V2F1

高频稳定材料
HIGH FREQUENCY STABLE MATERIALS

鐵研 TAK

V2F1 为镍锌铁氧体材料，初始磁导率（μi）约 30，饱和磁通密度（Bs）约 310 mT（25 ℃）/ 270 mT（100 ℃），居里温度高于 300 ℃。与同族更低 μi 的档位相比，V2F1 在保住约 90 MHz 频率上限的同时，把饱和磁通拉回 310 mT 的水平——高频电路带有偏置或功率成分时，磁通余裕明显优于 V4F1 / M5E1；居里温度高于 300 ℃，严苛温度下 Q 值稳定。典型应用为 90 MHz 以下的高频滤波器、RF 谐振元件与中频段低损耗射频电感。名称相近的 V4F1（μi 约 10）定位在更高频段——编号与 μi 高低无关，选型以频段与磁通需求为准：需要更高频选 V4F1 / M5E1，需要更高 Q 的中频段选 M9A。

V2F1 is a NiZn ferrite with an initial permeability (μi) of approx. 30, a saturation flux density (Bs) of approx. 310 mT at 25 °C (270 mT at 100 °C) and a Curie temperature above 300 °C. Compared with the lower-μi members of the family, V2F1 keeps a frequency ceiling of about 90 MHz while restoring the saturation flux to the 310 mT level — a clearly better flux margin than V4F1/M5E1 when the HF circuit carries bias or power; the Curie point above 300 °C keeps Q stable under demanding temperatures. Typical uses are HF filters below 90 MHz, RF resonant devices and low-loss mid-band RF inductors. Despite the similar name, V4F1 (μi approx. 10) targets a higher band — the numeral does not order the permeability; select by band and flux need: V4F1 or M5E1 for higher frequencies, M9A for higher-Q mid-band work.

HF Filter | RF Resonant Inductor | RF Power Choke

电磁特性 MAGNETIC CHARACTERISTICS

特性 Characteristic	条件 Condition	值 Value	单位 Unit
初始磁导率 μi Initial Permeability	100 kHz & <0.2 mT	30±25%	
饱和磁通密度 Bs Saturation Flux Density	3000 A/m · 25 ℃ 100 Hz	310	mT
饱和磁通密度 Bs Saturation Flux Density	3000 A/m · 100 ℃ 100 Hz	270	mT
残留磁通密度 Br Remanence	3000 A/m · 25 ℃ 100 Hz	180	mT
残留磁通密度 Br Remanence	3000 A/m · 100 ℃ 100 Hz	160	mT
矫顽力 Hc Coercivity	3000 A/m · 25 ℃ 100 Hz	610	A/m
矫顽力 Hc Coercivity	3000 A/m · 100 ℃ 100 Hz	600	A/m
αμr（温度系数） Temperature coefficient of permeability	20 ~ 60 ℃	25	$\times10^{-6}$/K
相对损耗因子 tanδ/μi Relative Loss Factor	10 MHz & <0.2 mT	160	$\times10^{-6}$
相对损耗因子 tanδ/μi Relative Loss Factor	50 MHz & <0.2 mT	270	$\times10^{-6}$
居里温度 Tc Curie Temp.	100 kHz & <0.2 mT	>300	℃
密度 D Density	阿基米德法 Archimedes method	4.9	g/cm³
电阻率 ρ Volume Resistivity	直流电流 DC Current	10^7	Ω·m

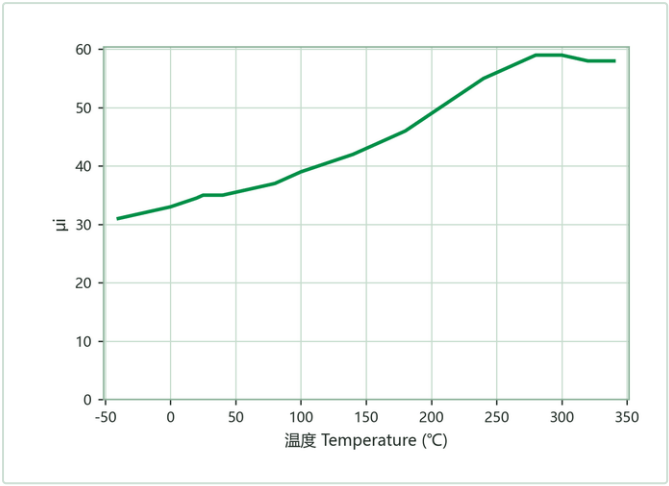
备注：各项数值均为环形磁芯T31×19×8测得的典型数值，由于几何形状和尺寸的影响，产品规格将与这些数据有所差异。

Note: all values are typical data measured on a T31×19×8 toroidal core; actual product specifications will vary with geometry and size.

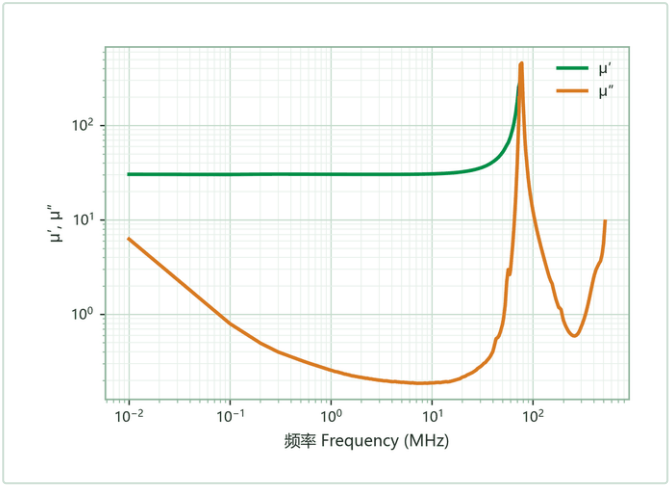
特性曲线详见次页 CHARACTERISTIC CURVES — SEE NEXT PAGE

V2F1

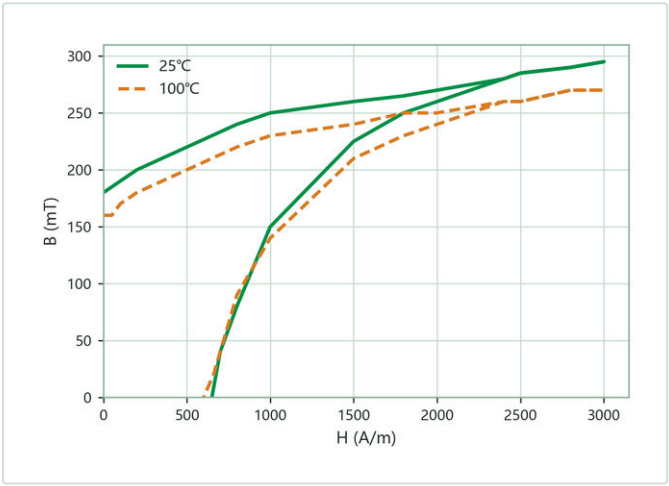
特性曲线
CHARACTERISTIC CURVES



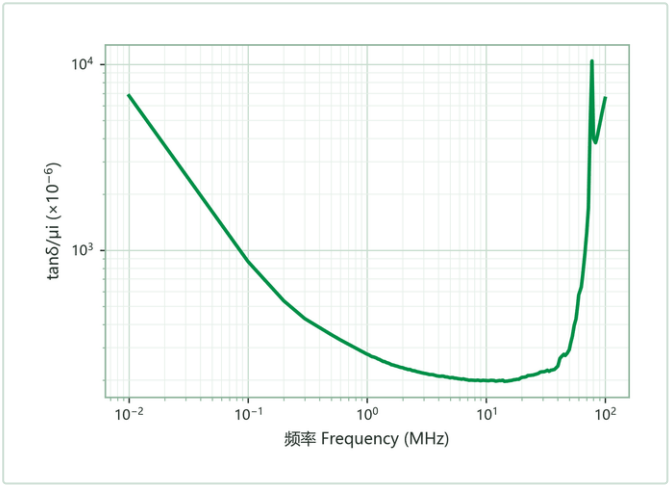
初始磁导率—温度特性
Initial Permeability vs. Temperature



复数磁导率—频率特性
Complex Permeability (μ′, μ″) vs. Frequency



静态磁化曲线
Static Magnetization Curves (B–H)



相对损耗因子—频率特性
Relative Loss Factor (tanδ/μi) vs. Frequency