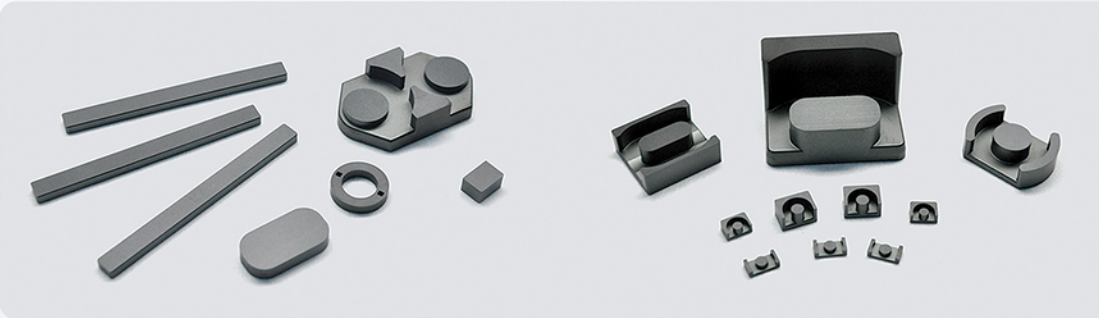




SINOMAG METAL

龙磁金属



安徽龙磁科技股份有限公司合肥总部
SINOMAG TECHNOLOGY CO., LTD.

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安徽龙磁金属科技有限公司
ANHUI SINOMAG METAL TECHNOLOGY CO.,LTD.

C 企业简介 Company Profile

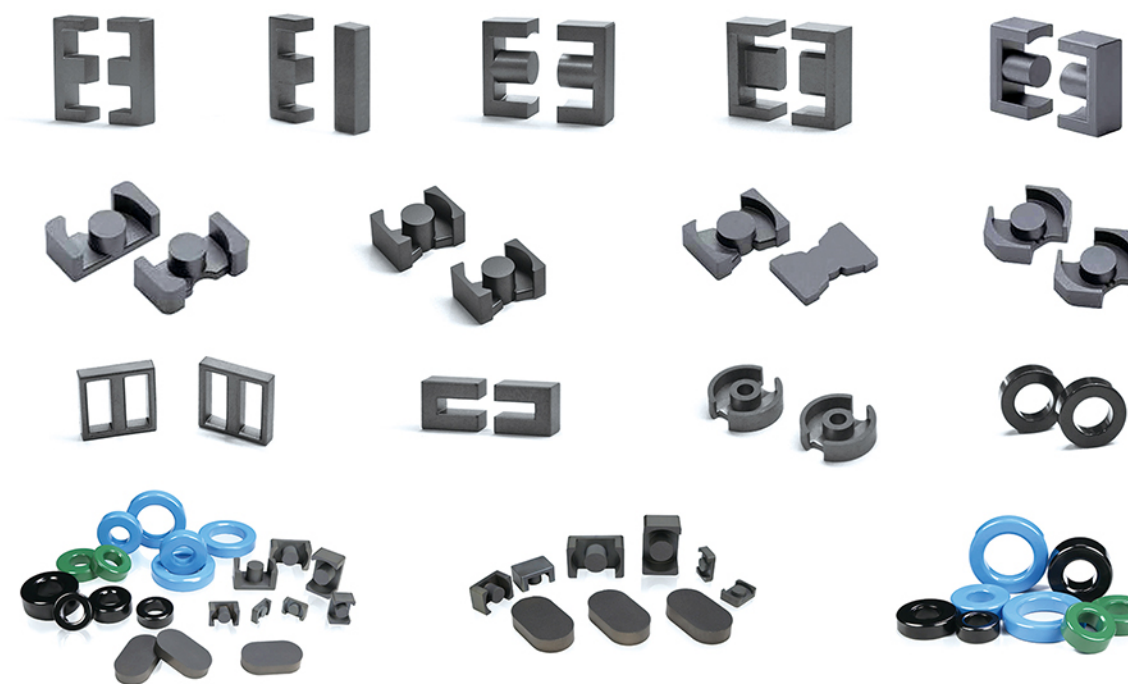
致力磁性科技 深耕绿能之芯

安徽龙磁科技股份有限公司（股票代码：300835）创立于1998年，注册资本12013.9万元，年产各类磁性材料5万吨以上，在全球拥有5个生产基地和5个销售中心。

安徽龙磁金属科技有限公司是安徽龙磁科技股份有限公司全资子公司，专业生产各类软磁材料，其中金属粉芯一期产能3000吨，铁氧体磁芯一期产能6000吨。产品主要应用于光伏逆变器、家电、电动汽车、通信服务器基站、工业大功率电源等。

Sinomag Technology Co., Ltd. (stock code: 300835) manufactures more than 50,000 tons of various magnetic materials annually. Founded in 1998 with a registered capital of 120.139 million yuan, Sinomag now has 5 production bases and 5 sales centers around the world.

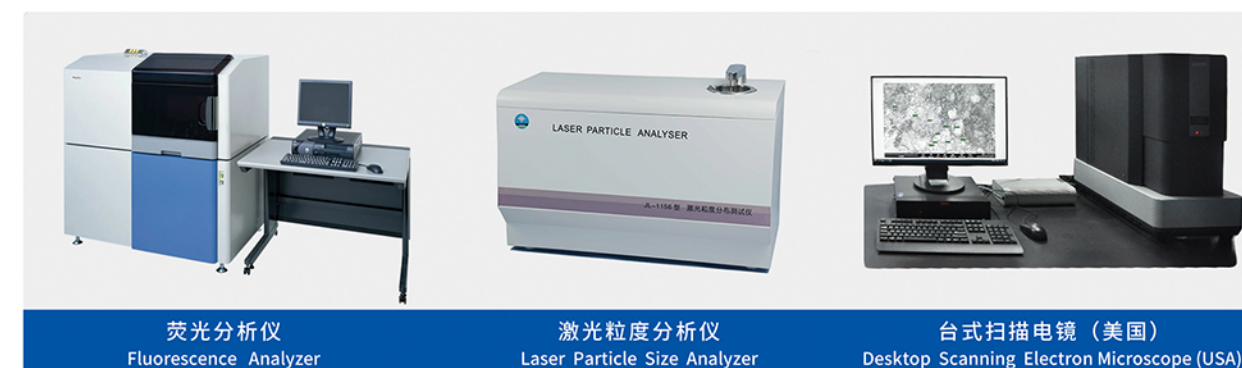
Anhui Sinomag Metal Technology Co., Ltd. is a wholly-owned subsidiary of Sinomag Technology Co., Ltd., specializing in the production of various soft magnetic materials. The first-phase production capacity of magnetic powder cores is 3,000 tons, and that of ferrite cores is 6,000 tons. These products are mainly used in photovoltaic inverters, home appliances, electric vehicles, communication server base stations, industrial high-power power supplies, etc.



P 生产设备 Production Equipment



T 检测设备 Testing Equipment



SY8218 BH分析仪 (日本产)
SY8218 BH Analyzer (Japan)



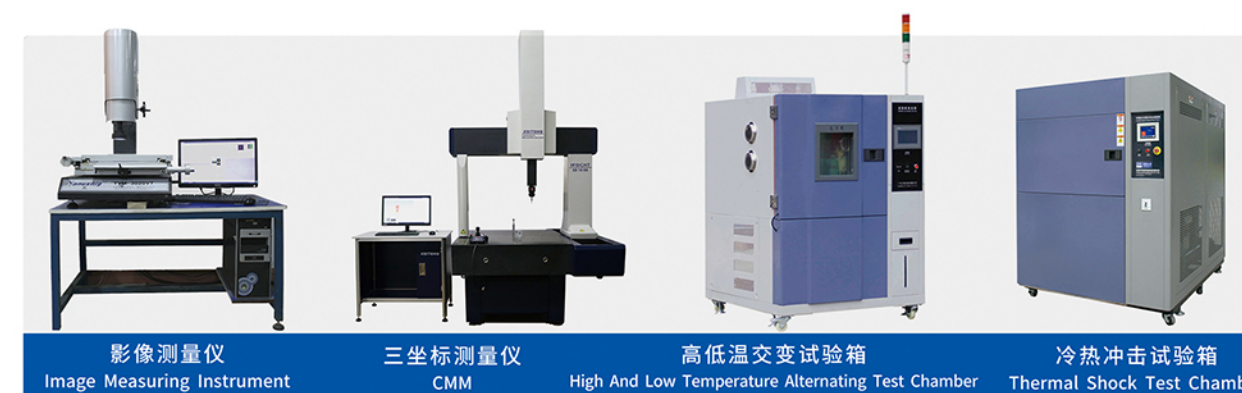
E4990A阻抗
分析仪 (美国产)
E4990A Impedance
Analyzer (USA)



功率分析仪 Power Analyzer

数字电桥 Digital Bridge

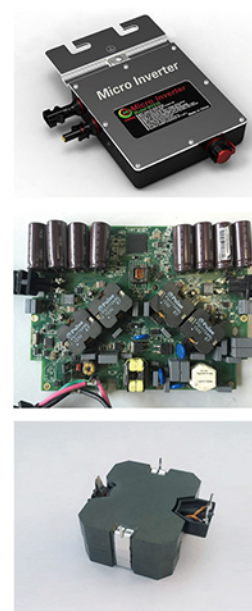
功率电感分析仪
Power Inductance Analyzer



A 应用领域 Application

屋顶光伏系统中的微型逆变器

Microinverters for Rooftop PV System



Ferrite Core

软磁铁氧体磁芯

在高频下具有高磁导率、低损耗等特点，并且具有批量生产容易、性能稳定、机械加工性能高，可利用模具制成各种形状的磁芯，特别是成本低等特点，而迅速推广应用于光伏、储能、新能源汽车、通信、家电等领域。



Ferrite core has the characteristics of high magnetic permeability and low loss at high frequency, and has the advantages of being easy to be made in mass production, stable performance, high mechanical processing performance, available in various shapes and low cost. It has been rapidly promoted and applied in photovoltaics, energy storage, new energy vehicles, communications, home appliances and other fields.

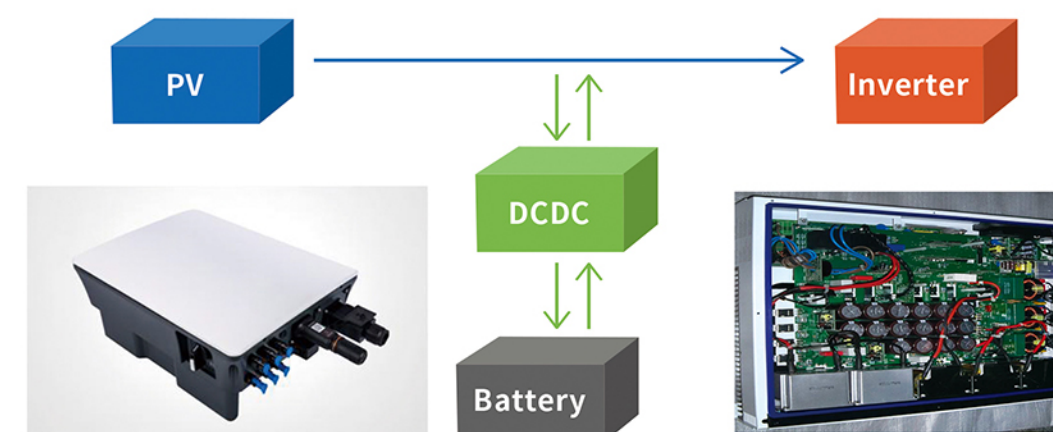
Magnetic Powder Core

金属软磁粉芯

是一种复合软磁材料（含分布式气隙），广泛应用于新能源汽车、5G通讯、光伏、储能、风力发电、家电等领域。进入21世纪，电子元器件的高频化、小型化为具有高BS、低损耗的软磁粉芯提供了广阔的市场空间。



Magnetic powder core is a composite soft magnetic material (including distributed air gap), which is widely used in new energy vehicles, 5G communications, photovoltaics, energy storage, wind power generation, home appliances and other fields. In the 21st century, the high frequency and miniaturization of electronic components provides a broad market space for soft magnetic powder cores with high BS and low loss.



光伏储能系统

Battery Storage Systems for PV Applications

A 应用领域 Application

轨道交通
Rail Transit



新能源汽车及充电桩
New Energy Vehicles and Charging Piles



工业机床
Industrial Machine Tools



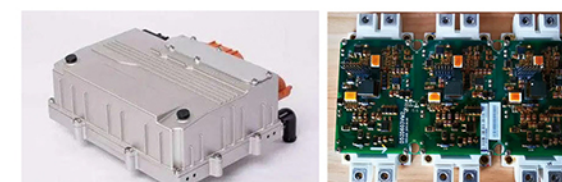
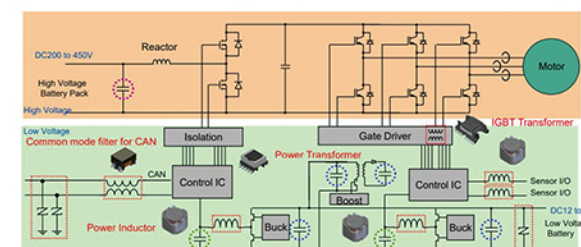
医疗设备
Medical Equipment



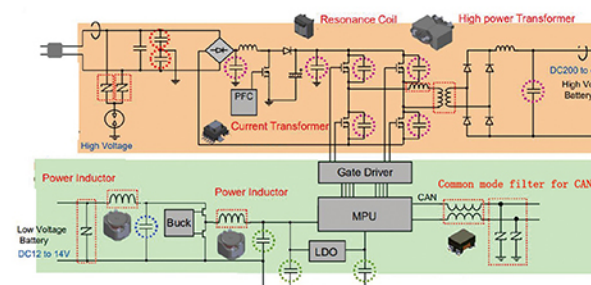
噪声滤波器
Noise Filters



数据中心 Data Center

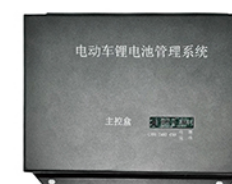
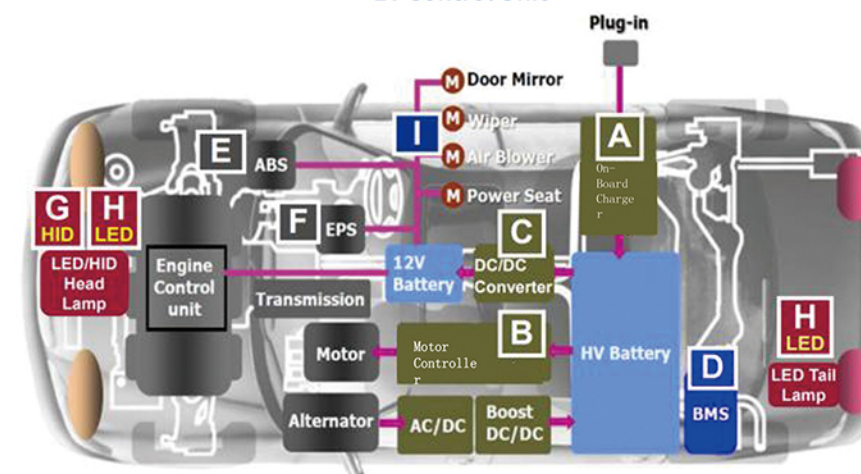


电机控制器
Motor Controllers



车载充电器
On-Board Chargers

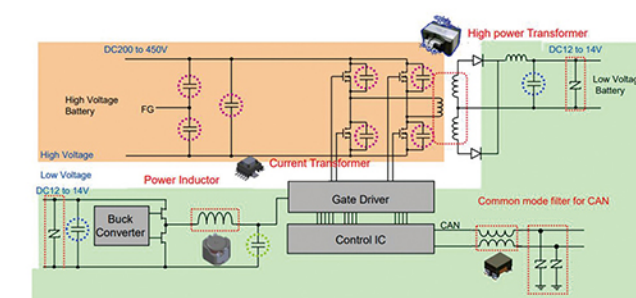
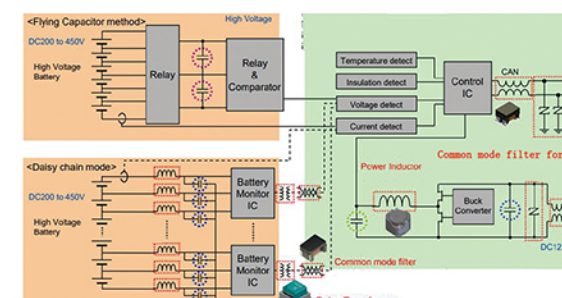
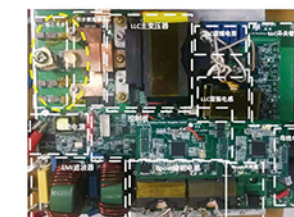
电动汽车电控单元 EV Control Unit



电池管理系统
Battery Management Systems

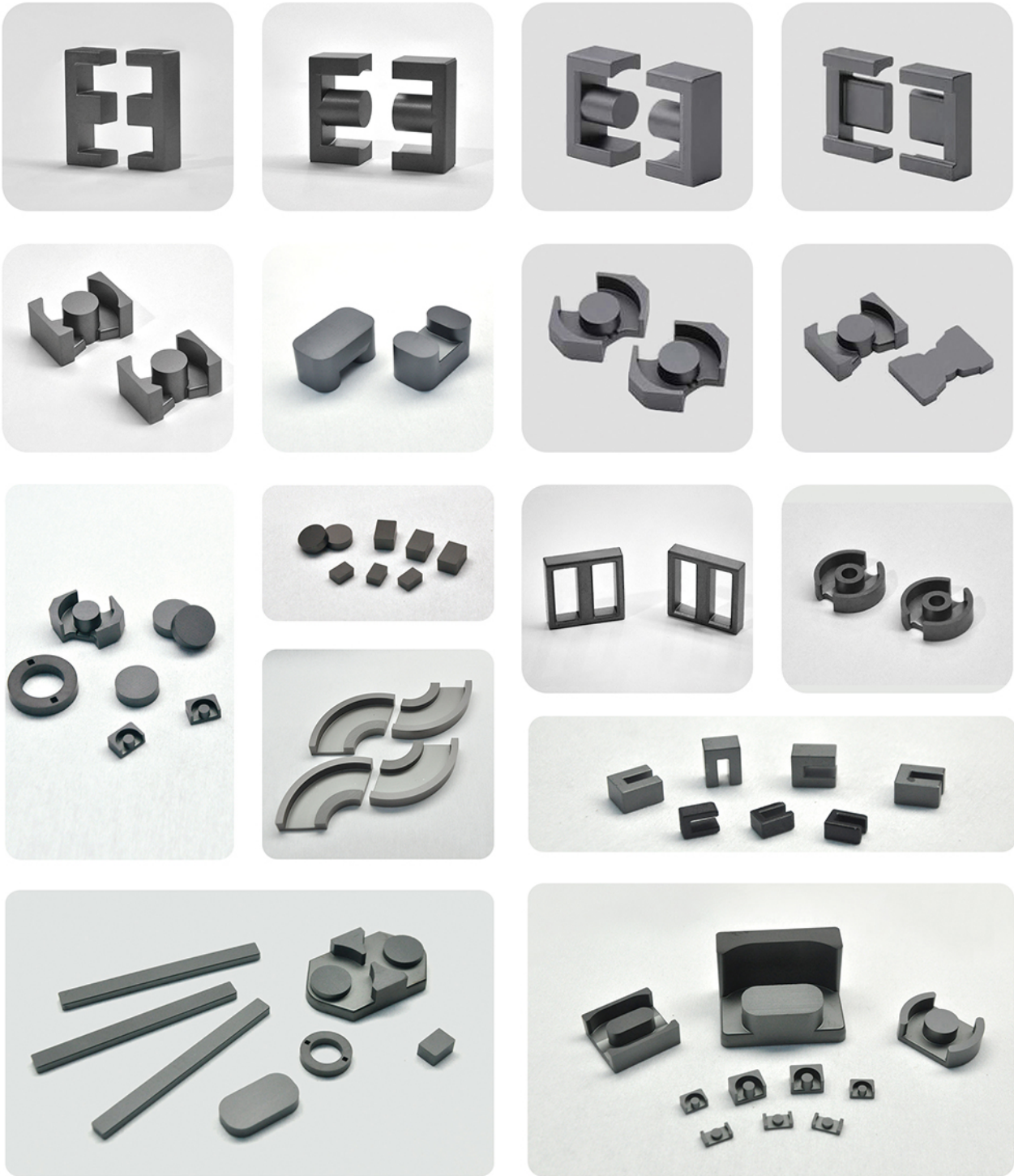


直流变换器
DC/DC Converters

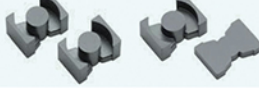
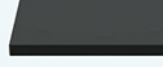


产品展示
Product Display

铁氧体磁芯产品 Ferrite Cores



规格尺寸概括 Specifications

磁芯类别 Type	形状示意图 Picture	长度尺寸范围(mm) Dimensions
EE/EF/EI		长度 / Length 5~130
EER/EC/ETD		长度 / Length 20~70
PQ/PQI		长度 / Length 16~107
EFD/EPC		长度 / Length 10~40
RM/RMS		RM4~14
CC		长度 / Length 15~50
EP		长度 / Length 5~50
UU/UI		长度 / Length 10~120
T		外径 / O.D. 10~150
POT		外径 / O.D. 7~60
ATQ		长度 / Length 15~50
SP方块型 (SP block)		长度 / Length 10~50
异形类 (Unique Shape)	Customized according to customer needs (by machining/tooling)	根据顾客需要定制开发(雕刻/开模)

磁芯形状尺寸(形状除了标品外, 可以配合顾客进行开发; 详细请参考产品目录)
In addition to the standard products, the shape and size of the magnetic core can be developed in cooperation with customers.
Please refer to the product catalog for details.

P 产品展示 Product Display

金属软磁粉芯产品 Magnetic Powder Cores

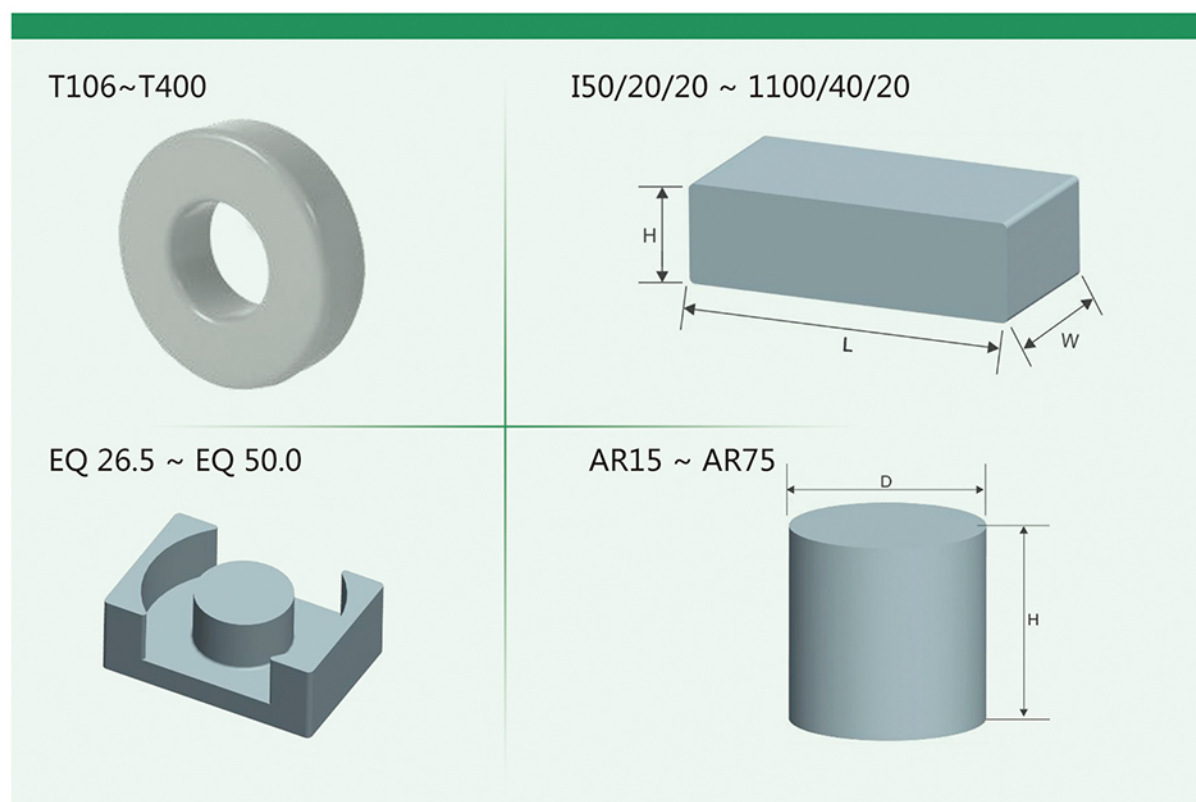


规格尺寸概括 Specifications



雕刻尺寸范围 (Size range by CNC) : 98mm*40mm*30mm

雕刻周期 (Lead time by CNC): 7-15 days

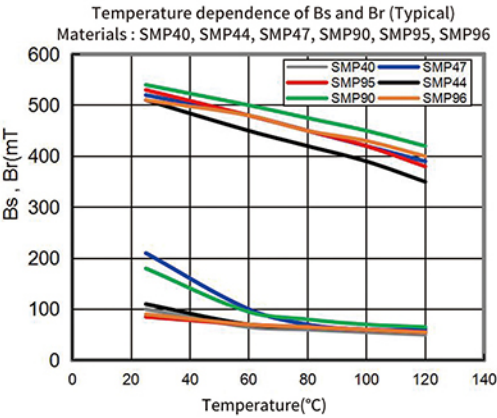
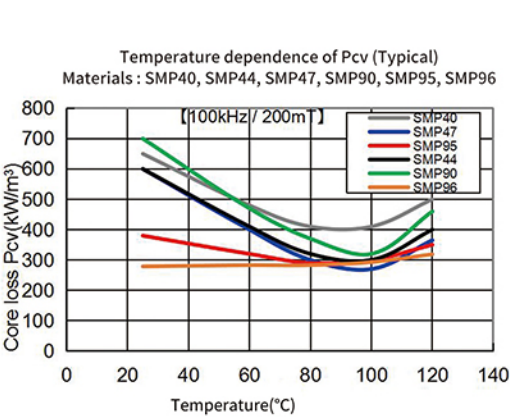


C 锰锌功率铁氧体材料特性

Characteristics of MnZn Power Ferrite Material

特性项目 Item	Symbol	Temp.	SMP40	SMP44	SMP47	SMP90	SMP95	SMP96
Initial Permeability	μ_i	25 °C	2300 ± 25 %	2400 ± 25 %	2500 ± 25 %	2200 ± 25 %	3300 ± 25 %	3300 ± 25 %
Core Loss	P _{cv} kW/m ³ [B=200 mT] [f=100 kHz] sine wave	25 °C	650	600	600	700	380	280
		60 °C	480	410	400	470	320	280
		80 °C	410	320	300	370	290	280
		100 °C	410	300	270	320	300	290
		120 °C	500	400	365	460	350	320
Saturation Flux Density	B _s mT [H=1194 A/m]	25 °C	510	510	520	540	530	510
		60 °C	450	450	480	500	480	460
		80 °C	420	420	450	475	450	450
		100 °C	390	390	420	450	420	430
		120 °C	350	350	390	420	380	400
Remanence	B _r mT	25 °C	100	110	210	180	85	100
		60 °C	65	70	100	95	70	90
		80 °C	60	65	70	80	65	75
		100 °C	55	60	60	70	60	70
		120 °C	50	55	60	65	55	65
Coercivity	H _c A/m	25 °C	14	13	14	14	12	11
		60 °C	11	9	9	9	9	9
		80 °C	10	7	8	8	8	8
		100 °C	9	7	7	7	7	7
		120 °C	8	6	7	7	6	6
Curie Temperature	T _c °C min.		215	215	230	250	220	220
Resistivity	ρ Ω·m	25 °C	6.5	6.5	4	4	4	4
Density	d kg/m ³		4.8 x 10 ³	4.8 x 10 ³	4.9 x 10 ³	4.9 x 10 ³	4.9 x 10 ³	4.9 x 10 ³

*除非另有规定，否则这些值显示为典型值。*Values shown are typical unless otherwise specified.

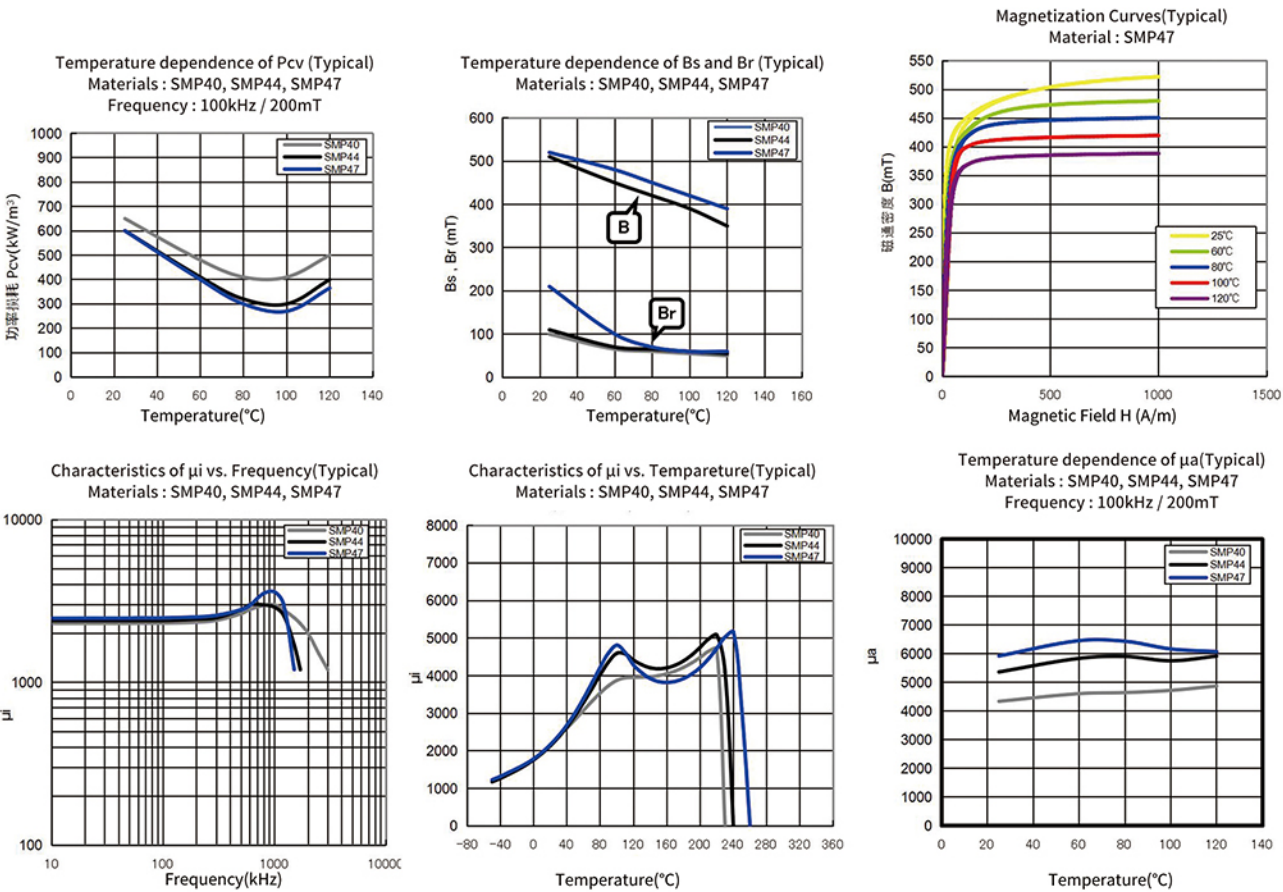


电源用低损耗铁氧体材料SMP47

Low loss ferrite material for power supply SMP47

特性项目 Item		SMP47	SMP44	SMP40
初始磁导率 (10kHz) Initial Permeability	μ_i 25 °C	2500±25%	2400±25%	2400±25%
功率损耗 Core Loss (100kHz 200mT)	P _{cv} kW/m ³	25 °C	600	650
		60 °C	400	480
		100 °C	270	410
		120 °C	300	410
饱和磁通密度 Saturation Flux Density [H=1194 A/m]	B _s mT	25 °C	520	510
		100 °C	420	390
剩磁 Remanence	B _r mT	25 °C	210	110
		100 °C	60	55
居里温度 Curie Temperature	T _c °C min.	230	215	215
密度 Density	d _b kg/m ³	4.9x10 ³	4.8x10 ³	4.8x10 ³

*除非另有规定，否则这些值显示为典型值。*Values shown are typical unless otherwise specified.

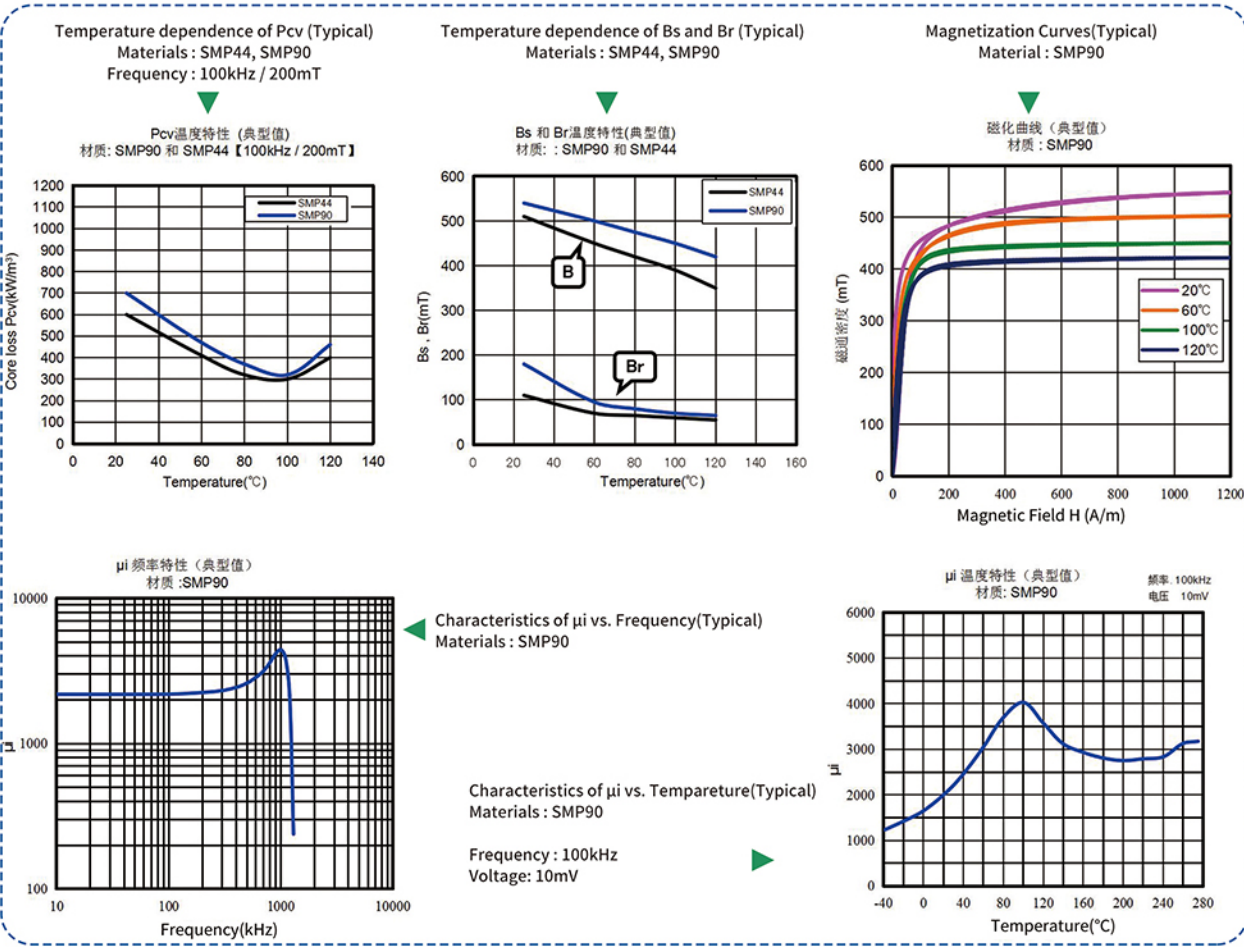


MnZn铁氧体材料SMP90（高饱和磁通密度和低损耗）

High saturation magnetic flux density and low loss MnZn ferrite material SMP90

特性项目 Item			SMP90	SMP44
初始磁导率（10kHz） Initial Permeability	μ_i	25℃	2200±25%	2400±25%
		25℃	700	600
功率损耗 Core Loss (100kHz 200mT)	P_{cv} kW/m ³	60℃	470	410
		100℃	320	300
		100℃	320	300
饱和磁通密度 Saturation Flux Density [H=1194 A/m]	B_s mT	25℃	540	510
		100℃	450	390
居里温度 Curie Temperature	T_c °C min.		250	215
密度 Density	d_b kg/m ³		4.9×10 ³	4.8×10 ³

*除非另有规定，否则这些值显示为典型值。 *Values shown are typical unless otherwise specified.

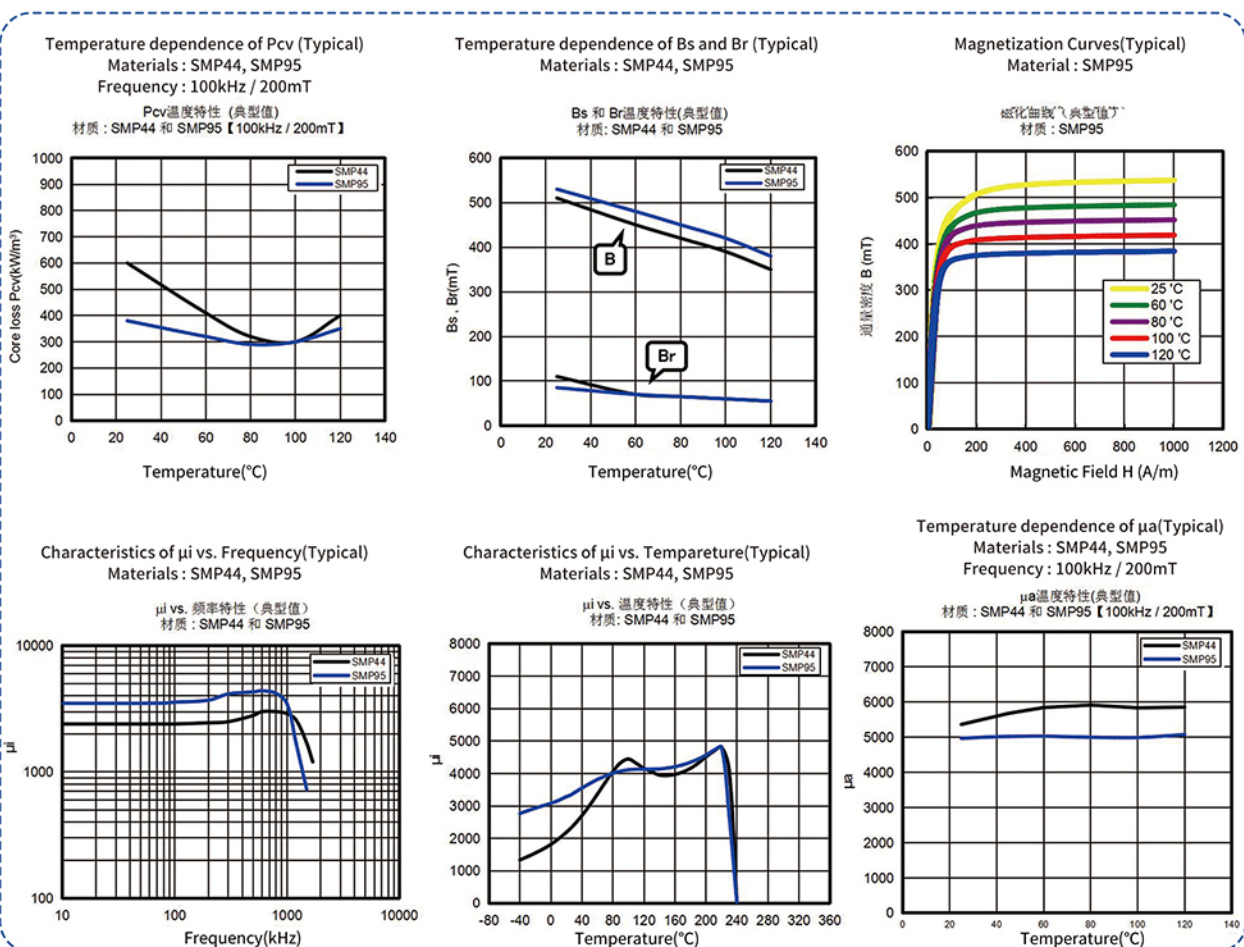


MnZn铁氧体材料SMP95（在较宽的温度及频率范围内低损耗材质）

Low loss MnZn ferrite material in wide temperature and frequency range SMP95

特性项目 Item			SMP95	SMP44
初始磁导率（10kHz） Initial Permeability	μ_i	25℃	3300±25%	2400±25%
		25℃	380	600
功率损耗 Core Loss (100kHz 200mT)	P_{cv} kW/m ³	80℃	290	320
		120℃	350	420
		120℃	350	420
饱和磁通密度 Saturation Flux Density [H=1194 A/m]	B_s mT	25℃	530	510
		120℃	380	350
剩磁 Remanence	B_r mT	25℃	85	110
		120℃	55	55

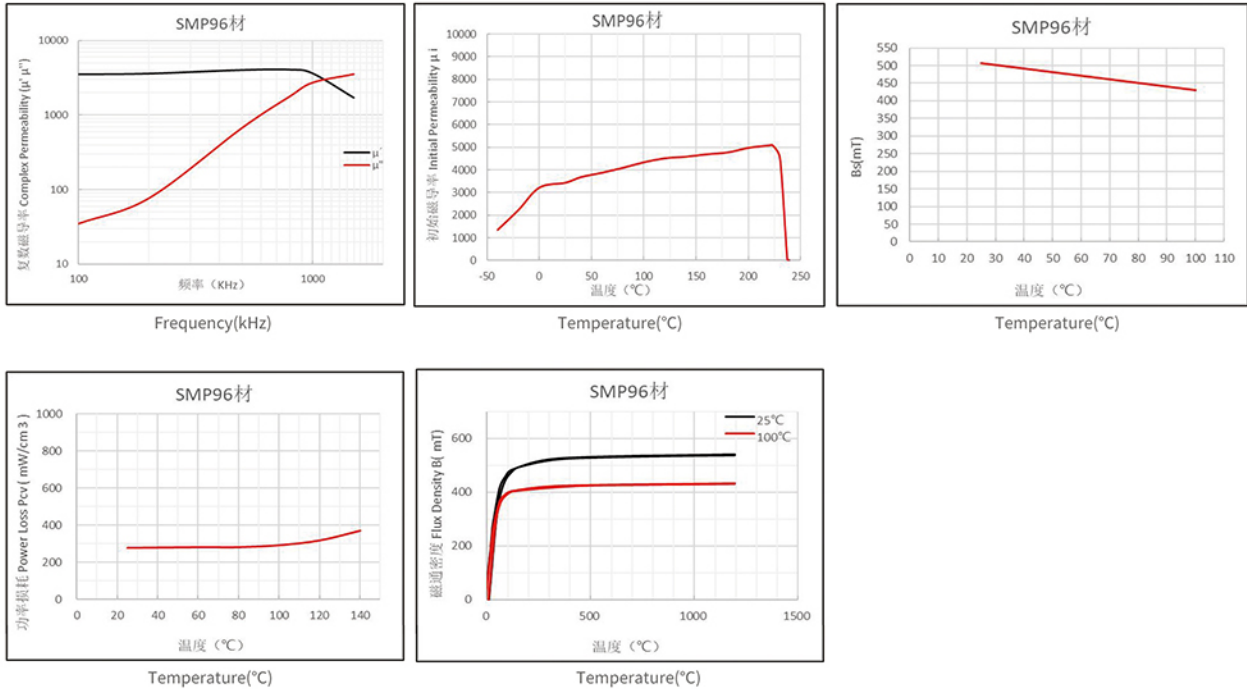
*除非另有规定，否则这些值显示为典型值。 *Values shown are typical unless otherwise specified.



MnZn铁氧体材料SMP96（宽温宽频范围内低损耗材质）

Low loss MnZn ferrite material in wide temperature and wide frequency range SMP96

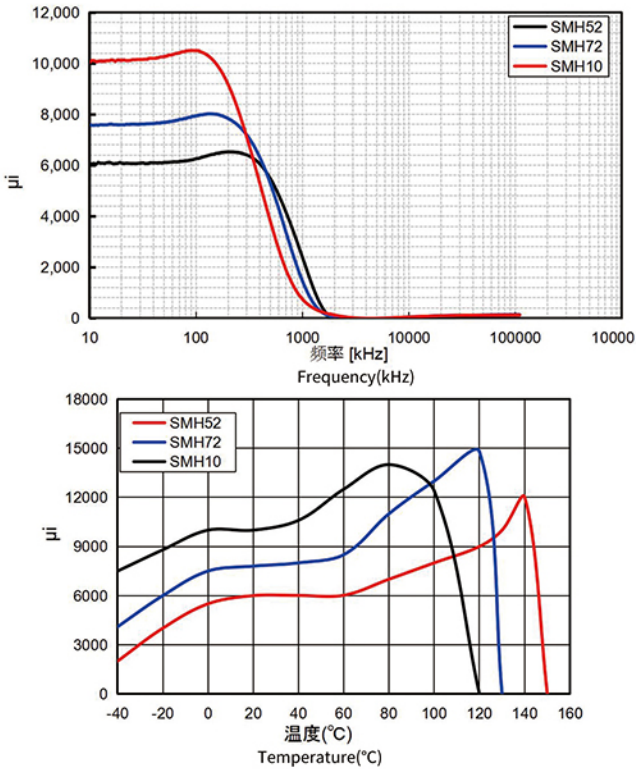
特性项目 Item				SMP96
初始磁导率 (10kHz) Initial Permeability	μ_i	25°C		3300±25%
				280
				280
				280
				290
功率损耗 Core Loss	P _{cv} [B=200 mT] 100 kHz sine wave	60°C		280
		80°C		280
		100°C		290
		120°C		320
饱和磁通密度 Saturation Flux Density	B _s [H=1194 A/m]	25°C		510
		100°C		430
剩磁 Remanence	B _r	25°C		100
		100°C		70
矫顽力 Coercivity	H _c	25°C		11
		100°C		7
居里温度 Curie Temperature	T _c	°C min.		220
电阻率 Resistivity	ρ	Ω·m	25°C	4
密度 Density	d	kg/m ³		4.9 x 10 ³



锰锌高磁导率铁氧体材料特性
Characteristics of MnZn Ferrite Core-High Permeability

特性项目 Item	表示符号 Symbol		SMH52	SMH72	SMH10
初始磁导率 (10kHz) Initial Permeability	μi		5500±30%	7500±30%	10000±30%
比损耗因子 Relative Loss Factor	tanδ/μi×10 ⁻⁶		10 (100kHz)	30 (100kHz)	30 (100kHz)
饱和磁通密度 Saturation Flux Density	Bs [H=1194 A/m]	mT	410	410	380
剩磁 Remanence	Br	mT	70	80	120
矫顽力 Coercivity	Hc	A/m	6	6	6
居里温度 Curie Temperature	Tc	°C	>150	>130	>120
密度 Density	db	kg/m ³	4.8×10 ³	4.8×10 ³	4.9×10 ³
电阻率 Resistivity	ρv	Ω・m	1	0.3	0.2

Note: 1.*平均值 2.除非另有说明, 否则这些值是在室温下用环形磁芯获得的。
1. *Average 2. Values are obtained with toroidal cores at room temperature unless otherwise noted.



C金属粉芯材料特性
Characteristics of Metal Powder Core Material

铁硅铝 Sendust Cores（SS 系列 / SS Series）

铁硅铝磁粉芯由85%的铁、9.6%的硅、5.4%铝构成，主要是替代铁粉芯，损耗比铁粉芯低80%，可在50Hz~2MHz频率范围内使用；饱和磁通密度在1.05T左右；磁导率从26—125；磁滞伸缩系数接近零，在不同的频率下工作时无噪声产生，比MPP有更高的DC偏压能力，具有最佳的性能价格比。主要应用于交流电感、输出电感、线路滤波器、功率因数校正电感器等。

大型铁硅铝应用于大电流（功率）电感器、太阳能转换、UPS 不断电系统、混合动力汽车、风能转换和其他大电流场合，有时也替代气隙铁氧体作变压器铁芯使用。

The sendust core is typically composed of 85% Fe, 9.6% Si, and 5.4% Al. It is mainly used to replace the iron powder core. Its loss is 80% lower than that of the iron powder core. It can be used in the frequency range of 50Hz to 2MHz; the saturation magnetic flux density is about 1.05T; the magnetic permeability is from 26 to 125; the hysteresis coefficient is close to zero, and there is no noise when working at different frequencies. It has higher DC bias capability than MPP and has the best performance-price ratio. The sendust core is mainly used in AC inductors, output inductors, line filters, power factor correction inductors, etc. Large-scale sendust is used in high-current (power) inductors, solar energy conversion, UPS, hybrid electric vehicles, wind energy conversion and other high-current applications, and sometimes replaces air-gap ferrite for transformer cores.

铁硅 FeSi Cores（SK 系列 / SK Series）

铁硅磁粉芯是由6.5%的硅和93.5%的铁制成。饱和磁通密度在1.6T左右；磁导率范围26~90；FeSi磁芯是一种名副其实的高温材料，不存在热老化问题，它的磁芯损耗比铁粉芯的更低，并具有优异的直流偏置性能，主要应用于PFC电路、新能源(太阳能、风能、混合动力)逆变器、不间断电源(UPS)等。

The FeSi core is typically composed of 6.5% Si and 93.5% Fe. Its saturation magnetic flux density is about 1.6T; the magnetic permeability ranges from 26 to 90; the FeSi core is a veritable high-temperature material, and there is no thermal aging problem. Its core loss is lower than that of the iron powder core, and it has excellent DC bias performance. The FeSi core is mainly used in PFC circuits, new energy (solar, wind, hybrid) inverters, uninterruptible power supplies (UPS), etc.

铁硅二代 FeSi-2 Cores（SF 系列 / SF Series）

铁硅二代产品直流偏置特性和功率损耗特性与非晶磁粉芯相当，主要应用于家电、分布式光伏逆变器等。和高磁通磁粉芯相比，SF系列是一个较经济的选择；和铁硅铝相比，其直流偏置性能优势明显；与SK系列相比，其损耗性能也大幅提升。

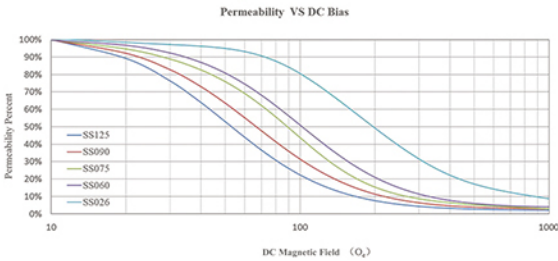
The DC bias characteristics and power loss characteristics of the second-generation FeSi cores are equivalent to those of amorphous magnetic powder cores, and they are mainly used in home appliances, distributed photovoltaic inverters, etc. Compared with high flux magnetic powder cores, the SF type is a more economical choice; compared with sendust, its DC bias performance has obvious advantages; compared with SK series, its performance of core loss is also greatly improved.

材料比对 Material Comparison			
特性项目 Item	铁硅铝 Sendust	铁硅 FeSi	铁硅二代 FeSi-2
SinoMag P/N	SS	SK	SF
μe60 DC BIAS @100Oe LI/L0	48%	73%	62%
μe60 Core Loss @50kHz/100mT	300	600	380
Bs	1.05	1.6	1.2

铁硅铝 | Sendust

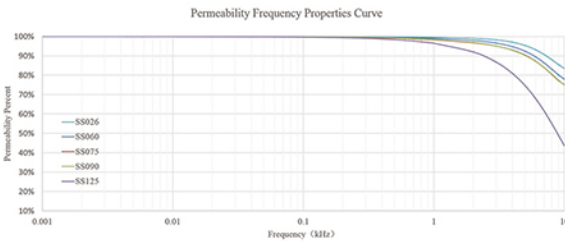
铁硅铝直流偏置曲线

DC Bias Properties of Sendust

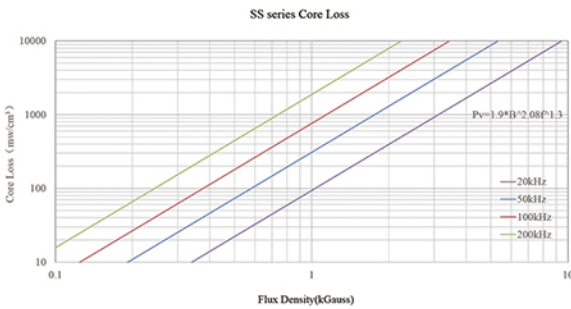


频率特性曲线

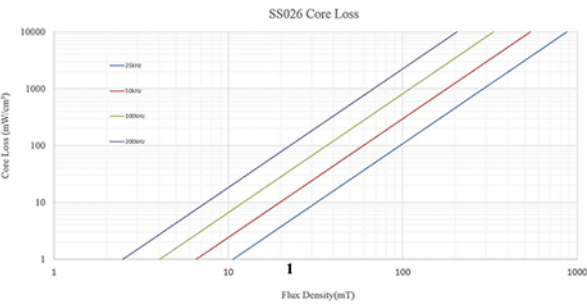
Frequency Properties Curve of Sendust



损耗特性曲线 Core Loss



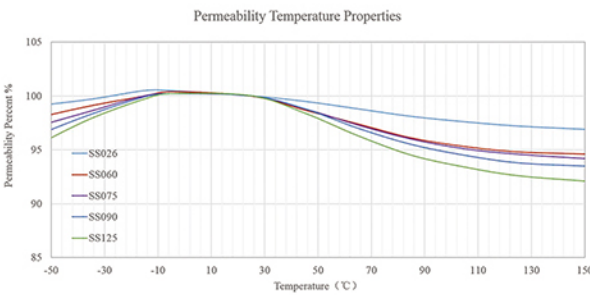
铁硅铝60μ-125μ 磁心损耗曲线
Core Loss Properties of Sendust 60μ-125μ



铁硅铝26μ-40μ磁心损耗曲线
Core Loss Properties of Sendust 20μ-40μ

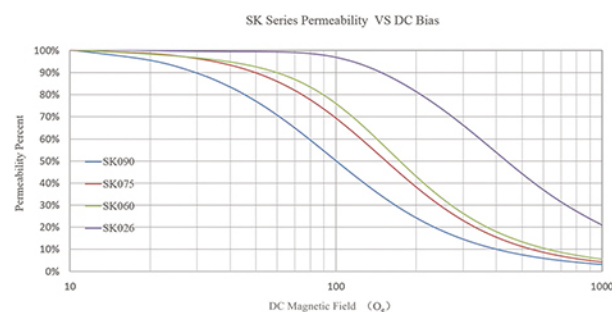
铁硅铝温度特性曲线

Temperature Properties Curve of Sendust

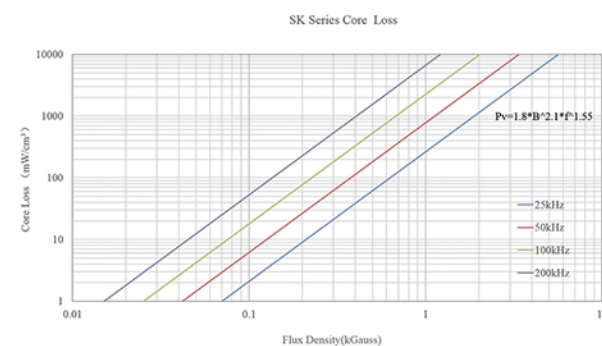


铁硅 | FeSi

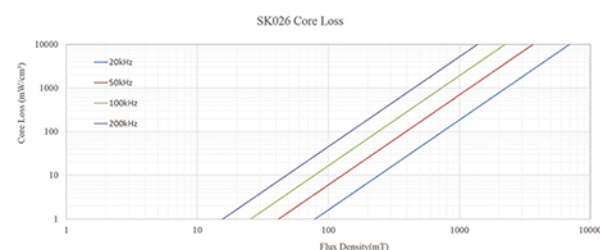
铁硅直流偏置曲线 DC Bias Properties Curve of FeSi



磁芯损耗 Core Loss

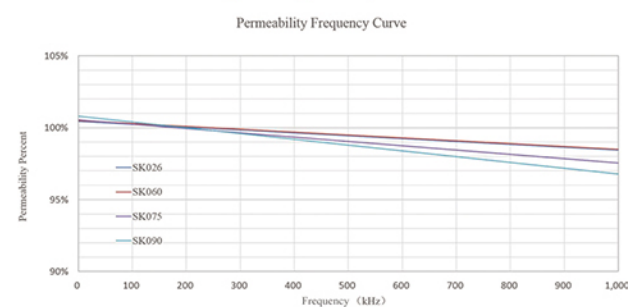


铁硅60μ-90μ 磁心损耗曲线 Core Loss Properties Curve of FeSi 60μ-90μ

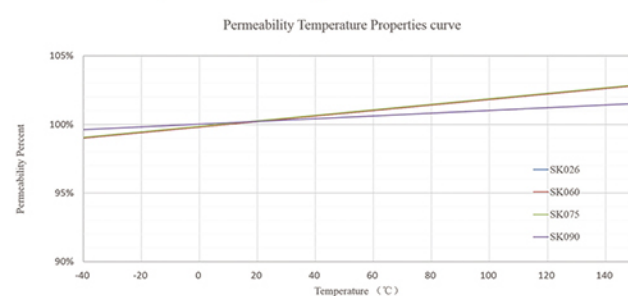


铁硅26μ磁心损耗曲线 Core Loss Properties Curve of FeSi 26μ

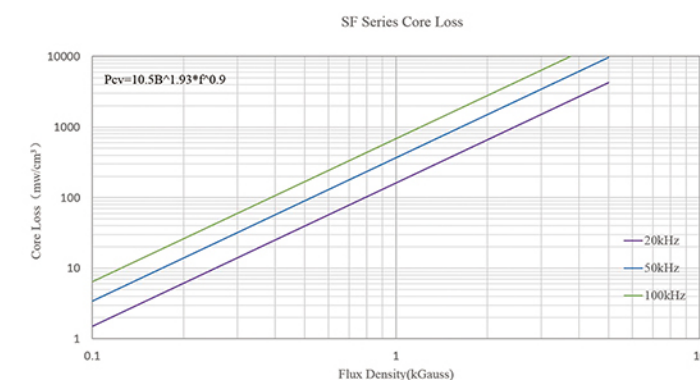
铁硅频率特性曲线 FeSi Frequency Properties Curve



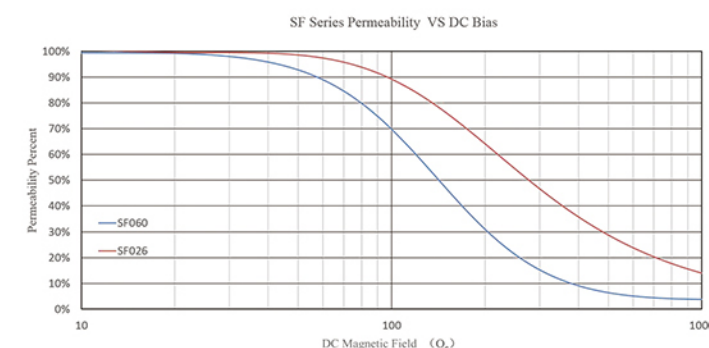
铁硅温度特性曲线 Temperature Properties Curve of FeSi



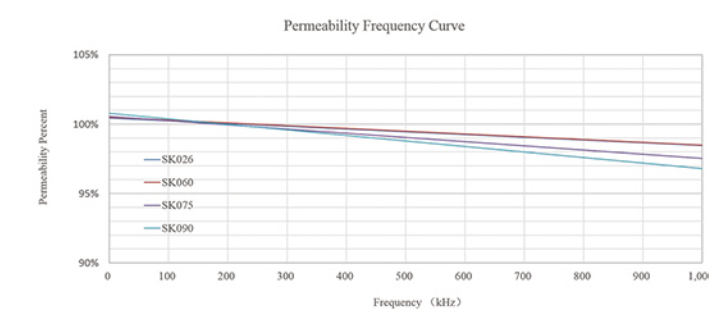
铁硅二代 | The second generation FeSi - SF Series



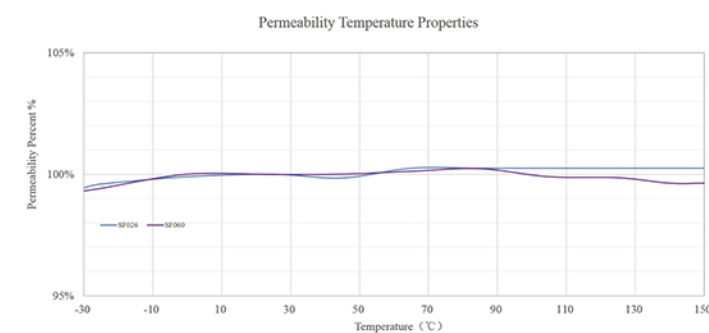
SF系列损耗特性曲线 SF Series Core Loss Properties Curve



SF系列直流叠加特性曲线 SF Series DC Bias Properties Curve



SF系列磁导率频率特性曲线 SF Series Frequency Properties Curve



SF系列磁导率温度特性曲线 SF Series Permeability Temperature Properties Curve