EMICORE Magnetic sheet introduction

1. Characteristic

Type	Grade	thickness*	Breaking**	Film	μ***	μ“***	Bs/mT	Hc (A/m) @25℃	Tc/℃
MnZn Ferrite	M79	> 0.5mm	N	N/A	3300±25%	/	530@1200A/m	6.5	> 215
	RM33	> 0.06mm	Y	Available	600±30%	/	530@1200A/m	6.5	> 215
NiZn Ferrite	68	> 0.5mm	N	N/A	800±25%	/	360@3000A/m	18	> 170
	RN80	> 0.06mm	Y	Available	400±25%	/	360@3000A/m	18	> 170
	RN25	> 0.06mm	Y	Available	160±25%	3(13.56MHz)	380@4000A/m	45	> 180
	RN16	> 0.06mm	Y	Available	100±25%	1(13.56MHz)	400@4000A/m	48	> 180
	RN10	> 0.06mm	Y	Available	65±25%	0.8(13.56MHz)	360@4000A/m	51	> 180
	RN200	> 0.06mm	Y	Available	500±25%	/	340@4000A/m	25	> 120
AMPS	RW01	> 0.04mm	Y	Available	300-1000(200kHz)	30-60(200kHz)	1560	<4	> 400
Nano	RW02	> 0.035mm	Y	Available	300-1000(200kHz)	20-50(200kHz)	1250	<1.6	> 570

Remarks: *The thickness includes only the magnetic sheet and excludes film thickness

**"Breaking" marked by N/A means a hard sheet,marked by Available means a flexible sheet.

***μ‘/μ“ was tested at 10kHz, and when the sheet is breaking availble, it was tested in flexible conditions.

In the hundreds of kHz, RM33 is the best choice(cheaper, good performance)

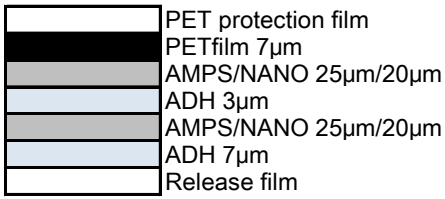
All NiZn material, All the thicknesses listed in the table can be produced

MnZn material RM33, 0.2mm or more can be mass production, 0.06~0.2 has been completed development, it is now pilot production.

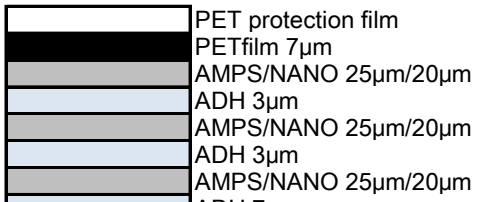
EMICORE Magnetic sheet introduction

2. Construction

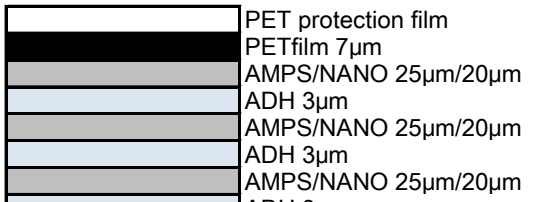
a AMPS/NANO



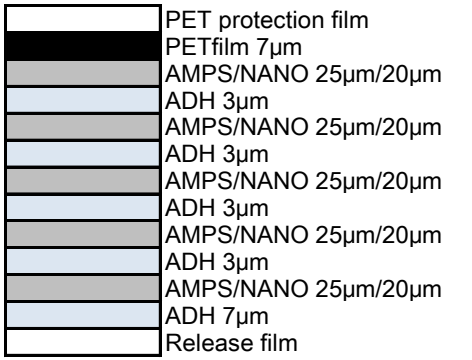
2layers



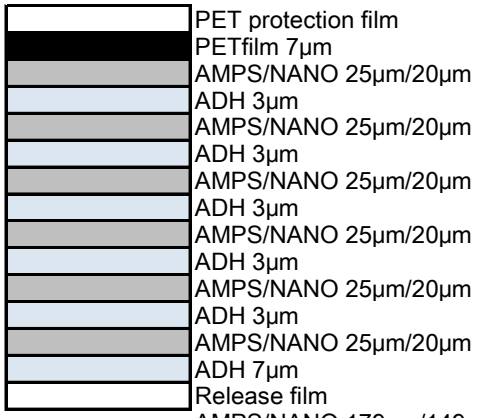
3layers



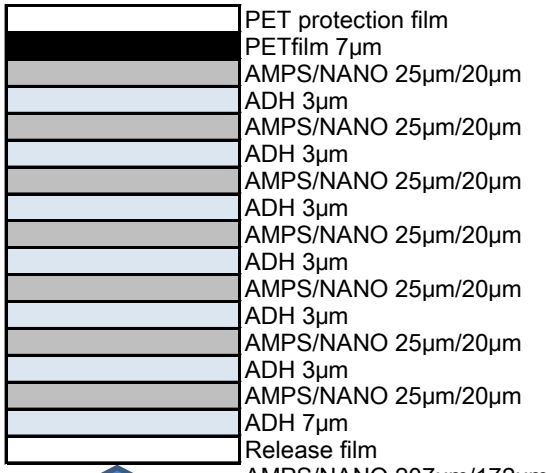
4layers



5layers

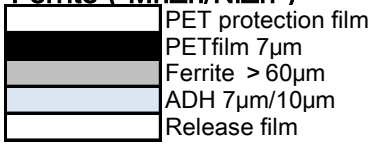


6layers



7layers

b Ferrite (MnZn/NiZn)



Remarks: The tape type can be customized.
Over-edging is available.
The handle on release film or PET protection film is available.

Revision : 170710

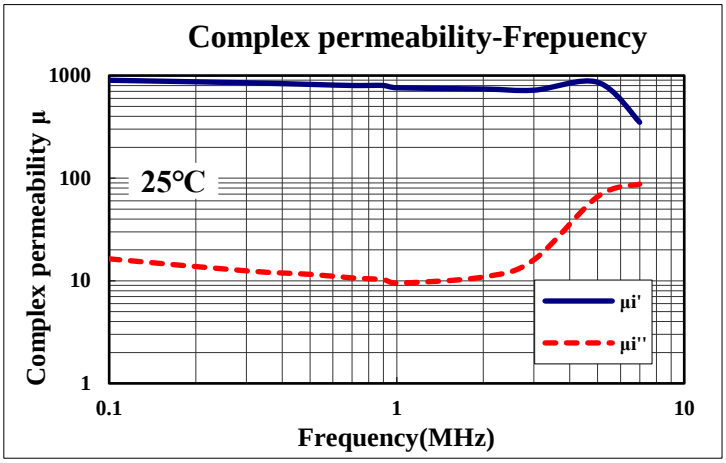
材 质 报 告（Materials Specification）

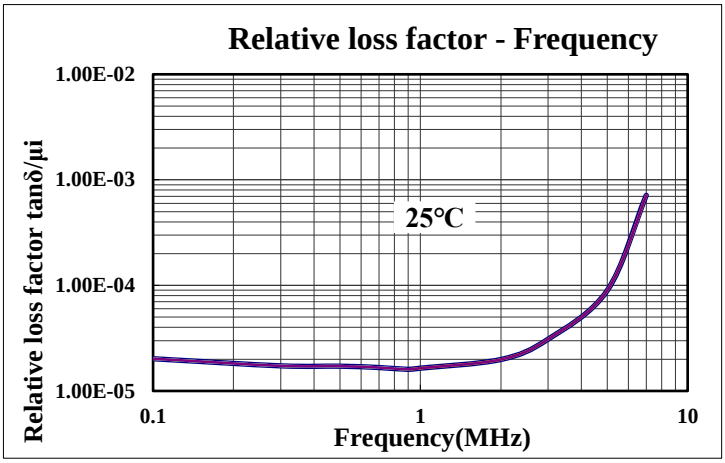
材质（Material）	68

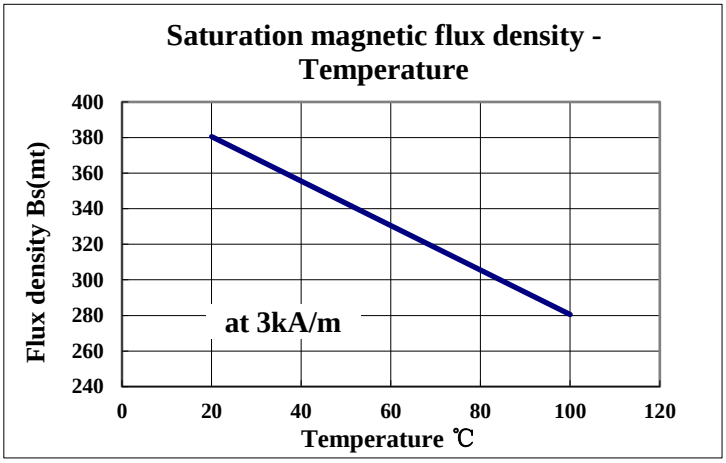
I、材质特性（Material characteristic）

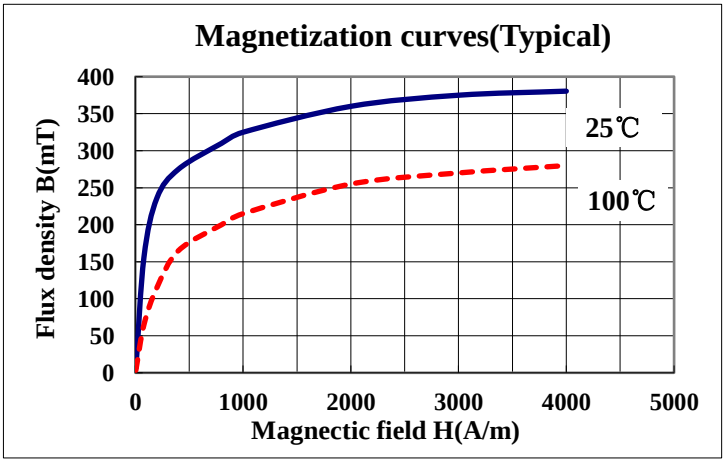
项　目(Items)	符号(Symbol)	单位(Unit)	测试条件(Conditions)	规格(Spec.)
起始磁导率(Initial permeability)	μ_i		25℃;10kHz;0.1V	800±25%
饱和磁通密度(Saturation magnetic flux density)	Bs	mT	25℃;3000A/m	≈360
相对温度系数(Relative temperature factor)	$\alpha_{\mu i\gamma}$	($\times10^{-6}$)	20℃~60℃	8~17
相对损失系数(Relative loss factor)	$\tan\delta/\mu_i$	($\times10^{-6}$)	100kHz;0.1V	≈0.3
矫顽力(Corrective force)	Hc	A/m		≈18
居里温度(Curie temperature)	Tc	℃		≥170
电阻率(Electrical resistivity)	ρ	Ω·m	DC;25℃	≈10^6
密度(Density)	D	g/cm^3		≈5.20

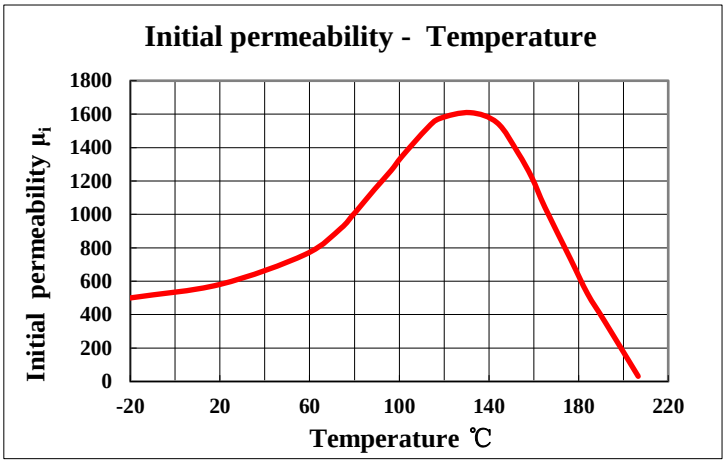
II、特性曲线（Characteristic curve）











III、备注（Remarks）

材料特性为环形磁心(T31×19×8(mm))的典型数据，相关产品特性由于结构和尺寸的不同可能不同于此数据。

The value of material's characteristics is typical value.Sample core:T 31×19×8(mm)

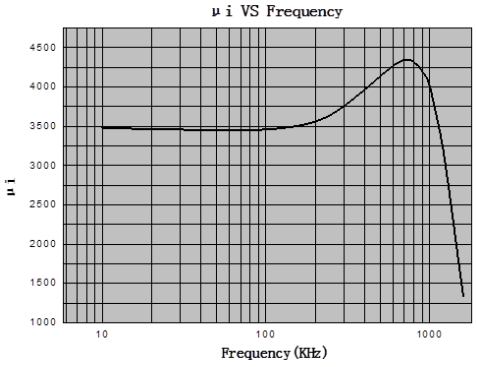
材 质 报 告（Materials Specification）

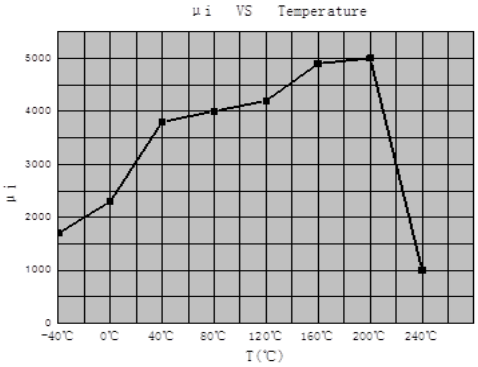
材质（Material）	RM33

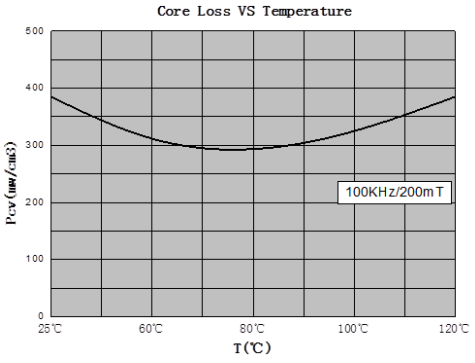
I、材质特性（Material characteristic）

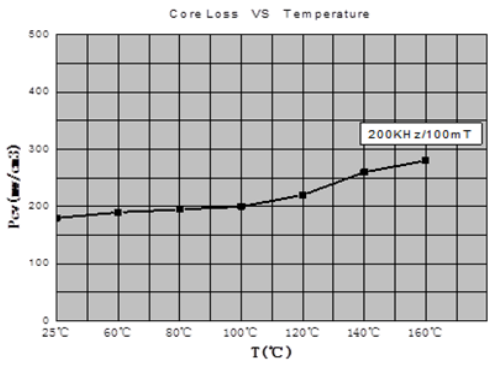
项　目(Items)	符号(Symbol)	单位(Unit)	测试条件(Conditions)		规格(Spec.)
起始磁导率(Initial permeability)	μ_i		25℃;10kHz;0.1V		3300±25%
饱和磁通密度(Saturation magnetic flux density)	Bs	mT	1200A/m,50Hz	25℃	530
				100℃	410
剩磁(Remanence)	Br	mT	1200A/m,50Hz	25℃	85
				100℃	55
矫顽力(Corrective force)	Hc	A/m	1200A/m,50Hz	25℃	6.5
				100℃	6
功耗(Power Loss)	Pcv	mW/cm^3	100kHz;200mT	25℃	380
				100℃	300
				120℃	380
			200kHz;100mT	25℃	170
				100℃	190
				120℃	200
居里温度(Curie temperature)	Tc	℃	/		≥215
电阻率(Resistivity)	ρ	Ω·m	/		≈5
密度(Density)	D	g/cm^3	/		≈4.80

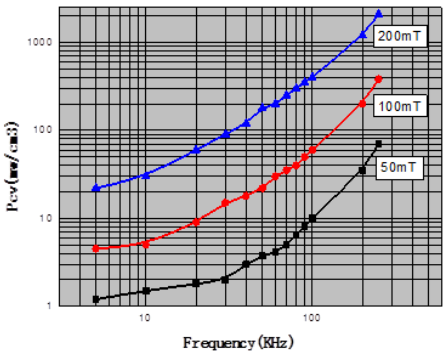
II、特性曲线（Characteristic curve）

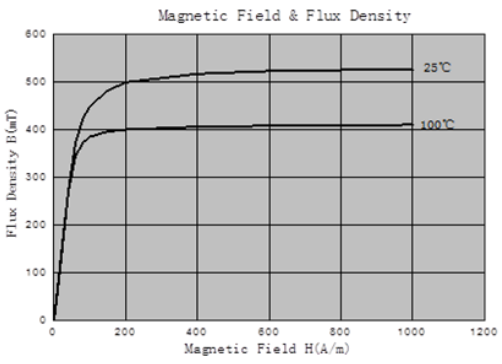












III、备注（Remarks）

材料特性为环形磁心(T31×19×8(mm))的典型数据，相关产品特性由于结构和尺寸的不同可能不同于此数据。

The value of material's characteristics is typical value.Sample core:T 31×19×8(mm)

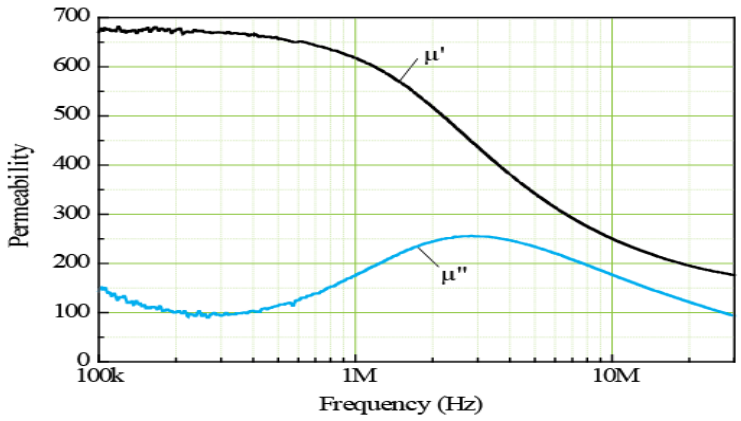
材 质 报 告（Materials Specification）

材质（Material）	RW01

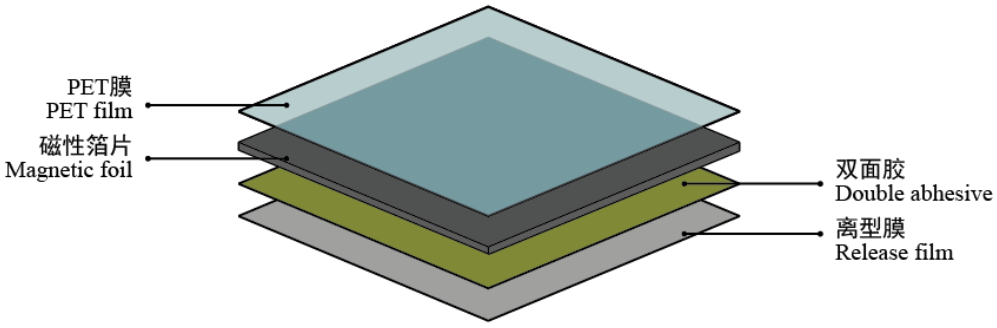
I、材质特性（Material characteristic）

项　目(Items)	符号(Symbol)	单位(Unit)	测试条件(Conditions)	规格(Spec.)
实部磁导率(Real part permeability)	μ'	/	25℃;200kHz;1V	300~1000*
虚部磁导率(Imaginary part permeability)	μ"	/		30~60*
饱和磁通密度(Saturation magnetic flux density)	Bm	T	/	1.56
矫顽力(Corrective force)	Hc	A/m	/	<4
居里温度(Curie temperature)	Tc	℃	/	≈400
电阻率(Resistivity)	ρ	μΩ·cm	/	≥130
工作温度(Operation temperature)	/	℃	/	-45~85

II、特性曲线（Characteristic curve）



III、结构（Construction）



IV、备注（Remarks）

*: Customizable.

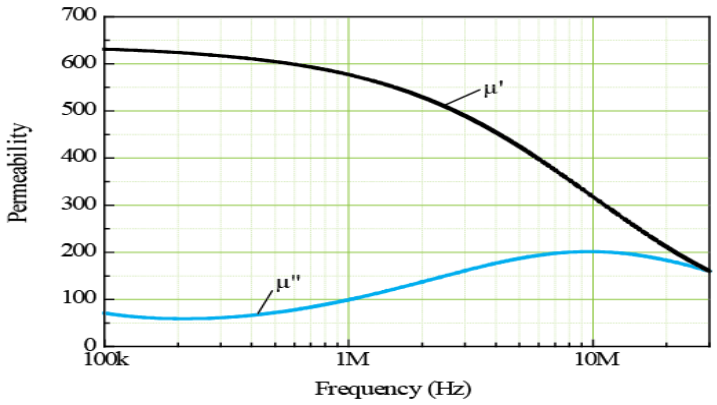
材 质 报 告（Materials Specification）

材质（Material）	RW02

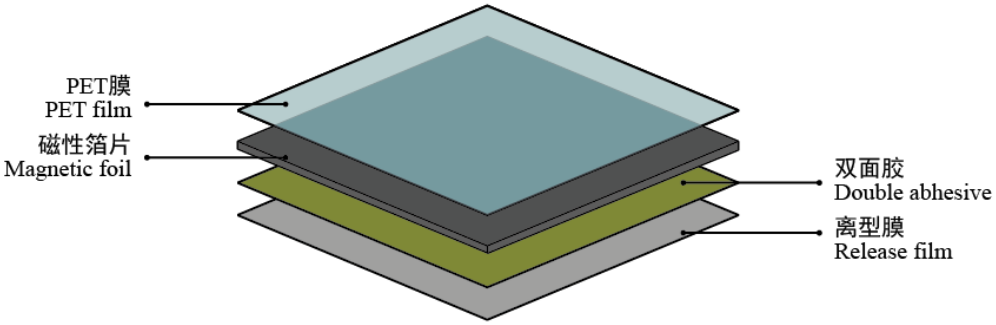
I、材质特性（Material characteristic）

项　目(Items)	符号(Symbol)	单位(Unit)	测试条件(Conditions)	规格(Spec.)
实部磁导率(Real part permeability)	μ'	/	25℃;200kHz;1V	300~1000*
虚部磁导率(Imaginary part permeability)	μ"	/		20~50*
饱和磁通密度(Saturation magnetic flux density)	Bm	T	/	1.25
矫顽力(Corrective force)	Hc	A/m	/	<1.6
居里温度(Curie temperature)	Tc	℃	/	≈570
电阻率(Resistivity)	ρ	μΩ·cm	/	≥130
工作温度(Operation temperature)	/	℃	/	-45~85

II、特性曲线（Characteristic curve）



III、结构（Construction）



IV、备注（Remarks）

*: Customizable.

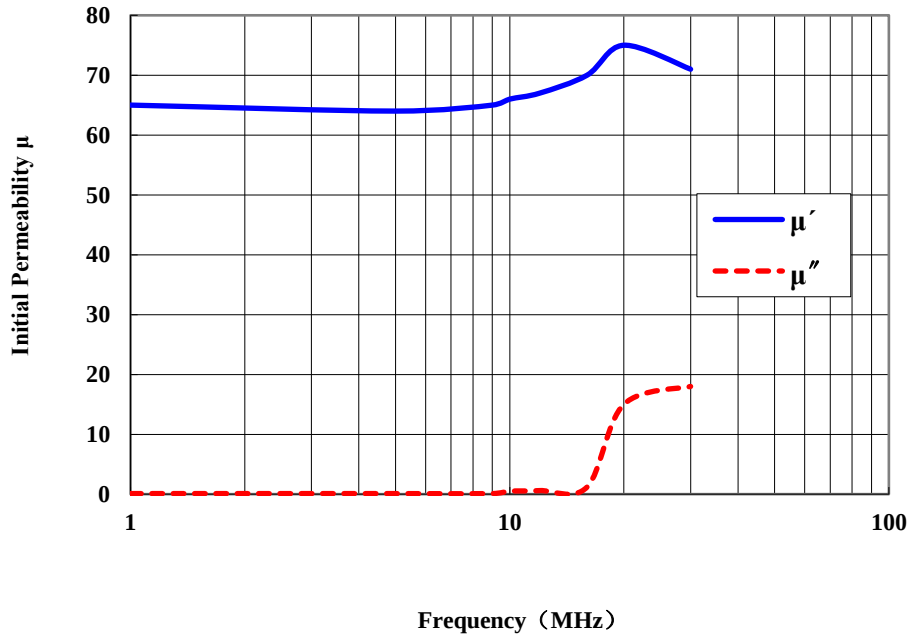
材 质 报 告（Materials Specification）

材质（Material）	RN10

I、材质特性（Material characteristic）

项　目(Items)	符号(Symbol)	单位(Unit)	测试条件(Conditions)	规格(Spec.)
实部磁导率(Real part permeability)	μ′		25℃;6.78MHz	65±25%
			25℃;13.56MHz	65±25%
虚部磁导率(Imaginary part permeability)	μ″		25℃;6.78MHz	≈0.80
			25℃;13.56MHz	
工作温度(Operation temperature)		℃		-40~+85
居里温度(Curie temperature)	Tc	℃		≥180
电阻率(Electrical resistivity)	ρ	Ω·m	DC;25℃	≈10^{10}
密度(Density)	D	g/cm^3		≈5.20

II、特性曲线（Characteristic curve）



III、备注（Remarks）

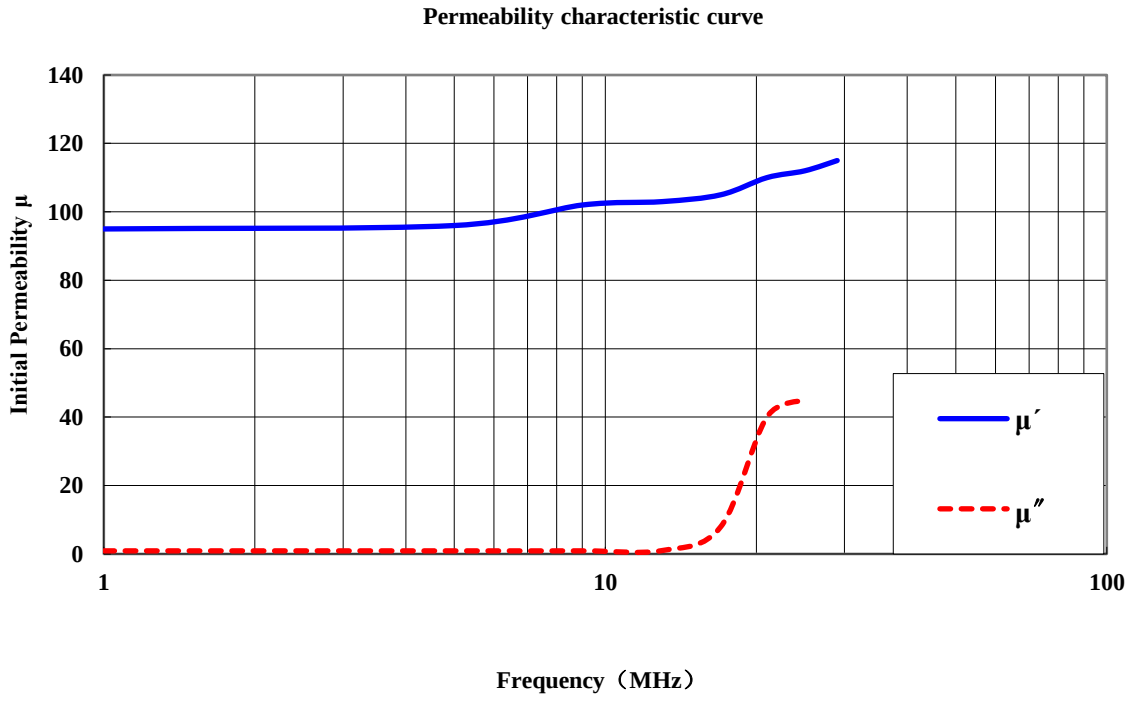
材 质 报 告（Materials Specification）

材质（Material）	RN16

I、材质特性（Material characteristic）

项　目(Items)	符号(Symbol)	单位(Unit)	测试条件(Conditions)	规格(Spec.)
实部磁导率(Real part permeability)	μ′		25℃;6.78MHz	95±25%
			25℃;13.56MHz	100±25%
虚部磁导率(Imaginary part permeability)	μ″		25℃;6.78MHz	≤1
			25℃;13.56MHz	
工作温度(Operation temperature)		℃		-40~+85
居里温度(Curie temperature)	Tc	℃		≥180
电阻率(Electrical resistivity)	ρ	Ω·m	DC;25℃	≈10^{10}
密度(Density)	D	g/cm^3		≈5.20

II、特性曲线（Characteristic curve）



III、备注（Remarks）

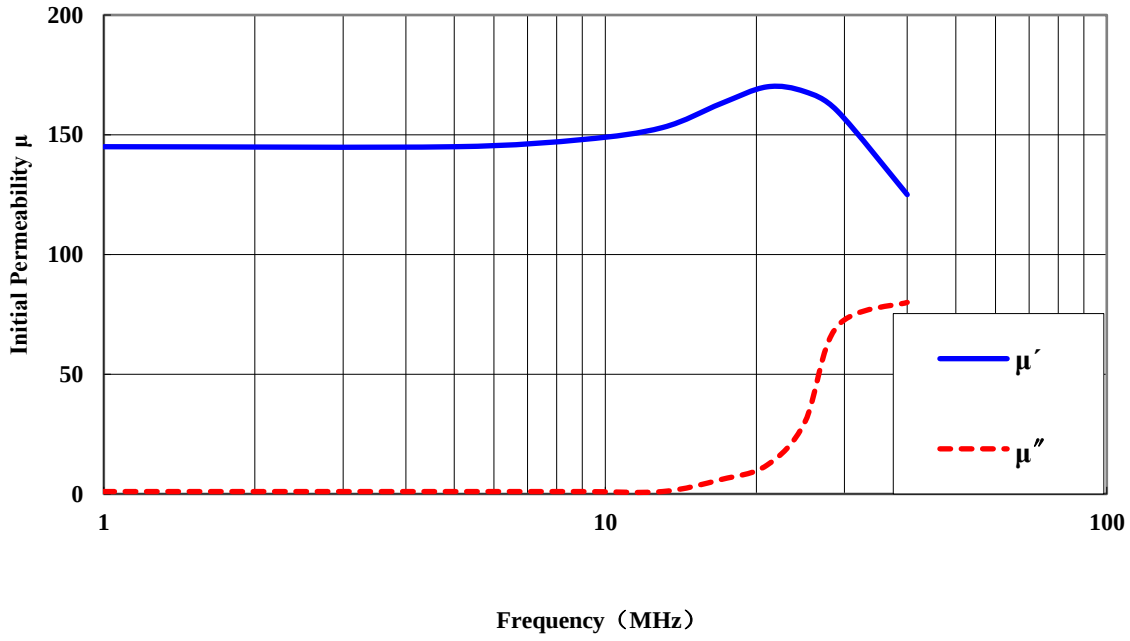
材 质 报 告（Materials Specification）

材质（Material）	RN25

I、材质特性（Material characteristic）

项　目(Items)	符号(Symbol)	单位(Unit)	测试条件(Conditions)	规格(Spec.)
实部磁导率(Real part permeability)	μ′		25℃;6.78MHz	150±25%
			25℃;13.56MHz	160±25%
虚部磁导率(Imaginary part permeability)	μ″		25℃;6.78MHz	≤3
			25℃;13.56MHz	
工作温度(Operation temperature)		℃		-40~+85
居里温度(Curie temperature)	Tc	℃		≥180
电阻率(Electrical resistivity)	ρ	Ω·m	DC;25℃	≈10^{10}
密度(Density)	D	g/cm^3		≈5.20

II、特性曲线（Characteristic curve）



III、备注（Remarks）

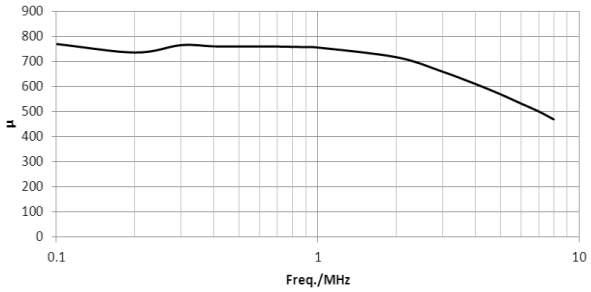
材 质 报 告（Materials Specification）

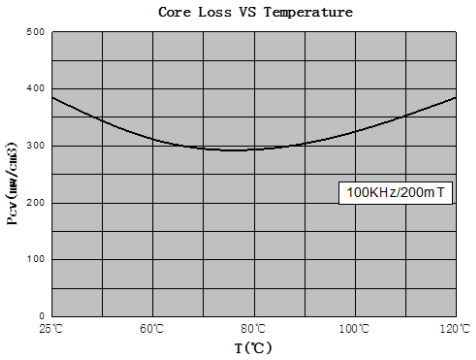
材质（Material）	RM33

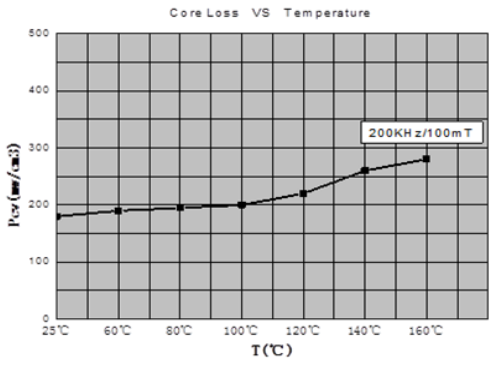
I、材质特性（Material characteristic）

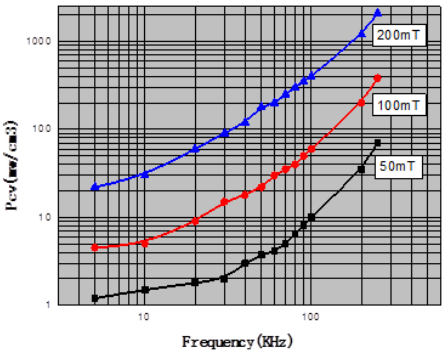
项　目(Items)	符号(Symbol)	单位(Unit)	测试条件(Conditions)		规格(Spec.)
起始磁导率(Initial permeability)	μ_i		25℃;10kHz;0.1V		600±30%*
饱和磁通密度(Saturation magnetic flux density)**	Bs	mT	1200A/m,50Hz	25℃	530
				100℃	410
剩磁(Remanence)**	Br	mT	1200A/m,50Hz	25℃	85
				100℃	55
矫顽力(Corrective force)**	Hc	A/m	1200A/m,50Hz	25℃	6.5
				100℃	6
功耗(Power Loss)**	Pcv	mW/cm^3	100kHz;200mT	25℃	380
				100℃	300
				120℃	380
			200kHz;100mT	25℃	170
				100℃	190
				120℃	200
居里温度(Curie temperature)**	Tc	℃	/		≥215
电阻率(Resistivity)**	ρ	Ω·m	/		≈5
密度(Density)**	D	g/cm^3	/		≈4.80

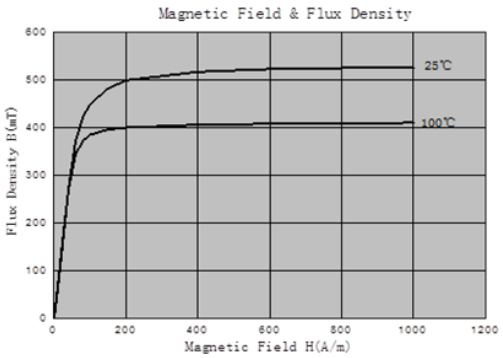
II、特性曲线（Characteristic curve）











III、备注（Remarks）

*: It is a value after breaking, the material is “M79” before breaking.

**: Those item is the test value of “M79”.

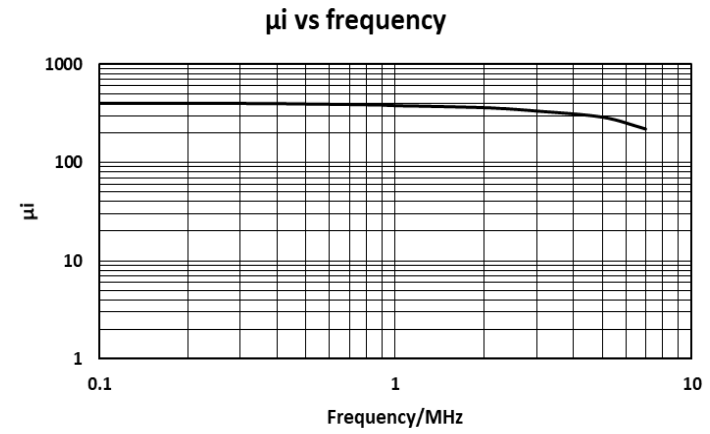
材 质 报 告（Materials Specification）

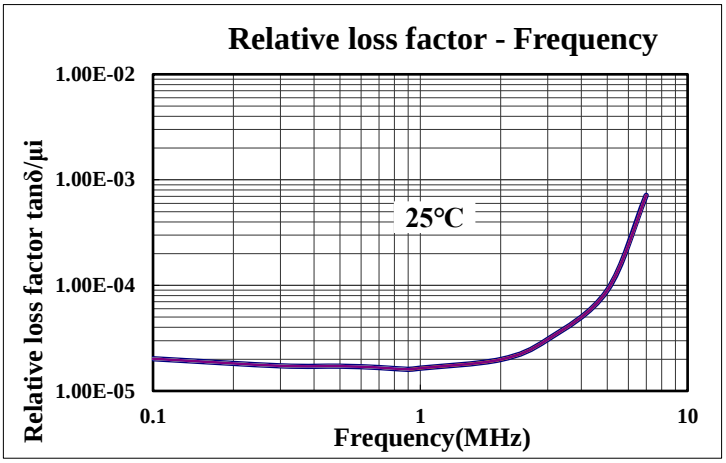
材质（Material）	RN80

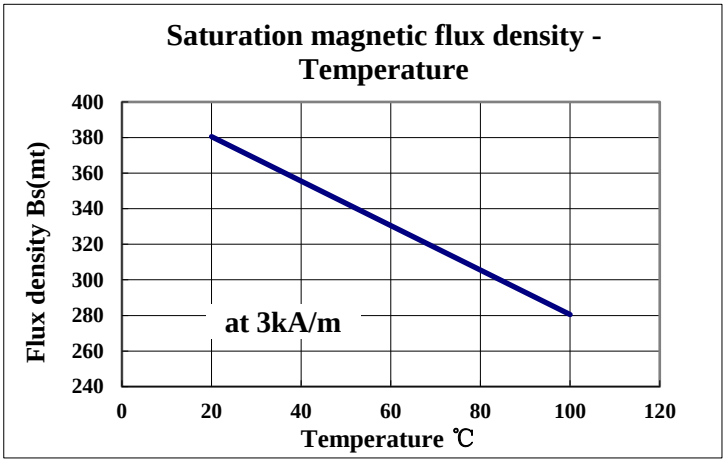
I、材质特性（Material characteristic）

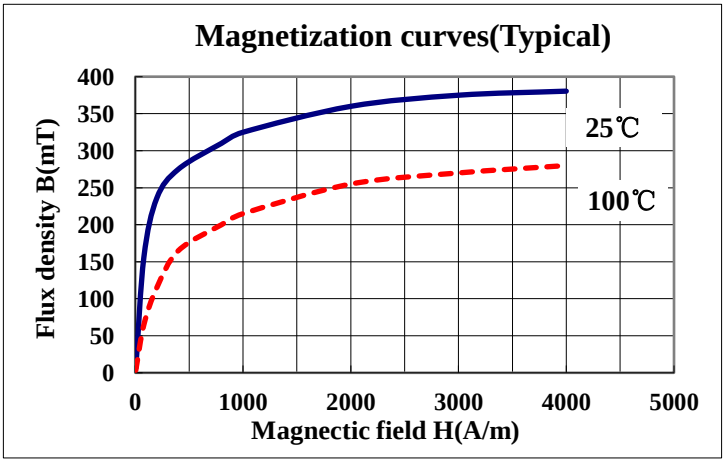
项　目(Items)	符号(Symbol)	单位(Unit)	测试条件(Conditions)	规格(Spec.)
起始磁导率(Initial permeability)	μ_i		25℃;10kHz;0.1V	400±25%*
饱和磁通密度(Saturation magnetic flux density)**	Bs	mT	25℃;3000A/m	≈360
相对温度系数(Relative temperature factor)**	$\alpha_{\mu i\gamma}$	($\times10^{-6}$)	20℃~60℃	8~17
相对损失系数(Relative loss factor)**	$\tan\delta/\mu_i$	($\times10^{-6}$)	100kHz;0.1V	≈0.3
矫顽力(Corrective force)**	Hc	A/m		≈18
居里温度(Curie temperature)**	Tc	℃		≥170
电阻率(Electrical resistivity)**	ρ	Ω·m	DC;25℃	≈10^6
密度(Density)**	D	g/cm^3		≈5.20

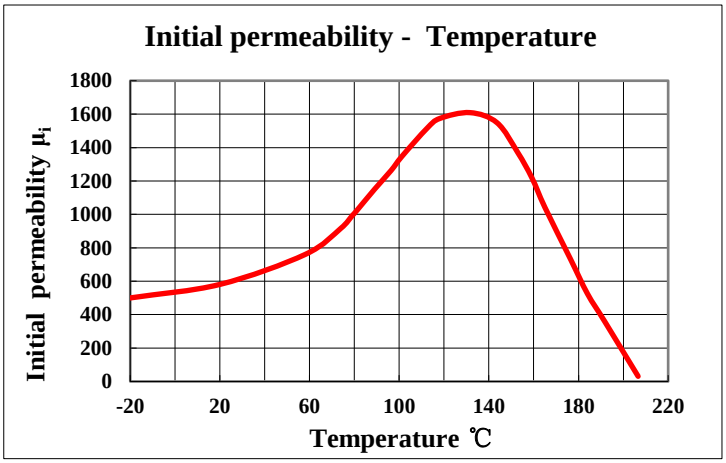
II、特性曲线（Characteristic curve）











III、备注（Remarks）

*: It is a value after breaking, the material is “68” before breaking.

**: Those item is the test value of “68”.

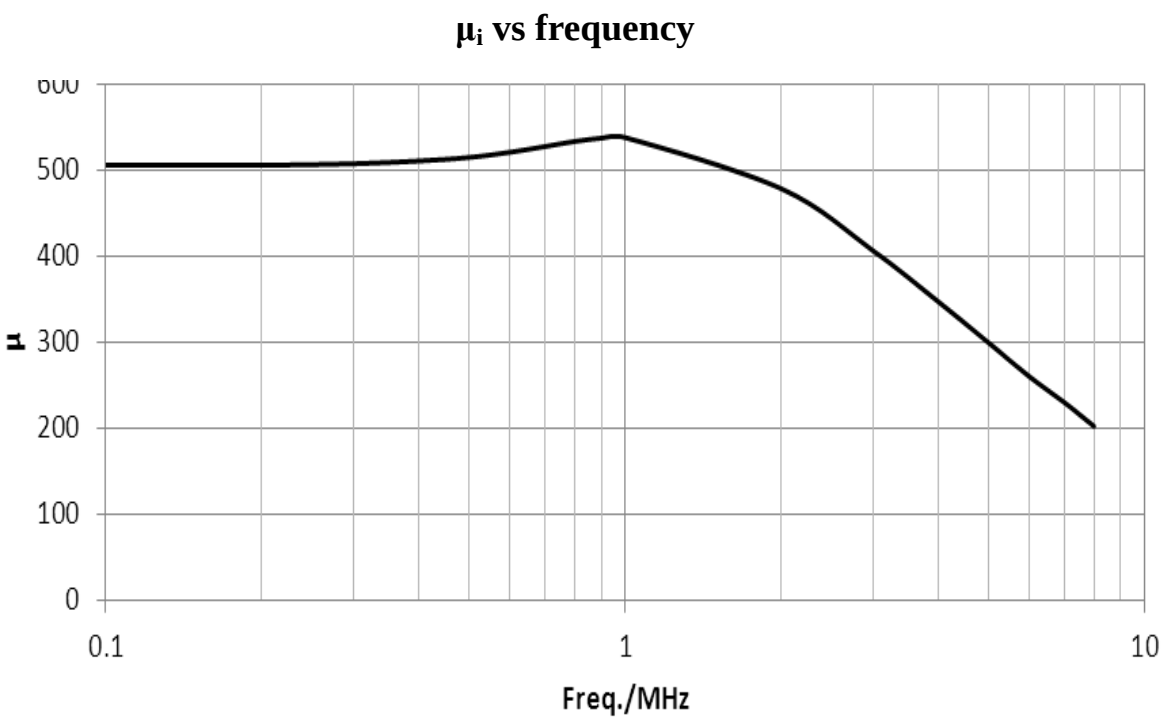
材 质 报 告（Materials Specification）

材质（Material）	RN200

I、材质特性（Material characteristic）

项　目(Items)	符号(Symbol)	单位(Unit)	测试条件(Conditions)	规格(Spec.)
起始磁导率(Initial permeability)	μ_i		25℃;10kHz;0.1V	500±25%*
饱和磁通密度(Saturation magnetic flux density)	Bs	mT	25℃, 4000A/m	≈340
矫顽力(Corrective force)	Hc	A/m		≈25
居里温度(Curie temperature)	Tc	℃		≥120
密度(Density)	D	g/cm^3		≈5.00

II、特性曲线（Characteristic curve）



III、备注（Remarks）

*: It is the value after breaking.