E02 is distinguished by bandwidth: T05 (μi 5000, ηB 0.3×10⁻⁶/mT) is recommended where higher inductance and lower distortion are required, and T10/T12 where the highest common-mode impedance is required. Its Curie temperature of 130 °C and Bs of 210 mT at 100 °C restrict it to low-flux, low-to-moderate-temperature applications.

Wideband Signal Transformer | Pulse Transformer | Current Transformer | Wideband Inductor

电磁特性 MAGNETIC CHARACTERISTICS

特性 Characteristic	条件 Condition	25 ℃	100 ℃	单位 Unit
初始磁导率 Initial Permeability μi	100 kHz & <0.2 mT	2000±25%		
饱和磁通密度 Saturation Flux Density Bs	1200 A/m 50 Hz	370	210	mT
残留磁通密度 Remanence Br	1200 A/m 50 Hz	270	100	mT
矫顽力 Coercivity Hc	1200 A/m 50 Hz	10	5	A/m
相对损耗因子 Loss Factor	100 kHz	<30		10^{-6}
磁滞常数 Hysteresis Constant ηB	10 kHz 1.5-3.0 mT	2.0		10^{-6}/mT
温度系数 Temperature Factor αf	100 kHz & <0.2 mT	<7		10^{-6}
居里温度 Curie Temperature Tc	100 kHz & <0.2 mT	>130		℃
密度 Density D	阿基米德法 Archimedes method	4.8		g/cm³
电阻率 Electrical Resistivity ρ	直流电流 DC Current	3.0		Ω·m

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

E02

特性曲线
CHARACTERISTIC CURVES





