TM82

超高饱和磁通功率材料
ULTRA-HIGH FLUX POWER FERRITE

TM82 为超高饱和磁通锰锌功率铁氧体，初始磁导率（μi）1200，饱和磁通密度（Bs）600 mT（25 ℃）/ 500 mT（100 ℃），居里温度高于 300 ℃。Bs 为全系列最高，且 100 ℃ 仍保有 500 mT（保持率 83 %），于短路或启动暂态使磁芯温度超过 150 ℃ 时亦不致深度饱和。100 ℃ 之 Bs 较 T2 / T2M 高约 100 mT，同一磁芯于热态可承受更大之直流偏磁或采用更小之气隙；25 kHz / 400 mT 之增幅磁导率（μa）于 100 ℃ 仍大于 2200，重载时电感量不易衰减。损耗定位于低频：25 kHz / 200 mT 为 200 → 330 kW/m³，100 kHz / 200 mT 则达 900 → 1600 kW/m³，不适用于高磁通之 100 kHz 主变压器。典型应用为 PFC 升压扼流圈、大电流储能与输出滤波电感、承受直流偏磁之开气隙电感。于高 Bs 特殊功率材料两种之中，TM82 为偏磁与耐温取向，TM71 则以高 μi 低 Hc 适用于脉冲 / 栅极驱动；磁通摆幅大而偏磁小之低频变压器宜采传统低频材料 T2 / T2M。开气隙后之有效磁导率由气隙决定，μi 1200 不构成限制。

TM82 is an ultra-high-flux MnZn power ferrite with an initial permeability (μi) of 1200, a saturation flux density (Bs) of 600 mT at 25 °C (500 mT at 100 °C) and a Curie temperature above 300 °C. Its Bs is the highest in the series and 500 mT is retained at 100 °C (83 %), so the core does not enter deep saturation when a short-circuit or start-up transient raises its temperature above 150 °C. The 100 °C Bs is about 100 mT above T2/T2M, so the same core tolerates a larger DC bias or a smaller gap when hot; the amplitude permeability (μa) at 25 kHz / 400 mT remains above 2200 at 100 °C, so inductance is maintained under heavy load. Loss is optimised for low frequency: 200 → 330 kW/m³ at 25 kHz / 200 mT but 900 → 1600 kW/m³ at 100 kHz / 200 mT, so it is not intended for high-flux 100 kHz main transformers. Typical applications are PFC boost chokes, high-current storage and output-filter inductors and gapped inductors under DC bias. Of the two high-Bs special grades TM82 is the bias- and temperature-oriented grade, while TM71 with its high μi and low Hc serves pulse and gate-drive duty; low-frequency transformers with large flux swing and small bias should use the conventional low-frequency grades T2/T2M. Once gapped, the effective permeability is determined by the gap, so a μi of 1200 is not a limitation.

PFC Boost Choke | High-Current Storage Inductor | Output Filter Inductor | DC-Bias Gapped 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	1200±25%		
增幅磁导率 Amplitude Permeability μa	25 kHz/400 mT	> 4000	> 2200	
饱和磁通密度 Saturation Flux Density Bs	1200 A/m 100 Hz	600	500	mT
残留磁通密度 Remanence Br	1200 A/m 100 Hz	80	100	mT
矫顽力 Coercivity Hc	1200 A/m 100 Hz	12	10	A/m
相对损耗因子 Loss Factor	100 kHz & <0.2 mT	< 15		10^{-6}
居里温度 Curie Temperature Tc	100 kHz & <0.2 mT	> 300		℃
密度 Density D	阿基米德法 Archimedes method	4.95		g/cm³
电阻率 Electrical Resistivity ρ	直流电流 DC Current	> 4		Ω·m

功率损耗 Pcv POWER LOSS · KW/M³

测试条件 Condition	25 ℃	100 ℃
25 kHz/200 mT	200	330
100 kHz/200 mT	900	1600

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TM82

特性曲线
CHARACTERISTIC CURVES









