鐵研 TAK

T2

低频低损耗功率材料
LOW-FREQUENCY LOW-LOSS POWER FERRITE

T2 为低频低损耗锰锌功率铁氧体，初始磁导率（μi）2800，饱和磁通密度（Bs）510 mT（25 ℃）/ 390 mT（100 ℃），居里温度高于 180 ℃。损耗极小值位于常温：25 kHz / 200 mT 为 110 kW/m³（25 ℃）→ 200 kW/m³（100 ℃），100 kHz / 100 mT 为 110 → 240 kW/m³，于传统低频三种材料中，两个条件、两个温度之损耗均为最低；μi 2800 使低频下同一电感量所需匝数最少，铜损与绕组体积相应减少。典型应用为 100 kHz 以下之电子镇流器电感、低频开关电源变压器、宽频巴伦与电流互感器。于传统低频功率材料三种之中，T2 为损耗基准：磁芯长期处于高温或需较高 100 ℃ Bs 者采 T2M（410 mT），需方形磁滞回线者采 TB2；承受直流偏磁之 PFC 与储能扼流圈则采高 Bs 特殊功率材料 TM82。其损耗随温度上升，且 100 ℃ 之 Bs 保持率 76 % 于功率材料中偏低，散热设计应使磁芯维持于中低温。

T2 is a low-frequency low-loss MnZn power ferrite with an initial permeability (μi) of 2800, a saturation flux density (Bs) of 510 mT at 25 °C (390 mT at 100 °C) and a Curie temperature above 180 °C. Its loss minimum lies at room temperature: 110 kW/m³ at 25 °C rising to 200 kW/m³ at 100 °C at 25 kHz / 200 mT, and 110 → 240 kW/m³ at 100 kHz / 100 mT, the lowest of the three conventional low-frequency grades at both conditions and both temperatures; a μi of 2800 minimises the number of turns for a given inductance at low frequency, reducing copper loss and winding volume accordingly. Typical applications are electronic-ballast inductors below 100 kHz, low-frequency switch-mode transformers, wideband baluns and current transformers. Among the three conventional low-frequency grades T2 is the loss reference: T2M (410 mT at 100 °C) is recommended where the core operates at elevated temperature or a higher 100 °C Bs is required, TB2 where a square hysteresis loop is required, and the high-Bs special grade TM82 for PFC and storage chokes under DC bias. Since its loss increases with temperature and its Bs retention at 100 °C (76 %) is comparatively low for a power grade, the thermal design should keep the core at moderate temperature.

Electronic Ballast Inductor | Low-Frequency Power Transformer | Wideband Balun | Current Transformer

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	2800±25%		
增幅磁导率 Amplitude Permeability μa	25 kHz/400 mT	> 1000	> 500	
饱和磁通密度 Saturation Flux Density Bs	1200 A/m 100 Hz	510	390	mT
残留磁通密度 Remanence Br	1200 A/m 100 Hz	135	110	mT
矫顽力 Coercivity Hc	1200 A/m 100 Hz	15	10	A/m
相对损耗因子 Loss Factor	100 kHz & <0.2 mT	< 12		10^{-6}
居里温度 Curie Temperature Tc	100 kHz & <0.2 mT	>180		℃
密度 Density D	阿基米德法 Archimedes method	4.80		g/cm³
电阻率 Electrical Resistivity ρ	直流电流 DC Current	>5		Ω·m

功率损耗 Pcv POWER LOSS · KW/M³

测试条件 Condition	25 ℃	100 ℃
25 kHz/200 mT	110	200
100 kHz/100 mT	110	240

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

T2 特性曲线
CHARACTERISTIC CURVES











