

ME03

EMI 抑制材料
EMI SUPPRESSION FERRITE

ME03 为 MnZn 体系的 EMI 抑制铁氧体材料，初始磁导率 (μ) 约 350，饱和磁通密度 (B_s) 约 400 mT (25 °C) / 350 mT (100 °C)，居里温度高于 260 °C。此材料以较低的磁导率，换取较高的饱和磁通密度、居里温度与 30 MHz 以上的宽频损耗特性——标准化阻抗 ZN (标称值) 于 30 / 100 / 300 MHz 分别约 25 / 55 / 115 Ω /mm，于该频段呈电阻主导，可将高频共模噪声转为热耗散而非储存于磁路中。与同频段的 NiZn 抑制材料相比，ME03 的饱和磁通密度明显较高，在导线带有直流或工作电流时阻抗衰减较小；居里温度高于 260 °C，亦有利于高温环境下的特性稳定。典型应用为 EMI 磁珠、EMI 磁环与共模扼流圈，用于高速数据传输接口、电源输入端与车用线束的传导噪声抑制。电阻率约 $10^4 \Omega \cdot m$ ，属中高电阻率，绕线时仍建议使用绝缘导线或表面涂覆磁芯。本材料属 MnZn 体系，之所以收录于本册，是因为它可在上述抑制应用中直接替代 NiZn；完整 MnZn 材料系列另见《锰锌铁氧体目录书》。

ME03 is a MnZn-system EMI-suppression ferrite with μ approx. 350, B_s approx. 400 mT at 25 °C (350 mT at 100 °C) and a Curie temperature above 260 °C. It trades permeability for a high saturation flux density, a high Curie temperature and a broadband loss characteristic above 30 MHz: normalized impedance ZN (typical) is approx. 25 / 55 / 115 Ω /mm at 30 / 100 / 300 MHz, where the impedance is resistive-dominated and converts high-frequency common-mode noise into heat instead of storing it in the magnetic circuit. Against NiZn suppression grades covering the same band, the markedly higher B_s keeps the impedance from collapsing when the conductor also carries DC or operating current, and the >260 °C Curie point sustains the characteristics at elevated temperature. Typical uses are EMI beads, EMI rings and common-mode chokes for high-speed data interfaces, power inlets and automotive harnesses. With a resistivity of about $10^4 \Omega \cdot m$, insulated wire or a coated core is still recommended for winding. ME03 belongs to the MnZn family and is listed here because it substitutes directly for NiZn in these suppression applications; the full MnZn range is given in the MnZn Ferrite Catalog.

EMI Bead

EMI Ring

Common-Mode Choke

Automotive Harness Suppression

High-Speed Interface Filter

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	f=10 kHz, B<0.25 mT	350 $\pm$ 25%		
饱和磁通密度 Saturation Flux Density B_s	1200 A/m, 1 kHz	400	350	mT
残留磁通密度 Remanence B_r	1200 A/m, 1 kHz	350	300	mT
矫顽力 Coercivity H_c	1200 A/m, 1 kHz	100	50	A/m
居里温度 Curie Temperature T_c	f=10 kHz, B<0.25 mT	$\geq$ 260		°C
密度 Density D	Archimedes method (阿基米德法)	4.80		g/cm ³
电阻率 Electrical Resistivity ρ	DC Current (直流电流)	104		Ωm
标准化阻抗 Normalized Impedance ZN	30 MHz	$\geq$ 25		Ω /mm
标准化阻抗 Normalized Impedance ZN	100 MHz	$\geq$ 55		Ω /mm
标准化阻抗 Normalized Impedance ZN	300 MHz	$\geq$ 115		Ω /mm

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ME03

特性曲线

CHARACTERISTIC CURVES

