T07

高磁导率温度稳定材料
TEMPERATURE-STABLE HIGH-PERMEABILITY FERRITE

T07 为温度稳定型高磁导率锰锌铁氧体，初始磁导率（μi）7000，饱和磁通密度（Bs）420 mT（25 ℃）/ 240 mT（100 ℃），居里温度高于 140 ℃。其温度特性为系列内最平坦：磁导率温度因子 αf 为 −0.1 ~ 0.5×10⁻⁶，磁滞常数 ηB 0.2×10⁻⁶/mT 亦为系列内最低，100 kHz 相对损耗因子低于 12×10⁻⁶，矫顽力（Hc）9.6 A/m（25 ℃）/ 6 A/m（100 ℃）——电感量与相位误差几乎不随温度与激磁强度漂移，符合计量级电流互感器对磁芯之要求。100 ℃ 时 240 mT 之 Bs 高于 T06 / T12，工作范围略宽。典型应用为电能计量与保护用精密电流互感器、宽频与 xDSL 信号变压器、低失真信号电感。于高磁导率系列中，T07 为 μi 与温度稳定性之折衷：以电感量为优先者采 T10 / T12（μi 10000 / 12000）；需 310 mT 热态 Bs 者采 T05；一般信号变压器以 T06 即可。其选用依据为稳定性而非参数极值，适用于校正成本高于磁芯成本之产品。

T07 is a temperature-stable high-permeability MnZn ferrite with an initial permeability (μi) of 7000, a saturation flux density (Bs) of 420 mT at 25 °C (240 mT at 100 °C) and a Curie temperature above 140 °C. Its temperature characteristic is the flattest in the family: the temperature factor of permeability αf is −0.1 to 0.5×10⁻⁶, the hysteresis constant ηB 0.2×10⁻⁶/mT is also the lowest in the family, the relative loss factor at 100 kHz is below 12×10⁻⁶ and the coercivity (Hc) 9.6 A/m at 25 °C (6 A/m at 100 °C) — inductance and phase error are almost independent of temperature and excitation level, as required of metering- grade current transformers. Its Bs of 240 mT at 100 °C is above T06/T12, giving a slightly wider operating window. Typical applications are precision current transformers for energy metering and protection, wideband and xDSL signal transformers and low-distortion signal inductors. Within the high-permeability family T07 is the compromise between μi and temperature stability: T10/T12 (μi 10000/12000) are recommended where inductance takes priority, T05 where 310 mT of hot-state Bs is required, and T06 is sufficient for general signal transformers. It is selected for stability rather than for extreme parameter values, and suits products whose calibration cost exceeds the cost of the core.

Precision Current Transformer | Energy-Metering CT | Wideband / xDSL Transformer | Low-Distortion Signal 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	7000±25%		
饱和磁通密度 Saturation Flux Density Bs	1200 A/m 50 Hz	420	240	mT
残留磁通密度 Remanence Br	1200 A/m 50 Hz	130	105	mT
矫顽力 Coercivity Hc	1200 A/m 50 Hz	9.6	6	A/m
相对损耗因子 Loss Factor	100 kHz	<12		10^{-6}
磁滞常数 Hysteresis Constant ηB	100 kHz 1.5-3.0 mT	0.2		10^{-6}/mT
温度系数 Temperature Factor αf	100kHz <0.2 mT	-0.1~0.5		10^{-6}
居里温度 Curie Temperature Tc	100 kHz & <0.2 mT	>140		℃
密度 Density D	阿基米德法 Archimedes method	4.9		g/cm³
电阻率 Electrical Resistivity ρ	直流电流 DC Current	0.5		Ω·m

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T07

特性曲线
CHARACTERISTIC CURVES







