

TM80 为宽温低损耗锰锌功率铁氧体，初始磁导率 (μ i) 3000，饱和磁通密度 (Bs) 520 mT (25 °C) / 420 mT (100 °C)，居里温度高于 230 °C。磁芯损耗在 25 °C 与 100 °C 之间几乎持平 (100 kHz / 200 mT : 350 → 330 kW/m³ ; 500 kHz / 50 mT : 200 → 200 kW/m³)，没有传统功率材“常温损耗偏高、要靠升温才进入低损耗区”的谷底效应，冷启动与满载热态的效率同样可预期；100 °C 仍有 420 mT 的 Bs 与 7 A/m 的低矫顽力，让变压器在大磁通摆幅下保有饱和裕度。典型应用为 100–300 kHz 的开关电源主变压器与正激 / 反激变压器，尤其是环境温度变化大的车载、户外与工业电源。在宽温三支中，TM80 是 100 kHz 高磁通段的基准：工作点偏向 300 kHz / 100 mT 选 TM81；磁芯温度会长时间停在 120–140 °C 则选 TM83。

TM80 is a wide-temperature low-loss MnZn power ferrite with an initial permeability (μ i) of 3000, a saturation flux density (Bs) of 520 mT at 25 °C (420 mT at 100 °C) and a Curie temperature above 230 °C. Its core loss is almost flat between 25 °C and 100 °C (100 kHz / 200 mT: 350 → 330 kW/m³; 500 kHz / 50 mT: 200 → 200 kW/m³), so it has none of the loss valley of conventional power grades that only reach low loss once warm — efficiency at cold start and at full-load steady state is equally predictable. With 420 mT still available at 100 °C and a coercivity of only 7 A/m, transformers keep their saturation margin at large flux swings. Typical uses are 100–300 kHz switch-mode main transformers and forward/flyback transformers, above all automotive, outdoor and industrial supplies exposed to wide ambient swings. Within the wide-temperature trio, TM80 is the baseline for the 100 kHz high-flux region: choose TM81 for operating points around 300 kHz / 100 mT, or TM83 where the core will sit at 120–140 °C for long periods.

- SMPS Main Transformer
- Forward / Flyback Transformer
- Automotive Power
- Wide-Temperature Supply

电磁特性

MAGNETIC CHARACTERISTICS

特性 Characteristic	条件 Condition	25 °C	100 °C	单位 Unit
初始磁导率 Initial Permeability μ i	100 kHz & <0.2 mT	3000±25%		
增幅磁导率 Amplitude Permeability μ a	25 kHz/400 mT	> 4000	> 4000	
饱和磁通密度 Saturation Flux Density Bs	1200 A/m 100 Hz	520	420	mT
残留磁通密度 Remanence Br	1200 A/m 100 Hz	80	60	mT
矫顽力 Coercivity Hc	1200 A/m 100 Hz	10	7	A/m
相对损耗因子 Loss Factor	100 kHz & <0.2 mT	<6		10 ⁻⁶
居里温度 Curie Temperature Tc	100 kHz & <0.2 mT	>230		°C
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	>5.5		Ω·m

功率损耗 Pcv

POWER LOSS · KW/M³

测试条件 Condition	25 °C	100 °C
100 kHz/200 mT	350	330
300 kHz/100 mT	380	360
500 kHz/50 mT	200	200

Steinmetz 系数

$P_{cv} = K \cdot f^\alpha \cdot B^\beta$

频段 Range	K	α	β
100 ≤200	1.09E-07	1.7553	2.63056
100 ≤500	4.03E-07	1.71695	2.40254

TM80

特性曲线

CHARACTERISTIC CURVES

