

磁业公司

MAGNETIC COMPANY

地址: 中国浙江省海宁市天通科技园
ADD: TDG Technology Zone, Zhejiang, China
TEL: +86-573-8768 8888
FAX: +86-573-8768 9999

开发部

DEPARTMENT

地址: 中国浙江省海宁市天通科技园
ADD: TDG Technology Zone, Zhejiang, China
TEL: +86-573-8768 1790 / 8768 1792(MnZn)
+86-573-8768 2066 (NiZn)
E-mail: mzjs@tdgcore.com(MnZn)
nzjsb@tdgcore.com(NiZn)

销售总公司

SALES COMPANY

地址: 中国浙江省海宁市经济开发区双联路129号
ADD: No.129 Shuanglian Rd, Economic Development Zone,
Haining, Zhejiang, China
TEL: +86-573-8768 8888
FAX: +86-573-8768 9999

国际销售公司

INTERNATIONAL SALES COMPANY

地址: 中国上海市徐汇区田州路99号新茂大厦17楼全层
ADD: 17th Floor, Xinmao Buiding, No.99 Tianzhou Rd,
Xuhui District, Shanghai, China
TEL: +86-21-5445 0186
FAX: +86-21-5445 0187

SOFT FERRITE CORES

**SOFT FERRITE
CORES**

磁心目录 — 镍锌材料

公司简介

天通控股股份有限公司是国家重点高新技术企业，中国电子元器件百强企业，是中国首家自然人控股的上市公司。

成立于1984年，经过30年的努力，天通控股已成为拥有中国最大的磁性材料研发、制造基地，并设有省级软磁研发中心的高新技术企业。公司拥有先进的试验、检测设备，专业从事铁氧体材料和磁心的研发、制造和销售。可生产50余类材料，5000多种规格的锰锌、镍锌铁氧体磁心及非晶合金磁心、微波铁氧体磁心。

产品广泛用于现代通信、计算机及外部设备、开关电源、液晶显示器、等离子彩电、自动化办公、自动控制、绿色照明、仪器仪表、抗电磁干扰、太阳能及风能的电源逆变器、以及汽车电子、航空航天等电子科技领域，客户遍及亚洲欧美。

天通人本着“自信、诚心、创新”的企业精神，以世界规模第一、技术领先为目标，视服务客户为已任，诚信不懈，追求卓越，奉献自我，共图发展。

质量是我们一贯的坚持，用户满意是我们一贯的追求！

COMPANY'S BRIEF INTRODUCTION

As the national and provincial key Hi-Tech enterprise and one of the top 100 Chinese electronic components enterprises, TDG Holding Co., Ltd is the first public company held by individuals in China.

Founded in 1984, TDG has been developed into a Hi-tech enterprise with the biggest soft magnetic cores development and manufacturing base in China and a provincial researching center which is equipped with the advanced test inspection instrument. TDG is specialized in development, manufacturing and sales of soft ferrite materials and magnetic cores. TDG owns the ability to produce more than 50 kinds of materials and more than 5000 specifications of MnZn, NiZn, ferrite cores, Amorphous alloy core, Microwave ferrite cores.

The products are widely used in electronic science and technology field of the modern communication, computer and the external facility, switching power supply, LCD screen, plasma TV, office automation, automatic control, green lighting, instrument and apparatus, Electronic Magnetic In EMI, power inverter of the solar and wind energy, Automotive Electronics, aerospace. Our customers spread all over the Asia, America and Europe.

We cherish TDG spirit, that is, confidence, integrity and innovation to serve our customers with our large-scaled production and advanced technology.

Best quality is TDG's principle and customer satisfaction is our goal.



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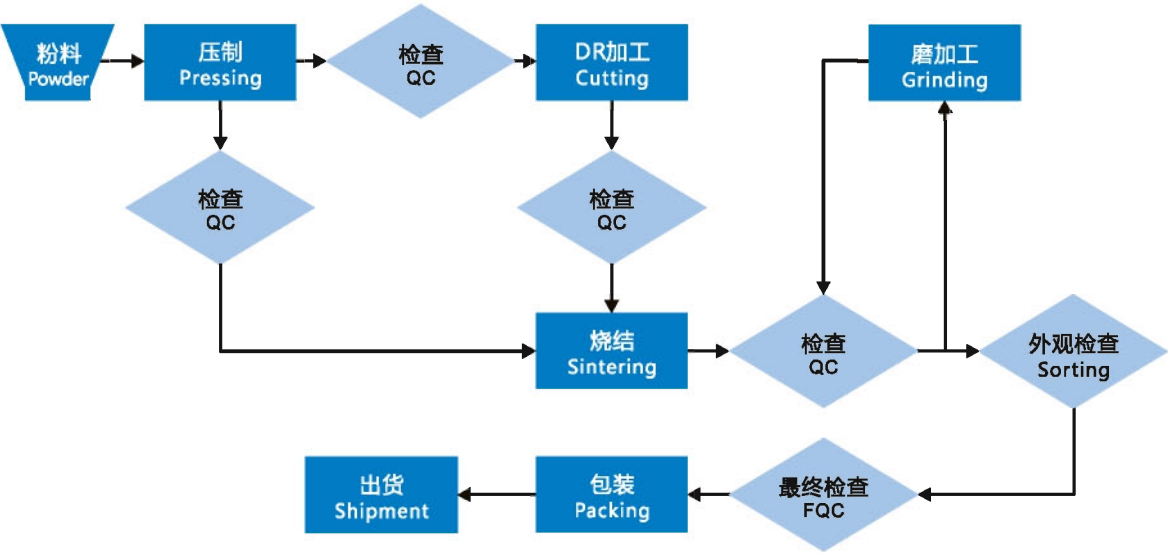
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EFD	060
R	061
RC	064
RH	066
RID	068
SH	070
T	072
UU	076
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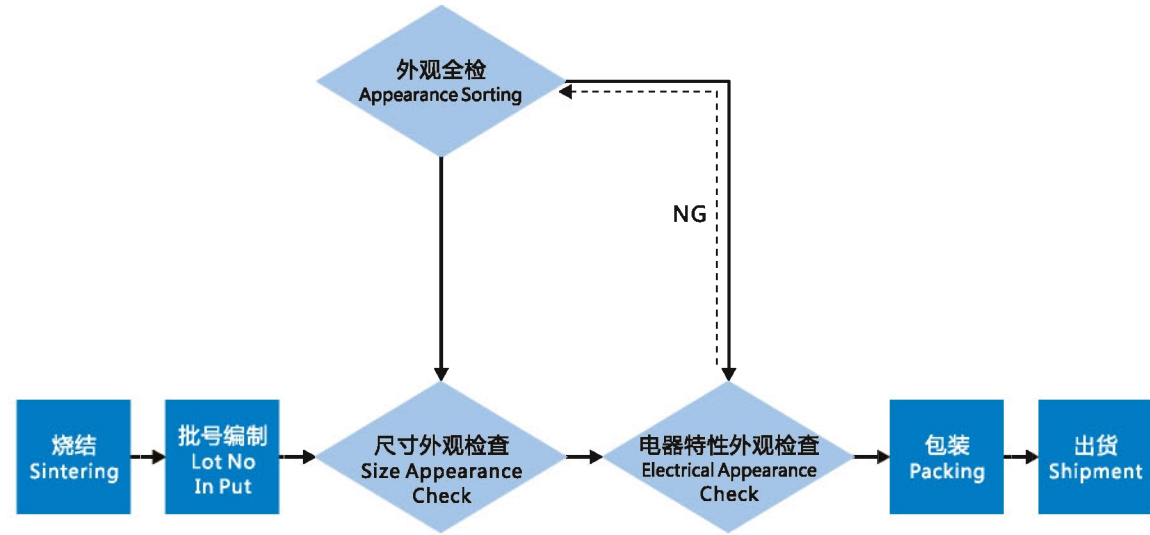
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NiZn制造流程图
NiZn Production Flow Diagram



品管流程图
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五、Product Series

SMD1

SMD2

SMD3

SMD4

DRC

DRH

DRR/ DRR Ultrathin/ DRR PIN

DRS

EFD

R

RC

RH

RID

SH

T

UU

MnZn SMD

001

002

003

004

005

036

038

040

045

046

048

050

058

060

061

064

066

068

070

072

076

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Part 2 Concepts

Part 3 Test Equipment

080

090

注意事项

为充分了解产品规格值及特性，以及有关安全标准是否适用于本制品，避免使用不当及可能发生的意外情况，请与我司联系。

此样本本书中所列各制品的特性规格为近似值。在产品特性改良等过程中可能发生一些变化。在使用前可联系我司确认相关数据。

此样本本书列出的是我们的标准制品。如果应用除这些产品外的其他形状以及其他材质的产品，请及时与我司联系。

When Ordering

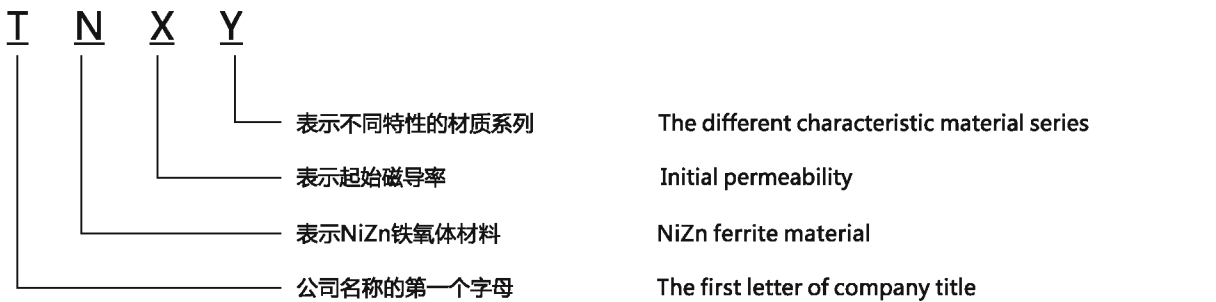
Please contact our company, regarding whether or not safety regulations are applicable to the product, in order to avoid accidents or misuse, and to ensure full understanding of the specifications and characteristics of the product.

The characteristic standards for each product listed in this catalog show approximate values for some products. Some changes may also be made without notification for product improvements, etc. Before using the product, please contact our company to confirm the information.

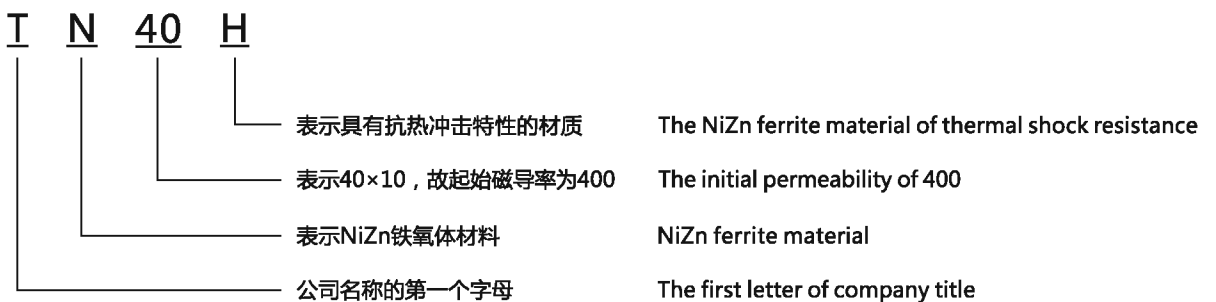
This catalog shows our standard products. If there are different core shapes and material grade, please do not hesitate to contact our company.

本公司对所生产的镍锌铁氧体材料等作了如下规范:
The Standard Had Drawm up Especially for TDG'S Products:

材料命名:
Material naming:



例 :
Example :



- H

D

B

P

L

G
- 抗热冲击系列NiZn铁氧体材质

抗应力系列NiZn铁氧体材质

高饱和和磁通密度系列NiZn铁氧体材质

高磁导率系列NiZn铁氧体材质

低功耗系列NiZn铁氧体材质

镁铜锌系列铁氧体材质
- The NiZn ferrite material of thermal shock resistance

The NiZn ferrite material of stress-insensitive

The NiZn ferrite material of high saturation magnetic flux density

The NiZn ferrite material of high initial permeability

The NiZn ferrite material of low core loss

The MgCuZn ferrite material

镍锌铁氧体典型应用
Typical Application of NiZn Ferrite

材料分类 Classification of material	材质名称 Material name	产品一般形状 Core shapes	主要应用 Applications
抗热冲击系列 Thermal shock resistance	TN20H \ TN25H \ TN30H TN35H \ TN40H \ TN41H TN39H \ TN65H \ TN90H	DRR \ DRS \ DRC RI \ R \ T \ P	功率电感、扼流圈、 线性线圈、片式电感、 电缆滤波、中周变压器、 共模线圈、噪声滤波器、 抗 EMI 滤波电感
抗应力系列 Stress-insensitive	TN2D \ TN6D \ TN50D	DRR \ DRC \ RID \ T	
高叠加系列 High superposition	TN12B \ TN20B \ TN25B TN35B \ TN40S \ TN45B TN65B \ TN100B \ TN200B	DRR \ DRS \ RID R \ T \ P	Power inductors, Choke coils, Linearity coils, Chip inductors, filters, IFT, Common mode coils, Noise filters, EMI filter inducotrs
抗电磁干扰系列 Anti-electromagnetic interference	TN25Y TN150P \ TN250P TN100B \ TN200B TN80G \ TN130G	RID \ T \ R \ UU SH \ RH \ RC	抗 EMI 滤波电感 EMI filter inducotrs
低损耗系列 Low core loss	TN40L \ TN80L \ TN120L	EFD \ UI \ UU \ EE T \ R	高电压变压器、 DC / DC转换器、 LCD背光源变压器 High voltage transformer, DC / DC converter, LCD backlight transformers

镍锌铁氧体材料特性
NiZn Ferrite Materials Characteristic

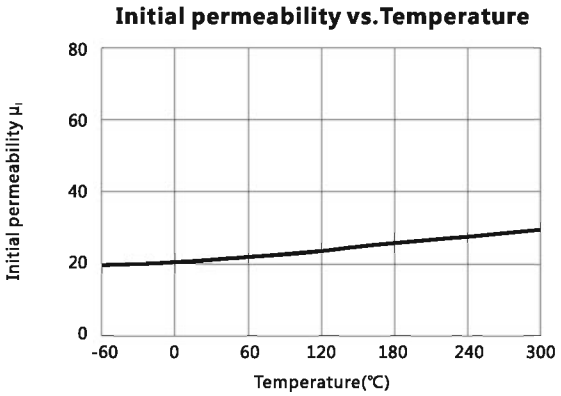
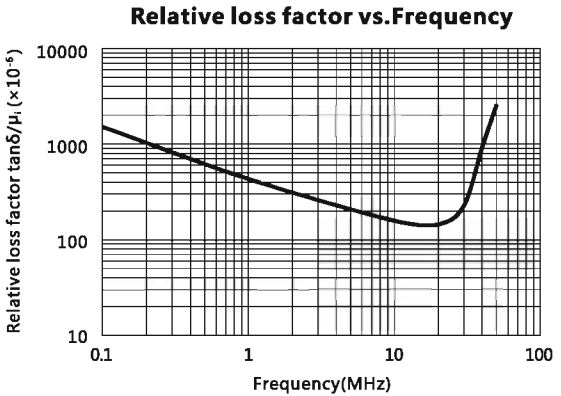
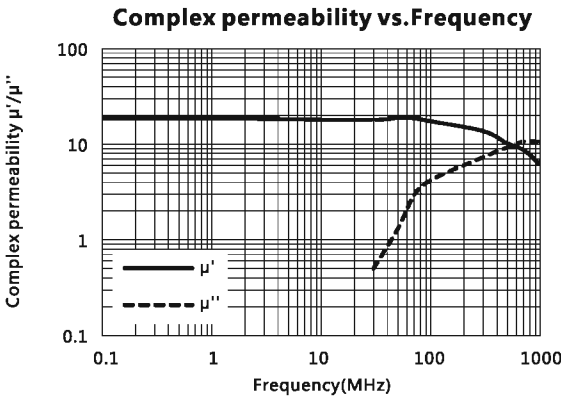
材质	起始磁导率 μ_i	饱和磁通密度Bs		相对损耗因数 $\tan\delta/\mu_i$		比温度系数 α_{μ_r}	居里温度Tc	密度d	电阻率 ρ
Material	Initial permeability	Flux density		Relative loss factor		Relative temperature coefficient of μ_i	Curie temperature	Density	Electrical resistivity
	/	mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}/^{\circ}\text{C}$ (20~60 $^{\circ}\text{C}$)	$^{\circ}\text{C}$	g/cm 3	$\Omega\cdot\text{m}$
★TN2D	18±20%	320	16.0	≤200	20	70	>300	5.1	10 6
★TN6D	55±20%	350	4.0	≤120	20	60	>300	5.1	10 6
TN12B	120±20%	430	4.0	≤65	0.1	65	>300	5.2	10 6
TN20H	200±20%	430	4.0	≤45	0.1	45	>300	5.1	10 6
TN20B	200±20%	500	8.0	≤50	0.1	40	>300	5.2	10 6
TN25B	250±20%	475	4.0	≤40	0.1	24	>300	5.2	10 6
TN25H	250±20%	420	4.0	≤30	0.5	30	>300	5.1	10 6
TN25Y	250±20%	400	4.0	≤50	0.1	30	>250	5.0	10 6
TN30H	300±20%	415	4.0	≤30	0.1	20	>260	5.1	10 6
TN35B	350±20%	460	4.0	≤35	0.1	25	>260	5.2	10 6
TN35H	350±20%	450	4.0	≤25	0.1	20	>260	5.2	10 6
TN40H	400±20%	410	4.0	≤25	0.1	25	>250	5.1	10 6
TN41H	400±20%	430	4.0	≤25	0.1	13	>230	5.1	10 6
TN40L	400±20%	440	4.0	≤20	0.1	17	>230	5.1	10 6
TN40S	400±20%	460	4.0	≤25	0.1	25	>250	5.25	10 6
TN45B	450±20%	440	4.0	≤25	0.1	15	>260	5.2	10 6
TN39H	500±20%	410	4.0	≤25	0.1	15	>190	5.1	10 6
★TN50D	500±20%	350	4.0	≤18	0.1	1	>160	5.1	10 6
TN65B	650±20%	400	4.0	≤17	0.1	18	>190	5.2	10 6
TN65H	650±20%	400	4.0	≤15	0.1	15	>185	5.1	10 6
TN80L	800±25%	410	4.0	≤13	0.1	13	>190	5.1	10 6
TN80G	800±20%	270	4.0	≤30	0.1	15	>130	4.9	10 6
TN90H	900±20%	340	4.0	≤20	0.1	15	>140	5.1	10 6
TN100B	1000±20%	320	4.0	≤10	0.05	5	>130	5.2	10 6
TN120L	1200±20%	360	1.6	≤18	0.1	13	>160	5.1	10 6
★TN130G	1300±20%	240	4.0	≤15	0.01	8	>85	4.8	10 6
TN150P	1500±20%	300	1.6	≤20	0.1	5	>110	5.2	10 6
TN200B	2000±20%	290	4.0	≤10	0.01	2	>100	5.2	10 6
★TN250P	2500±20%	260	4.0	≤10	0.1	5	>90	5.1	10 6

注：1. 通常特性指标的测试温度为25℃，特别标注除外； 2. “★”表示该材料为本次改版新增材料。
Note：1. Except the special marks, the test temperature is 25℃. 2. In this edition, “★” marked the additional materials.

材料 / Material: TN2D

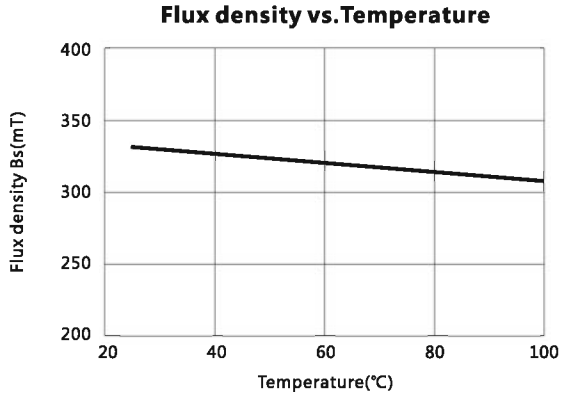
特点 / Features:

1. 抗应力 / Stress-Insensitive



Initial permeability	μ_i	25 $^{\circ}\text{C}$	18±20%
Saturation magnetic flux density	Bs(mT)	25 $^{\circ}\text{C}$	320
Relative loss factor 20MHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25 $^{\circ}\text{C}$	≤200
Relative temperature coefficient	α_{μ_r} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60 $^{\circ}\text{C}$	70
Curie temperature	Tc($^{\circ}\text{C}$)		>300
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10 6
Density	d(kg/m 3)		5.1×10 3

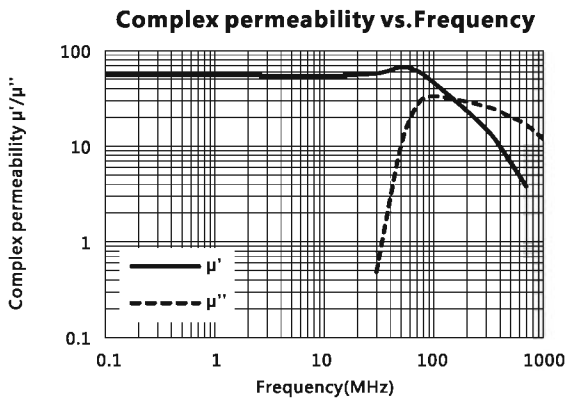
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OD：12.7
ID：7.9
H：6.5



材料 / Material: TN6D

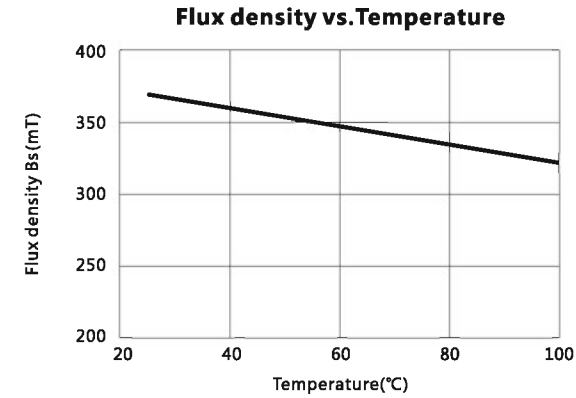
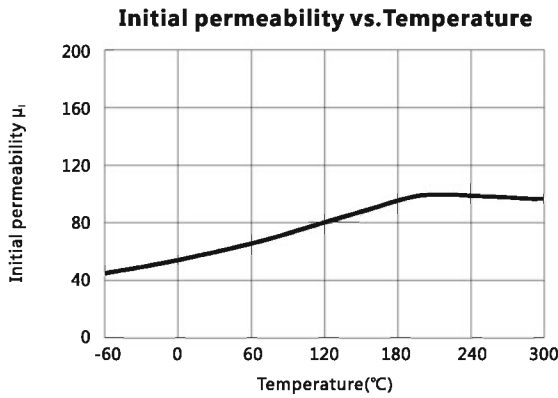
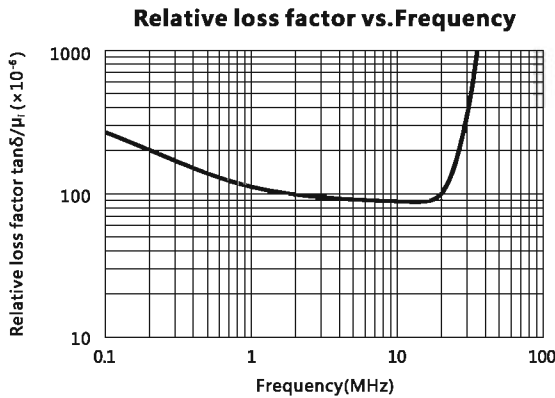
特点 / Features:

- 1. 抗应力 / Stress-Insensitive



Initial permeability	μ_i	25°C	55±20%
Saturation magnetic flux density	Bs(mT)	25°C	350
Relative loss factor 20MHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤120
Relative temperature coefficient	α_{μ_r} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	60
Curie temperature	Tc(°C)		>300
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.1×10^3

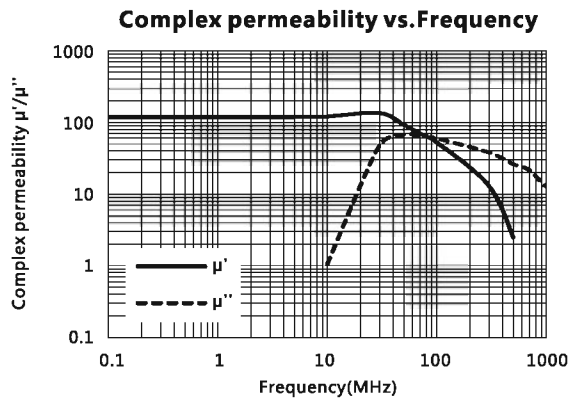
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H : 6.5



材料 / Material: TN12B

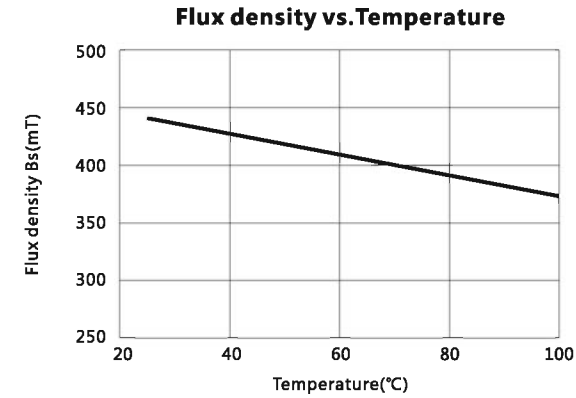
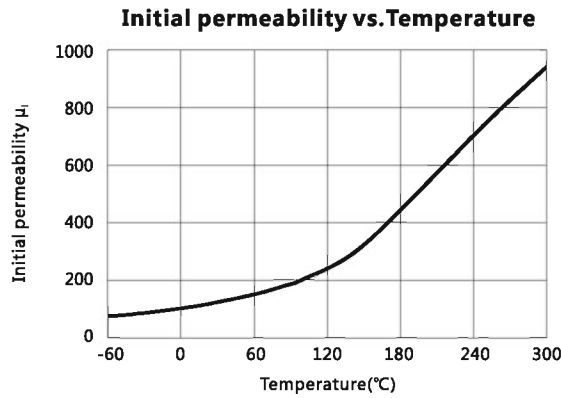
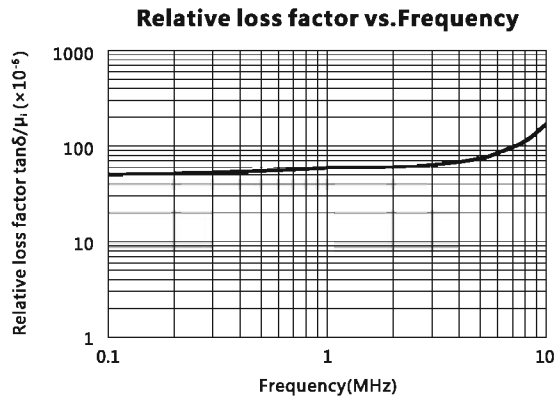
特点 / Features:

- 1. 高饱和磁通密度 / High Bs



Initial permeability	μ_i	25°C	120±20%
Saturation magnetic flux density	Bs(mT)	25°C	430
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤65
Relative temperature coefficient	α_{μ_r} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	65
Curie temperature	Tc(°C)		>300
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.2×10^3

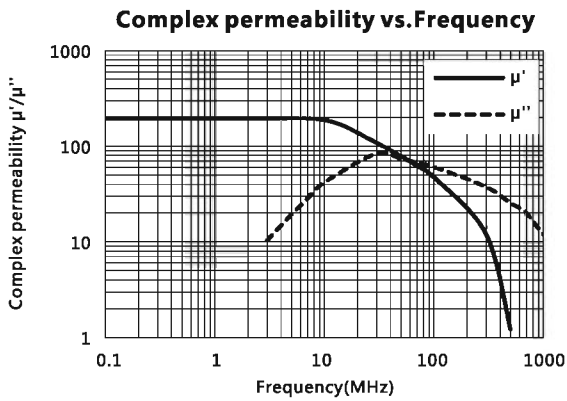
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H : 6.5



材料 / Material: TN20H

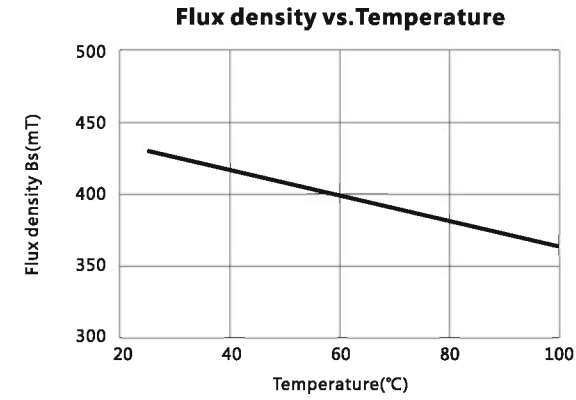
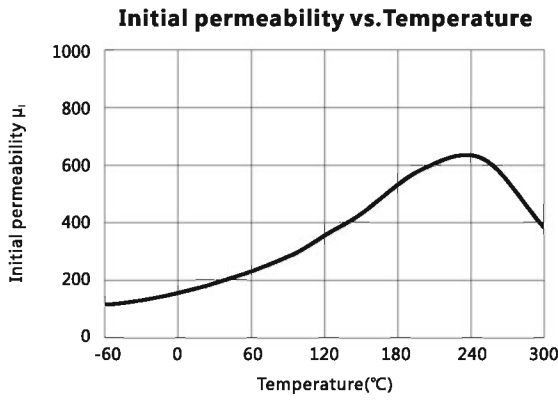
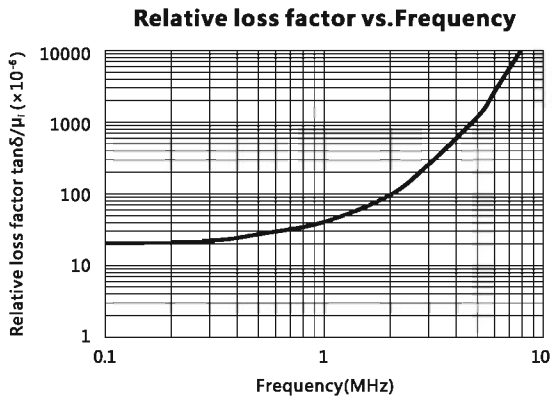
特点 / Features:

- 1. 耐热冲击 / Thermal Shock Resistance



Initial permeability	μ_i	25°C	200±20%
Saturation magnetic flux density	Bs(mT)	25°C	430
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤45
Relative temperature coefficient	α_{μ_r} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	45
Curie temperature	Tc(°C)		>300
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.1×10^3

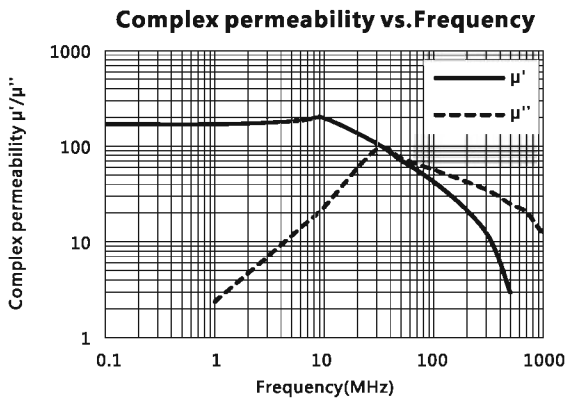
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OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN20B

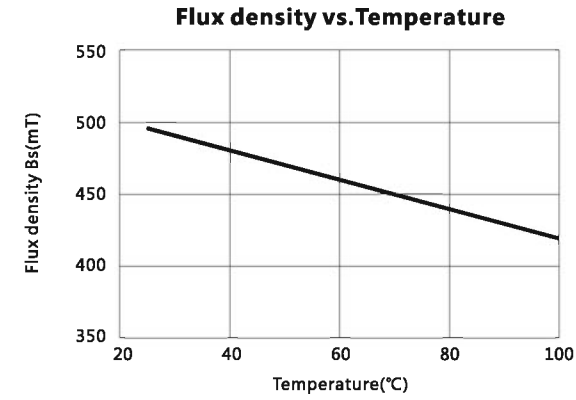
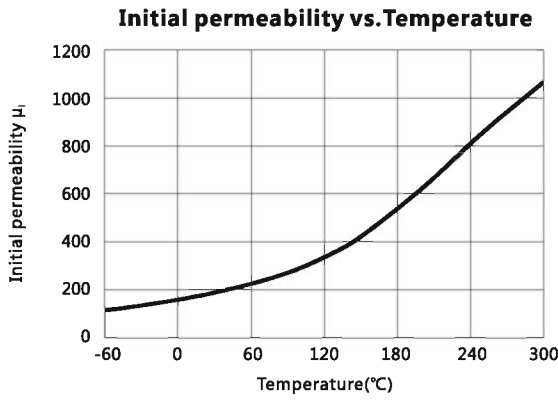
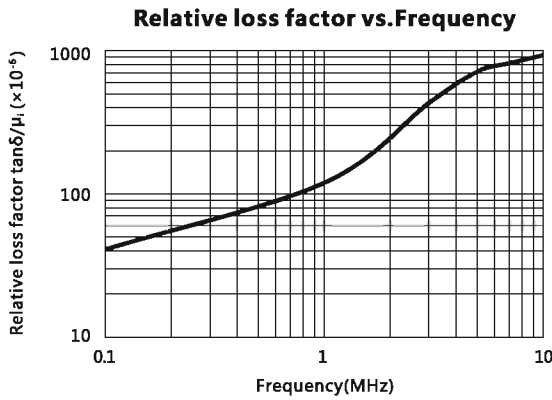
特点 / Features:

- 1. 高饱和磁通密度 / High Bs



Initial permeability	μ_i	25°C	200±20%
Saturation magnetic flux density	Bs(mT)	25°C	500
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤50
Relative temperature coefficient	α_{μ_r} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	40
Curie temperature	Tc(°C)		>300
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.2×10^3

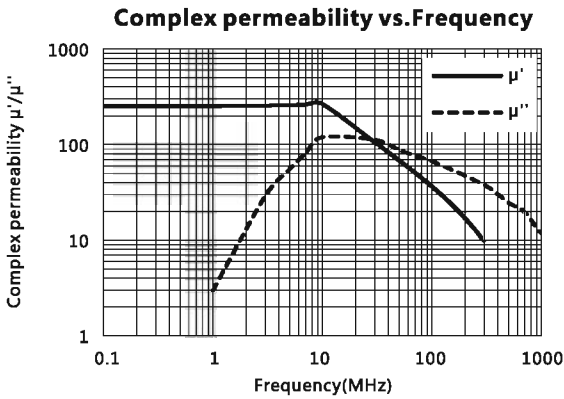
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H : 6.5



材料 / Material: TN25B

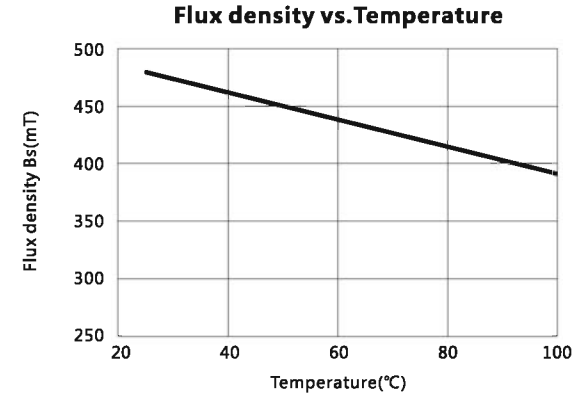
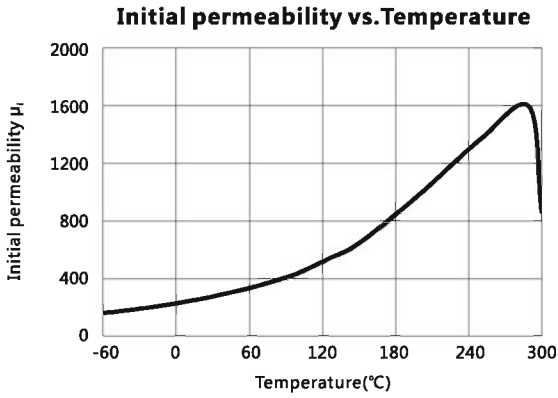
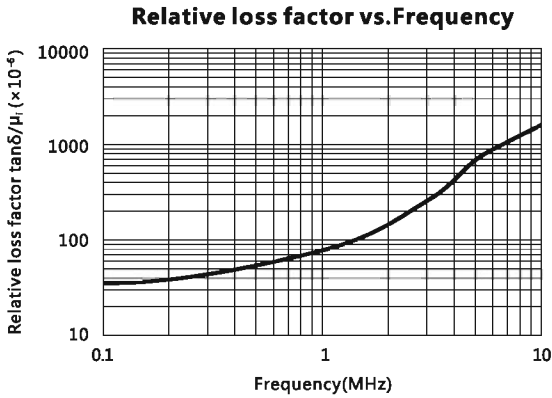
特点 / Features:

- 1. 高饱和磁通密度 / High Bs



Initial permeability	μ_i	25°C	250±20%
Saturation magnetic flux density	Bs(mT) 4000A/m	25°C	475
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤40
Relative temperature coefficient	α_{μ} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	24
Curie temperature	Tc(°C)		>300
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^5
Density	d(kg/m³)		5.2×10^3

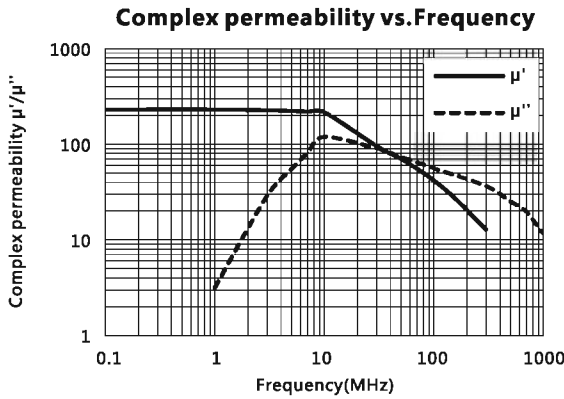
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OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN25H

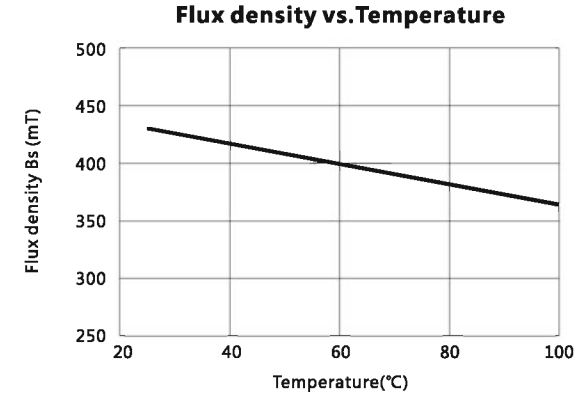
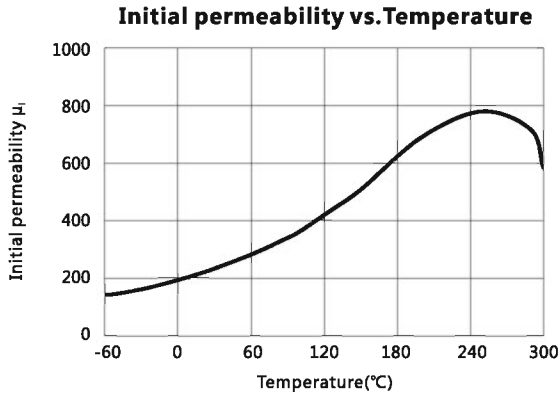
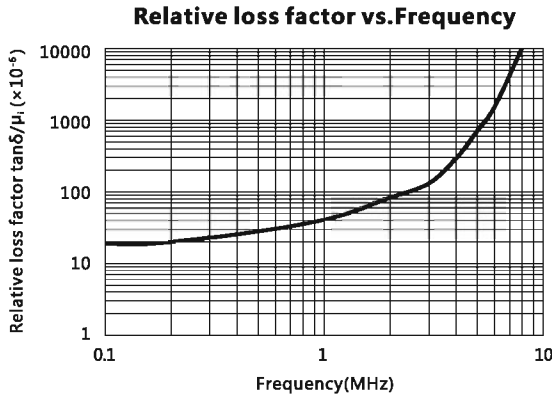
特点 / Features:

- 1. 耐热冲击 / Thermal Shock Resistance

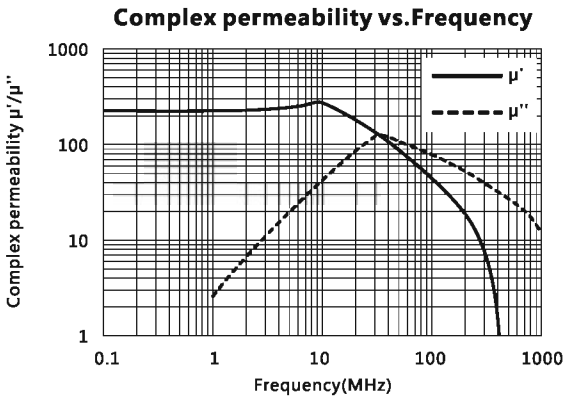


Initial permeability	μ_i	25°C	250±20%
Saturation magnetic flux density	Bs(mT) 4000A/m	25°C	420
Relative loss factor 500kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤30
Relative temperature coefficient	α_{μ} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	30
Curie temperature	Tc(°C)		>300
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.1×10^3

Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5

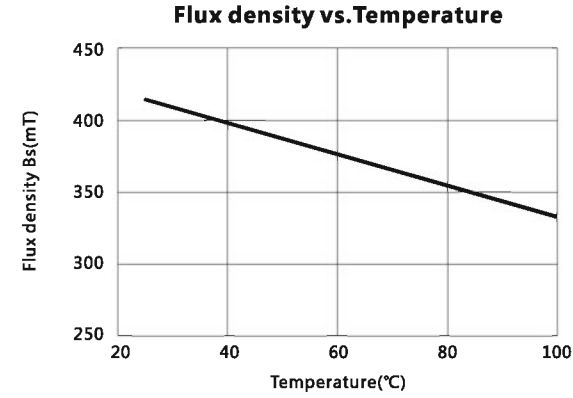
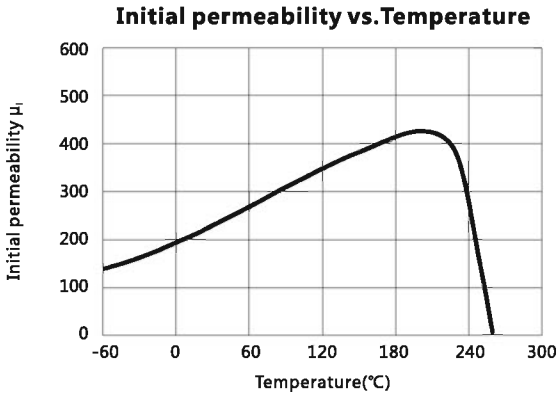
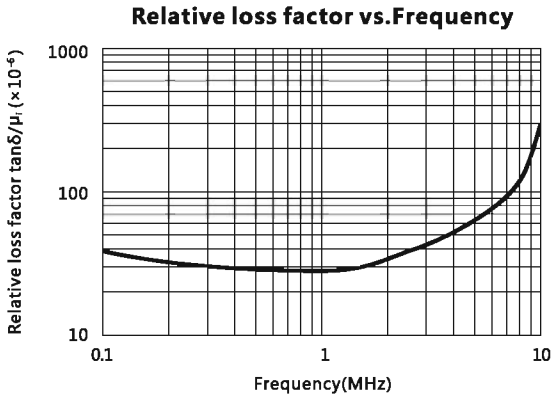


材料 / Material: TN25Y



Initial permeability	μ_i	25°C	250±20%
Saturation magnetic flux density	Bs(mT) 4000A/m	25°C	400
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤50
Relative temperature coefficient	α_{μ} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	30
Curie temperature	Tc(°C)		>250
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.0×10^3

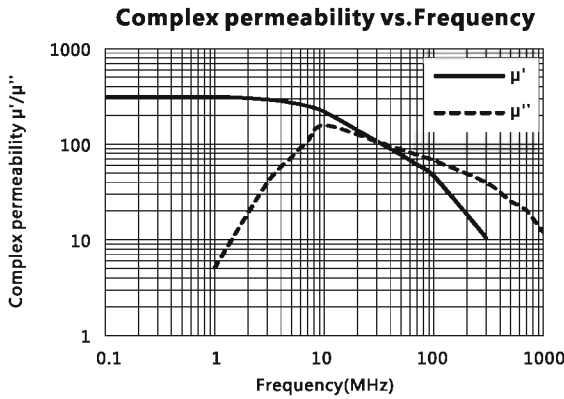
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN30H

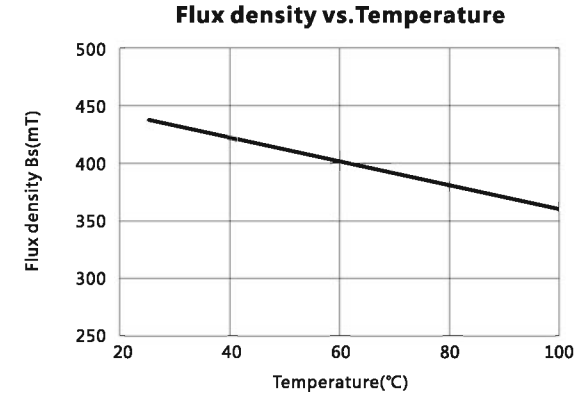
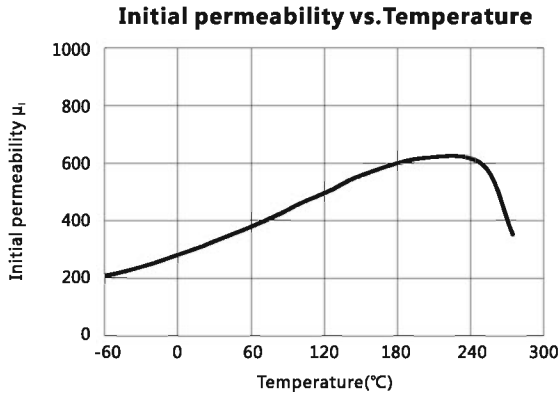
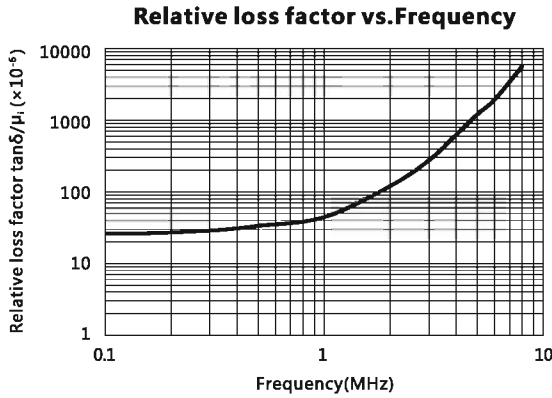
特点 / Features:

1. 耐热冲击 / Thermal Shock Resistance



Initial permeability	μ_i	25°C	300±20%
Saturation magnetic flux density	Bs(mT) 4000A/m	25°C	415
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤30
Relative temperature coefficient	α_{μ} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	20
Curie temperature	Tc(°C)		>260
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.1×10^3

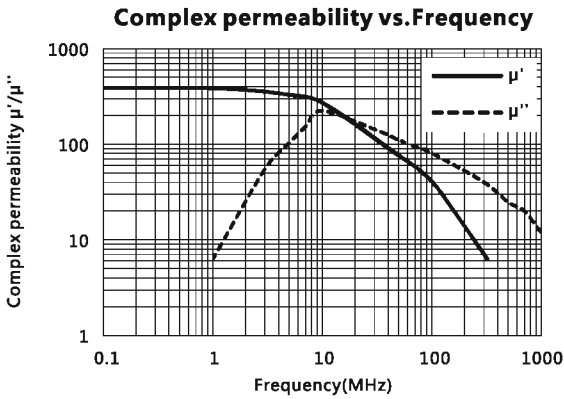
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN35B

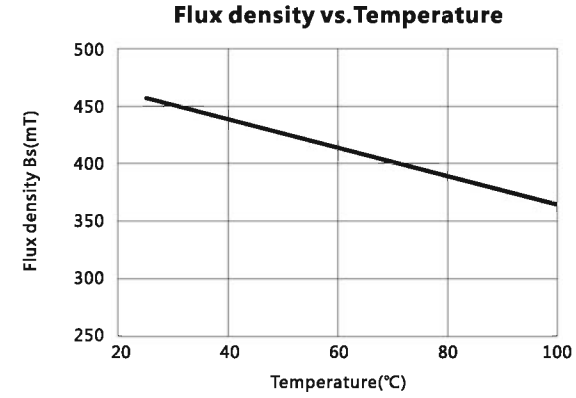
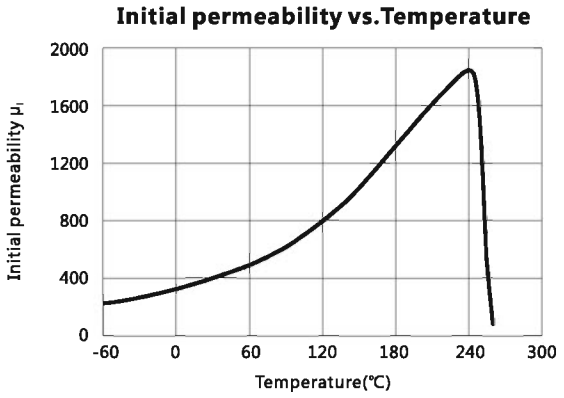
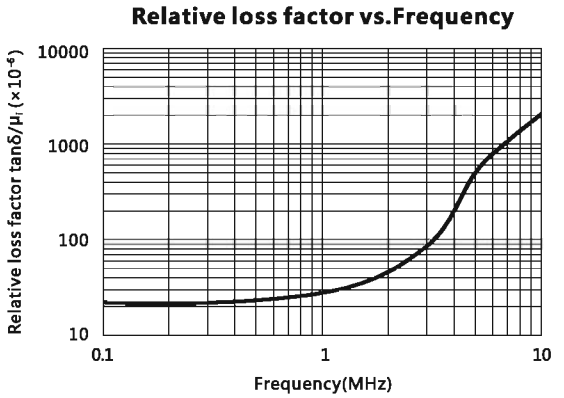
特点 / Features:

- 1. 高饱和磁通密度 / High Bs



Initial permeability	μ _i	25°C	350±20%
Saturation magnetic flux density	Bs(mT) 4000A/m	25°C	460
Relative loss factor 100kHz	tanδ/μ _i (×10 ⁻⁶)	25°C	≤35
Relative temperature coefficient	α _μ (×10 ⁻⁶ /°C)	20 ~ 60°C	25
Curie temperature	Tc(°C)		>260
Electrical resistivity	ρ(Ω·m)		10 ⁶
Density	d(kg/m ³)		5.2×10 ³

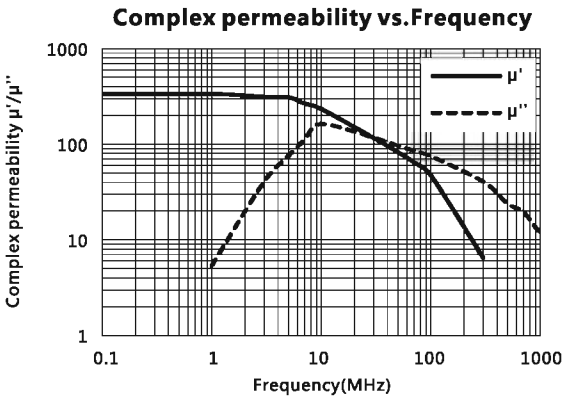
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN35H

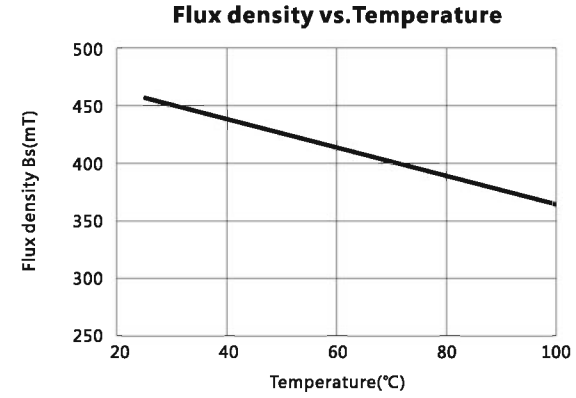
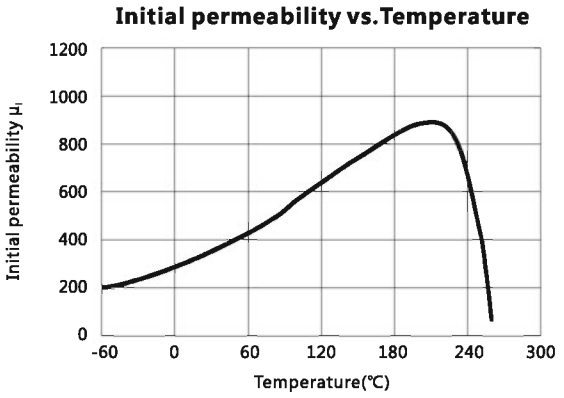
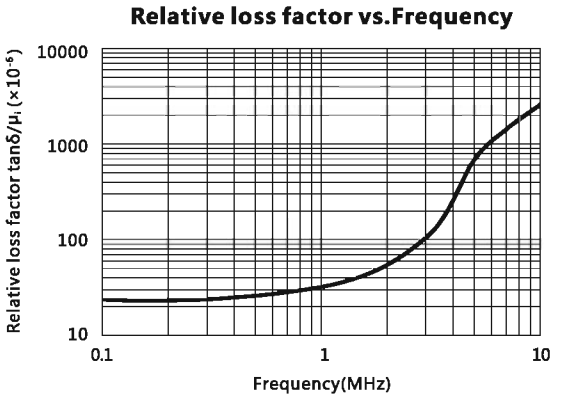
特点 / Features:

- 1. 高饱和磁通密度 / High Bs
- 2. 耐热冲击 / Thermal Shock Resistance



Initial permeability	μ _i	25°C	350±20%
Saturation magnetic flux density	Bs(mT) 4000A/m	25°C	450
Relative loss factor 100kHz	tanδ/μ _i (×10 ⁻⁶)	25°C	≤25
Relative temperature coefficient	α _μ (×10 ⁻⁶ /°C)	20 ~ 60°C	20
Curie temperature	Tc(°C)		>260
Electrical resistivity	ρ(Ω·m)		10 ⁶
Density	d(kg/m ³)		5.2×10 ³

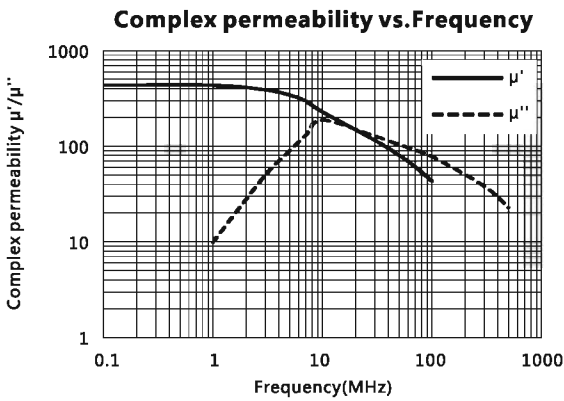
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN40H

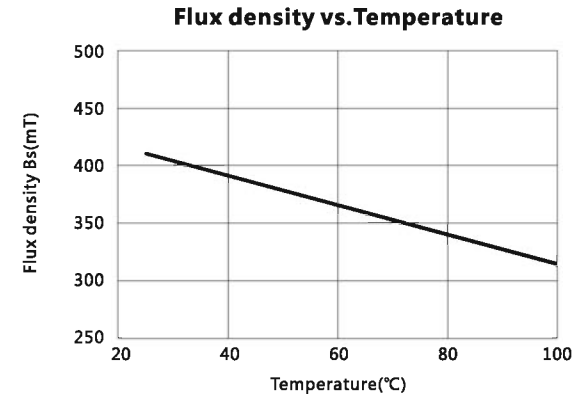
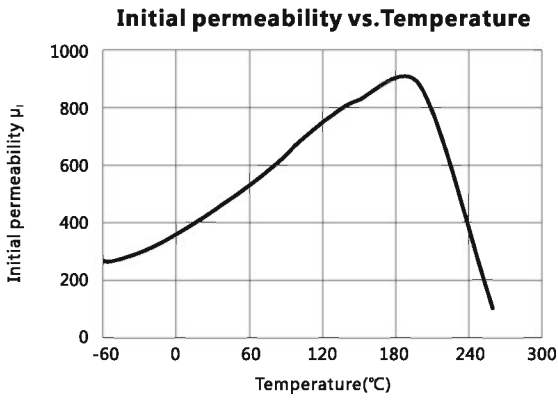
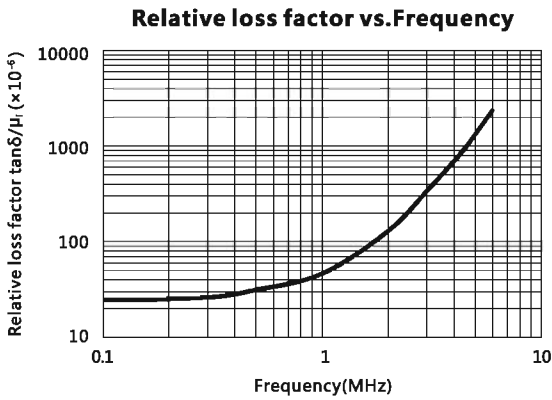
特点 / Features:

- 1. 耐热冲击 / Thermal Shock Resistance



Initial permeability	μ_i	25°C	400±20%
Saturation magnetic flux density	Bs(mT) 4000A/m	25°C	410
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤25
Relative temperature coefficient	α_{μ} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	25
Curie temperature	Tc(°C)		>250
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.1×10^3

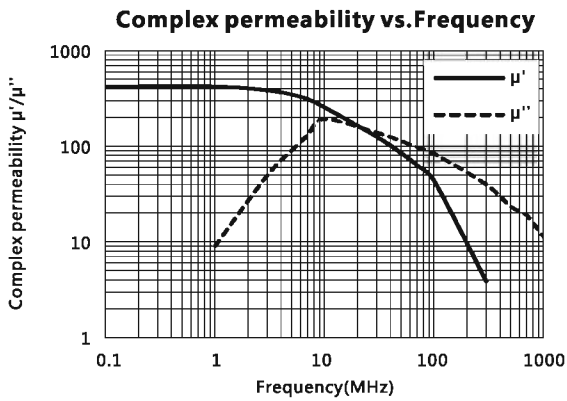
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN41H

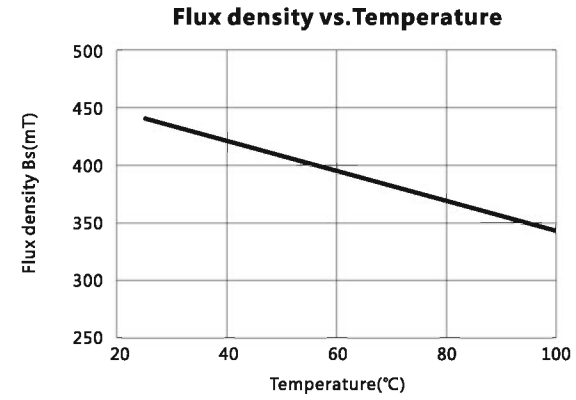
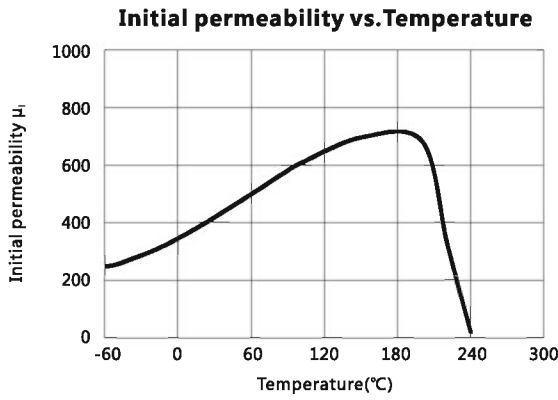
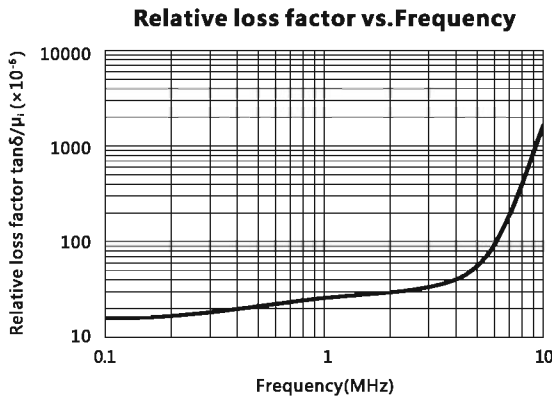
特点 / Features:

- 1. 耐热冲击 / Thermal Shock Resistance



Initial permeability	μ_i	25°C	400±20%
Saturation magnetic flux density	Bs(mT) 4000A/m	25°C	430
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤25
Relative temperature coefficient	α_{μ} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	13
Curie temperature	Tc(°C)		>230
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.1×10^3

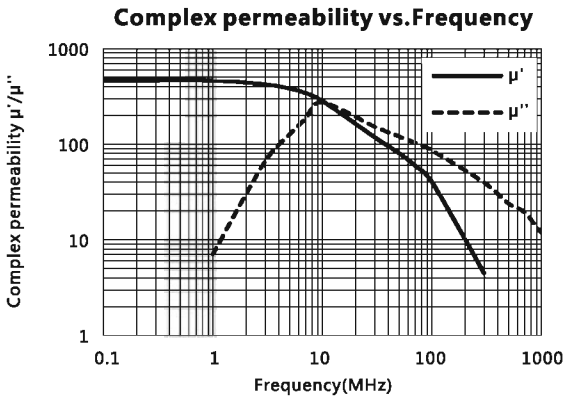
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN40L

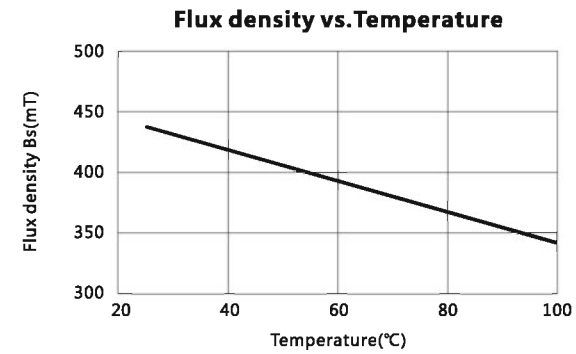
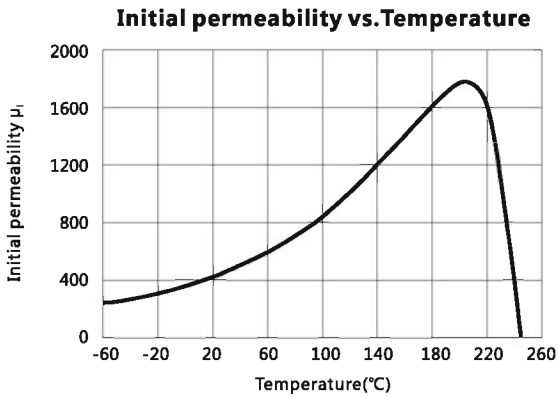
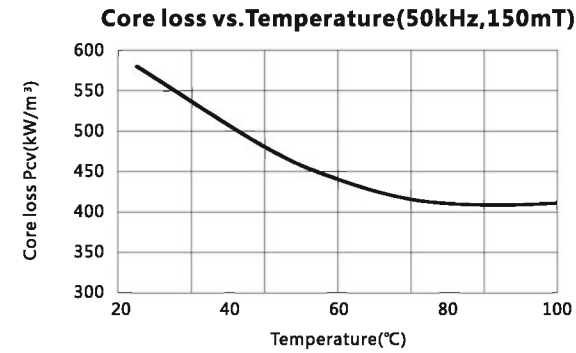
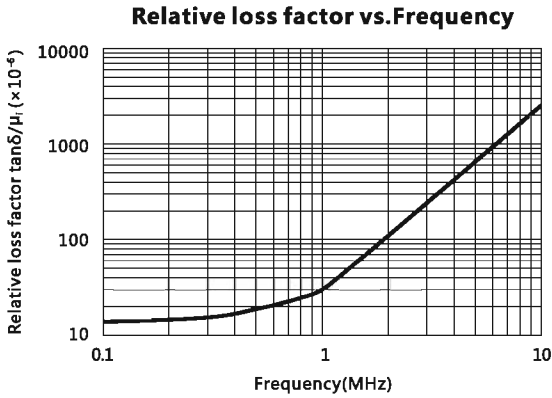
特点 / Features:

- 1. 低功耗 / Low Power Loss



Initial permeability	μ_i	25°C	400±20%
Saturation magnetic flux density	Bs(mT) 4000A/m	25°C	440
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤20
Relative temperature coefficient	α_{μ} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	17
Curie temperature	Tc(°C)		>230
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.1×10^3

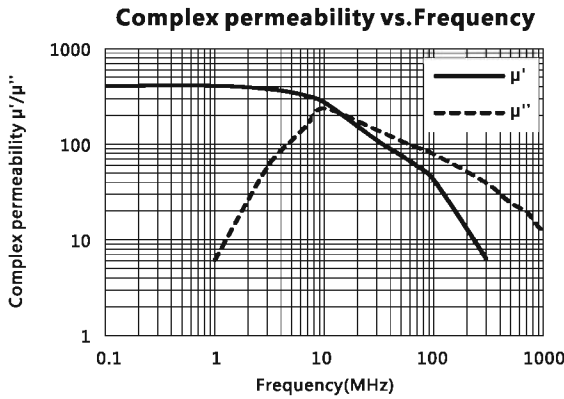
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN40S

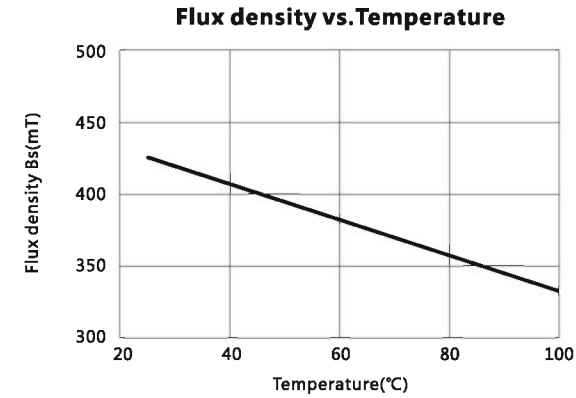
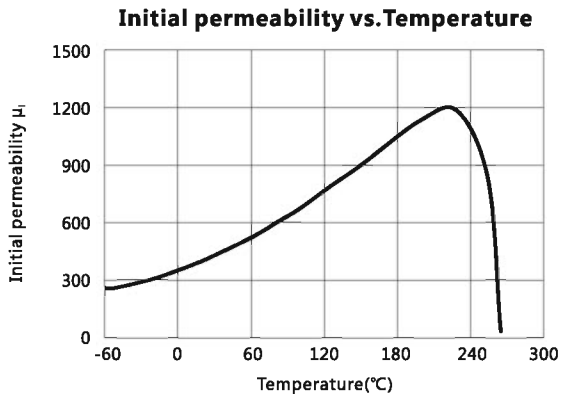
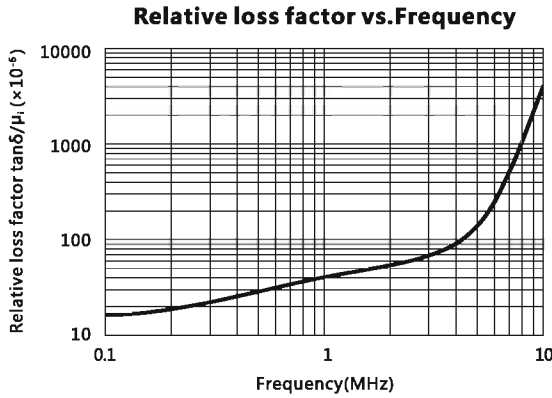
特点 / Features:

- 1. 高饱和磁通密度 / High Bs
- 2. 高强度 / High Strength



Initial permeability	μ_i	25°C	400±20%
Saturation magnetic flux density	Bs(mT) 4000A/m	25°C	460
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤25
Relative temperature coefficient	α_{μ} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	25
Curie temperature	Tc(°C)		>250
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.25×10^3

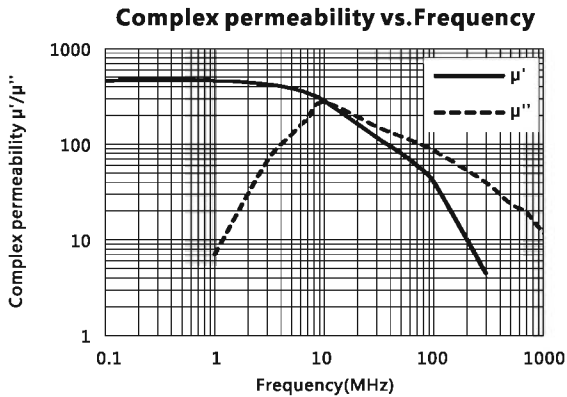
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN45B

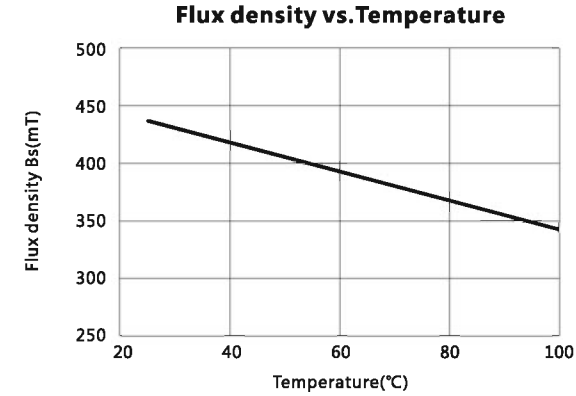
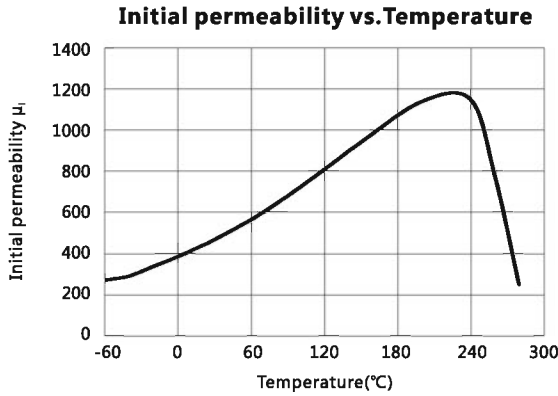
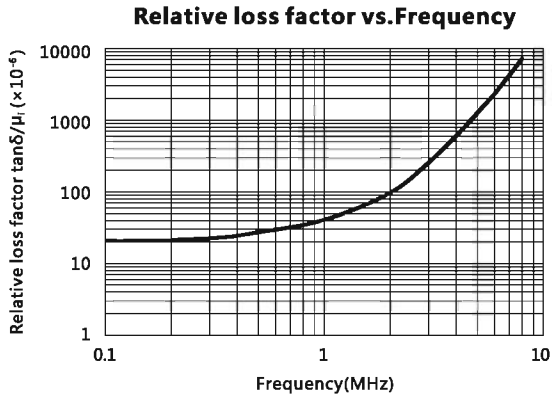
特点 / Features:

- 1. 高饱和磁通密度 / High Bs



Initial permeability	μ_i	25°C	450±20%
Saturation magnetic flux density	Bs(mT)	25°C	440
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤25
Relative temperature coefficient	α_{μ_r} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	15
Curie temperature	Tc(°C)		>260
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.2×10^3

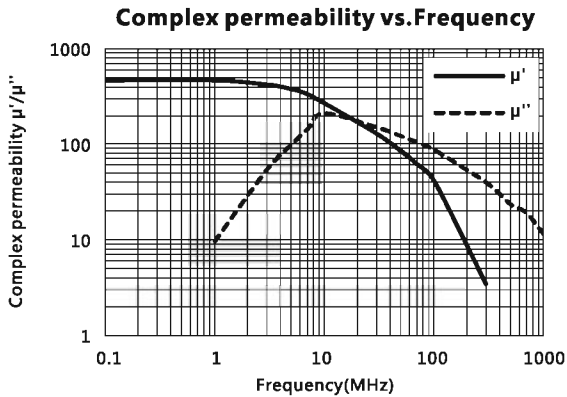
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN39H

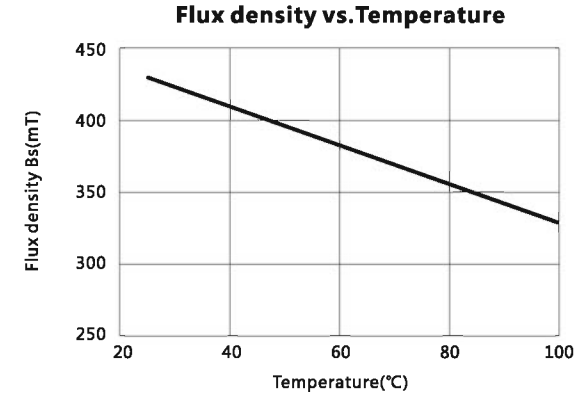
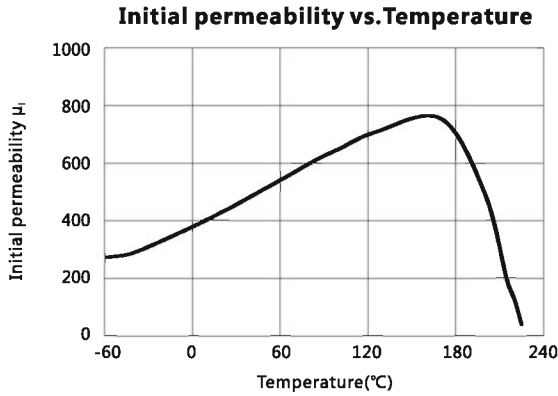
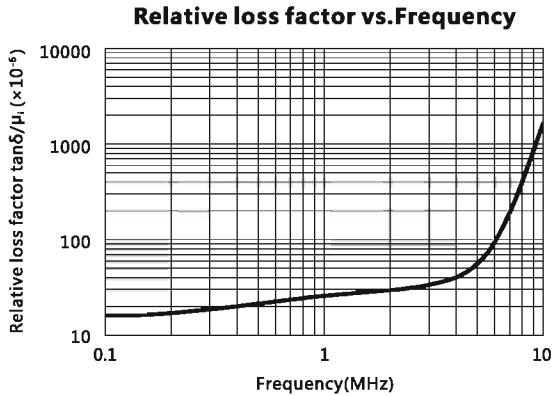
特点 / Features:

- 1. 耐热冲击 / Thermal Shock Resistance



Initial permeability	μ_i	25°C	500±20%
Saturation magnetic flux density	Bs(mT)	25°C	410
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤25
Relative temperature coefficient	α_{μ_r} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	15
Curie temperature	Tc(°C)		>190
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.1×10^3

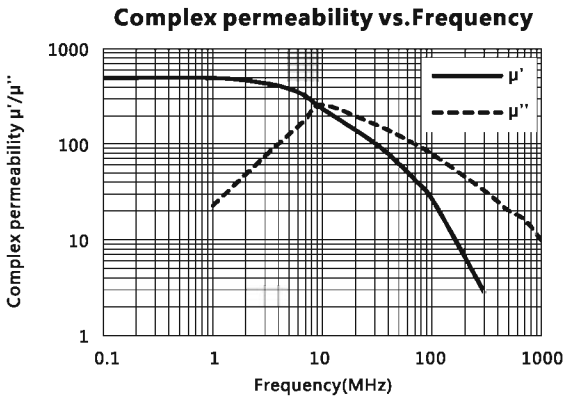
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN50D

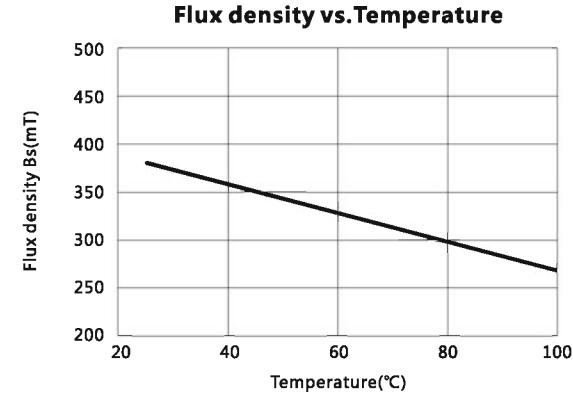
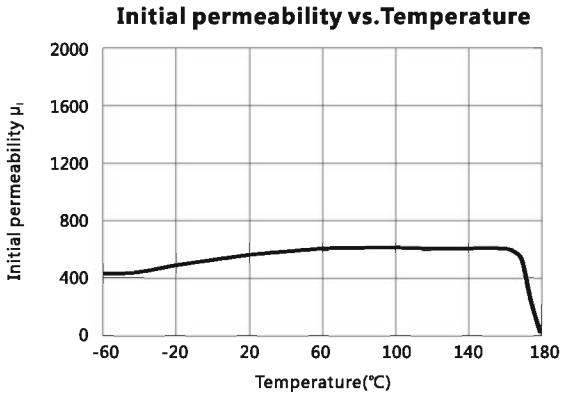
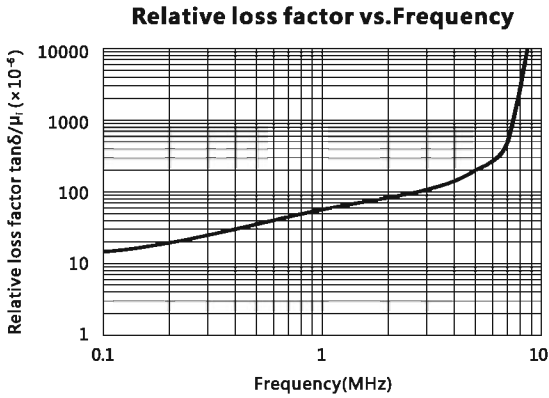
特点 / Features:

- 1. 抗应力 / Stress-Insensitive
- 2. 低比温度系数 / Low Relative Temperature Coefficient



Initial permeability	μ_i	25°C	500±20%
Saturation magnetic flux density	Bs(mT) 4000A/m	25°C	350
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤18
Relative temperature coefficient	α_{μ} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	1
Curie temperature	Tc(°C)		>160
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.1×10^3

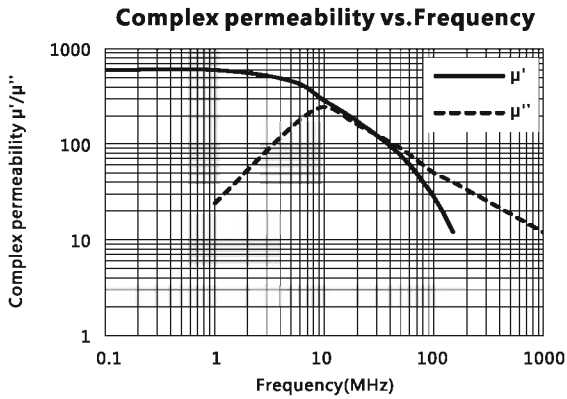
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN65B

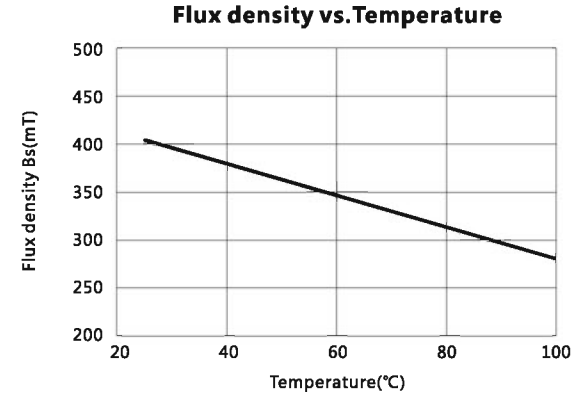
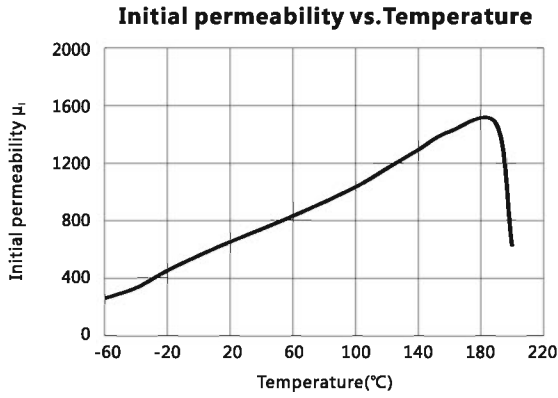
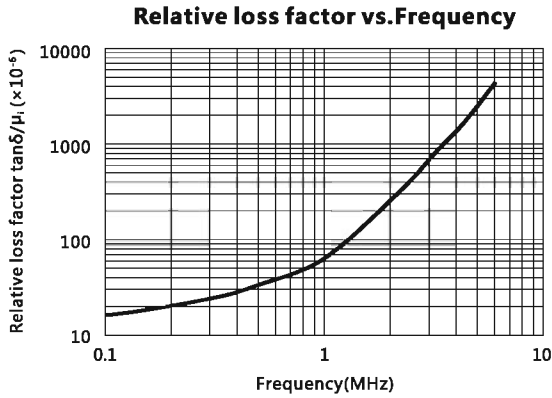
特点 / Features:

- 1. 高饱和磁通密度 / High Bs



Initial permeability	μ_i	25°C	650±20%
Saturation magnetic flux density	Bs(mT) 4000A/m	25°C	400
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤17
Relative temperature coefficient	α_{μ} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	18
Curie temperature	Tc(°C)		>190
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.2×10^3

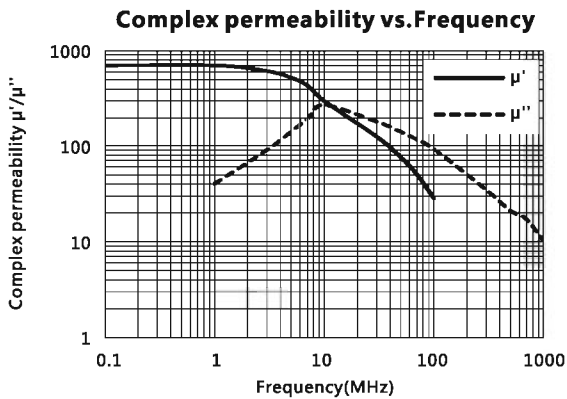
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OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN65H

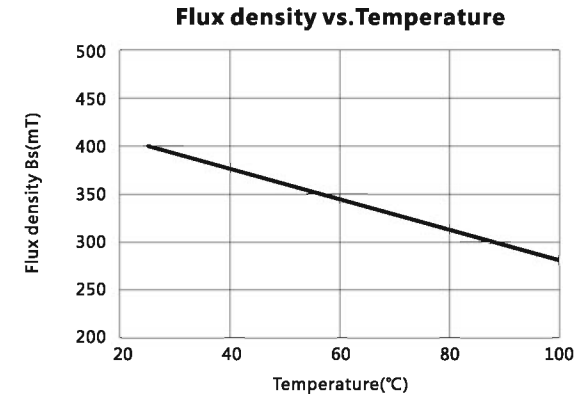
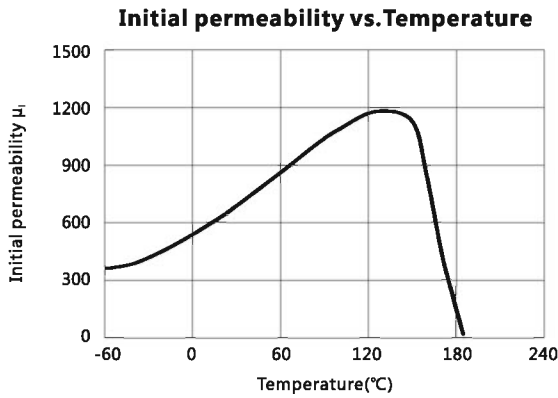
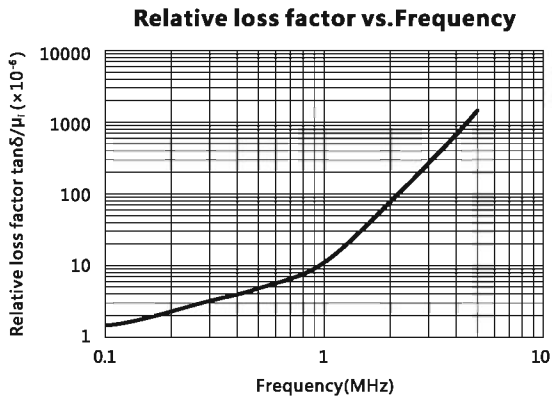
特点 / Features:

- 1. 耐热冲击 / Thermal Shock Resistance



Initial permeability	μ_i	25°C	650±20%
Saturation magnetic flux density	Bs(mT)	25°C	400
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤15
Relative temperature coefficient	α_{μ_r} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	15
Curie temperature	Tc(°C)		>185
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.1×10^3

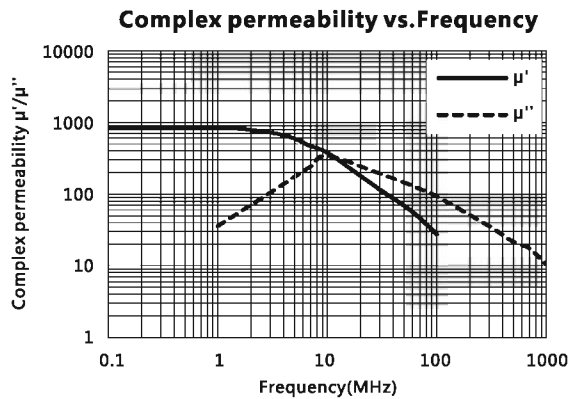
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN80L

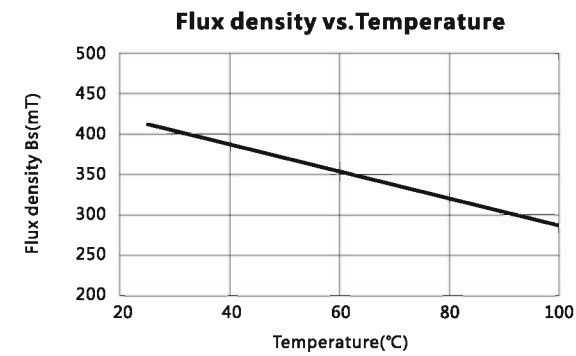
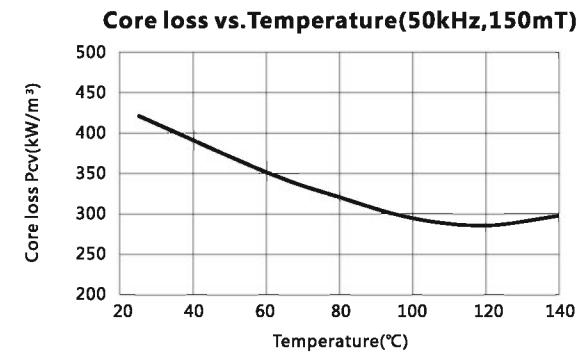
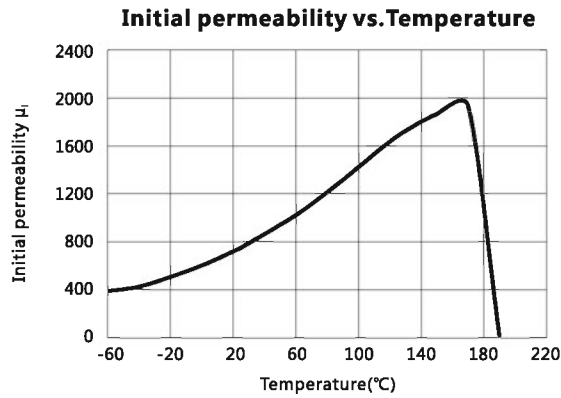
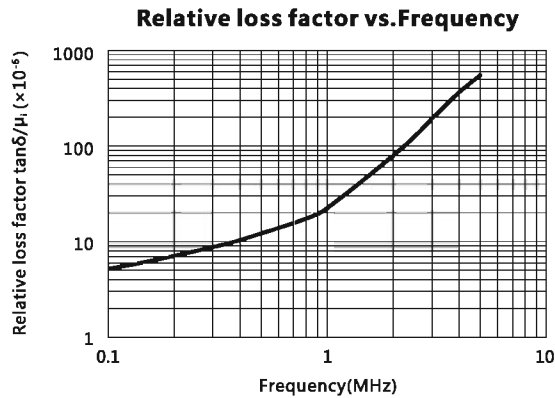
特点 / Features:

- 1. 低功耗 / Low Power Loss

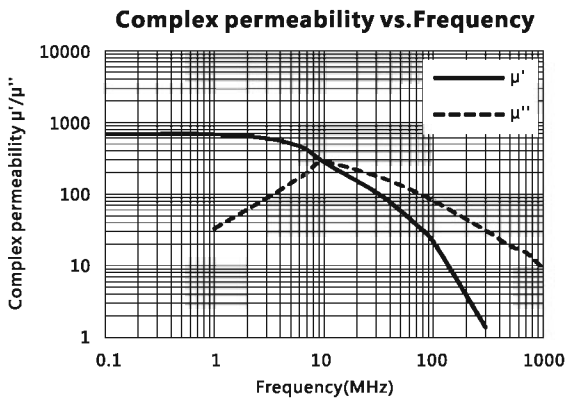


Initial permeability	μ_i	25°C	800±20%
Saturation magnetic flux density	Bs(mT)	25°C	410
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤13
Relative temperature coefficient	α_{μ_r} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	13
Curie temperature	Tc(°C)		>190
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.1×10^3

Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5

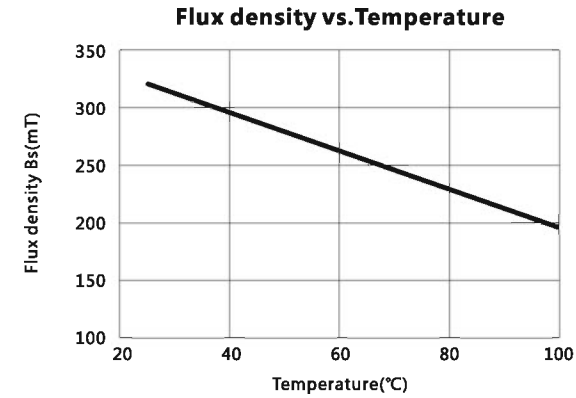
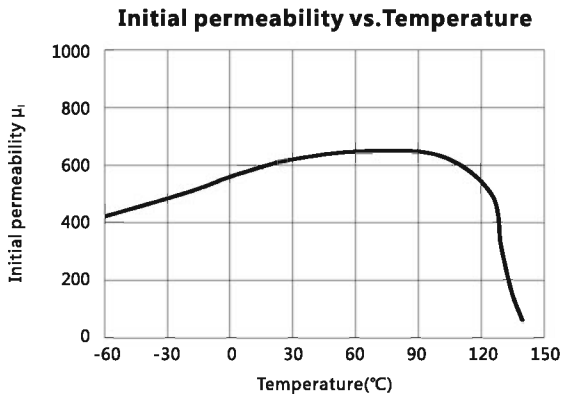
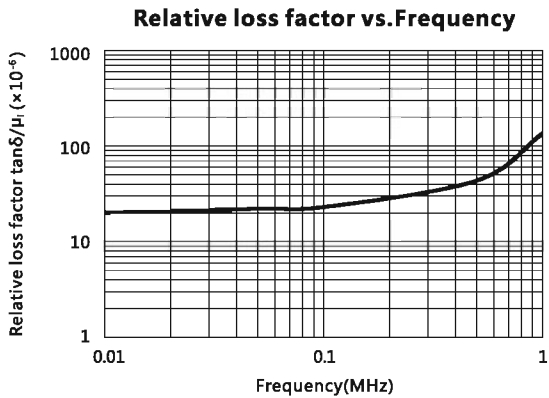


材料 / Material: TN80G



Initial permeability	μ_i	25°C	800±20%
Saturation magnetic flux density	Bs(mT)	25°C	270
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤30
Relative temperature coefficient	α_{μ_r} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	15
Curie temperature	Tc(°C)		>130
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		4.9×10^3

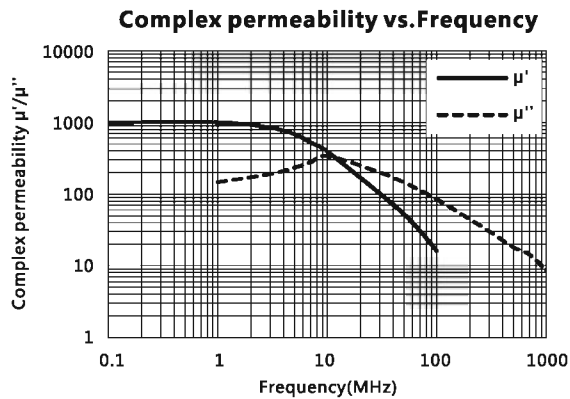
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN90H

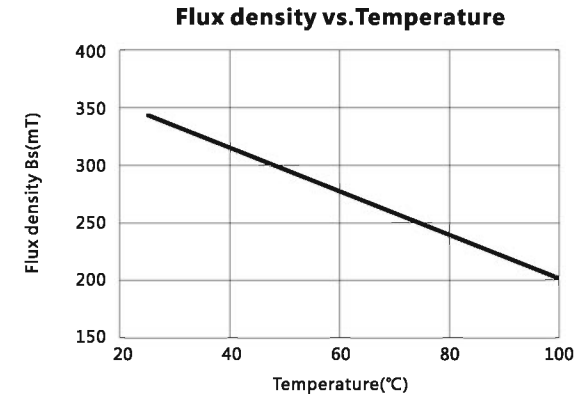
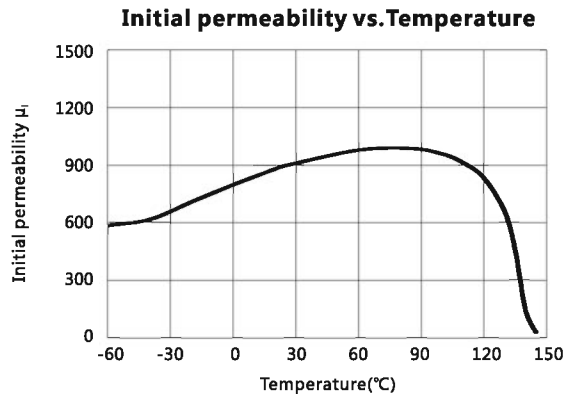
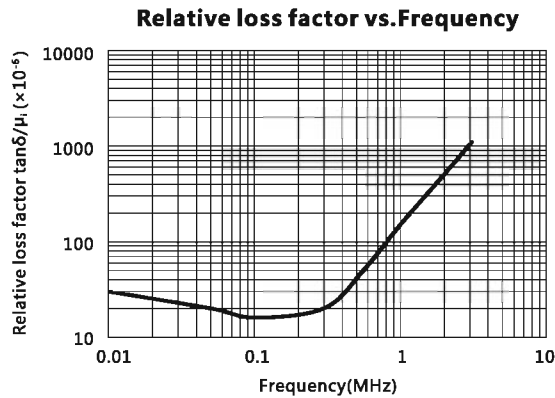
特点 / Features:

1. 耐热冲击 / Thermal Shock Resistance



Initial permeability	μ_i	25°C	900±20%
Saturation magnetic flux density	Bs(mT)	25°C	340
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤20
Relative temperature coefficient	α_{μ_r} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	15
Curie temperature	Tc(°C)		>140
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.1×10^3

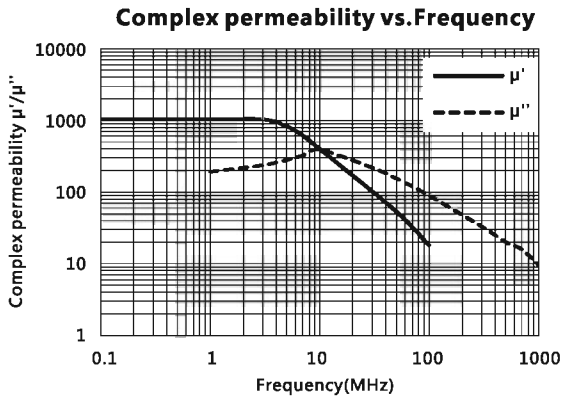
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN100B

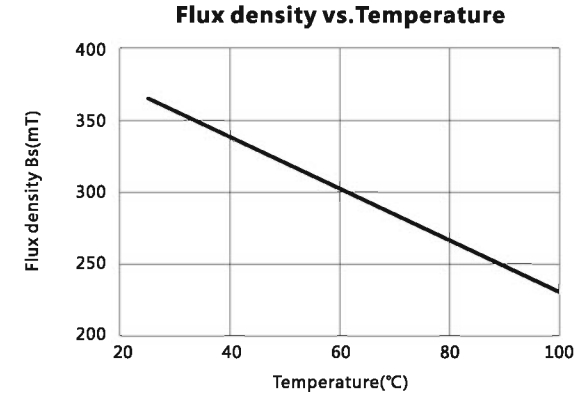
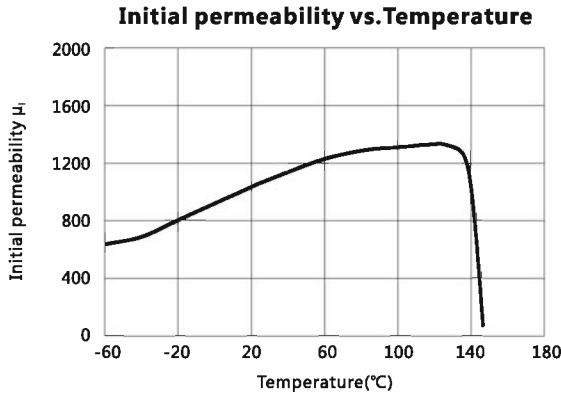
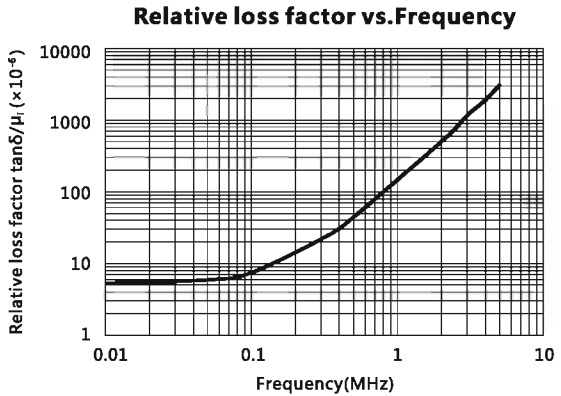
特点 / Features:

- 1. 高饱和磁通密度 / High Bs



Initial permeability	μ_i	25°C	1000±20%
Saturation magnetic flux density	Bs(mT) 4000A/m	25°C	320
Relative loss factor 50kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤10
Relative temperature coefficient	α_{μ_r} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	5
Curie temperature	Tc(°C)		>130
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.2×10^3

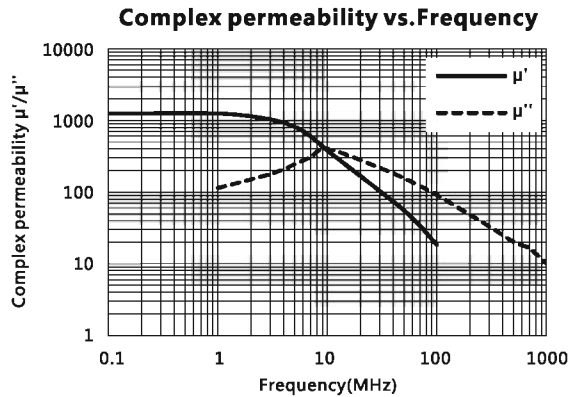
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN120L

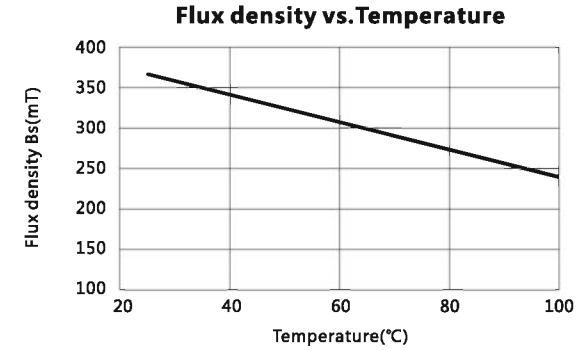
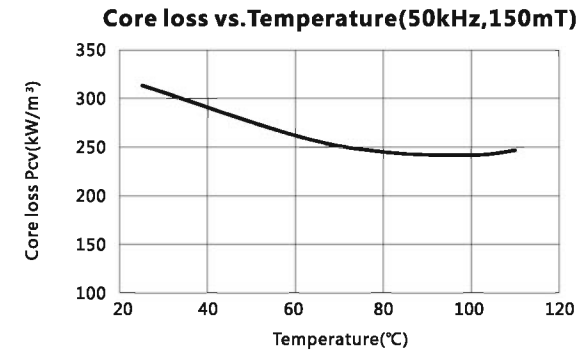
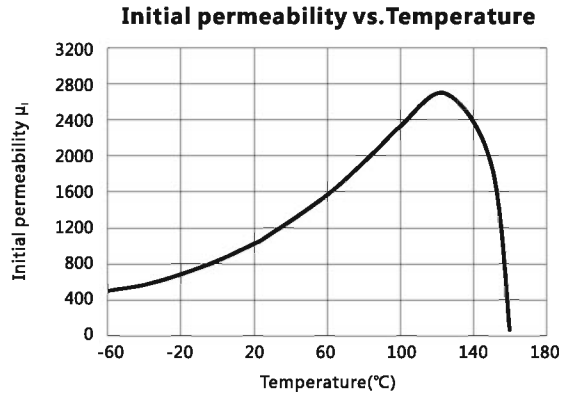
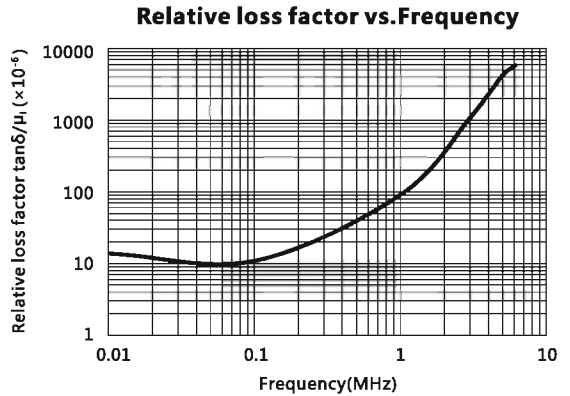
特点 / Features:

- 1. 低功耗 / Low Power Loss



Initial permeability	μ_i	25°C	1200±20%
Saturation magnetic flux density	Bs(mT) 1600A/m	25°C	360
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤18
Relative temperature coefficient	α_{μ_r} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	13
Curie temperature	Tc(°C)		>160
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.1×10^3

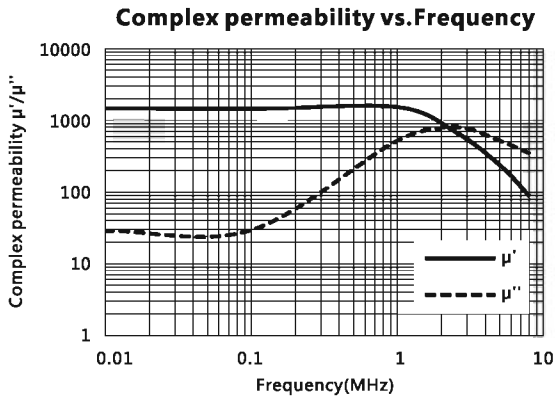
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN130G

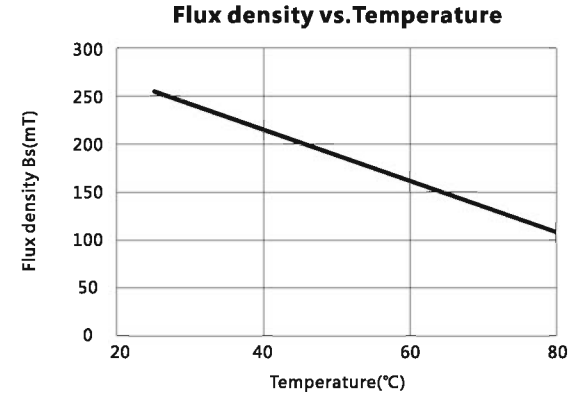
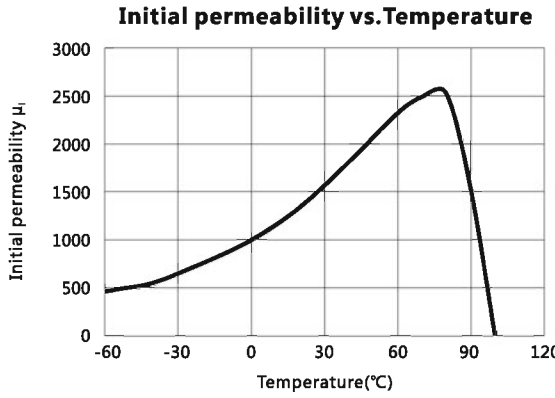
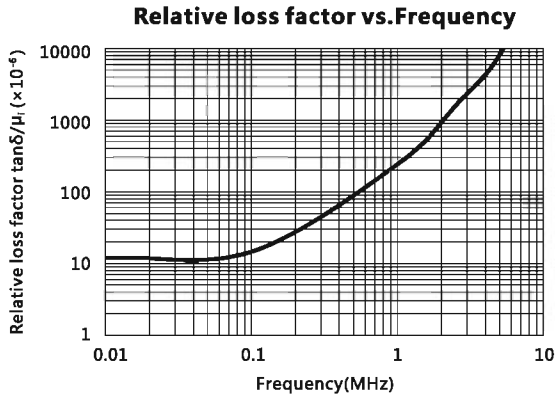
特点 / Features:

1. 高磁导率 / High Initial Permeability



Initial permeability	μ_i	25°C	1300±20%
Saturation magnetic flux density	Bs(mT) 4000A/m	25°C	240
Relative loss factor 10kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤15
Relative temperature coefficient	α_{μ_r} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	8
Curie temperature	Tc(°C)		>85
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		4.8×10^3

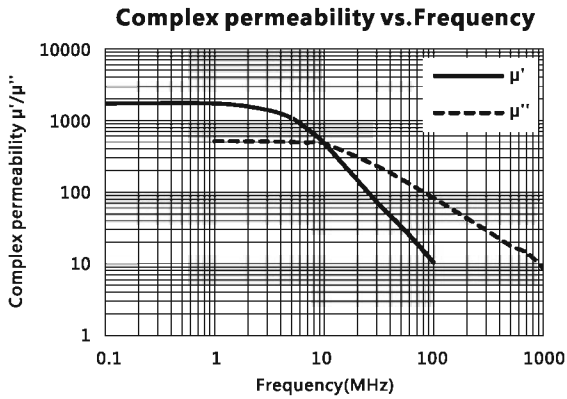
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN150P

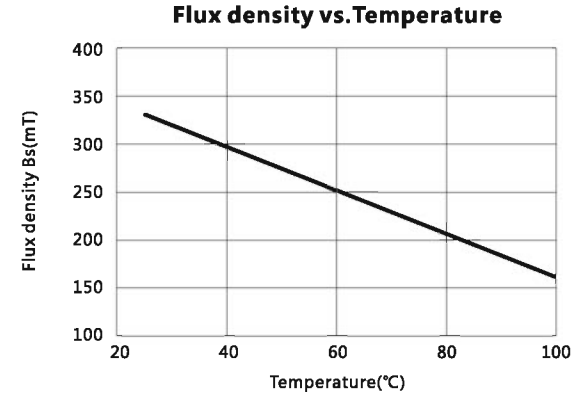
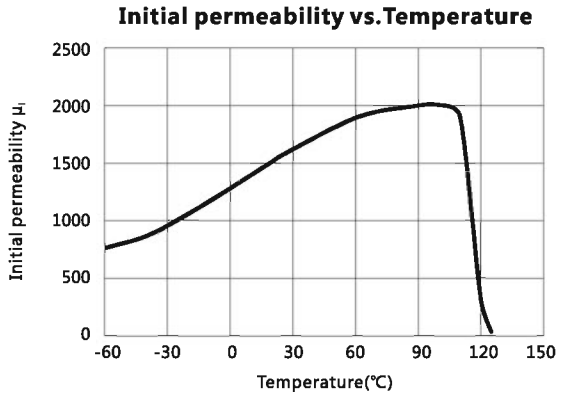
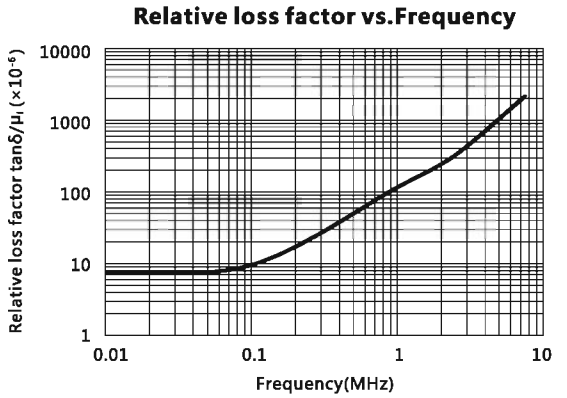
特点 / Features:

1. 高磁导率 / High Initial Permeability



Initial permeability	μ_i	25°C	1500±20%
Saturation magnetic flux density	Bs(mT) 1600A/m	25°C	300
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤20
Relative temperature coefficient	α_{μ_r} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	5
Curie temperature	Tc(°C)		>110
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.2×10^3

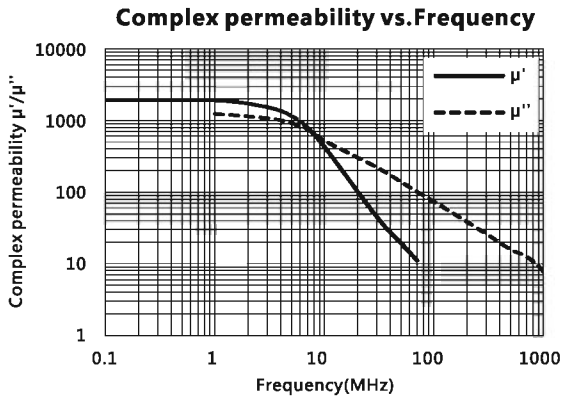
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN200B

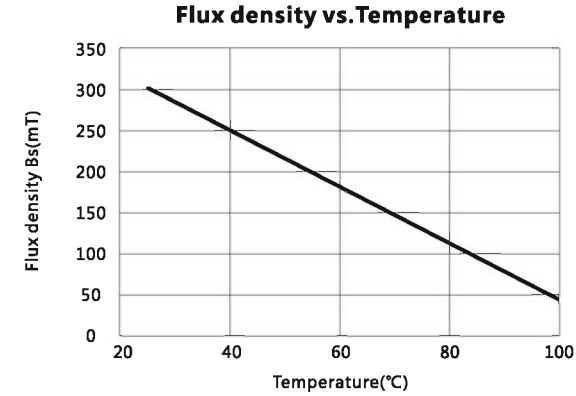
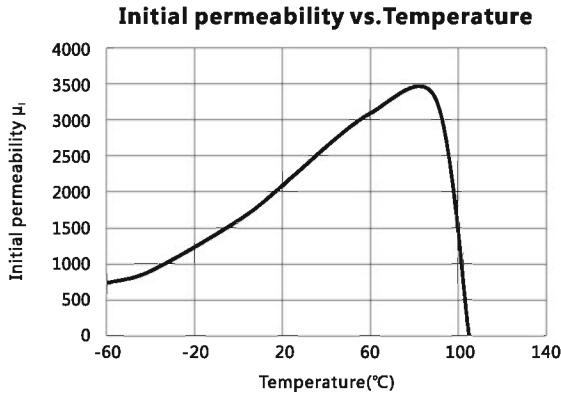
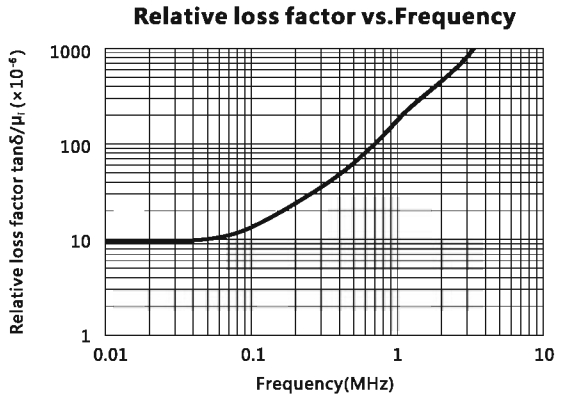
特点 / Features:

- 1. 高饱和磁通密度 / High Bs
- 2. 高磁导率 / High Initial Permeability



Initial permeability	μ_i	25°C	2000±20%
Saturation magnetic flux density	Bs(mT)	25°C	290
Relative loss factor 10kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤10
Relative temperature coefficient	α_{μ} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	2
Curie temperature	Tc(°C)		>100
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.2×10^3

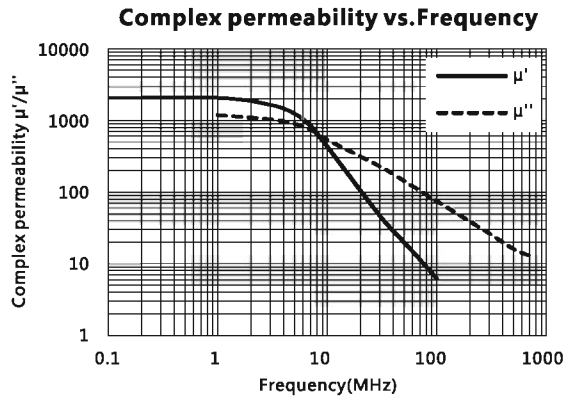
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



材料 / Material: TN250P

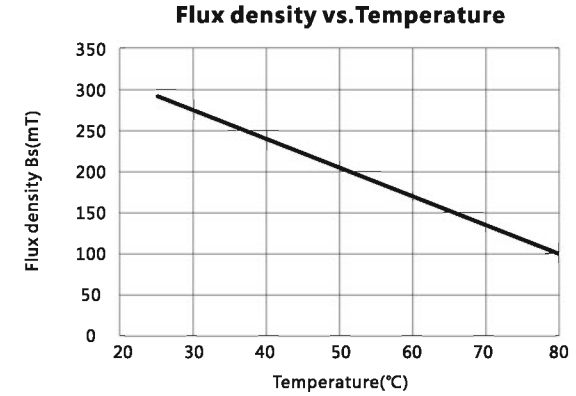
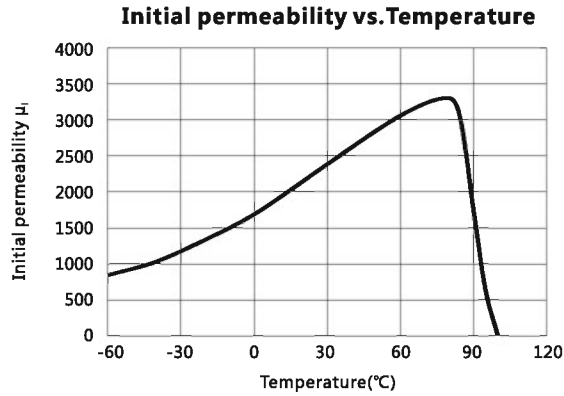
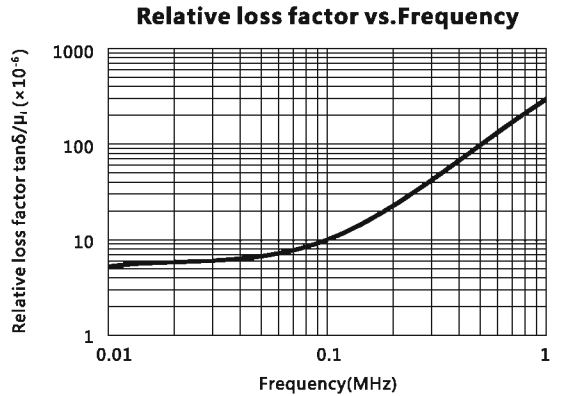
特点 / Features:

- 1. 高磁导率 / High Initial Permeability



Initial permeability	μ_i	25°C	2500±20%
Saturation magnetic flux density	Bs(mT)	25°C	260
Relative loss factor 100kHz	$\tan\delta/\mu_i$ ($\times 10^{-6}$)	25°C	≤10
Relative temperature coefficient	α_{μ} ($\times 10^{-6}/^{\circ}\text{C}$)	20 ~ 60°C	5
Curie temperature	Tc(°C)		>90
Electrical resistivity	$\rho(\Omega\cdot\text{m})$		10^6
Density	d(kg/m³)		5.1×10^3

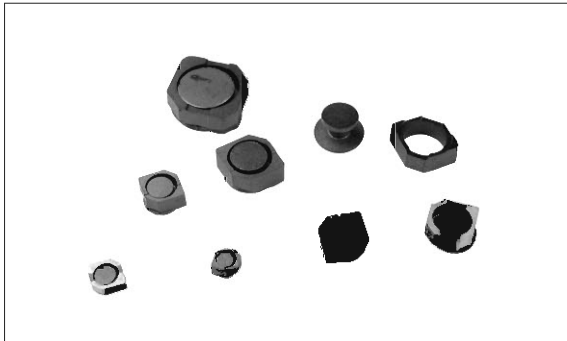
Test core : Toroid(mm)
OD : 12.7
ID : 7.9
H : 6.5



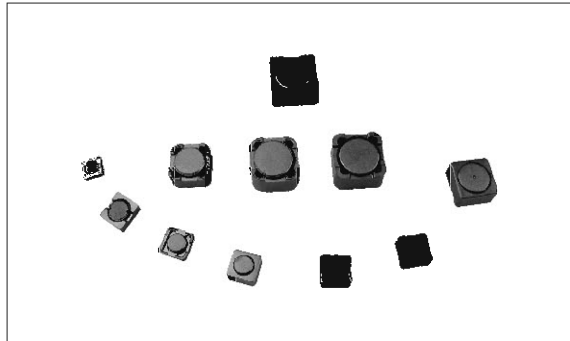
SMD Series



SMD1



SMD2



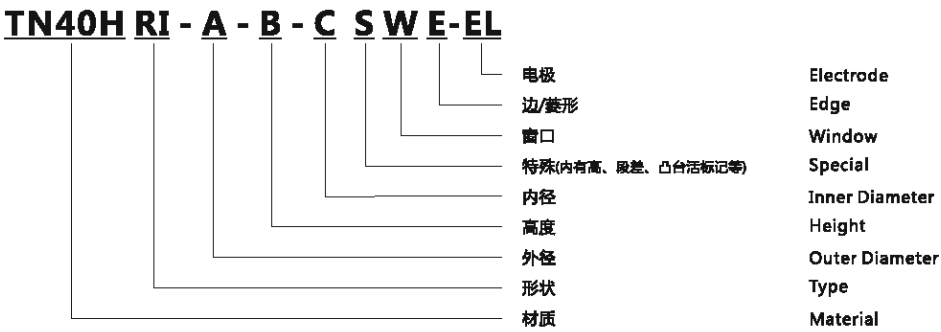
SMD3



SMD4

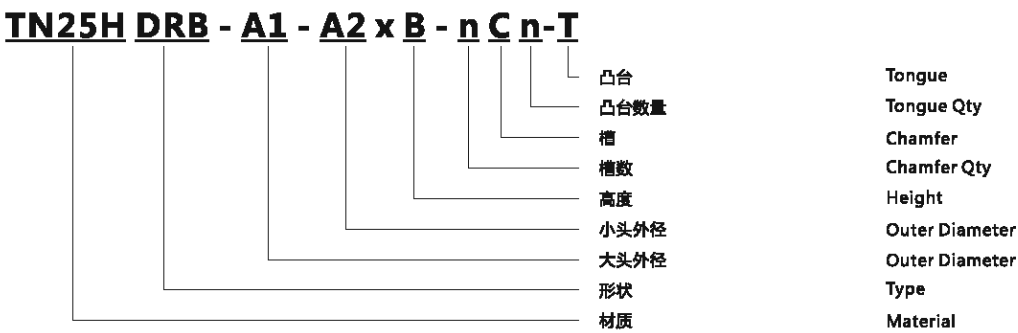
RI Type Core

命名表示 / Ordering Core System



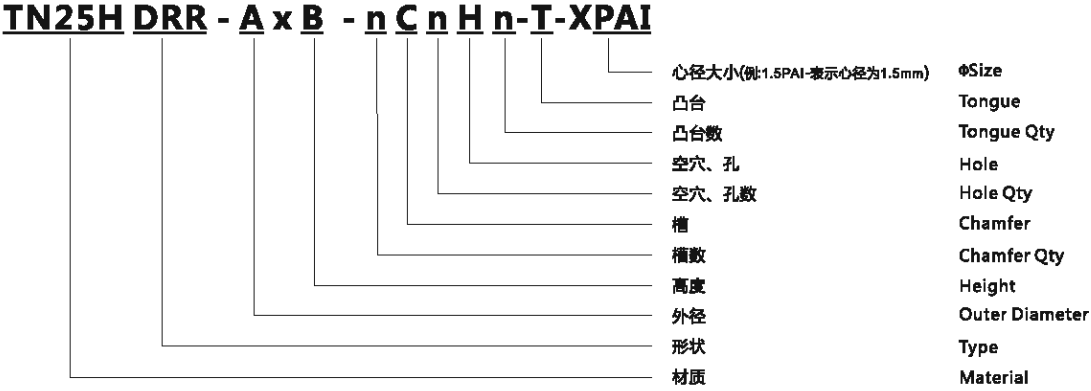
DRB Type Core

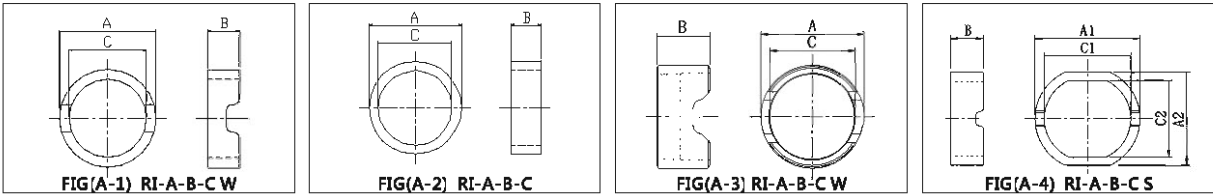
命名表示 / Ordering Core System



DRR Type Core

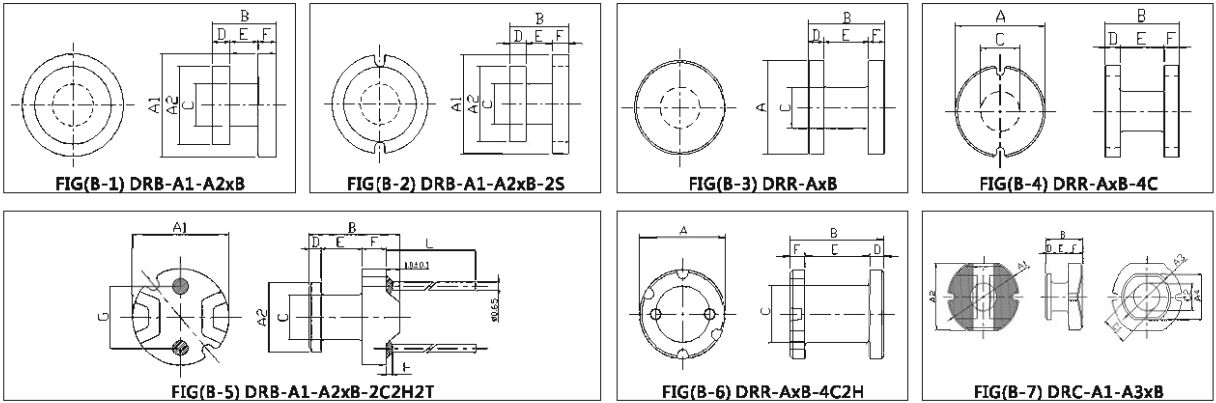
命名表示 / Ordering Core System



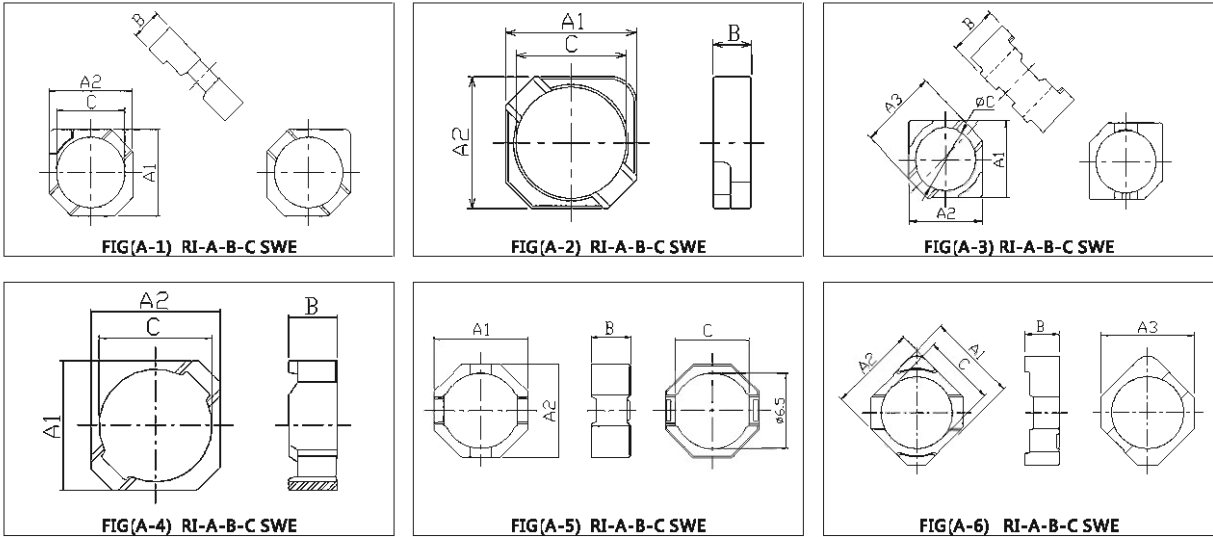


SMD 1 Type Core

型号 TYPE	尺寸 Dimensions (mm)				图例 FIG
	A1 (A)	A2	B	C1 (C)	
RI-3.8-1.1-3.1W	3.80±0.1		1.10±0.07	3.10±0.1	A-1
RI-4.1-1.5-3.05W	4.10±0.1		1.50±0.1	3.05±0.1	A-1
RI-5.9-1.8-4.9W	5.85±0.1		1.90±0.1	4.90±0.15	A-1
RI-5.9-2.2-4.9W	5.85±0.1		2.20±0.1	4.90±0.15	A-1
RI-6.8-1.95-5.7W	6.80±0.2		1.95±0.15	5.80±0.2	A-1
RI-6.8-2.15-5.8W	6.80±0.2		2.15±0.15	5.80±0.2	A-1
RI-6.8-2.35-5.7W	6.80±0.2		2.35±0.15	5.80±0.2	A-1
RI-6.8-3.7-5.8W	6.80±0.2		3.70±0.15	5.80±0.2	A-1
RI-6.8-4.7-5.8W	6.80±0.2		4.70±0.15	5.80±0.2	A-1
RI-7.0-1.1-6.0W	7.00±0.2		1.10±0.1	6.00±0.2	A-1
RI-9.8-3.0-8.0W	9.80±0.2		3.00±0.1	8.00±0.1	A-1
RI-9.8-3.8-8.0W	9.80±0.2		3.80±0.1	8.00±0.1	A-1
RI-7.8-4.2-6.6W	7.80±0.2		4.20±0.15	6.60±0.15	A-1
RI-12.2-4.1-10.1W	12.20±0.25		4.10±0.25	10.10±0.25	A-3
RI-12.2-5.3-10.1W	12.20±0.2		5.30±0.15	10.10±0.15	A-3
RI-12.2-6.3-10.1W	12.20±0.2		6.30±0.15	10.10±0.15	A-3
RI-12.5-14.2-9.8	12.50±0.2		14.20±0.15	9.80±0.2	A-2
RI-12.7-5.75-11W	12.70±0.25		5.75±0.15	11.00±0.25	A-1
RI-16-14-13.6W	16.00±0.15		14.00±0.15	13.60±0.15	A-1
RI-6.2-2.2-4.5WE	6.20±0.15	5.80±0.15	2.20±0.15	4.50±0.15	A-4
RI-7.8-3.2-6.5W	7.80±0.2	7.00±0.2	3.20±0.15	6.50±0.2	A-4
RI-10-3.2-8.3SWE	10.00±0.2	9.00±0.2	3.20±0.15	8.30±0.2	A-4

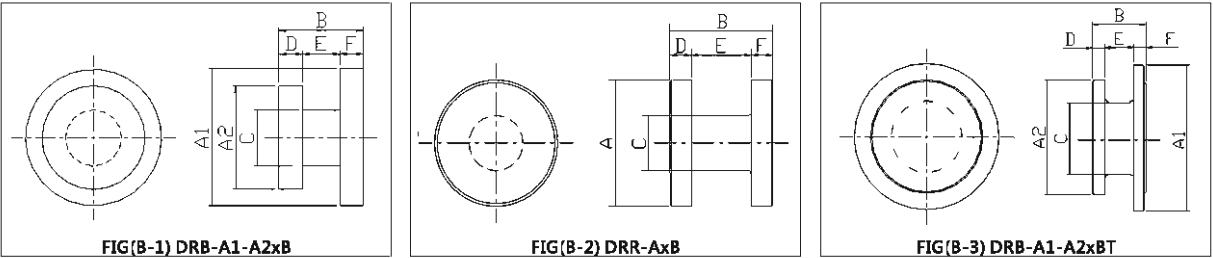


型号 TYPE	尺寸 Dimensions (mm)							图例 FIG
	A1 (A)	A2	B	C	D	E	F	
DRB-3.5-2.6×1.5-1.2PAI	3.50±0.1	2.60±0.1	1.50±0.1	1.20±0.1	0.40±0.1	0.70±0.1	0.40±0.1	B-1
DRB-4.1-2.9×1.8-2S	4.10±0.07	2.90±0.07	1.80±0.1	1.30±0.07	0.30±0.07	1.20±0.07	0.30±0.07	B-2
DRR-4.5×2.0-1.8PAI	4.50±0.07		2.00±0.1	1.80±0.1	0.45±0.1	1.10±0.1	0.45±0.1	B-3
DRR-4.5×2.4-2.2PAI	4.50±0.1		2.40±0.02	2.00±0.15	(0.42)	1.45±0.15	(0.43)	B-3
DRR-5.4×2.25-4C-2.6PAI	5.40±0.15		2.25±0.15	2.60±0.15	(0.53)	1.20±0.15	(0.53)	B-4
DRR-5.4×2.45-4C-2.6PAI	5.40±0.15		2.45±0.15	2.60±0.15	(0.50)	1.45±0.15	(0.50)	B-4
DRR-5.4×2.65-4C-2.4PAI	5.40±0.2		2.65±0.15	2.40±0.15	(0.65)	1.35±0.15	(0.65)	B-4
DRR-5.4×4-4C-2.5PAI	5.40±0.2		4.00±0.15	2.50±0.15	0.75±0.1	2.50±0.15	0.75±0.1	B-4
DRR-5.4×5-4C-3.2PAI	5.40±0.2		5.00±0.15	3.20±0.15	0.75±0.1	3.50±0.15	0.75±0.1	B-4
DRR-5.5×1.4-2.4PAI	5.50±0.1		1.40±0.05	2.40±0.1	(0.40)	0.60±0.1	(0.40)	B-3
DRR-7.4×3.2-4.6PAI	7.40±0.1		3.20±0.1	4.60±0.1	0.70±0.1	1.80±0.1	0.70±0.1	B-3
DRR-7.4×4-4.5PAI	7.40±0.1		4.00±0.1	4.50±0.1	0.80±0.1	2.40±0.1	0.80±0.1	B-3
DRB-7.8-5.6×7.2-2C2H2T-06515-3.6PAI	7.80±0.15	5.60±0.15	7.20±0.2	3.60±0.15	1.00±0.15	3.30±0.15	1.90±0.15	B-5
DRR-9.6×4.3-4.0PAI	9.60±0.15		4.30±0.15	4.00±0.15	0.85±0.1	2.60±0.15	0.85±0.1	B-3
DRR-9.6×5.5-5.3PAI	9.60±0.1		5.50±0.15	5.30±0.15	0.95±0.1	3.60±0.15	0.95±0.1	B-3
DRR-9.6×6.5-5.5PAI	9.60±0.15		6.50±0.15	5.50±0.15	1.05±0.1	4.40±0.15	1.05±0.1	B-3
DRR-8×12.5-5.5PAI	8.00±0.1		12.50±0.2	5.50±0.15	1.75±0.15	9.00±0.2	1.75±0.15	B-3
DRR-9.8×5.7-4C-5.8PAI	9.80±0.2		5.70±0.2	5.80±0.15	1.10±0.15	3.50±0.2	1.10±0.15	B-4
DRR-12×13-4C2H-7.6PAI	12.00±0.1		13.00±0.15	7.60±0.1	2.00±0.1	9.00±0.1	2.00±0.1	B-6
DRC-5.8-4.0×3.2-EL	5.80±0.15	4.00±0.15	3.20±0.15	1.80±0.15	0.50±0.15	1.70±0.15	1.00±0.15	B-7
DRC-7.8-5.7×4.5-EL	7.80±0.15	5.70±0.15	4.50±0.15	3.50±0.15	0.90±0.15	2.30±0.15	1.30±0.15	B-7
DRC-10-7.0×5.2-EL	10.00±0.15	7.00±0.15	5.20±0.15	3.80±0.15	1.10±0.15	2.40±0.15	1.70±0.15	B-7

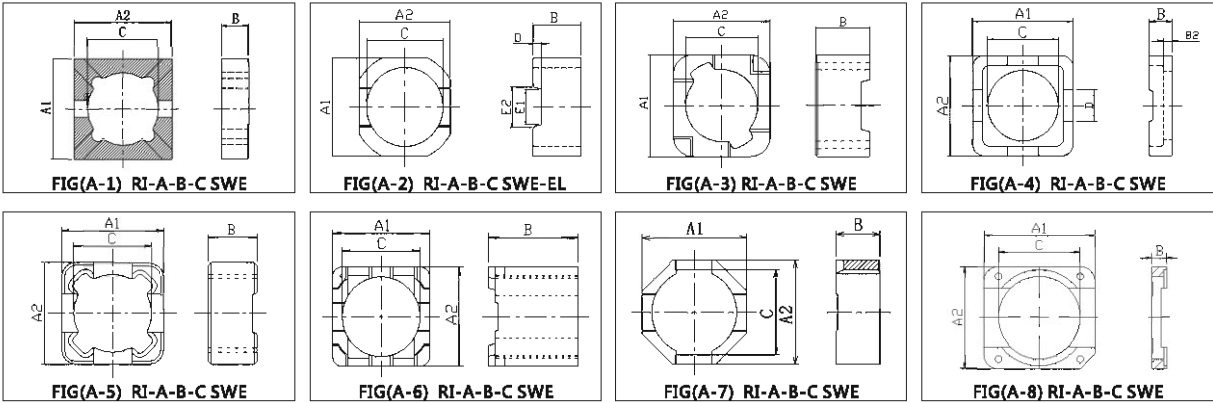


SMD 2 Type Core

型号 TYPE	尺寸 Dimensions (mm)					图例 FIG
	A1	A2	A3	B	C	
RI-3.0-0.93-2.4SWE	3.00±0.1	3.00±0.1		0.93±0.1	2.40±0.07	A-1
RI-3.0-1.25-2.4SWE	3.00±0.1	3.00±0.1		1.25±0.1	2.40±0.07	A-1
RI-3.0-1.65-2.4SWE	3.00±0.1	3.00±0.1		1.65±0.1	2.40±0.07	A-1
RI-3.8-1.35-3.1SWE	3.80±0.1	3.80±0.1	4.00±0.1	1.35±0.1	3.10±0.1	A-1
RI-4.7-1.45-3.9SW	4.70±0.1	4.70±0.1	4.90±0.1	1.45±0.1	3.90±0.1	A-3
RI-4.7-2.5-3.9SWE	4.70±0.1	4.70±0.1	4.90±0.1	2.45±0.1	3.90±0.1	A-3
RI-4.8-2.1-4.1SWE	4.80±0.1	4.80±0.1		2.10±0.1	4.10±0.1	A-4
RI-5.0-1.7-4.2WE	5.00±0.1	5.00±0.1		1.70±0.1	4.20±0.1	A-2
RI-5.6-2.1-4.9SWE	5.60±0.1	5.60±0.1		2.10±0.07	4.90±0.1	A-4
RI-5.7-1.45-4.8SWE	5.70±0.15	5.70±0.15	6.00±0.15	1.45±0.15	4.80±0.15	A-3
RI-5.7-2.45-4.8SWE	5.70±0.2	5.70±0.2	6.00±0.15	2.45±0.15	4.80±0.15	A-3
RI-6.7-1.5-5.5SWE	6.70±0.2	6.70±0.2	7.00±0.2	1.50±0.1	5.50±0.1	A-3
RI-6.7-2.5-5.6SWE	6.70±0.2	6.70±0.2	7.00±0.2	2.50±0.15	5.60±0.15	A-3
RI-6.7-3.3-5.6SWE	6.70±0.2	6.70±0.2	7.00±0.2	3.30±0.15	5.60±0.15	A-3
RI-8.0-3.4-6.5SWE	8.00±0.2	8.00±0.2		3.40±0.15	6.30±0.2	A-5
RI-10-2.25-8.2SWE	10.00±0.2	10.00±0.2	10.50±0.2	2.25±0.15	8.20±0.2	A-6
RI-10-3.35-8.2SWE	10.00±0.2	10.00±0.2	10.50±0.2	3.35±0.15	8.20±0.2	A-6
RI-10-3.65-8.2SWE	10.00±0.2	10.00±0.2	10.50±0.2	3.65±0.15	8.20±0.2	A-6
RI-10-4.25-8.2SWE	10.00±0.2	10.00±0.2	10.50±0.2	4.25±0.15	8.20±0.2	A-6

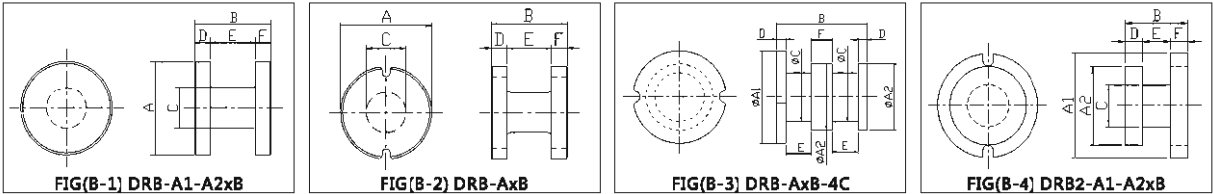


型号 TYPE	尺寸 Dimensions (mm)							图例 FIG
	A1	A2	B	C	D	E	F	
DRB-2.8-2.0×1.05-0.85PAI	2.80±0.1	2.00±0.1	1.05±0.1	0.85±0.07	(0.28)	0.50±0.07	(0.27)	B-1
DRB-2.8-2.0×1.35-1.1PAI	2.80±0.1	2.00±0.1	1.35±0.1	1.10±0.07	0.30+0-0.05	0.75±0.1	0.30+0-0.05	B-1
DRB-2.8-2.0×1.75-1.1PAI	2.80±0.1	2.00±0.1	1.75±0.1	1.10±0.1	0.30±0.1	(1.15)	0.30±0.1	B-1
DRB-3.5-2.6×1.5-1.0PAI	3.50±0.08	2.60±0.07	1.50±0.07	1.00±0.07	0.40±0.07	0.70±0.07	0.40±0.07	B-1
DRB-4.7-3.3×1.7-1.6PAI	4.70+0-0.2	3.30±0.1	1.70±0.1	1.60±0.1	0.40±0.1	0.90±0.1	0.40±0.1	B-1
DRB-4.7-3.3×2.7-2.0PAI	4.70+0-0.2	3.30±0.1	2.70±0.1	2.00±0.1	0.45±0.1	1.80±0.1	0.45±0.1	B-1
DRB-4.8-3.7×2.65-1.7PAI	4.80±0.1	3.70±0.1	2.65±0.1	1.70±0.1	0.50±0.07	1.65±0.07	0.50±0.07	B-1
DRR-3.8×1.7	3.80±0.05		1.70±0.1	0.80±0.05	0.40±0.1	(0.90)	0.40±0.1	B-2
DRB-5.6-4.5×2.65-2.0PAI	5.60±0.1	4.50±0.1	2.65±0.1	2.00±0.1	0.50±0.07	1.65±0.07	0.50±0.07	B-1
DRB-5.6-4.1×1.7-2.0PAI	5.60±0.15	4.10±0.15	1.70+0-0.1	2.00±0.15	0.45±0.1	0.80±0.1	0.45±0.1	B-1
DRB-5.6-4.1×2.7-2.05PAI	5.60±0.15	4.10±0.15	2.70±0.15	2.05±0.15	0.45±0.1	1.80±0.1	0.45±0.1	B-1
DRB-6.6-4.8×1.7-2.3PAI	6.60±0.15	4.80±0.15	1.70±0.1	2.30±0.1	0.45±0.1	(0.75)	0.45±0.1	B-1
DRB-6.6-4.8×2.7-2.3PAI	6.60±0.15	4.80±0.15	2.70±0.15	2.30±0.15	0.50±0.15	1.70±0.1	0.50±0.15	B-1
DRB-6.6-4.8×3.6-2.6PAI	6.60±0.15	4.80±0.15	3.60±0.15	2.60±0.1	(0.60)	2.40±0.1	(0.60)	B-1
DRB-8.0-5.8×4.2-4.0PAI	8.00±0.15	5.80±0.15	4.20±0.15	4.00±0.15	0.80±0.1	2.60±0.15	0.80±0.1	B-1
DRB-9.8-7.55×2.65T-4.0PAI	9.80±0.15	7.55±0.15	2.65±0.15	4.00±0.15	0.80±0.1	0.95±0.1	0.90±0.1	B-3
DRB-9.8-7.55×3.65T	9.80±0.15	7.55±0.15	3.65±0.15	5.00±0.15	0.85±0.1	1.95±0.1	0.85±0.1	B-3
DRB-9.8-7.55×4.1T-5.1PAI	9.80±0.15	7.55±0.15	4.10±0.15	5.10±0.15	0.85±0.1	2.30±0.1	0.95±0.1	B-3
DRB-9.8-7.55×4.65T	9.80±0.15	7.55±0.15	4.65±0.15	4.80±0.15	0.83±0.1	3.00±0.1	0.83±0.1	B-3

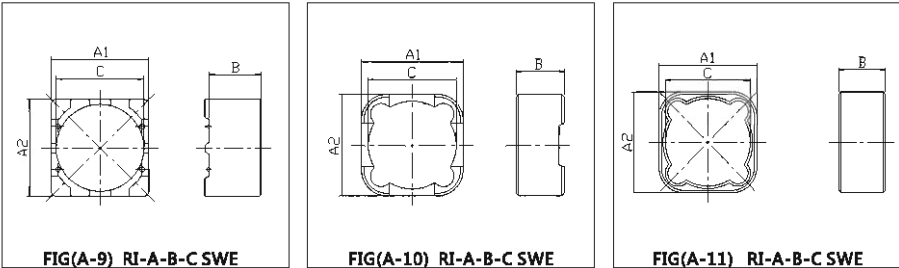


SMD 3 Type Core

型号 TYPE	尺寸 Dimensions (mm)					图例 FIG
	A1	A2	A3	B	C	
RI-5.05-1.7-4.15SWE	5.05±0.15	5.05±0.15	5.42±0.15	1.70±0.15	4.15±0.15	A-2
RI-5.05-1.7-3.85SWE-EL	5.05±0.1	5.05±0.1		1.70+0.05-0.15	3.85±0.1	A-1
RI-5.2-1.6-4.1WE	5.20±0.15	5.20±0.15		1.60±0.1	4.10±0.1	A-2
RI-5.2-2.6-4.1WE	5.20±0.15	5.20±0.15		2.60±0.1	4.10±0.1	A-2
RI-6.0-2.55-4.85WE	6.00±0.15	5.70±0.15		2.55±0.15	4.80±0.15	A-2
RI-6.0-3.05-4.85SWE	6.00±0.15	5.70±0.15		3.05±0.15	4.80±0.15	A-2
RI-6.2-2.3-4.4SWE	6.20±0.15	5.90±0.15		2.30±0.15	4.40±0.2	A-3
RI-6.2-4.3-4.4SWE	6.20±0.15	5.90±0.15		4.30±0.15	4.40±0.2	A-3
RI-6.7-1.8-4.7SWE	6.70±0.15	6.70±0.15		1.80±0.15	4.70±0.15	A-4
RI-6.7-2.75-4.7SWE	6.70±0.15	6.70±0.15		2.75±0.15	4.70±0.15	A-4
RI-6.7-4.15-4.7SWE	6.70±0.15	6.70±0.15		4.15±0.15	4.70±0.15	A-4
RI-7.3-2.7-5.7SWE	7.30±0.15	7.30±0.15		2.70±0.15	5.70±0.15	A-5
RI-7.3-3.5-5.7SWE	7.30±0.15	7.30±0.15		3.50±0.15	5.70±0.15	A-5
RI-8.0-7.45-6.3SWE	8.00±0.15	8.00±0.15		7.45±0.15	6.30±0.15	A-6
RI-8-2.25-6.5SWE	8.00±0.15	8.00±0.15		2.25±0.1	6.50±0.15	A-7
RI-8-3.35-6.5SWE	8.00±0.15	8.00±0.15		3.35±0.1	6.50±0.15	A-7
RI-10-5.2-8.2SWE	10.00±0.15	10.00±0.15		5.20±0.1	8.20±0.15	A-8
RI-10-5.45-8.85SWE	10.00±0.15	10.00±0.15		5.45+0/-0.3	8.85+0.3/-0	A-9
RI-10.1-2.8-8.35SWE	10.10±0.15	10.10±0.15		2.80±0.15	8.35±0.15	A-10

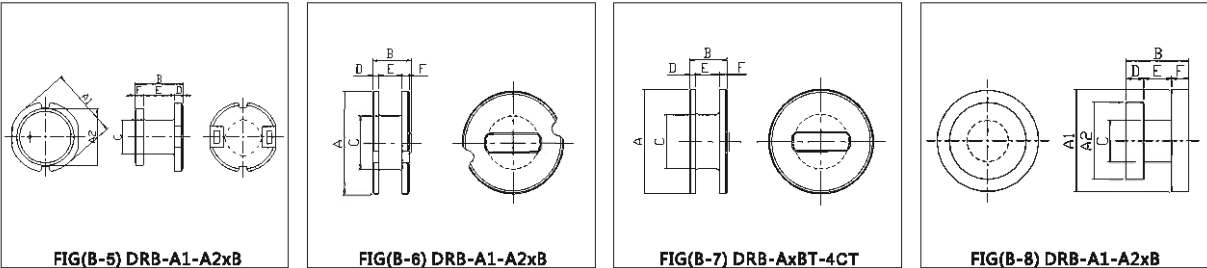


型号 TYPE	尺寸 Dimensions (mm)							图例 FIG
	A1	A2	B	C	D	E	F	
DRR-3.9×1.7-4C-1.9PAI	3.90±0.1		1.70±0.1	1.90±0.1	(0.45)	0.80±0.1	(0.45)	B-2
DRR-3.65×1.7-1.8PAI	3.65±0.1		1.70+0.05-0.15	1.80±0.1	(0.45)	0.80±0.1	(0.45)	B-1
DRR-3.85×1.7-4C	3.85±0.1		1.70±0.1	1.70±0.1	(0.45)	0.80±0.1	(0.45)	B-1
DRR-3.85×2.7-4C	3.85±0.15		2.70±0.1	2.00±0.1	0.45±0.1	1.80±0.1	0.45±0.1	B-2
DRR-4.5×2.7-4C	4.50±0.15		2.70±0.15	2.00±0.15	0.50±0.1	1.70±0.15	0.50±0.1	B-2
DRR-4.5×3.2-4C	4.50±0.15		3.20±0.15	2.20±0.15	0.55±0.1	2.10±0.15	0.55±0.1	B-2
DRR-4×2.4	4.00±0.1		2.40±0.15	2.00±0.1	(0.55)	1.30±0.15	(0.55)	B-1
DRR-4×4.4	4.00±0.1		4.40±0.15	2.40±0.1	(0.55)	3.30±0.15	(0.55)	B-1
DRR-4.5×2.1-1.5PAI	4.50±0.1		2.10±0.1	1.40±0.1	(0.50)	1.10±0.1	(0.50)	B-1
DRR-4.5×3.0-1.65PAI	4.50±0.1		3.00±0.1	1.65±0.1	(0.60)	1.80±0.1	(0.60)	B-1
DRR-4.5×4.4-1.8PAI	4.50±0.15		4.40±0.15	1.80±0.15	(0.70)	3.00±0.15	(0.70)	B-1
DRR-5.3×2.8	5.30±0.15		2.80±0.15	2.50±0.15	0.65±0.1	1.50±0.15	0.65±0.1	B-1
DRR-5.3×3.7	5.30±0.15		3.70±0.15	2.80±0.15	0.60±0.15	2.50±0.15	0.60±0.15	B-1
DRB2-8.0-5.8×7.8-2C-4.3PAI	8.00±0.15	5.80±0.15	7.80±0.15	4.30±0.15	0.80±0.1	2.21±0.1	1.78±0.1	B-3
DRB-8-5.7×2.7-4C-3.0PAI	8.00±0.1	5.70±0.1	2.70±0.1	3.00±0.1	0.50±0.1	1.70±0.1	0.50±0.1	B-4
DRB-8-5.7×4.15-4C-3.8PAI	8.00±0.1	5.70±0.1	4.15±0.1	3.80±0.1	0.80±0.1	2.55±0.1	0.80±0.1	B-4
DRB-9.5-7.5×6.2-4C-4.2PAI	9.50±0.1	7.50±0.1	6.20±0.1	4.20±0.1	1.00±0.1	4.20±0.1	1.00±0.1	B-4
DRB-10-8.2×6.95-2C-4.9PAI	10.00±0.15	8.20±0.15	6.95+0/-0.3	4.90±0.1	1.30+0.05/-0.2	4.40±0.1	(1.25)	B-5
DRR-7.9×3.0	7.90±0.15		3.00±0.15	4.60±0.15	0.50±0.15	2.00±0.15	0.50±0.15	B-1

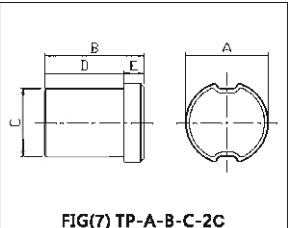
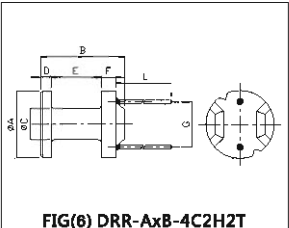
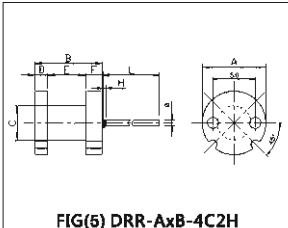
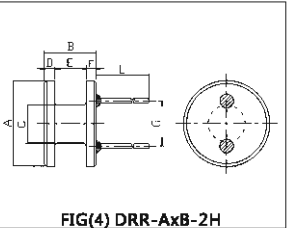
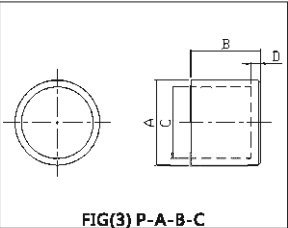
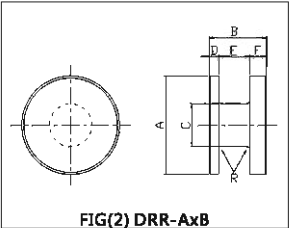
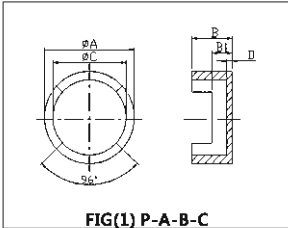


SMD 3 Type Core

型号 TYPE	尺寸 Dimensions (mm)					图例 FIG
	A1	A2	A3	B	C	
RI-10.1-3.9-8.35SWE	10.10±0.15	10.10±0.15		3.90±0.15	8.35±0.15	A-10
RI-10.1-4.9-8.35SWE	10.10±0.15	10.10±0.15		4.90±0.15	8.35±0.15	A-10
RI-10.1-5.9-8.35SWE	10.10±0.15	10.10±0.15		5.90±0.15	8.35±0.15	A-10
RI-10.1-6.9-8.35 SWE	10.10±0.15	10.10±0.15		6.90±0.15	8.35±0.15	A-10
RI-11.45-1.5-8.4SWE	11.45±0.15	10.40±0.15		1.50±0.1	8.40±0.2	A-8
RI-12-3.0-10.4SWE	12.00±0.2	12.00±0.2		3.00±0.15	10.40+0.3-0.0	A-10
RI-12-3.65-10.4SWE	12.00±0.2	12.00±0.2		3.65±0.15	10.40+0.3-0.0	A-10
RI-12-5.1-10.4SWE	12.00±0.2	12.00±0.2		5.10±0.15	10.40+0.3-0.0	A-10
RI-12-6.6-10.4SWE	12.00±0.2	12.00±0.2		6.60±0.15	10.40+0.3-0.0	A-10
RI-12.1-3.65-10.7SWE-B	12.10±0.2	12.10±0.2		3.65±0.2	10.70+0.2-0.1	A-10
RI-12.1-5.1-10.7SWE-B	12.10±0.2	12.10±0.2		5.10±0.2	10.70+0.2-0.1	A-10
RI-12.1-6.6-10.7SWE-B	12.10±0.2	12.10±0.2		6.60±0.2	10.70+0.2-0.1	A-10
RI-12-8.8-10.6SWE	12.00±0.2	12.00±0.2		8.80±0.2	10.40+0.3-0.1	A-10
RI-12.2-3.05-10.6SE	12.20±0.2	12.20±0.2		3.05±0.1	10.60+0.1-0.15	A-11
RI-12.2-4.38-10.6SE	12.20±0.2	12.20±0.2		4.38±0.1	10.60+0.1-0.15	A-11
RI-12.2-6.41-10.6SE	12.20±0.2	12.20±0.2		6.41±0.1	10.60+0.1-0.15	A-11
RI-12.2-4.6-10.6SE	12.20±0.2	12.20±0.2		4.60±0.5	10.60+0.1-0.15	A-11

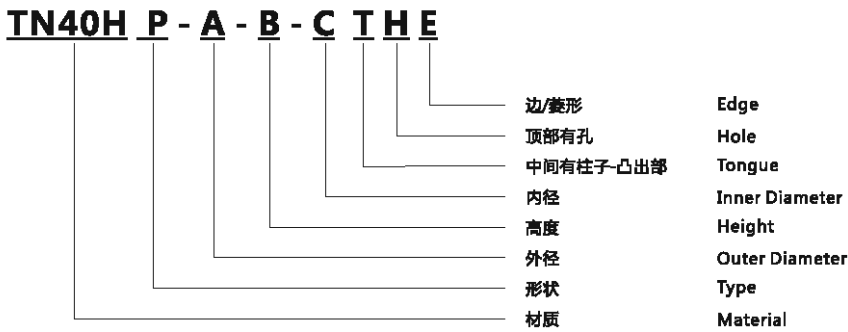


型号 TYPE	尺寸 Dimensions (mm)							图例 FIG
	A1	A2	B	C	D	E	F	
DRR-7.9×4.0	7.9±0.15		4.00±0.15	4.50±0.15	1.00±0.15	2.00±0.15	1.00±0.15	B-1
DRR-7.9×5.0	7.9±0.15		5.00±0.15	4.50±0.15	1.00±0.15	3.00±0.15	1.00±0.15	B-1
DRR-7.9×6.0	7.9±0.15		6.00±0.15	5.40±0.15	1.00±0.15	4.00±0.15	1.00±0.15	B-1
DRR-7.9×7-5.5PAI	7.9±0.15		7.00±0.15	5.50±0.15	1.00±0.15	5.00±0.15	1.00±0.15	B-1
DRB-9.5-7.8×2.0	9.5±0.15	7.80±0.15	2.00±0.15	3.80±0.15	0.50±0.1	1.00±0.1	0.50±0.1	B-8
DRR-9.85×3.3-5.0PAI	9.85±0.15		3.30±0.15	5.00±0.15	0.75±0.1	1.80±0.15	0.75±0.1	B-1
DRR-10×3.85-5.0PAI	10±0.1		3.85±0.1	5.00±0.1	0.95±0.1	1.95±0.1	0.95±0.1	B-1
DRR-10×5.3	10±0.1		5.30+0.0-0.2	5.20±0.1	1.15±0.1	2.90±0.1	1.15±0.1	B-1
DRR-10×7.1	10±0.1		7.10±0.1	6.30±0.1	1.10±0.1	4.90±0.1	1.10±0.1	B-1
DRR-10×3.85	10+0.07-0.13		3.85±0.2	4.80±0.15	(0.98)	1.90±0.15	(0.98)	B-1
DRR-10×5.2	10+0.07-0.13		5.20±0.2	5.20±0.15	1.10±0.1	3.00±0.15	1.10±0.1	B-1
DRR-10×7.0-6.2PAI	10+0.07-0.13		7.00±0.2	6.20±0.15	1.00±0.1	5.00±0.15	1.00±0.1	B-1
DRR-9.85×9.0-6.6PAI	9.85±0.2		9.00±0.25	6.60±0.2	(1.30)	6.40±0.2	(1.30)	B-1
DRR-9.9×3.6-5.0PAI	9.9+0.06-0.1		3.65±0.1	5.00±0.1	0.93±0.1	1.80±0.12	0.93±0.1	B-1
DRR-9.9×5.05-5.0PAI	9.9+0.06-0.1		5.05±0.1	5.20±0.1	1.10±0.1	2.85±0.12	1.10±0.1	B-1
DRR-9.9×7.0-6.4PAI	9.9+0.06-0.1		7.00±0.1	6.40±0.1	1.10±0.1	4.80±0.15	1.10±0.1	B-1
DRB-9.9-9.2×4.8	9.9±0.15	9.20±0.15	4.80±0.15	4.80±0.15	0.90±0.1	3.00±0.15	0.90±0.1	B-8



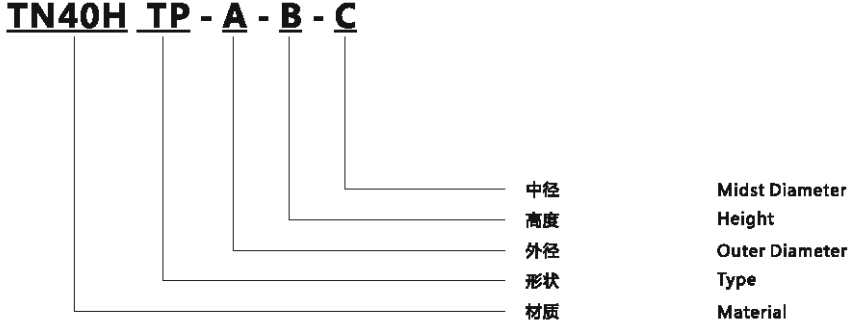
P Type Core

命名表示 / Ordering Core System



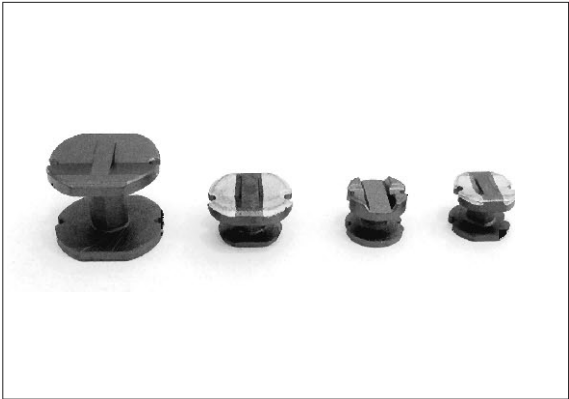
TP Type Core

命名表示 / Ordering Core System



SMD 4 Type Core

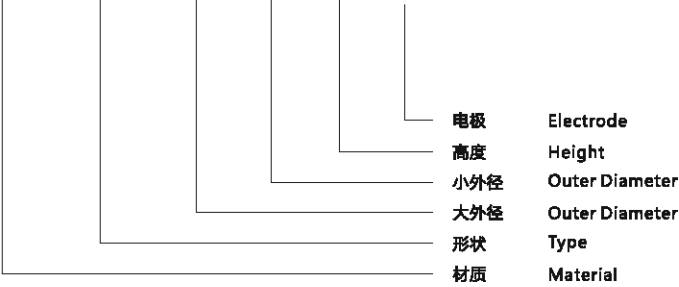
型号 TYPE	尺寸 Dimensions (mm)								图例
	A(A1)	B1(B)(A2)	B2	C	D(C2)	E	F	G	FIG
P-5.4-2.4-4.4W	5.40±0.07	2.40±0.07	1.40±0.07	4.40±0.07	0.30±0.05				1
DRR-4.25×2.2-2.4PAI	4.25±0.07	2.20±0.07		2.40±0.1	0.30±0.07	1.30±0.07	0.60±0.07		2
P-10.5-11.5-8.4	10.50±0.15	11.50±0.2		8.40±0.2	1.50±0.1				3
DRR-7×7.8-2H-0620-4.8PAI	7.00±0.1	7.80±0.2		4.80±0.1	1.65±0.15	4.50±0.15	1.65±0.15		4
P-10.5-12.5-8.0W	10.50±0.2	12.50±0.25		8.00±0.1	1.50±0.1				3
DRR-7.5×8.0-4C2H-0672-4.0PAI	7.50±0.1	8.00±0.1		4.00±0.1	2.00±0.1	4.00±0.1	2.00±0.1		5
P-11.4-10-9.5	11.40±0.2	10.00±0.2		9.40±0.2	8.90±0.2				3
DRR-8×7.5-4C2H2T-0822-4.8PAI	8.00±0.2	7.50±0.2		4.80±0.15	1.10±0.15	3.60±0.15	1.80±0.15	5.00±0.15	6
P-12-10.2-8.85	12.00±0.25	11.05±0.25		8.85±0.2	7.70±0.2	1.20±0.1			3
TP-8.3-10.7-6.7	8.30±0.1	10.70±0.1	10.20±0.2	6.70±0.1	8.00±0.1	2.00±0.1			7



DRC Type Core

● 命名表示 / Ordering Core System

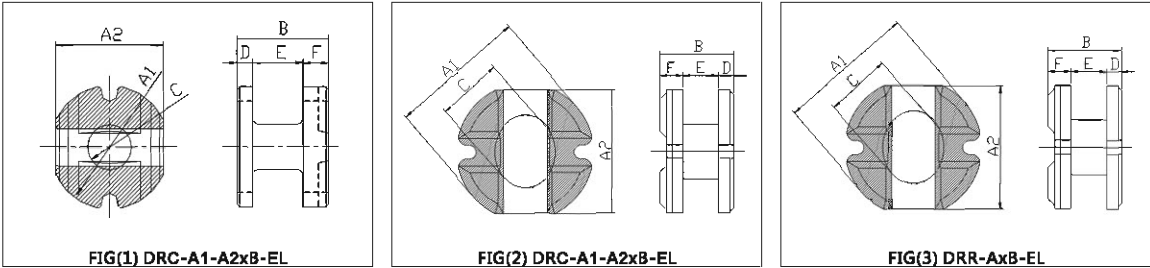
TN25H DRC - A1- A2 x B - EL



● 适用材质 / Available Material : TN25H/ TN40H/ TN65H

DRC Type Core

型号 TYPE	尺寸 Dimensions (mm)							图例 FIG
	A1	A2	B	C	D	E	F	
DRC-3.5-3.0×1.1-EL	3.50±0.15	3.00±0.15	1.10±0.15	1.40±0.1	0.35±0.1	0.40±0.1	0.35±0.1	1
DRC-3.5-3.0×2.1-EL	3.50±0.15	3.00±0.15	2.10±0.15	1.50±0.1	0.40±0.1	1.10±0.1	0.60±0.1	1
DRC-4.5-4.0×2.1-1.5PAI-EL	4.50±0.15	4.00±0.15	2.10±0.15	1.50±0.15	0.45±0.1	1.00±0.1	0.65±0.1	1
DRC-4.5-4.0×3.2-1.8PAI-EL	4.50±0.15	4.00±0.15	3.20±0.1	1.80±0.15	0.60±0.1	1.60±0.1	1.00±0.1	1
DRC-4.5-4.0×3.2-EL	4.50±0.15	4.00±0.15	3.20±0.15	2.00±0.1	0.60±0.1	1.45±0.1	1.15±0.1	1
DRC-5.8-5.2×2.0-EL	5.80±0.15	5.20±0.15	2.00±0.15	2.40±0.15	(0.50)	0.65±0.15	(0.85)	1



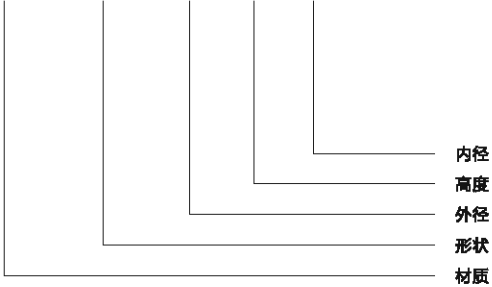
型号 TYPE	尺寸 Dimensions (mm)							图例 FIG
	A1	A2	B	C	D	E	F	
DRC-5.8-5.2×2.5-EL	5.80±0.15	5.20±0.15	2.50±0.15	2.50±0.15	0.60±0.1	0.90±0.15	1.00±0.1	1
DRC-5.8-5.2×3.0-EL	5.80±0.2	5.20±0.15	3.00±0.15	2.50±0.2	(0.50)	1.60±0.15	(0.90)	1
DRC-5.8-5.2×4.5-EL	5.80±0.2	5.20±0.20	4.50±0.2	2.20±0.2	(0.80)	2.40±0.2	(1.30)	1
DRC-5.8-5.2×4.5-2.4PAI-EL	5.80±0.15	5.20±0.15	4.50±0.15	2.40±0.2	(0.80)	2.40±0.15	(1.30)	1
DRC-5.8-5.2×4.5-2.8PAI-EL	5.80±0.2	5.20±0.2	4.50±0.2	2.80±0.2	(0.80)	2.40±0.2	(1.30)	1
DRC-5.8-5.2×4.5-3.0PAI-EL	5.80±0.15	5.20±0.2	4.50±0.2	3.00±0.2	(0.80)	2.40±0.20	(1.30)	1
DRC-7.8-7.0×3.5-EL	7.80±0.15	7.00±0.15	3.50±0.15	3.00±0.15	0.80±0.1	1.50±0.1	1.20±0.1	1
DRC-7.8-7.0×3.5-3.5PAI-EL	7.80±0.15	7.00±0.15	3.50±0.15	3.50±0.15	0.80±0.1	1.50±0.1	1.20±0.1	1
DRC-7.8-7.0×5.0-EL	7.80±0.15	7.00±0.15	5.00±0.15	3.00±0.15	1.00±0.1	2.60±0.1	1.40±0.1	1
DRC-7.8-7.0×5.0-3.5PAI-EL	7.80±0.15	7.00±0.15	5.00±0.15	3.50±0.15	1.00±0.1	2.60±0.1	1.40±0.1	1
DRC-7.8-7.0×5.0-4.0PAI-EL	7.80±0.15	7.00±0.15	5.00±0.15	4.00±0.1	1.00±0.1	2.60±0.1	1.40±0.1	1
DRC-10-9.0×4.0-EL	10.00±0.15	9.00±0.15	4.00±0.15	4.00±0.1	1.00±0.1	1.70±0.2	1.30±0.1	1
DRC-10-9.0×4.0-3.6PAI-EL	10.00±0.15	9.00±0.15	4.00±0.15	3.60±0.1	(1.00)	1.70±0.2	(1.30)	1
DRC-10-9.0×5.4-EL	10.00±0.15	9.00±0.15	5.40±0.15	4.00±0.1	1.20±0.1	2.60±0.1	1.60±0.1	1
DRC-10-9.0×5.4-4.6PAI-EL	10.00±0.15	9.00±0.2	5.40±0.1	4.60±0.15	1.20±0.1	2.60±0.1	1.60±0.1	1
DRC-10-9.0×8.2-EL	10.00±0.15	9.00±0.2	8.20±0.2	4.50±0.15	1.35±0.15	5.50±0.15	1.35±0.1	1
DRC-10-9.0×11.5-5.0PAI-EL	10.00±0.15	9.00±0.2	11.50±0.2	5.00±0.15	(2.00)	7.00±0.2	(2.50)	1
DRC-3.2-2.8×1.5-1.15PAI-EL	3.20±0.15	2.80±0.15	1.50±0.15	1.20±0.1	0.40±0.1	0.40±0.1	0.70±0.1	2
DRC-4.5-4.0×3.05-4C4T-1.8PAI-EL	4.50±0.15	4.00±0.15	3.05±0.15	1.80±0.1	0.60±0.1	1.45±0.1	1.00±0.1	2
DRC-5.0-4.5×3.0-4C4T-2.0PAI-EL	5.00±0.1	4.50±0.15	3.00±0.1	3.00±0.1	0.55±0.1	1.50±0.1	0.95±0.1	2
DRR-5.6×4.5-4C4T-2.4PAI-EL	5.00±0.1		4.50±0.1	2.40±0.1	0.80±0.1	2.10±0.1	1.65±0.1	3
DRR-7.5×5.0-4C4T-3.4PAI-EL	7.50±0.15		5.00±0.15	3.40±0.1	0.90±0.1	2.50±0.1	1.60±0.1	3
DRR-9.5×5.5-4C4T-4.5PAI-EL	9.50±0.15		5.50±0.15	4.50±0.15	1.05±0.15	3.00±0.15	1.45±0.15	3
DRR-13×6.8-4C4T-6.5PAI-EL	13.00±0.20		6.80±0.15	6.50±0.15	1.30±0.15	3.50±0.15	2.00±0.15	3



DRH Type Core

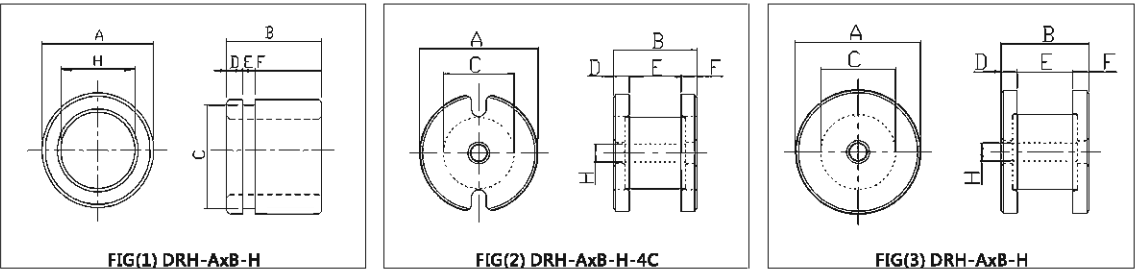
命名表示 / Ordering Core System

TN25H DRH - A x B - H



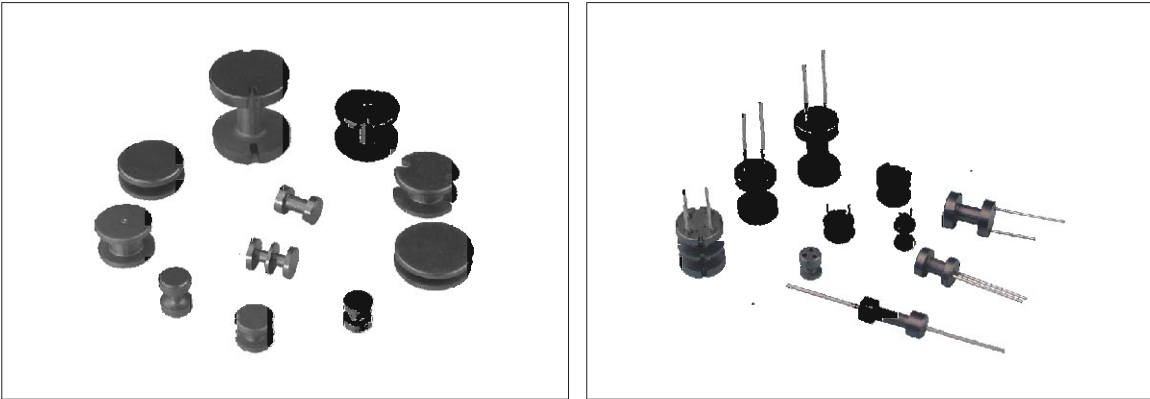
Inner Diameter
Height
Outer Diameter
Type
Material

适用材质 / Available Material : TN25H/ TN40H/ TN65H/ TN65B



DRH Type Core

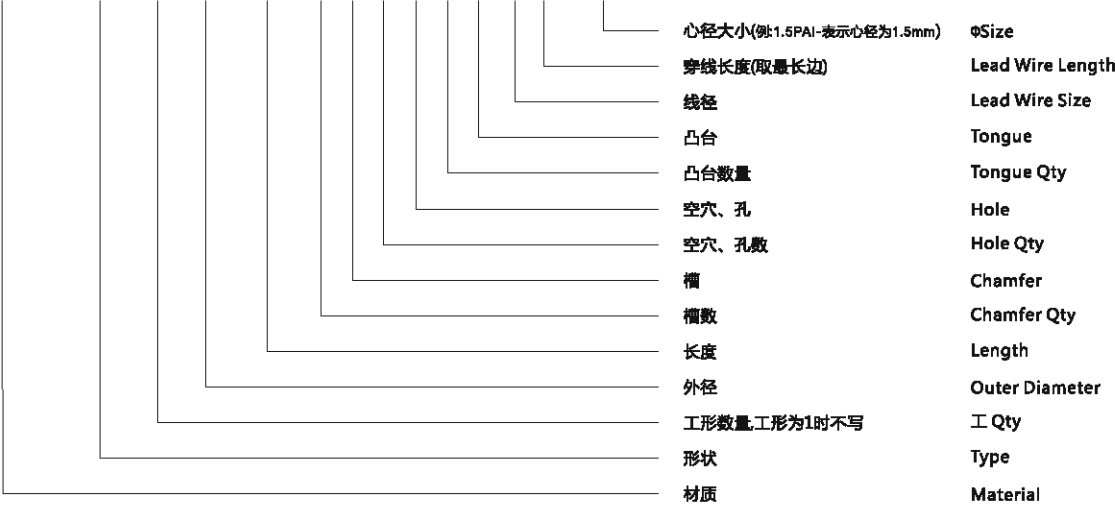
型号 TYPE	尺寸 Dimensions (mm)							图例 FIG
	A	B	C	D	E	F	H	
DRH-10.5×9.0-7.0-9.5PAI	10.50±0.1	9.00±0.1	9.50±0.15	1.5+0.03 -0.1	1.20±0.1	6.30±0.15	7.00±0.15	1
DRH-14×20-4C	14.00±0.35	20.00±0.7	9.00±0.3	3.75±0.3	12.50±0.3	3.75±0.3	3.20±0.1	2
DRH-18×20-4C	18.00±0.45	20.00±0.7	11.00±0.3	3.75±0.3	12.50±0.3	3.75±0.3	3.20±0.1	2
DRH-18×22-4C	18.00±0.45	22.00±0.7	11.00±0.3	3.75±0.3	14.50±0.35	3.75±0.3	3.20±0.1	2
DRH-24×20-4C	24.00±0.6	20.00±0.7	13.00±0.3	3.75±0.3	12.50±0.3	3.75±0.3	3.20±0.1	2
DRH-24×24-4C	24.00±0.6	24.00±0.7	13.00±0.3	3.75±0.3	16.50±0.4	3.75±0.3	3.20±0.1	2
DRH-28×20-4C	28.00±0.7	20.00±0.7	17.00±0.4	3.75±0.3	12.50±0.3	3.75±0.3	4.20±0.15	2
DRH-28×25-4C	28.00±0.7	25.00±0.7	17.00±0.4	3.50±0.3	18.00±0.3	3.50±0.3	4.20±0.15	2
DRH-33.3×25-4.6	33.30±0.5	25.00±0.5	19.50±0.3	5.00±0.4	15.00±0.6	5.00±0.4	4.60±0.3	3
DRH-35×25-4C	35.00±0.9	25.00±0.7	21.00±0.5	3.50±0.3	18.00±0.45	3.50±0.3	6.90±0.4	2
DRH-35×35-4C	35.00±0.9	35.00±0.75	21.00±0.5	3.50±0.3	28.00±0.45	3.50±0.3	6.90±0.4	2
DRH-45×35-4C	45.00±1.0	35.00±0.75	27.00±0.5	4.50±0.3	26.00±0.6	4.50±0.3	9.00±0.3	2



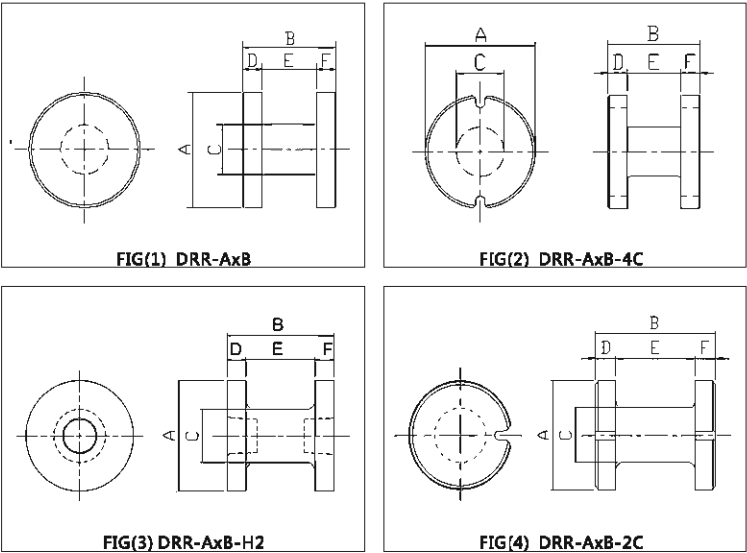
DRR Type Core

命名表示 / Ordering Core System

TN25H DRR n - A x B - n C n H n T-Φ L-XPAI

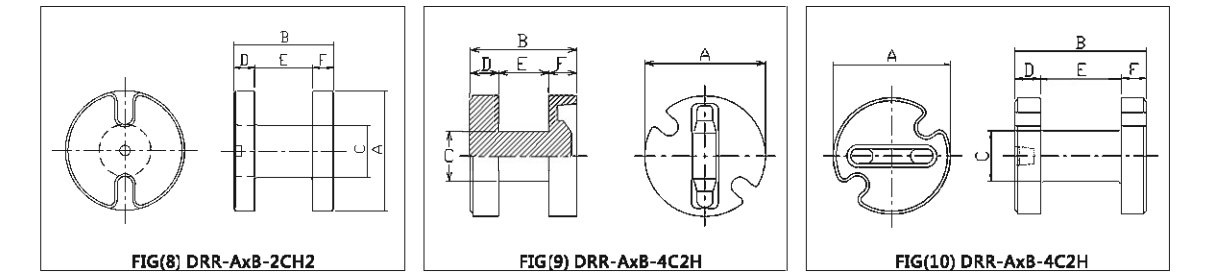
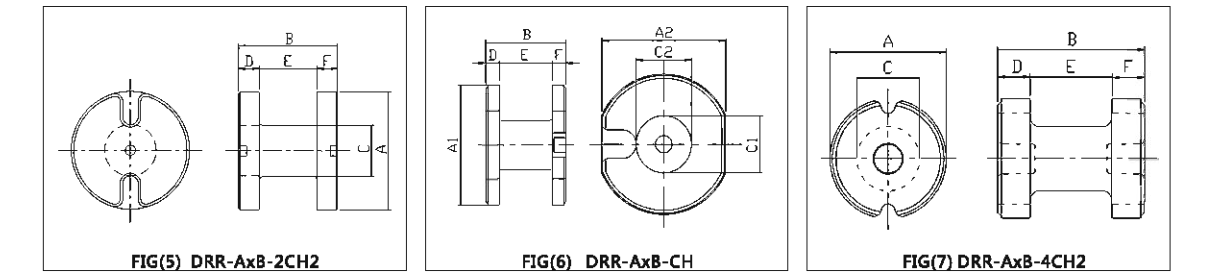


- 适用材质 /Available Material : TN12B/ TN25H/ TN40H/ TN65H etc.
- 用途 : 产品主要适用于中周变压器、振荡线圈、固定电感、线性线圈等
Application : Oscillating Coil、Choke Coil、Linearity Coil、Fix Inductor etc.



DRR Type Core

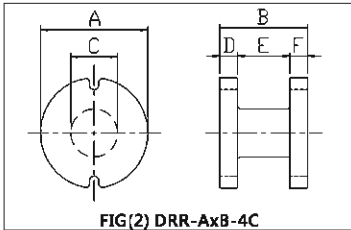
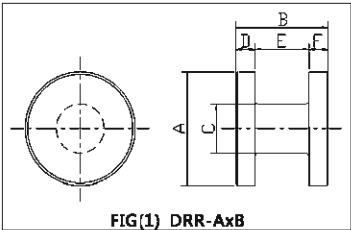
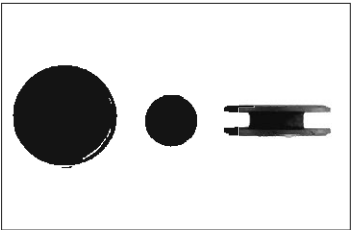
型号 TYPE	尺寸 Dimensions (mm)						图例 FIG
	A	B	C	D	E	F	
DRR-1.6×1.8-H2-0.9PAI	1.60±0.1	1.80±0.15	0.90±0.1	0.30±0.05	1.20±0.1	0.30±0.05	3
DRR-2.3×4-H2-1.45PAI	2.30±0.15	4.00±0.15	1.45±0.1	(0.90)	2.20±0.15	(0.90)	3
DRR-2.5×2.5-H2-1.2PAI	2.50±0.15	2.50±0.2	1.20±0.1	(0.45)	1.60±0.1	(0.45)	3
DRR-3×6-H2-1.7PAI	3.00±0.15	6.00±0.15	1.70±0.15	(1.50)	3.00±0.15	(1.50)	3
DRR-5×8-H2-1.7PAI	5.00±0.15	8.00±0.3	1.70±0.15	1.90±0.2	4.20±0.15	1.90±0.2	3
DRR-5×10-4CH2-2.5PAI	5.00±0.15	10.00±0.2	2.50±0.15	(1.75)	6.50±0.2	(1.75)	7
DRR-5×13-4CH2-2.5PAI	5.00±0.15	13.00±0.2	2.50±0.15	(3.00)	7.00±0.2	(3.00)	7
DRR-5×13-H2-2.5PAI	5.00±0.15	13.00±0.2	2.50±0.15	(3.00)	7.00±0.2	(3.00)	3
DRR-6×8-4C-2.7PAI	6.00±0.2	8.00±0.2	2.70±0.15	2.00±0.15	4.00±0.15	2.00±0.15	2
DRR-6.8×6-4C2H-2.8PAI	6.80±0.1	6.00±0.2	2.80±0.1	1.60±0.1	2.80±0.15	1.60±0.1	9
DRR-7.8×8.8-4C2H-3.4PAI	7.80±0.2	8.80±0.2	3.40±0.15	1.70±0.15	5.40±0.15	1.70±0.15	10
DRR-7.8×6.4-4C	7.80±0.12	6.40±0.15	3.20±0.15	1.35±0.1	3.70±0.15	1.35±0.1	2
DRR-8×8-4C-3.0PAI	8.00±0.15	8.00±0.15	3.00±0.15	2.00±0.1	4.00±0.15	2.00±0.1	2
DRR-8×8-3.5PAI	8.00±0.2	8.00±0.2	3.50±0.15	1.75±0.15	4.50±0.15	1.75±0.15	1



DRR Type Core

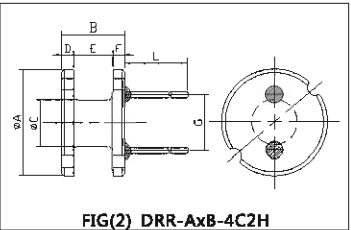
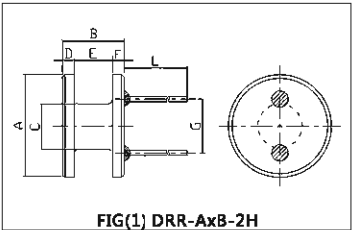
型号 TYPE	尺寸 Dimensions (mm)						图例 FIG
	A	B	C	D	E	F	
DRR-8×10-4C-4.0PAI	8.00±0.15	10.00±0.3	4.00±0.15	(2.00)	6.00±0.15	(2.00)	1
DRR-8×11-3.5PAI	8.00±0.15	11.00±0.3	3.50±0.15	2.00±0.2	6.90±0.2	2.00±0.2	2
DRR-8×12-4.0PAI	8.00±0.15	12.00±0.2	4.00±0.15	(2.25)	7.50±0.2	(2.25)	1
DRR-8.4×4.3-3.6PAI	8.40±0.2	4.30±0.2	3.60±0.15	(0.95)	2.40±0.15	(0.95)	1
DRR-8.4×4.6-4C-4.0PAI	8.40±0.15	4.60±0.1	4.00±0.1	0.90±0.1	2.40±0.1	1.30±0.1	2
DRR-8.4×10-4.8PAI	8.40±0.1	10.00±0.1	4.80±0.1	1.05±0.1	7.90±0.1	1.05±0.1	1
DRR-9×6.5-3.5PAI	9.00±0.3 -0.1	6.50±0.2	3.50±0.15	(1.25)	4.00±0.15	(1.25)	1
DRR-10×8-4.0PAI	10.00±0.2	8.00±0.3	4.00±0.15	1.50±0.15	5.00±0.2	1.50±0.15	1
DRR-10×10-4.25PAI	10.00±0.2	10.00±0.2	4.25±0.15	(2.50)	5.00±0.2	(2.50)	1
DRR-10×10-4C-6.0PAI	10.00±0.2	10.00±0.2	6.00±0.2	2.00±0.15	6.00±0.2	2.00±0.15	2
DRR-10×11-4.35PAI	10.00±0.2	11.00±0.3	4.35±0.2 -0.1	(2.00)	7.00±0.2	(2.00)	1
DRR-10×12-4.1PAI	10.00±0.2	12.00±0.3	4.10±0.1	2.00±0.2	8.00±0.2	2.00±0.2	1
DRR-10×15-4.0PAI	10.00±0.2	15.00±0.3	4.00±0.15	2.50±0.15	10.00±0.2	2.50±0.15	1
DRR-10×16-4.0PAI	10.00±0.2	16.00±0.3	6.00±0.15	3.00±0.15	10.00±0.20	3.00±0.15	1
DRR-12×10-6.0PAI	12.00±0.2	10.00±0.3	6.00±0.3	2.00±0.2	6.00±0.3	2.00±0.2	1
DRR-12×11-4.0PAI	12.00±0.15	11.00±0.25	4.00±0.15	2.50±0.2	6.00±0.2	2.50±0.2	1
DRR-12×13-4.5PAI	12.00±0.15	13.00±0.3	4.50±0.15	2.50±0.2	8.00±0.2	2.50±0.2	1
DRR-12×15-6.0PAI	12.00±0.15	15.00±0.3	6.00±0.2	2.50±0.2	10.00±0.2	2.50±0.2	1
DRR-12×20-6.0PAI	12.00±0.2	20.00±0.3	6.00±0.2	3.00±0.25	14.00±0.3	3.00±0.25	1
DRR-13×15-6.4PAI	13.00±0.1	15.00±0.15	6.40±0.1	3.00±0.2	(9.00)	3.00±0.2	1
DRR-14×14-4C-4.3PAI	14.00±0.3	14.00±0.5	4.30±0.2	2.50±0.2	9.00±0.2	2.50±0.2	2

型号 TYPE	尺寸 Dimensions (mm)						图例 FIG
	A	B	C	D	E	F	
DRR-14×15-5.5PAI	14.00±0.5	15.00±0.3	5.50±0.15	(3.00)	9.00±0.2	(3.00)	1
DRR-14×16.5-4C-7.2PAI	14.00±0.3	16.50±0.5	7.20±0.15	3.00±0.2	10.50±0.3	3.00±0.2	2
DRR-14×17.5-6.0PAI	14.00±0.3	17.50±0.4	6.00±0.15	2.75±0.2	12.00±0.3	2.75±0.2	1
DRR-14×20-6.0PAI	14.00±0.3	20.00±0.4	6.00±0.2	4.00±0.2	12.00±0.25	4.00±0.25	1
DRR-15×13-7.0PAI	15.00±0.3	13.00±0.3	7.00±0.15	2.50±0.2	8.00±0.2	2.50±0.2	1
DRR-15×15-5.0PAI	15.00±0.25	15.00±0.4	5.00±0.15	2.50±0.25	10.00±0.25	2.50±0.25	1
DRR-15×18-8.5PAI	15.00±0.3	18.00±0.4	8.50±0.3	2.50±0.3	13.00±0.3	2.50±0.3	1
DRR-15×22-2C-7.5PAI	15.00±0.2	22.00±0.25	7.50±0.15	3.00±0.2	16.00±0.25	3.00±0.2	4
DRR-16×18-8.0PAI	16.00±0.3	18.00±0.4	8.00±0.2	2.50±0.3	13.00±2.5	2.50±0.3	1
DRR-18×18-8.5PAI	18.00±0.4	18.00±0.4	8.50±0.4	2.50±0.3	13.00±0.4	2.50±0.3	1
DRR-18×20-10.0PAI	18.00±0.4	20.00±0.4	10.00±0.4	3.00±0.3	14.00±0.3	3.00±0.3	1
DRR-4.5×6.5-2CH-2.0PAI	4.50±0.2	6.50±0.2	2.00±0.2	(1.38)	3.75±0.25	(1.38)	8
DRR-6×6-2CH-2.5PAI	6.00±0.2	6.00±0.2	2.50±0.3	(1.45)	3.10±0.2	(1.45)	8
DRR-8×10-2CH-3.9PAI	8.00±0.2	10.00±0.25	3.90±0.2	(2.10)	5.80±0.2	(2.10)	8
DRR-9.85×4.0-C-H-3.8PAI	9.85±0.15	4.00±0.15	3.85±0.15	0.85±0.15	2.30±0.15	0.85±0.15	6
DRR-9.85×6.8-C-H-4.0PAI	9.85±0.15	6.80±0.2	4.00±0.15	1.15±0.15	4.50±0.2	1.15±0.15	6
DRR-14×17-2CH-7.1PAI	14.00±0.3	17.00±0.3	7.10±0.2 -0.1	(3.50)	9.90±0.2	(3.50)	8
DRR-14.2×12-2CH-7.0PAI	14.20±0.3	12.00±0.3	7.00±0.2	(2.40)	7.20±0.2	(2.40)	8
DRR-8×7-4CH2-3.2PAI	8.00±0.3	7.00±0.3	3.20±0.2	(1.60)	3.80±0.2	(1.60)	5
DRR-10.9×13-4CH2-6.0PAI	10.90±0.2	13.00±0.3	6.00±0.2	(2.25)	8.50±0.2	(2.25)	5
DRR-11.1×10-4CH2-5.85PAI	11.10±0.2	10.00±0.2	5.85±0.15	(2.18)	5.65±0.15	(2.18)	5



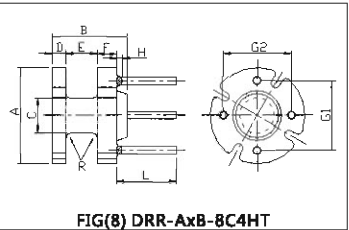
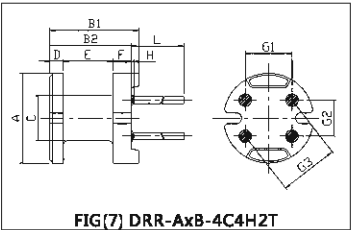
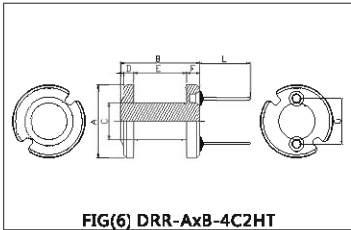
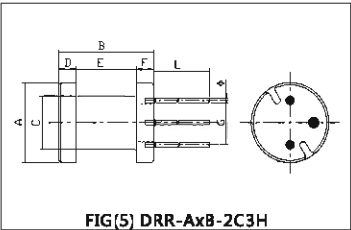
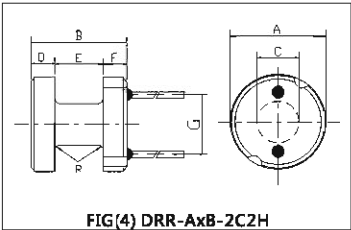
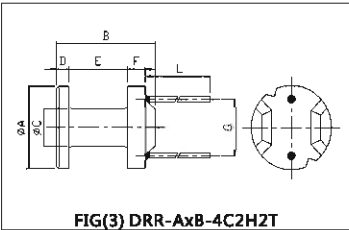
DRR超薄 Type Core

型号 TYPE	尺寸 Dimensions (mm)						图例 FIG
	A	B	C	D	E	F	
DRR-2.5×0.8-1.2PAI	2.50±0.07	0.80±0.07	1.20±0.07	0.25±0.07	0.30±0.07	0.25±0.07	1
DRR-2.65×1.0-4C-1.2PAI	2.65±0.07	1.00±0.07	1.20±0.07	0.25±0.07	0.50±0.07	0.25±0.07	2
DRR-2.8×0.84-1.2PAI	2.80±0.1	0.84±0.1	1.20±0.1	0.27±0.07	0.30±0.07	0.27±0.07	1
DRR-2.8×1.25-1.3PAI	2.80±0.1	1.25±0.1	1.30±0.1	(0.38)	0.50±0.1	(0.38)	1
DRR-2.9×1.2-1.13PAI	2.90±0.07	1.20±0.07	1.13±0.07	0.32±0.07	0.56±0.07	0.32±0.07	1
DRR-3.8×0.8-1.4PAI	3.80±0.07	0.80±0.07	1.40±0.07	(0.23)	0.35±0.07	(0.23)	1
DRR-3.8×1.0-1.5PAI	3.80±0.07	1.00±0.07	1.50±0.07	(0.23)	0.55±0.07	(0.23)	1
DRR-3.8×1.3-1.4PAI	3.80±0.07	1.30±0.07	1.40±0.07	(0.23)	0.85±0.07	(0.23)	1
DRR-4×0.9-1.8PAI	4.00±0.07	0.90±0.07	1.80±0.07	(0.30)	0.30±0.07	(0.30)	1
DRR-4.8×0.8-2.2PAI	4.80±0.1	0.80±0.07	2.20±0.07	(0.23)	0.35±0.07	(0.23)	1
DRR-4.8×1.0-2.2PAI	4.80±0.1	1.00±0.07	2.20±0.07	(0.23)	0.55±0.07	(0.23)	1
DRR-4.8×1.3-2.2PAI	4.80±0.1	1.30±0.07	2.20±0.07	(0.23)	0.85±0.07	(0.23)	1
DRR-5.4×1.0-2.6PAI	5.40±0.07	1.00±0.07	2.60±0.07	0.35±0.07	0.30±0.07	0.35±0.07	1
DRR-5.5×1.0-2.6PAI	5.50±0.07	1.00±0.07	2.60±0.07	0.35±0.07	0.30±0.07	0.35±0.07	1
DRR-5.8×1.0-3.0PAI	5.80±0.1	1.00±0.07	3.00±0.07	(0.23)	0.55±0.07	(0.23)	1
DRR-5.8×1.3-2.9PAI	5.80±0.1	1.30±0.07	2.90±0.07	(0.23)	0.85±0.07	(0.23)	1
DRR-6.0×1.0-3.0PAI	6.00±0.07	1.00±0.07	3.00±0.07	0.25±0.07	0.50±0.07	0.25±0.07	1
DRR-6.0×1.0-3.3PAI	6.00±0.07	1.00±0.07	3.33±0.07	0.30±0.07	0.40±0.07	0.30±0.07	1



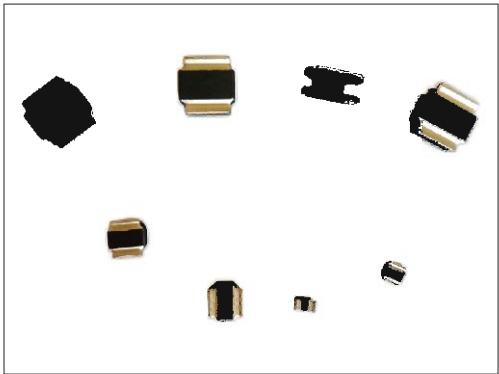
DRR PIN Type Core

型号 TYPE	尺寸 Dimensions (mm)							图例 FIG
	A	B	C	D	E	F	G	
DRR-4×6-2H-0520-2.0PAI	4.00±0.2	6.00±0.2	2.00±0.15	(1.25)	3.50±0.2	(1.25)	2.00±0.5	1
DRR-5×6-2H-0620-2.0PAI	5.00±0.15	6.00±0.2	2.00±0.15	(1.25)	3.50±0.3	(1.25)	2.50±0.5	1
DRR-5×7-2H-06135-2.5PAI-P2.5	5.00±0.15	7.00±0.2	2.50±0.15	(2.00)	3.00±0.2	(2.00)	2.50±0.5	1
DRR-6×8-2H-0620-2.5PAI-P4	6.00±0.15	8.00±0.2	2.50±0.15	(2.00)	4.00±0.2	(2.00)	4.00±0.3	1
DRR-6×8-2H-06515-3.0PAI-P3	6.00±0.2	8.00±0.2	3.00±0.15	(1.90)	4.20±0.2	(1.90)	3.00±0.5	1
DRR-6×8-2H-06515-2.5PAI-P3	6.00±0.15	8.00±0.15	2.50±0.15	(2.00)	4.00±0.15	(2.00)	3.00±0.5	1
DRR-6×8.3-2H-06515-3.0PAI-P3	6.00±0.15	8.30±0.15	3.00±0.15	(2.05)	4.20±0.2	(2.05)	3.00±0.5	1
DRR-6×10-2H-0620-3.0PAI	6.00±0.2	10.00±0.2	3.00±0.15	2.00±0.15	6.00±0.15	2.00±0.15	3.00±0.5	1
DRR-7×10.1-2H-06515-3.45PAI	7.00±0.15	10.10±0.2	3.45±0.2	2.05±0.15	6.00±0.15	2.05±0.15	3.00±0.5	1
DRR-8×10-2H-06515-4.0PAI	8.00±0.2	10.00±0.2	4.00±0.2	(2.00)	6.00±0.2	(2.00)	5.00±0.5	1
DRR-9×12-2H-0816-4.0PAI-P5.0	9.00±0.2	12.00±0.3	4.00±0.15	(2.50)	7.00±0.2	(2.50)	5.00±0.5	1
DRR-9×12-2H-0816-4.0PAI-P5.5	9.00±0.2	12.00±0.3	4.00±0.15	(2.50)	7.00±0.2	(2.50)	5.50±0.5	1
DRR-9×12-2H-0816-4.0PAI-P6.0	9.00±0.2	12.00±0.3	4.00±0.15	(2.50)	7.00±0.2	(2.50)	6.00±0.5	1
DRR-10×8-2H-0816-4.0PAI-P5.0	10.00±0.2	8.00±0.3	4.00±0.2	2.00±0.2	4.00±0.3	2.00±0.2	5.00±0.5	1
DRR-10×8-2H-0816-5.0PAI-P6.0	10.00±0.2	8.00±0.2	5.00±0.15	2.00±0.2	4.00±0.2	2.00±0.2	6.00±0.5	1
DRR-10×10-2H-0816-5.0PAI-P7.0	10.00±0.25	10.00±0.3	5.00±0.15	2.00±0.15	6.00±0.2	2.00±0.15	7.00±0.5	1
DRR-10×12-2H-0816-4.0PAI-P5.0	10.00±0.2	12.00±0.2	4.00±0.2	(2.50)	7.00±0.2	(2.50)	5.00±0.3	1
DRR-10×12-2H-0816-4.0PAI-P6.0	10.00±0.2	12.00±0.3	4.00±0.15	(2.50)	7.00±0.2	(2.50)	6.00±0.5	1
DRR-10×12-2H-0816-4.0PAI-P7.0	10.00±0.2	12.00±0.3	4.00±0.15	(2.50)	7.00±0.2	(2.50)	7.00±0.5	1
DRR-10×15-2H-0816-5.5PAI-P6.0	10.00±0.2	15.00±0.3	5.50±0.15	(2.50)	10.00±0.2	(2.50)	6.00±0.5	1
DRR-10×16-2H-0816-5.0PAI-P5.0	10.00±0.2	16.00±0.3	5.00±0.2	(3.00)	10.00±0.2	(3.00)	5.00±0.5	1
DRR-10×16-2H-0820-5.0PAI-P6.0	10.00±0.2	16.00±0.3	5.00±0.2	(3.00)	10.00±0.2	(3.00)	6.00±0.5	1
DRR-10×16-2H-0816-5.0PAI-P7.0	10.00±0.2	16.00±0.3	5.00±0.2	(3.00)	10.00±0.2	(3.00)	7.00±0.5	1
DRR-10×16-2H-0816-5.5PAI-P6.0	10.00±0.2	16.00±0.3	5.50±0.15	(2.50)	11.00±0.2	(2.50)	6.00±0.5	1



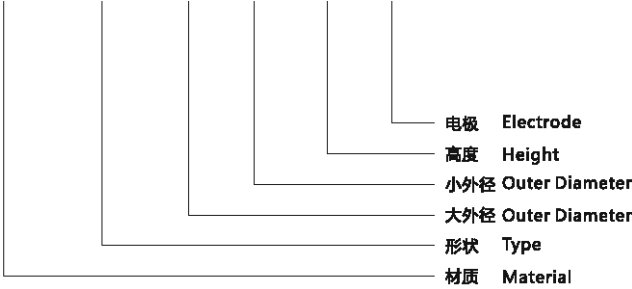
型号 TYPE	尺寸 Dimensions (mm)							图例 FIG
	A	B	C	D	E	F	G	
DRR-10×16-2H-0816-6.0PAI-P5.0	10.00±0.2	16.00±0.3	6.00±0.15	(2.50)	11.00±0.2	(2.50)	5.00±0.5	1
DRR-10×16-2H-0816-6.0PAI-P6.0	10.00±0.2	16.00±0.3	6.00±0.15	2.75±0.15	10.50±0.2	2.75±0.15	6.00±0.5	1
DRR-10×16-2H-0816-6.0PAI-P7.0	10.00±0.2	16.00±0.3	6.00±0.2	(3.00)	10.00±0.2	(3.00)	7.00±0.5	1
DRR-12×16-2H-0816-6.5PAI	12.00±0.25	16.00±0.3	6.50±0.2	(3.00)	10.00±0.2	(3.00)	7.50±0.5	1
DRR-14×15-2H-1015-6.0PAI	14.00±0.2	15.00±0.3	6.00±0.15	(2.50)	10.00±0.25	(2.50)	7.50±0.5	1
DRR-14×19-2H-0816-8.0PAI	14.00±0.3	19.00±0.3	8.00±0.15	(2.50)	14.00±0.15	(2.50)	7.50±0.5	1
DRR-14×19-2H-1016-9.0PAI	14.00±0.2	19.00±0.3	9.00±0.15	(2.50)	14.00±0.15	(2.50)	7.50±0.15	1
DRR-16×18-2H-1022-10.0PAI	16.00±0.2	18.00±0.3	10.00±0.2	(2.50)	13.00±0.2	(2.50)	10.00±0.5	1
DRR-4.5×5.0-4C2H-0620-2.0PAI	4.50±0.15	5.00±0.15	2.00±0.15	1.40±0.2	2.20±0.15	1.40±0.15	2.00±0.5	2
DRR-6×8-4C2H-0620-2.5PAI-P3	6.00±0.2	8.00±0.2	2.50±0.2	2.00±0.2	4.00±0.2	2.00±0.2	3.00±0.5	2
DRR-6×7.5-2C2H-0616-2.7PAI	6.00±0.2	7.50±0.2	2.70±0.1	(2.15)	3.20±0.15	(2.15)	3.00±0.5	4
DRR-7.8×6.3-4C2H-06505-3.2PAI	7.80±0.12	6.30±0.2	3.20±0.15	1.20±0.15	3.70±0.15	1.40±0.15	5.00±0.5	2
DRR-8×8-4C2H-0616-3.5PAI	8.00±0.15	8.00±0.15	3.50±0.15	2.00±0.15	4.00±0.15	2.00±0.15	5.00±0.5	4
DRR-8×10-4C2H-06516-3.5PAI	8.00±0.25	10.00±0.0 -0.3	3.50±0.2	1.93±0.15	6.00±0.15	1.93±0.15	5.00±0.5	2
DRR-9×12-4C2H-06515-4.0PAI	9.00±0.2	12.00±0.2	4.00±0.2	2.50±0.2	7.00±0.2	2.50±0.2	5.00±0.5	2
DRR-9×12-4C2H-0816-6.5PAI	9.00±0.15	12.00±0.2	6.50±0.2	1.80±0.15	8.40±0.2	1.80±0.15	5.00±0.5	2
DRR-10×12-4C2H-0816-4.7PAI	10.00±0.1	12.00±0.25	4.70±0.1	3.00±0.2	6.00±0.2	3.00±0.2	5.00±0.5	2
DRR-10×12.5-2C2H-0816-5.5PAI	10.00±0.2	12.50±0.3	5.50±0.2	2.15±0.15	8.20±0.2	2.15±0.15	6.30±0.4	2
DRR-10×16-2C2H-0816-5.0PAI-P6.0	10.00±0.2	16.00±0.3	5.00±0.15	3.00±0.10	10.00±0.2	3.00±0.10	6.00±0.5	2
DRR-10×16-4C2H-0816-5.5PAI-P5.0	10.00±0.2	16.00±0.3	5.50±0.15	3.00±0.2	10.00±0.2	3.00±0.2	5.00±0.5	2
DRR-10×16-4C2H-0816-6.0PAI-P6.3	10.00±0.2	16.00±0.5 -0.0	6.00±0.2	(2.50)	11.30±0.2 -0.3	(2.50)	6.30±0.5	2
DRR-12×13-4C2H-0816-6.0PAI	12.00±0.2	13.00±0.0-0.3	6.00±0.2	2.00±0.2	9.00±0.2	2.00±0.2	7.50±0.5	2
DRR-14×15-4C2H-1022-7.0PAI-P8.0	14.00±0.2	15.00±0.2	7.00±0.15	2.50±0.15	10.00±0.2	2.50±0.15	8.00±0.5	2
DRR-18×22-2C3H-1010-12.0PAI	18.00±0.3	22.00±0.4	12.00±0.2	(4.00)	14.00±0.2	(4.00)	10.00±0.5	5
DRR-4.5×6.2-4C2H2T-0542-2.0PAI	4.50±0.08	6.20±0.15	2.00±0.1	0.80±0.07	3.30±0.15	(1.40)	2.50±0.5	3

型号 TYPE	尺寸 Dimensions (mm)							图例 FIG
	A	B	C	D	E	F	G	
DRR-4.5×7-4C2H2T-0542-2PAI	4.50±0.08	7.00±0.15	2.00±0.1	1.00±0.07	3.90±0.15	(1.40)	2.50±0.3	3
DRR-4.5×7-4C2H2T-05275-2.3PAI	4.50±0.08	7.00±0.15	2.30±0.1	1.00±0.07	3.90±0.15	(1.40)	2.50±0.3	3
DRR-4.5×7.3-4C2H2T-0542-2PAI	4.50±0.08	7.30±0.15	2.00±0.1	1.00±0.07	3.90±0.15	(1.70)	2.50±0.3	3
DRR-5.8×6.3-4C2H2T-0627-2.4PAI	5.80±0.15	6.30±0.2	2.40±0.15	0.80±0.15	3.30±0.15	1.40±0.15	4.00±0.5	3
DRR-6×5-4C2H2T-0616-3PAI	6.00±0.15	5.00±0.1 -0.3	3.00±0.15	0.80±0.2	2.00±0.15	1.20±0.15	4.00±0.3	3
DRR-6.7×7-4C2H2T-0627-2.7PAI	6.70±0.2	7.00±0.2	2.70±0.15	1.30±0.15	3.20±0.15	1.50±0.15	5.00±0.5	3
DRR-7.8×5.3-4C2H2T-06515-3.2PAI	7.80±0.15	5.30±0.15	3.20±0.15	0.80±0.07	2.00±0.15	1.50±0.15	5.00±0.5	3
DRR-7.8×7.2-4C2H2T-06515-3.3PAI	7.80±0.15	7.20±0.2	3.30±0.15	1.10±0.15	3.30±0.15	1.80±0.15	5.00±0.5	3
DRR-7.8×9.2-4C2H2T-06505-3PAI	7.80±0.15	9.20±0.2	3.00±0.2	1.20±0.2	5.20±0.15	1.80±0.15	5.00±0.5	3
DRR-8×7.5-4C2H2T-0623-3.2PAI	8.00±0.2	7.50±0.2	3.20±0.15	1.10±0.15	3.60±0.15	1.80±0.15	5.00±0.15	3
DRR-8×10.1-4C2H2T-0623-3.7PAI	8.00±0.2	10.10±0.2	3.70±0.15	1.30±0.15	6.00±0.2	1.80±0.15	5.00±0.15	3
DRR-8×10.1-4C2H2T-0623-4.45PAI	8.00±0.2	10.10±0.2	4.45±0.15	1.30±0.15	6.00±0.2	1.80±0.15	5.00±0.15	3
DRR-9×12-4C2H2T-0620-4.5PAI	9.00±0.2	12.00±0.3	5.50±0.15	1.50±0.15	7.50±0.2	2.00±0.15	5.00±0.3	3
DRR-10×10.1-4C2H2T-06515-4.3PAI	10.00±0.2	10.10±0.2	4.30±0.2	1.50±0.15	5.50±0.2	2.00±0.15		3
DRR-10×14-4C2H2T-0815-5PAI	10.00±0.3	14.00±0.3	6.00±0.15	1.50±0.15	9.00±0.2	2.00±0.15	5.00±0.5	3
DRR-11×14-4C2H2T-0655-6.6PAI	11.00±0.2	14.00±0.2	6.60±0.15	1.50±0.2	8.50±0.2	2.00±0.2	5.00±0.5	3
DRR-12×14.5-4C2H2T-0805-6PAI	12.00±0.2	14.50±0.3	6.00±0.15	2.00±0.15	8.50±0.2	2.00±0.15	7.50±0.5	3
DRR-12×13.5-4C4H2T-0816-6PAI	12.00±0.2	13.50±0.2	6.00±0.2	1.50±0.15	8.00±0.2	2.00±0.15	7.50±0.5	3
DRR-6.7×4.6-8C4HT-0542-2.4PAI	6.70±0.15	4.60±0.15	2.40±0.15	(0.70)	2.20±0.15	(1.00)		8
DRR-10×8.1-4C4H2T-0816-4.2PAI	10.00±0.2	8.10±0.2	4.30±0.2	1.35±0.15	3.90±0.2	1.75±0.15		7
DRR-10×10.1-4C4H2T-06515-4.3PAI	10.00±0.2	10.10±0.2	4.30±0.2	1.50±0.2	5.50±0.2	2.00±0.15		7
DRR-9×11-4C2HT-06515-4.5PAI	9.00±0.1	11.00±0.2	4.50±0.15	1.30±0.15	7.40±0.15	1.80±0.15	5.00±0.5	6
DRR-12×13-4C2HT-0816-6PAI	12.00±0.15	13.00±0.15	6.00±0.15	1.70±0.15	8.60±0.2	2.20±0.15	7.500.50	6
DRR-14×13.5-4C2H2T-0816-8PAI	14.00±0.3	13.50±0.3	8.00±0.2	2.00±0.15	7.50±0.15	2.50±0.15	9.000.50	3
DRR-15×13.5-4C2H2T-0816-7.5PAI	15.00±0.25	13.50±0.25	7.50±0.2	2.00±0.15	7.50±0.15	2.20±0.15	7.500.50	3

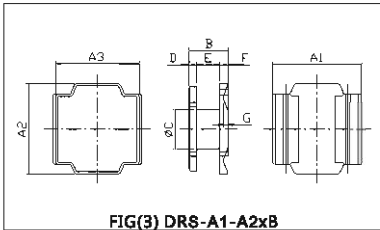
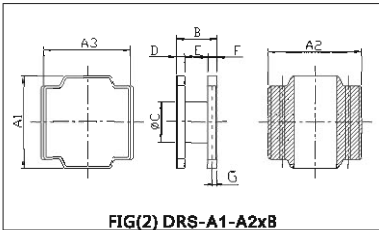
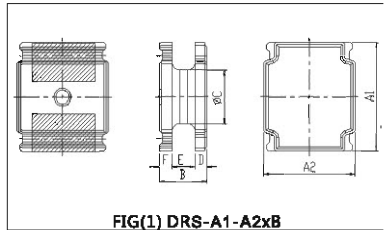


命名表示 / Ordering Core System

TN25H DRS - A1-A2 x B - EL

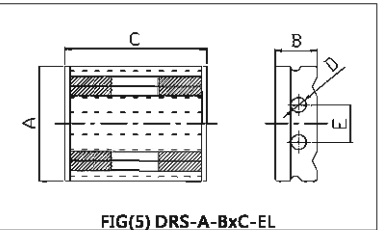
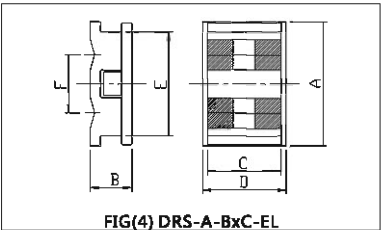
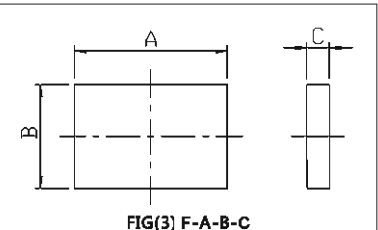
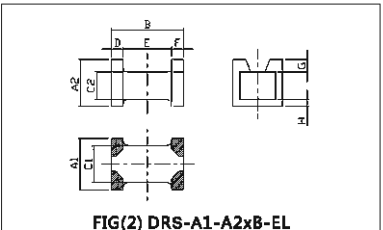
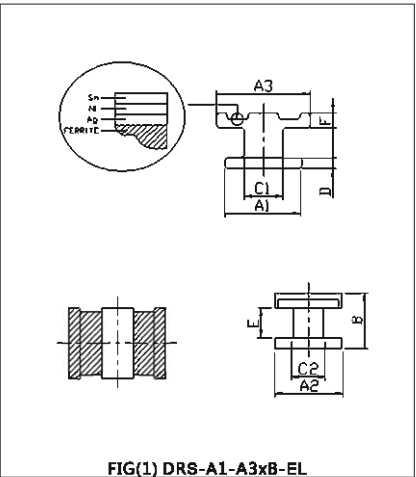


适用材质 /Available Material : TN25H/ TN40H/ TN41H etc.

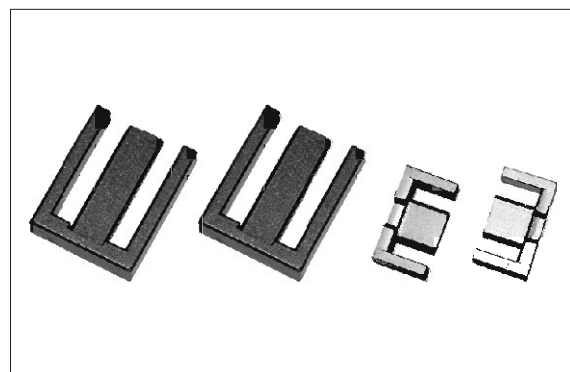


DRS Type Core

型号 TYPE	尺寸 Dimensions (mm)									图例 FIG
	A1	A2	A3	B	C	D	E	F	G	
DRS-2.5-2.15×1.1-EL	2.40±0.05	2.15±0.05		1.10±0.05	1.22±0.05	0.28±0.05	0.52±0.05	0.30±0.05	0.08	1
DRS-3-3×1.35-EL	3.00±0.1	3.00±0.1	2.60±0.1	1.35±0.1	1.35±0.1	0.40±0.1	0.55±0.1	0.50±0.1	0.12	2
DRS-4-4×1.1-EL	4.00±0.1	4.00±0.1	3.70±0.1	1.10±0.1	2.00±0.1	0.40±0.1	0.30±0.1	0.40±0.1	0.08	2
DRS-4-4×1.8-EL	4.00±0.1	4.00±0.1	3.70±0.1	1.80±0.1	2.00±0.1	0.50±0.1	0.80±0.1	0.50±0.1	0.13	2
DRS-4-4×2.6-EL	4.00±0.1	4.00±0.1	3.70±0.1	2.60±0.1	2.00±0.1	0.60±0.1	1.40±0.1	0.60±0.1	0.15	2
DRS-5-5×1.7-EL	5.00±0.1	5.00±0.1	4.80±0.1	1.70±0.1	2.00±0.1	0.50±0.1	1.00±0.1	0.50±0.1	0.20	2
DRS-5-5×3.65-EL	5.00±0.1	5.00±0.1	4.80±0.1	3.65±0.1	2.50±0.1	0.70±0.1	2.15±0.1	0.80±0.1	0.30	2
DRS-6-6×1.8-E0.5-EL	6.00±0.1	6.00±0.1	5.50±0.1	1.80±0.1	3.00±0.1	0.60±0.1	0.50±0.1	0.70±0.1	0.20	2
DRS-6-6×2.5-EL	6.00±0.1	6.00±0.1	5.50±0.1	2.50±0.1	2.70±0.1	0.70±0.1	1.00±0.1	0.80±0.1	0.25	2
DRS-6-6×4.1-EL	6.00±0.1	6.00±0.1	5.50±0.1	4.10±0.1	2.82±0.1	0.80±0.1	2.40±0.1	0.90±0.1	0.30	2
DRS-6-6×4.1--E2.3-EL	6.00±0.1	6.00±0.1	5.50±0.1	4.10±0.1	2.82±0.1	0.90±0.1	2.30±0.1	1.20±0.1	0.45	2
DRS-8-8×2.75-EL	8.00±0.2	8.00±0.2	7.50±0.2	2.75±0.1	3.70±0.1	0.75±0.1	0.90±0.1	1.10±0.1	0.30	2
DRS-8-8×3.85-EL	8.00±0.1	8.00±0.1	7.50±0.1	3.85±0.1	3.75±0.1	0.85±0.1	2.00±0.1	1.00±0.1	0.30	2
DRS-8-8×3.5	8.00±0.1	8.00±0.1	7.50±0.1	3.50±0.15	3.50±0.1	0.70±0.1	2.00±0.1	0.80±0.1	0.40	3

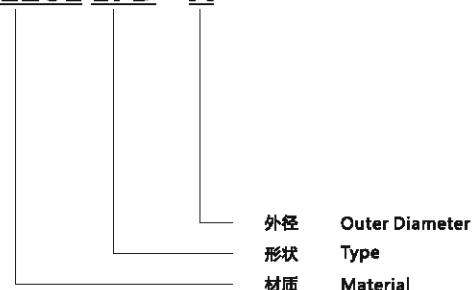


型号 TYPE	尺寸 Dimensions (mm)									图例 FIG
	A1(A)	A2	A3	B	C1(C)	C2	D	E	F	
DRS-2.5-3.2×1.5-EL	2.50±0.15	2.50±0.15	3.20±0.15	1.50±0.1	1.15±0.1	1.20±0.1	0.40±0.1	0.60±0.1	0.50±0.1	1
DRS-2.3-3.2×1.8-EL	2.30±0.15	1.60±0.15	3.20±0.15	1.80±0.15	1.10±0.1	1.00±0.1	0.45±0.1	0.85±0.1	0.50±0.1	1
DRS-2.5-3.2×2.0-EL	2.50±0.2	2.50±0.2	3.20±0.3	2.00±0.2	1.10±0.1	1.10±0.1	0.55±0.1	0.90±0.1	0.55±0.1	1
DRS-3.7-4.5×2.65-EL	3.70±0.15	3.20±0.15	4.50±0.15	2.65±0.15	1.70±0.15	1.50±0.1	0.60±0.1	1.35±0.1	0.70±0.1	1
DRS-1.3-0.85-2.0-EL	1.30±0.1	0.85±0.1		2.00±0.1	0.90±0.1	0.50±0.1	0.50±0.07	1.00±0.1	0.50±0.07	2
F-2.0-1.3-0.3	2.00±0.1			1.30±0.1	0.30±0.07					3
DRS-4.65-1.7-5.5-0.6H2S-EL	4.65±0.2			1.70±0.2	5.75±0.2		0.60±0.1	1.50±0.3		4
DRS2-7.5-3.0×6-EL	7.50±0.2			3.00±0.1	5.30±0.2		6.00±0.2	6.50±0.2	4.20±0.3	5

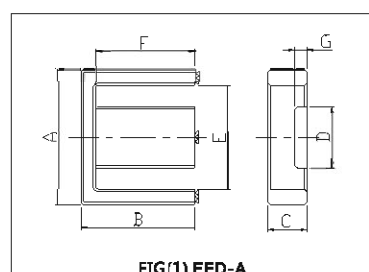


- 命名表示 / Ordering Core System

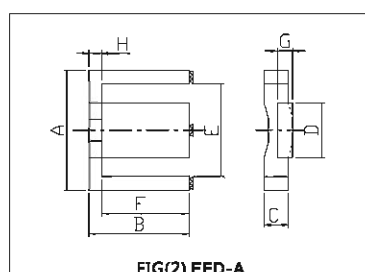
TN120L EFD - A



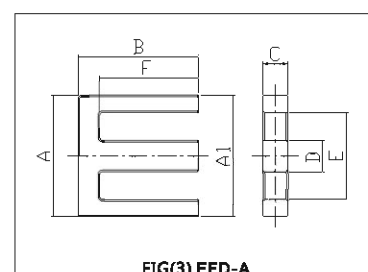
- 适用材质/Available Material : TN120L/ TN140L etc.
- 用途 : LED背光源变压器
Application : LED backlight transformers



FIG(1) EFD-A



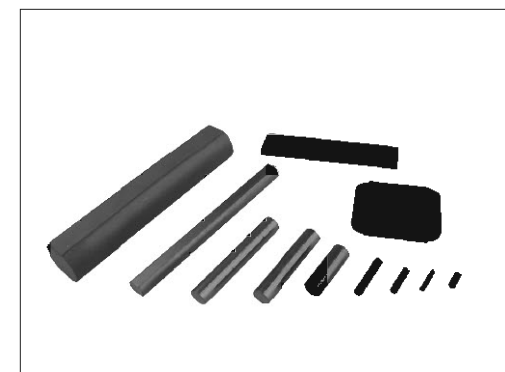
FIG(2) EFD-A



FIG(3) EFD-A

EFD Type Core

型号 TYPE	尺寸 Dimensions (mm)							图例 FIG
	A1	B	C	D	E	F	G	
EFD-6.4	6.4±0.15	4.8±0.15	4.0±0.15	2.0±0.15	5.1±0.15	3.4±0.15	2.65±0.15	1
EE-16	16.0±0.4	12.4±0.3	5.1+0/-0.4	4.0±0.2	11.7min	10.4±0.3		3
EFD-16.5	16.55±0.25	19.50±0.25	4.45±0.1	5.8±.2	11.4min	16.55+0.2/-0.15	2.8±0.1	1
EFD-22	22.0±0.4	19.95±0.2	4.5±0.15	9.4±0.2	15.5±0.3	16.45±0.15	3.2±0.1	2
EE-22.4	22.4±0.3	22.2±0.3	4.7±0.2	5.8±0.2	16.0±0.2	18.2+0.2/-0.15		3
EFD-24	24.0±0.4	18.5±0.25	3.8±0.15	10±0.2	15.9±0.3	14.4±0.1	3.1±0.15	2
EFD-26S	26.0±0.5	24.0+0.3/-0.1	4.7±0.2	12.2+0.1/-0.15	18.4min	19.9+0.3/-0.1	2.7+0.1/-0.15	1
EFD-27	27.0±0.5	25.8±0.2	4.8±0.2	12.5±0.15	19.6±0.5	22.1+0.3/-0.1	2.8+0.1/-0.15	1



- 命名表示 / Ordering Core System

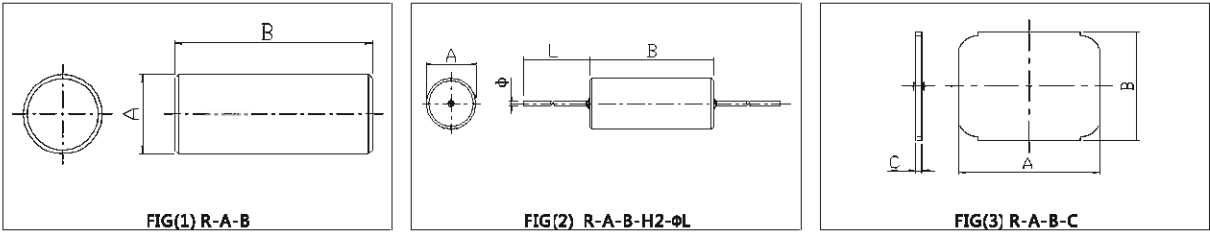
TN120L R - A- B- H n - ϕ L



- 适用材质 /Available Material :
TN12B/ TN25H/ TN25Y/ TN40H/ TN80G/ TN100B etc.
- 适用范围 /Application :
产品主要适用于中频变压器、抗流电感、滤波线圈、高性能直流信号传输、滤波信号等
Intermediate Frequency Transformer, Chokeinductor,
Filter Coil, High Performance DC Signal Transmission, Signal Filter etc.

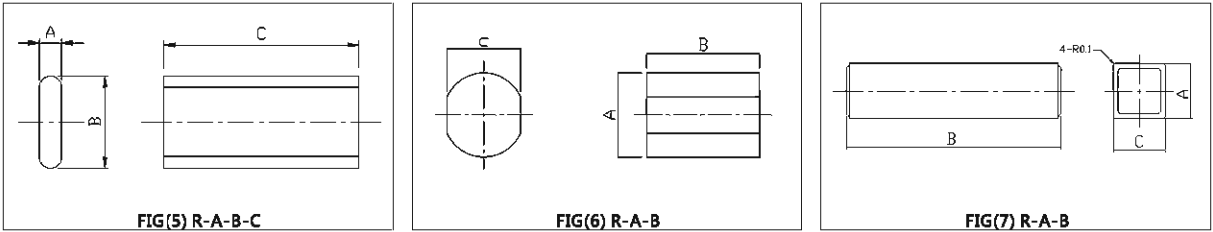
R Type Core

型号 TYPE	尺寸 Dimensions (mm)			图例 FIG
	A	B	C	
R-1.2-6.8	1.20±0.02	6.80±0.2		1
R-1.25-5.4	1.25±0.05	5.40±0.1	1.00±0.05	7
R-1.45-3.3	1.45±0.05	3.30±0.1	1.45±0.05	7
R-1.7-6.0	1.70±0.1	6.00±0.2		1
R-1.9-4.1	1.90±0.05	4.10±0.1		1
R-2-4.9	2.00±0.05	4.90±0.2		1
R-2-5.5	2.00±0.15	5.50±0.2		1
R-2-6.5	5.50±0.15	6.50±0.2		1



R Type Core

型号 TYPE	尺寸 Dimensions (mm)			图例 FIG
	A	B	C	
R-3-5	3.00±0.15	5.00±0.15		1
R-3-10	3.00±0.15	10.00±0.3		1
R-3-15	3.00±0.15	15.00±0.3		1
R-3.85-20	3.85±0.15	20.00±0.5		1
R-4-6	4.00±0.15	6.00±0.2		1
R-4-7	4.00±0.15	7.00±0.2		1
R-4-13	4.00±0.2	13.00±0.4		1
R-4-15	4.00±0.15	15.00±0.5		1
R-4-20	4.00±0.15	20.00±0.5		1
R-4-25	4.00±0.15	25.00±0.4		1
R-5-15	5.00±0.15	15.00±0.3		1
R-5-18	5.00±0.15	18.00±0.3		1
R-5-20	5.00±0.2	20.00±0.5		1
R-5-25	5.00±0.2	25.00±0.5		1
R-5-30	5.00±0.2	30.00±0.5		1
R-6-15	6.00±0.2	15.00±0.5		1
R-6-18	6.00±0.2	18.00±0.3		1
R-6-20	6.00±0.2	20.00±0.5		1

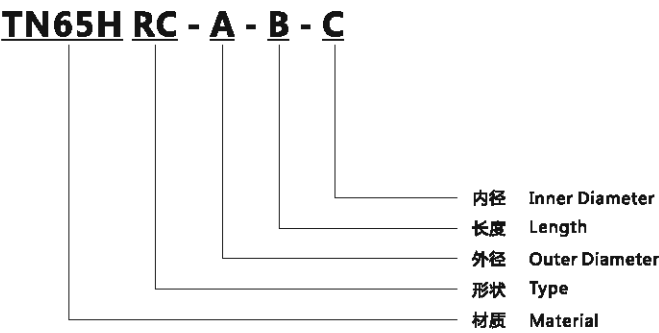


型号 TYPE	尺寸 Dimensions (mm)			图例 FIG
	A	B	C	
R-6-22	6.00±0.2	22.00±0.4		1
R-6-25	6.00±0.2	25.00±0.5		1
R-6-30	6.00±0.2	30.00±0.5		1
R-6-40	6.00±0.2	40.00±0.6		1
R-7.5-25	7.50±0.2	25.00±0.3		1
R-8-20	8.00±0.2	20.00±0.5		1
R-8-25	8.00±0.2	25.00±0.5		1
R-8-30	8.00±0.2	30.00±0.5		1
R-8-39	8.00±0.2	39.00±0.5		1
R-8-40	8.00±0.2	40.00±0.5		1
R-10-29	10.00±0.2	29.00±0.6		1
R-10-30	10.00±0.2	30.00±0.6		1
R-10-39	10.00±0.2	39.00±0.6		1
R-2-10-H2-0635	2.00±0.1	10.00±0.2		2
R-2-8-36	2.00+0.0-0.2	8.00+0.0-0.2	36.00±0.5	5
R-3-12-50	3.00±0.1	12.00±0.2	50.00+0.2-0.8	5
R-4-45	4.00±0.2	45.00±1.0	3.80±0.2	6
R-10-50	10.00±0.2	50.00±1.0	9.00±0.2	6

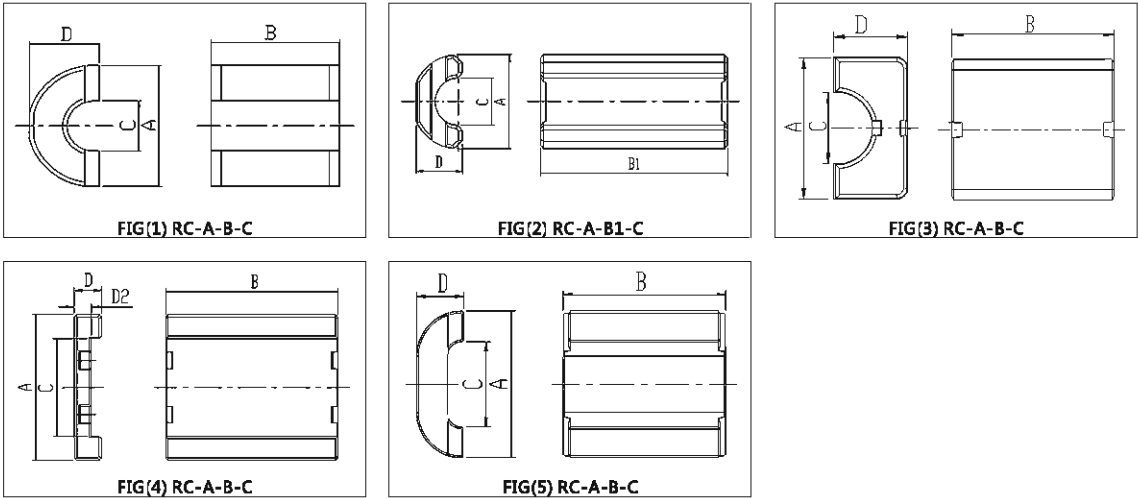


RC Type Core

命名表示 / Ordering Core System



- 适用材质 /Available Material : TN65B/ TN80G/ TN100B/ TN130G
- 使用范围 /Application :
主要适用于通讯、计算机等用内外主电源滤波
Internal and external main power filter used for communication and computer



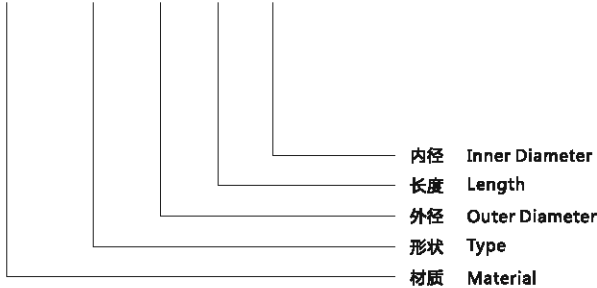
RC Type Core

型号 TYPE	尺寸 Dimensions (mm)						图例 FIG
	A1	A2	B	C	D	D2	
RC-10-20-5	10.00 ±0.3		20.00 ±0.5	4.90 ±0.4	4.40 ±0.4		2
RC-12-15-7.3	12.00 ±0.3		15.00 ±0.3	7.30 ±0.3	5.50 ±0.15		1
RC-13-23-7	13.00 ±0.5		23.00 ±0.5	7.00 ±0.4	6.00 ±0.2		1
RC-16-28-9	16.00 ±0.3		28.00 ±0.5	9.00 ±0.2	7.50 ±0.15		1
RC-16-29.8-9	16.00 ±0.3		29.80 ±0.5	9.00 ±0.2	8.10 ±0.1		1
RC-17-28-11	17.00 ±0.3		28.00 ±0.5	11.00 ±0.2	8.45 ±0.15		1
RC-26-29-13	26.00 ±0.5		29.00 ±0.5	13.00 ±0.4	13.00 ±0.2		1
RC-36-32-19	36.00 ±0.6		32.00 ±0.6	19.00 ±0.4	18.15 ±0.3		1
RC-15-28.9-6.6	15.00 ±0.25		28.90 ±0.5	6.60 ±0.3	7.50 ±0.15		3
RC-18.7-28.9-10.15	18.70 ±0.5		28.90 ±0.5	10.15 ±0.3	9.40 ±0.15		3
RC-25.9-28.9-13.05	25.90 ±0.5		28.90 ±0.5	13.05 ±0.3	12.95 ±0.25		3
RC-27-30-18	27.00 ±0.5		30.00 ±0.5	18.00 ±0.4	4.40 ±0.15	3.00 ±0.15	4
RC-32-12-26	32.00 ±0.5		12.00 ±0.2	26.00 ±0.4	4.30 ±0.15	3.30 ±0.15	4
RC-42-22-34.5	42.00 ±1.0		22.00 ±0.3	34.50 ±0.5	4.30 ±0.15	3.00 ±0.15	4
RC-64-16-52	64.00 ±1.0		16.00 ±0.25	52.00 ±1.0	6.40 ±0.15	5.00 ±0.15	4
RC-11-21-7	11.00 ±0.3		21.00 ±0.5	7.00 ±0.2	3.90 ±0.15		5
RC-16-28-8.5	16.00 ±0.3		28.00 ±0.5	8.50 ±0.2	4.90 ±0.15		5
RC-26-29-15	26.00 ±0.5		29.00 ±0.5	15.00 ±0.4	8.40 ±0.25		5

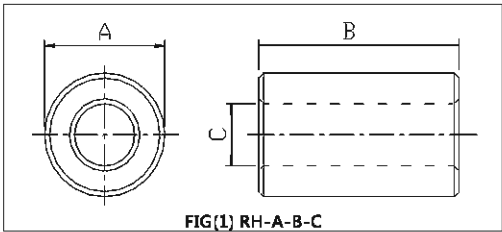


● 命名表示 / Ordering Core System

TN20H RH - A - B - C



型号 TYPE	尺寸 Dimensions (mm)			图例 FIG
	A	B	C	
RH-1.4-4-0.8	1.40±0.1	4.00±0.1	0.80±0.07	1
RH-1.9-3.8-1.1	1.90±0.1	3.80±0.25	1.10±0.07	1
RH-3.0-12-1.0	3.00±0.15	12.00±0.4	1.00±0.1	1
RH-3.5-5.7-0.8	3.50±0.15	5.70±0.4	0.80±0.1	1
RH-3.5-4-1.0	3.50±0.15	4.00±0.3	1.00±0.1	1
RH-3.5-4.5-1.0	3.50±0.15	4.50±0.4	1.00±0.1	1
RH-3.5-6.0-1.0	3.50±0.15	6.00±0.4	1.00±0.1	1
RH-3.5-4-1.2	3.50±0.15	4.00±0.3	1.20±0.15	1
RH-3.5-5-1.2	3.50±0.15	5.00±0.4	1.20±0.15	1
RH-3.5-6-1.2	3.50±0.15	6.00±0.4	1.20±0.15	1
RH-3.5-3-1.3	3.50±0.15	3.00±0.2	1.30±0.15	1
RH-3.5-5-1.3	3.50±0.15	5.00±0.4	1.30±0.15	1
RH-3.5-1.3-1.5	3.50±0.15	1.30±0.15	1.50±0.15	1
RH-3.5-4.5-1.5	3.50±0.15	4.50±0.4	1.50±0.15	1
RH-3.5-5-1.5	3.50±0.15	5.00±0.4	1.50±0.15	1
RH-4-10-2	4.00±0.2	10.00±0.4	2.00±0.2	1
RH-4-15-1.35	4.00±0.2	15.00±0.4	1.35±0.2	1
RH-5-13-2.2	5.00+0.5-0.15	13.00+0.6-0.2	2.20±0.25	1
RH-5-13-3.0	5.00+0.4-0.2	13.00+0.5-0.2	3.00+0.25-0.1	1
RH-6-8-3	6.00±0.2	8.00±0.3	3.00±0.2	1
RH-6-10-3	6.00±0.15	10.00±0.25	3.00±0.15	1



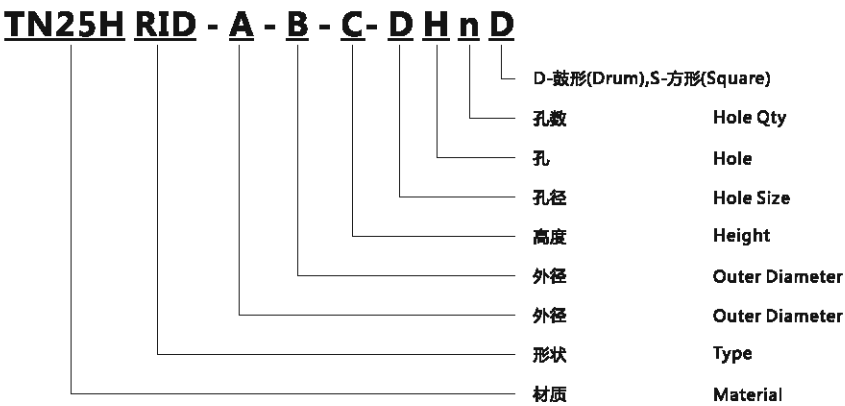
- 适用材质 /Available Material : TN12B/ TN65B/ TN80G/ TN100B/ TN200B etc.
- 用途 /Application : 产品主要适用于磁珠滤波器等抗干扰/ EMI Coil

型号 TYPE	尺寸 Dimensions (mm)			图例 FIG
	A	B	C	
RH-6-12-3	6.00±0.2	12.00±0.3	3.00±0.15	1
RH-6.35-25.4-3.2	6.35±0.15	25.40±0.75	3.20±0.25	1
RH-9-13.6-5.3	9.00±0.2	13.60±0.5	5.30±0.3	1
RH-9-15.3-4.3	9.00±0.3	15.30±0.4	4.30±0.15	1
RH-12-15.3-7.3	12.00±0.4	15.30±0.5	7.30±0.4	1
RH-12-23-5.2	12.00±0.3	23.00±0.5	5.20±0.3	1
RH-12.3-25.4-5.08	12.30±0.4	25.40±0.75	5.08±0.15	1
RH-12.7-10-7.9	12.70±0.3	10.00±0.3	7.90±0.3	1
RH-12.7-12.7-7.9	12.70±0.3	12.70±0.3	7.90±0.3	1
RH-14.3-28.6-6.35	14.30±0.5	28.60±0.8	6.35±0.4	1
RH-15.9-28.6-7.9	15.90±0.4	28.60±0.8	7.90±0.3	1
RH-15.9-50.8-7.9	15.90±0.4	50.80±1.0	7.90±0.3	1
RH-16-10-9.0	16.00±0.3	10.00±0.3	9.00±0.3	1
RH-16-16-9.0	16.00±0.3	16.00±0.3	9.00±0.3	1
RH-17.5-13.5-9.5	17.50±0.4	13.50±0.4	9.50±0.3	1
RH-17.5-28.5-9.5	17.50±0.4	28.50±0.75	9.50±0.3	1
RH-18-28-9.7	18.00±0.5	28.00±0.8	9.70±0.3	1
RH-18.7-28.6-10.15	18.70±0.6	28.60±0.8	10.15±0.4	1
RH-18.7-50.8-10.15	18.70±0.6	50.80±1.0	10.15±0.4	1
RH-25.9-28.6-12.8	25.90±0.6	28.60±0.8	12.80±0.5	1
RH-28.5-28.6-13.8	28.50±0.6	28.60±0.8	13.80±0.5	1
RH-31.1-50.8-19.05	31.10±0.85	50.80±1.0	19.05±0.6	1



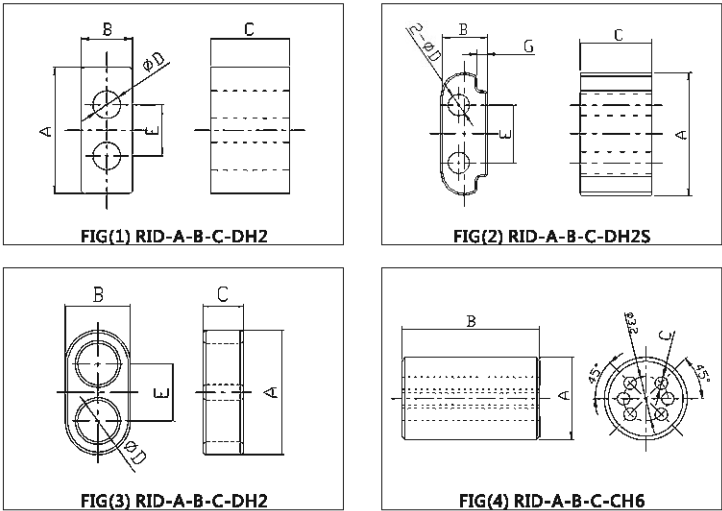
RID Type Core

命名表示 / Ordering Core System

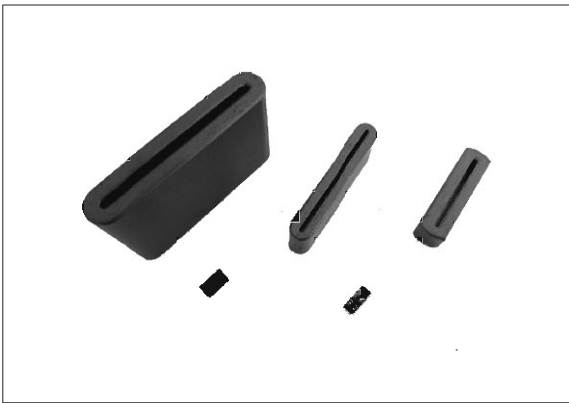


● 适用材质 /Available Material :
TN12B/ TN25H/ TN40H/ TN65H/ TN100B/ TN200B etc.

● 使用范围 /Application :
主要适用于宽频滤波器、平衡切换、匹配变压器等
Wide Band, Balance/Unbalance, Balun Transformer etc.



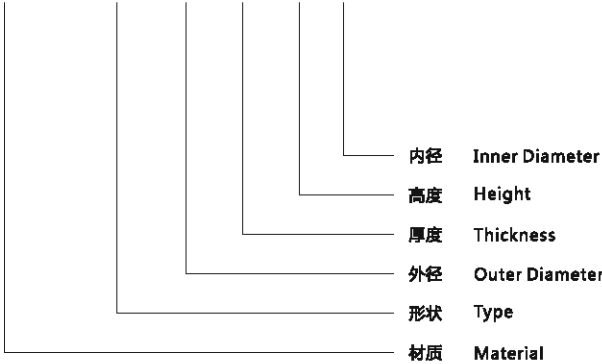
型号 TYPE	尺寸 Dimensions (mm)					图例 FIG
	A(A1)	B	C(C1)	D	E	
RID-3.2-1.3-2.0-0.7H2	3.20±0.1	1.30±0.1	2.00±0.1	0.70±0.1	1.30±0.1	1
RID-3.4-1.3-2.0-0.65H2S	3.40±0.1	1.30±0.1	2.00±0.1	0.60±0.1	1.65±0.1	2
RID-3.4-1.9-2.0-0.9H2	3.40±0.3	1.90±0.2	2.00±0.15	0.90±0.1	1.40±0.2	3
RID-3.5-2.0-2.0-0.8-H2	3.50±0.2	2.00±0.2	2.00±0.2	0.80±0.1	1.40±0.2	3
RID-3.5-2.0-2.36-0.8H2	3.50±0.2	2.00±0.2	2.36±0.2	0.80±0.1	1.40±0.2	3
RID-3.5-2.0-3.0-0.8H2	3.50±0.2	2.00±0.2	3.00±0.2	0.80±0.1	1.40±0.2	3
RID-4.9-2.2-3.0-0.95H2S	4.90±0.2	2.20±0.1	3.00±0.2	0.95±0.1	2.50±0.2	2
RID-5.0-3.0-2.0-1.25H2	5.00±0.2	3.00±0.2	2.00±0.2	1.25±0.15	2.50±0.2	3
RID-5.0-3.0-3.0-1.25H2	5.00±0.2	3.00±0.4	3.00±0.4	1.25±0.3	2.50±0.2	3
RID-5.1-2.6-4.0-1.4H2	5.10±0.3	2.60±0.3	4.00±0.3	1.40±0.2	2.50±0.2	3
RID-5.2-2.6-4.0-1.3H2	5.20±0.3	2.60±0.3	4.00±0.3	1.30±0.2	2.50±0.2	3
RID-7.0-4.1-6.2-1.8H2	7.00±0.25	4.10±0.15	6.20±0.25	1.80±0.1	2.90±0.1	3
RID-12-6.5-4-4H2	12.00±0.3	6.50±0.5	4.00±0.2	4.00±0.2	6.00±0.3	3
RID-6-10-0.9H6	6.00±0.25	10.00±0.3	0.90±0.12			4
RID-9.8-4.85-6.0-2.5H2S	9.80±0.2	4.85±0.2	6.00±0.2	2.50±0.2	4.95±0.2	2
RID-13.3-7.5-6.6-3.8H2	13.30±0.6	7.50±0.35	6.60±0.25	3.80±0.25	5.70±0.25	3
RID-13.3-7.5-10.3-3.8H2	13.30±0.6	7.50±0.35	10.30±0.25	3.80±0.25	5.70±0.25	3
RID-13.3-7.5-13.4-3.8H2	13.30±0.6	7.50±0.35	13.40±0.25	3.80±0.25	5.70±0.25	3



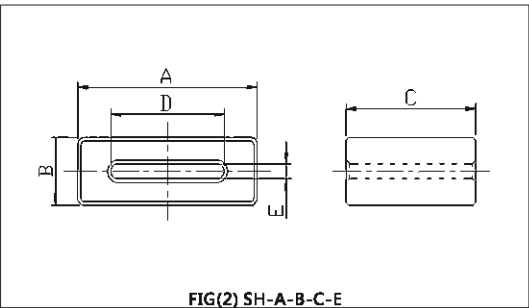
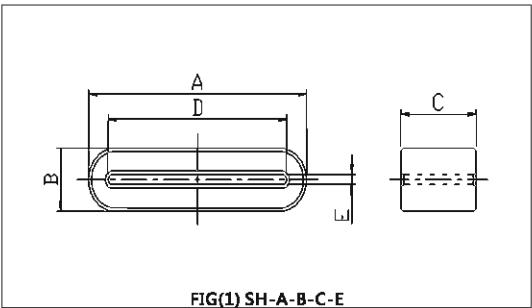
SH Type Core

命名表示 / Ordering Core System

TN100B SH - A - B - C - E

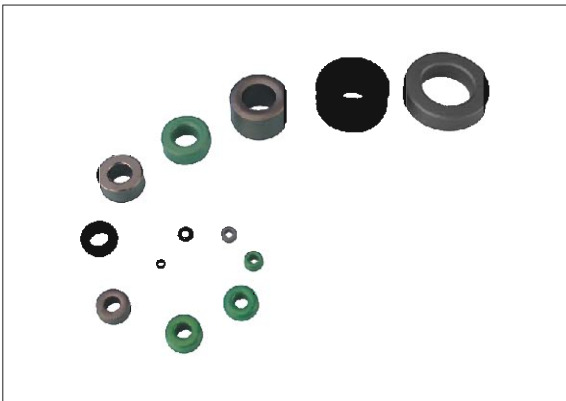


- 适用材质 /Available Material :
TN65H/ TN65B/ TN80G/ TN100B etc.
- 使用范围 /Application :
主要适用于平面电缆滤波器等
Internal cable between PC boards and data connectors etc.



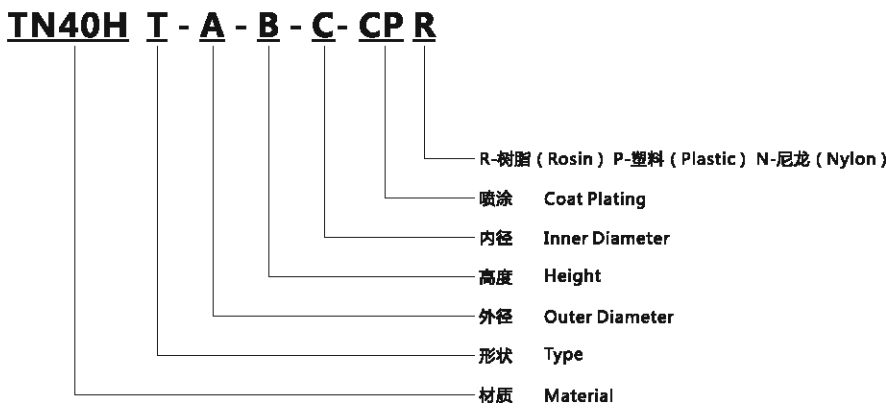
SH Type Core

型号 TYPE	尺寸 Dimensions (mm)					图例 FIG
	A	B	C	D	E	
SH-15.3-8-15-2	15.30±0.8	8.00±0.5	15.00±0.5	9.30±0.5	2.00±0.4	1
SH-23.8-6.3-7	23.80±0.4	6.30±0.4	7.00±0.5	18.80±0.4	1.10±0.15	1
SH-28-8-15-2	28.00±0.8	8.00±0.5	15.00±0.5	9.30±0.8	2.00±0.4	1
SH-33.5-6.5-12.3	33.50±0.5	6.50±0.3	12.30±0.3	28.30±0.5	1.30±0.2	1
SH-39.8-6.5-12.3	39.80±0.5	6.50±0.3	12.30±0.3	34.60±0.5	1.30±0.2	1
SH-32-7.75-9.7	32.00±0.64	7.75±0.5	12.00±0.4	27.40±0.5	1.00+0.3-0.5	1
SH-32-7.75-35	32.00±0.64	7.75±0.4	35.50±1.05	25.10±0.5	0.90+0.5-0.3	1
SH-22.35-7.75-19.05	22.35±0.5	7.75±0.38	19.05±0.64	14.00±0.25	1.50±0.25	2
SH-38.85-26-28.6-12.95	38.85±0.75	26.15±0.75	28.60±0.75	26.00±0.6	12.95±0.25	1
SH-40-7.6-28.6-1.3	40.00±1.0	7.60±0.5	28.60±0.6	33.70±1.0	1.30+0.4-0.3	1
SH-40-6.5-18-1.3	40.00±1.0	6.50±0.3	18.00±0.4	34.80±0.7	1.30±0.25	1
SH-46-5.0-12	46.00±1.0	5.00±0.5	12.00±0.5	42.00±0.8	0.80+0.4-0.25	1

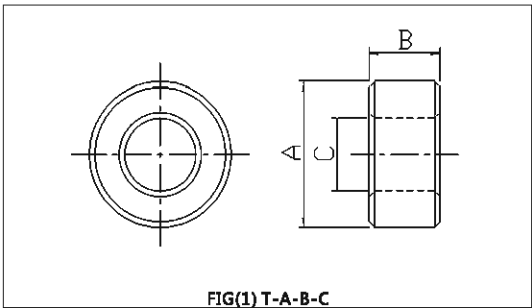


T Type Core

命名表示 / Ordering Core System



- 适用材质 /Available Material :
TN40H/ TN65B/ TN80G/ TN100B/ TN200B etc.
- 用途 /Application :
滤波线圈/射频线圈、增益调和线圈、抗流线圈、滤波器等
EMI/ RFI Suppression, Plus and matching transformer, Choke coil, Input filter etc.



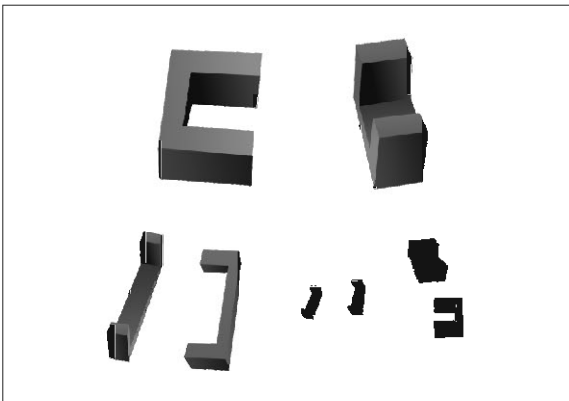
T Type Core

型号 TYPE	尺寸 Dimensions (mm)			图例 FIG
	A	B	C	
T-2.54-0.79-1.27-CPN	2.54±0.13	0.79±0.13	1.27±0.13	1
T-2.54-1.27-1.27-CPN	2.54±0.13	1.27±0.13	1.27±0.13	1
T-3.05-1.27-1.27-CPN	3.05±0.13	1.27±0.13	1.27±0.13	1
T-3.43-1.52-1.78-CPN	3.43±0.2	1.52±0.2	1.78±0.2	1
T-3.94-1.65-2.21-CPN	3.94±0.2	1.62±0.2	2.21±0.2	1
T-4-2-2	4.00±0.2	2.00±0.15	2.00±0.15	1
T-4-3-2-CPN	4.00±0.2	3.00±0.2	2.00±0.15	1
T-4-3.5-2-CPN	4.00±0.2	3.50±0.2	2.00±0.2	1
T-4-1.5-2.3	4.00±0.15	1.50±0.1	2.30±0.1	1
T-4.4-1.2-2.8	4.40±0.3-0.1	1.20±0.1	2.80±0.1	1
T-4.4-2.5-2.8	4.40±0.3-0.1	2.50±0.15	2.80±0.15	1
T-4.4-4.6-2.5-CPN	4.40±0.3-0.1	4.60±0.15	2.50±0.15	1
T-4.8-1.5-2.8	4.80±0.2	1.50±0.15	2.80±0.15	1
T-5-2-2.2	5.00±0.2	2.00±0.2	2.20±0.2	1
T-5-2.5-2.2	5.00±0.2	2.50±0.2	2.20±0.2	1
T-6-2-3	6.00±0.2	2.00±0.2	3.00±0.2	1
T-6-2-4-CPY	6.00±0.2	2.00±0.2	4.00±0.2	1
T-6-3-3-CPY	6.40MAX	3.50MAX	2.60MIN	1
T-6.3-2.5-3.8	6.30±0.2	2.50±0.2	3.80±0.2	1
T-8-3-4-CPY	8.60MAX	3.50MAX	3.50MIN	1

T Type Core

型号 TYPE	尺寸 Dimensions (mm)			图例 FIG
	A	B	C	
T-8-4-4	8.00±0.2	4.00+0.0-0.3	4.00±0.2	1
T-8-4-4-CPY	8.60MAX	4.50MAX	3.50MIN	1
T-8-5-4	8.00±0.2	5.00±0.2	4.00±0.2	1
T-9-3-5	9.00±0.2	3.00±0.2	5.00±0.2	1
T-9.5-6.35-4.9	9.50±0.2	6.35±0.2	4.90±0.2	1
T-10-3-5	10.00±0.2	3.00±0.2	5.00±0.2	1
T-10-4-6-CPY	10.50MAX	4.60MAX	5.50MIN	1
T-10-5-5	10.00±0.2	5.00±0.2	5.00±0.2	1
T-10-5-5-CPY	10.50MAX	5.60MAX	4.50MIN	1
T-12-4-6	12.00±0.2	4.00±0.2	6.00±0.2	1
T-12.7-6.5-7.9	12.70±0.2	6.50±0.2	7.90±0.2	1
T-13-3-7-CPY	13.50±0.4	3.25±0.4	6.80±0.4	1
T-13-5-7	13.00±0.3	5.00±0.3	7.00±0.3	1
T-14-7-9-CPY	14.50MAX	7.50MAX	8.50MIN	1
T-16-4-9	16.00±0.5	4.00±0.3	9.00±0.5	1
T-16-6-9	16.00±0.5	6.00±0.3	9.00±0.5	1
T-17.5-6.35-9.5	17.50±0.5	6.35±0.3	9.50±0.5	1
T-17.5-13.5-9.5	17.50±0.5	13.50±0.5	9.50±0.5	1
T-18.2-6.4-11	18.20±0.5	6.40±0.3	11.00±0.3	1
T-18.5-10.25-9.75	18.50±0.5	10.25±0.5	9.75±0.5	1
T-18.7-14.25-10.15	18.70±0.6	14.25±0.6	10.15±0.6	1
T-20-5-10	20.00±0.5	5.00±0.3	10.00±0.5	1
T-20-7-10	20.00±0.5	7.00±0.5	10.00±0.5	1
T-20-10-10	20.00±0.5	10.00±0.5	10.00±0.5	1
T-20.95-11.9-13.2	20.95±0.5	11.90±0.5	13.20±0.5	1
T-22.25-6.35-12.7	22.25±0.5	6.35±0.3	12.70±0.5	1
T-25-8-15	25.00±0.5	8.00±0.5	15.00±0.5	1
T-25-10-15	25.00±0.5	10.00±0.5	15.00±0.5	1
T-25-12-15	25.00±0.5	12.00±0.5	15.00±0.5	1

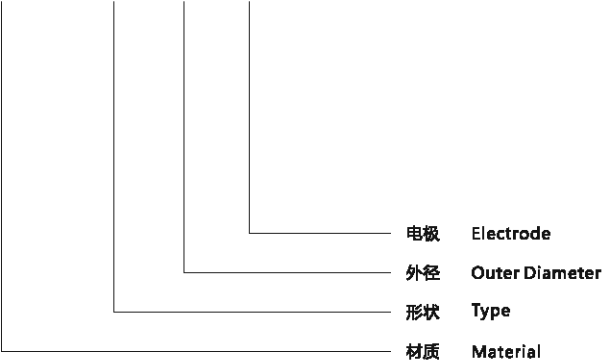
型号 TYPE	尺寸 Dimensions (mm)			图例 FIG
	A	B	C	
T-25.4-6.35-12.7	25.40±0.65	6.35±0.25	12.70±0.35	1
T-25.9-21.3-12.8	25.95±0.5	21.30±0.5	12.80±0.5	1
T-28-14-14-CPY	28.00±1.0	14.00±0.8	14.00±0.8	1
T-29-7-19	29.00±0.5	7.00±0.5	19.00±0.5	1
T-31-16-19	31.00±0.5	16.00±0.5	19.00±0.5	1
T-50.8-25.4-25.4	50.80±1.3	25.40±0.75	25.40±0.8	1
T-50.8-28.7-25.4	50.80±1.3	28.70±0.75	25.40±0.8	1
T-50.8-38.1-25.4	50.80±1.3	38.10±0.75	25.40±0.8	1
T-73.65-12.7-38.85	73.65±2.0	12.70±1.0	38.85±1.0	1



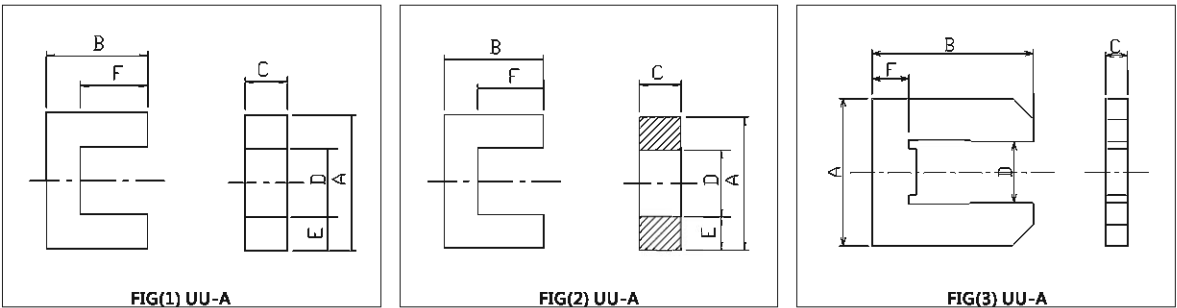
UU Type Core

命名表示 / Ordering Core System

TN100B UU - A - EL

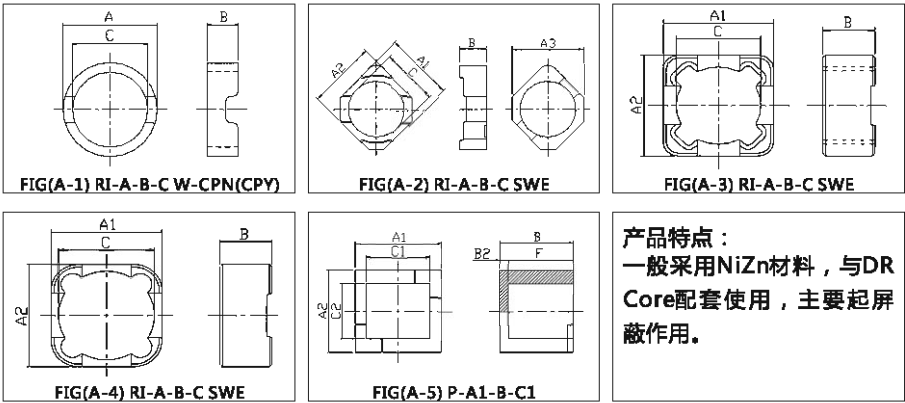


- 适用材质 /Available Material :
TN12B/ TN25H/ TN65B/ TN100B/ TN200B etc.
- 使用范围 /Application :
主要适用于滤波器等
Line filter etc.



UU Type Core

型号 TYPE	尺寸 Dimensions (mm)						图例 FIG
	A	B	C	D	E	F	
UU-1.6-EL	1.60±0.06	0.76±0.06	0.74±0.06	0.93±0.06	0.30±0.06	0.17±0.04	2
UU-2.0-EL	2.03±0.06	1.14±0.06	1.27±0.06	1.03±0.06	0.50±0.06	0.70±0.06	2
UU-2.4-EL	2.42±0.1	1.85±0.1	2.03±0.1	1.42±0.1	0.50±0.1	1.40±0.1	2
UU-10.5	10.50±0.2	7.90±0.2	5.00±0.15	5.30±0.2		5.30±0.2	1
UU-14	14.00±0.15	15.30±0.15	1.80±0.1	5.90±0.1		3.50±0.15	3



MnZn SMD Type Core

型号 TYPE	尺寸 Dimensions (mm)					图例 FIG
	A1(A)	A2	A3	B	C1	
RI-3.9-1.6-3.1W-CPN	3.90±0.1		10.50±0.2	1.60±0.1	3.10±0.1	A-1
RI-10-3.35-8.2SWE	10.00±0.2	10.00±0.2	10.50±0.2	3.35±0.15	8.20±0.2	A-2
RI-10-4.25-8.2SWE	10.00±0.2	10.00±0.2		4.25±0.15	8.20±0.2	A-2
RI-8.3-4.05-6.7W-CPY	8.30±0.15			4.05±0.15	6.70±0.2	A-1
RI-7.3-2.7-5.7SWE	7.30±0.15	7.30±0.15		2.70±0.15	5.70±0.15	A-3
RI-7.3-3.5-5.7SWE	7.30±0.15	7.30±0.15		3.50±0.15	5.70±0.15	A-3
RI-12-3.65-10.4SWE	12.00±0.2	12.00±0.2		3.65±0.15	10.40+0.3-0.0	A-4
RI-12-5.1-10.4SWE	12.00±0.2	12.00±0.2		5.10±0.15	10.40+0.3-0.0	A-4
RI-12-6.6-10.4SWE	12.00±0.2	12.00±0.2		6.60±0.15	10.40+0.3-0.0	A-4
P-12-10.3-8.85	12.00±0.2	11.05±0.2		10.30±0.15	8.85±0.15	A-5
P-12.3-10.2-9.65	12.30±0.2	11.75±0.2		10.20±0.15	9.65±0.15	A-5
P-8.4-7.3-6.5W	8.40±0.15	8.00±0.15		7.30±0.15	6.50±0.15	A-5
P-10-9-7.8W	10.00±0.2	10.00±0.2		9.00±0.15	7.80±0.15	A-5
P-11.3-9.7-8.5W	11.30±0.2	11.30±0.2		9.70±0.15	8.50±0.15	A-5
P-9.0-7.3-6.5W	8.40±0.15	9.00±0.15		7.30±0.15	6.50±0.15	A-5
P-8.4-6.35-6.5W	8.40±0.15	8.00±0.15		6.35±0.1	6.50±0.1	A-5



型号 TYPE	尺寸 Dimensions (mm)							图例 FIG
	A1(A)	A2	B	C	D	E	F	
DRR-4×2.2-1.5PAI-CPY	3.85±0.1		2.05±0.1	1.40±0.07	0.48±0.10	1.10±0.1	0.48±0.10	B-1
DRR-8×11-4.0PAI-CPY	8.00±0.2		11.00±0.3	4.00±0.2	2.00±0.15	7.00±0.2	2.00±0.15	B-1
DRR-8.4×4.2-3.2PAI-CPY	8.40±0.2		4.20±0.2	3.2+0.2/-0.05	0.90±0.15	2.40±0.15	0.90±0.15	B-1
DRR-8.4×10-5.0PAI-CPY	8.40±0.2		10.20±0.3	5.00±0.2	1.20±0.15	7.80±0.15	1.20±0.15	B-1
DRR-12.7×5.8-6.0PAI-CPY	12.80±0.2		5.80±0.2	6.00±0.2	(1.30)	3.20+0.3-0	(1.30)	B-1
DRR-12.7-10.2-6.5PAI-CPY	12.7±0.3		10.2±0.3	6.50±0.2	1.4±0.15	7.4±0.15	1.4±0.15	B-1
DRB-3.9-2.95×2.0-1.2PAI-CPN	3.90±0.1	2.95±0.1	2.00±0.1	1.20±0.1	0.45±0.1	1.10±0.1	0.45±0.1	B-2
DRB-9.8-7.55×3.65T-4.8PAI-CPY	9.80±0.2	7.55±0.2	3.65±0.2	4.80±0.2	0.85±0.15	1.95±0.15	0.85±0.15	B-3
DRB-9.8-7.55×4.65T-4.8PAI-CPN	9.80±0.2	7.55±0.2	4.65±0.2	4.80±0.2	0.82±0.15	3.00±0.15	0.83±0.15	B-3
DRR-4.8×4.0-2.3PAI-CPY	4.80±0.15		4.00±0.15	2.30±0.15	0.80±0.1	2.40±0.15	0.80±0.1	B-1
DRR-5.3×2.8-2.6PAI-CPY	5.30±0.15		2.80±0.15	2.60±0.15	0.65±0.1	1.50±0.15	0.65±0.1	B-1
DRR-5.3×3.7-2.5PAI-CPY	5.30±0.15		3.70±0.15	2.50±0.15	0.60±0.1	2.50±0.15	0.60±0.1	B-1
DRR-10×3.85-5.0PAI-CPY	10.00±0.15		3.85±0.15	5.00±0.15	0.95±0.1	1.95±0.15	0.95±0.1	B-1
DRR-10×5.2-5.2PAI-CPY	10.00±0.15		5.20±0.15	5.20±0.15	1.15±0.1	2.90±0.15	1.15±0.1	B-1
DRR-10×7.1-6.3PAI-CPY	10.00±0.15		7.10±0.15	6.30±0.15	1.10±0.1	4.90±0.15	1.10±0.1	B-1
R-5.5-6.6	5.50±0.1		6.60±0.1					B-4
R-5.5-8.95	5.50±0.1		8.95±0.1					B-4
R-3.5-4.05	3.50±0.1		4.05±0.1					B-4
R-4.5-5.55	4.50±0.1		5.55±0.1					B-4
R-5.0-6.5	5.00±0.1		6.50±0.1					B-4
R-3.5-4.0	3.50±0.1		4.00±0.1					B-4
R-3.5-4.15	3.50±0.1		4.15±0.1					B-4

概念
主要概念与定义

1、磁场

电流产生磁场，在螺线管中，或在磁路中电流的产生的磁场为：

$$H = \frac{NI}{l}$$

在这一个表式中，采用国际单位制，H单位为安培/米(A/m)，N为匝数，I为电流，单位安培(A)，l为螺线管或磁路长度，单位为米(m)。

在磁心中，加正弦波电流，可用有效磁路长度le来计算磁场强度：

$$H = \frac{\sqrt{2} IN}{l_e} \text{ (A/m)}$$

$$1 O_e = \frac{1 \times 10^3}{4\pi} \approx 79.58 \text{ A/m}$$

2、磁通密度、磁极化强度、磁化强度

在磁性材料中，加强磁场H时，引起磁通密度变化，其表现为：B=μ₀H+J 或 B=μ₀(H+M)
B为磁通密度，亦称磁感应强度，J称磁极化强度，M称磁化强度，μ₀为真空磁导率，其值为4π×10⁻⁷亨利/米(A/m)。

B、J单位T，H、M单位为A/m，1T=10⁴Gs。

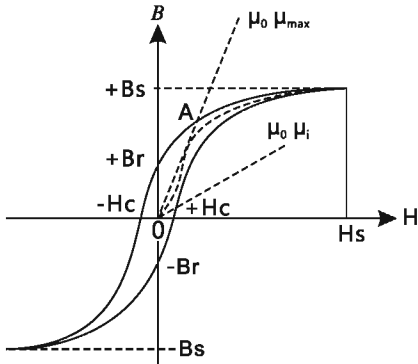
在磁心中可用有效面积Ae来计算磁通密度：

正弦波为：
$$\hat{B} = \frac{0.225V}{fNA_e}$$

电压单位V，频率单位为Hz，N为匝数，B单位为T，Ae单位为m²。

3、饱和磁通密度、剩余磁化强度、矫顽力

B和H的关系除在真空中和在磁性材料中小磁化场下具有线性关系外，一般具有非线性关系，即具有所谓磁滞回线性质：



Bs为饱和磁化强度，Br为剩余磁化强度，Hc为矫顽力。

Hs为饱和磁化场，不同磁性材料产生的磁滞回线表现形式不一样，Bs、Br、Hc、Hs都不一样。

4、磁导率

(1)
$$\frac{B}{H} = \mu_0 \left(1 + \frac{B}{H}\right) = \mu_{\text{absolute}}$$
 称绝对磁导率，是有量纲的。

(2)
$$\frac{B}{H} = \mu_0 \mu_r, \mu_r$$
 称相对磁导率，是无量纲的，是一个数值。

我们平常用的大都是相对磁导率，且把脚标r省去。

(3)
$$\frac{1}{\mu_0} \frac{\Delta B}{\Delta H (\Delta H \rightarrow 0)} = \mu_i$$
 称初始磁导率，它与温度、频率有关。测量时在一定温度、一定频率、很低的磁通密度（或很小的磁场）、闭合磁路中进行。在实际测量中，规定：磁场H所产生的磁通密度应小于1mT，一般B为0.1mT，但亦有许多特殊情况，应加以注意。

(4) 在磁路中存在气隙，即非闭合磁路条件下，测得的磁导率为有效磁导率：

$$\frac{\mu_i}{1 + g\mu_i / l_e} = \mu_e$$

g是气隙长度，le是有效磁路长度。这一表示，仅是小气隙g下的一种近似。在大气隙下，磁通要穿过气隙的外部，其有效磁导率将大于按上式计算所得之值。

(5) 在没有偏置磁场的情况下，磁场H较大时，该磁场H产生磁通密度B，则这时，

$$\mu_s = \frac{1}{\mu_0} \frac{B}{H}$$
，称振幅磁导率。

(6) 在具有直流偏置磁场时，再加上一个交流磁场，这时测得的磁导率
$$\mu_\Delta = \frac{1}{\mu_0} \left[\frac{\Delta B}{\Delta H} \right]_{H_{DC}}$$

称为增量磁导率。在直流迭加状态下测得的电感，计算出的磁导率近似于增量磁导率。

(7) 上述 (1) -(6) 的磁导率都是频率较低，或接近直流状态下测得的磁导率，在频率较高时，其磁导率表现为复数磁导率。

在串联电路中为
$$\mu = \mu'_s - j\mu''_s$$
。

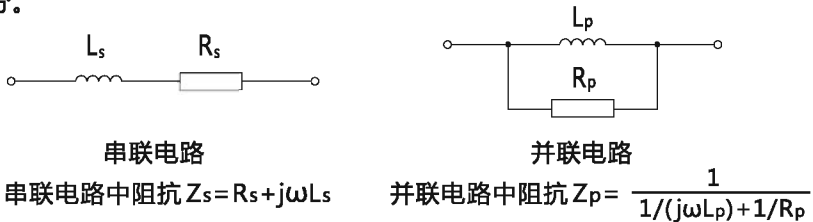
在并联电路中为
$$\frac{1}{\mu} = \frac{1}{\mu_p} - \frac{1}{j\mu_p}$$

μ's，μ"s，μ'p，μ"p 都是频率的函数。

5、阻抗

电感产生感抗 $X_L=j\omega L$ ，电容产生容抗 $X_C=\frac{1}{j\omega C}$ ，二者总称为电抗，纯电阻R。

三者总称阻抗，在磁性器件讨论中，相对低的频率下，我们忽略容抗，只讨论电阻和感抗，且有串联电路和并联电路之分。



Z_s 、 Z_p 都与频率有关，其特性称为阻抗频率特性，它与磁性材料频率特性有关。另外，它们与绕组参数有关。在复数磁导率中，其频率特性表现为 μ' 、 μ'' 的频率特性。阻抗频率特性，实际上是磁性器件的特性，并非是材料的特性。

6、损耗因子

表示小信号下材料的损耗特性。由于磁心损耗，引起信号相移，其表示为：

$$\text{tg}\delta_m = \frac{R_s}{\omega L_s} = \frac{\mu'_s}{\mu''_s} \text{ or } \text{tg}\delta_m = \frac{\omega L_p}{R_p} = \frac{\mu'_p}{\mu''_p}$$

$\text{Tg}\delta_m$ 称为损耗因子，表示的是损耗功率与贮能的比值。因磁心损耗包括磁滞损耗，涡流损耗、剩余损耗，所以损耗因子可表示为：

$\text{tg}\delta_m = \text{tg}\delta_h + \text{tg}\delta_e + \text{tg}\delta_r$ ，分别称为磁滞、涡流、剩余损耗因子。

7、比损耗因子

$\frac{\text{tg}\delta_m}{\mu_i}$ 或 $\frac{\text{tg}\delta}{\mu_i}$ 称比损耗因子，与材料几何尺寸无关，表示小信号下材料的损耗特性。

8、气隙的影响

当磁路中有气隙时，其损耗因子为带气隙损耗因子， $(\text{tg}\delta)_{\text{gap}}$ 它与无气隙时损耗因子的关系为：

$$\frac{(\text{tg}\delta)_{\text{gap}}}{\mu_e - 1} = \frac{\text{tg}\delta}{\mu_i - 1}$$

因 μ_e 、 $\mu_i > 1$ ，所以有： $\frac{(\text{tg}\delta)_{\text{gap}}}{\mu_e} = \frac{\text{tg}\delta}{\mu_i}$ ，即有 $(\text{tg}\delta)_{\text{gap}} = \frac{\text{tg}\delta \cdot \mu_e}{\mu_i}$

由于 $\mu_e < \mu_i$ ，所以开气隙后，损耗因子减小，Q值增加。

磁心开制气隙后，磁心内部磁场强度 H_i 大大减小，由 $H_i = H_e - H_d = H_e - NM$ 可以看出，退磁因子N越大， H_i 越小。

这里 H_e 是绕组通以电流后产生的磁场 ($H_e = \frac{NI}{l_e}$)，M是磁化强度。退磁因子为 $0-4\pi$ ，对闭路磁心 $N=0$ ，气隙越大，N越大，反之亦然。开制气隙可增加磁场和温度的稳定性。

9、品质因数Q

磁性器件作滤波器的电感时，通常用品质因数(Q) 来表示它的质量，品质因数 $Q = \frac{1}{\text{tg}\delta} = \frac{\omega L}{R_{\text{tot}}}$ ， R_{tot} 表示总电阻，它是线圈和磁心的总电阻。
 R_{tot} 表示损耗，包括磁心损耗、铜钱损耗。Q与频率和绕组参数有关。

10、大信号场下的功率损耗

大信号场下，磁心损耗用下式表示:

$P_m = P_h + P_e + P_r$ ， P_h 、 P_e 、 P_r ，分别表示磁滞损耗、涡流损耗、剩余损耗。

11、温度系数与比温度系数

温度系数为： $\alpha_{\mu i} = \frac{\mu_{i2} - \mu_{i1}}{\mu_{i1}} \times \frac{1}{T_2 - T_1}$

μ_{i1} ， μ_{i2} 分别表示温度 T_1 ， T_2 时的初始磁导率。

比温度系数： $\alpha_{\mu ir} = \frac{\alpha_{\mu i}}{\mu_{i1}} = \frac{\mu_{i2} - \mu_{i1}}{(\mu_{i1})^2} \times \frac{1}{T_2 - T_1}$

$\alpha_{\mu i}$ ， $\alpha_{\mu ir}$ 均表示磁导率的温度稳定性。

12、减落因子与比减落因子

减落因子为 $D_A = \frac{\mu_{i1} - \mu_{i2}}{\mu_{i1}} \times \frac{1}{\lg(t_1/t_2)}$

μ_{i1} ， μ_{i2} 表示同一温度下， t_1 ， t_2 时刻的初始磁导率。

比减落因子 $D_F = \frac{D_A}{\mu_{i1}} = \frac{\mu_{i1} - \mu_{i2}}{\mu_{i1}^2} \times \frac{1}{\lg(t_1/t_2)}$

D_A ， D_F 都表示 μ_i 经磁扰动或机械冲击后的经时变化。比减落因子，一般用 D_F 表示，有时简称减落因子。

13、电感系数 AL

一个电感器或变压器，绕有N匝线圈，其电感值为L，则定义 $AL \frac{L}{N^2}$ ，当AL单位为 $\frac{nH}{N^2}$ 时。 $AL = \frac{1}{N^2} \cdot 10^9$

这里L的单位为亨利，一般N取100，当N取得很大磁心又是闭路时，不宜采用AL来表达，因可能进入谐振区或接近饱和区。

在设计中，知道AL值和设定要求的电感(nH)，则导线圈数： $T_s = \left[\frac{\text{Set } L(nH)}{AL(nH/N)^2} \right]^{1/2}$

在无隙情况下， $\mu_i = \frac{C_1}{0.4\pi} AL$ ，这里C为磁心常数，单位为 mm^{-1} ，AL为 $\frac{nH}{N^2}$ 。

AL值与气隙大小有关、磨削面精度有关。

14、静磁场影响-直流迭加

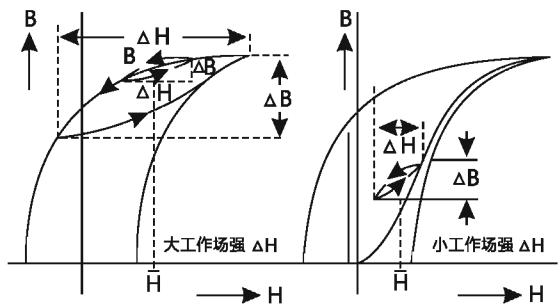
当交流磁场与直流磁场同时作用于磁心时，称为静磁场的影响，有时，简单地称为直流迭加。当磁心有一个恒定的直流磁场 H_{DC} ，并在其上迭加一个幅度为 $\frac{\Delta H}{2}$ 的正弦磁场时，则表示为：

$$H = H_{DC} + \frac{\Delta H}{2} \sin \omega t$$

当正弦磁场作用时，磁通密度形成小磁滞回线时，其峰值用 $\Delta B/2$ 表示，此时小磁滞回线在大磁滞回线内变化，小磁滞回线的平均斜率叫增量磁导率（前已述过）。

$$\mu_{\Delta} = \frac{1}{\mu_0} \left[\frac{\Delta B}{\Delta H} \right] H_{DC}$$

这里，正弦场叫工作场，直流场叫偏磁化场或偏置场。增量磁导随偏置场而改变。测直流迭加特性，就是在一定偏置场下加工作场，测其增量磁导率，并与无直流场时的磁导率作比较。由于交流磁场值大小不同，小回线有二种代表性的状态，如：

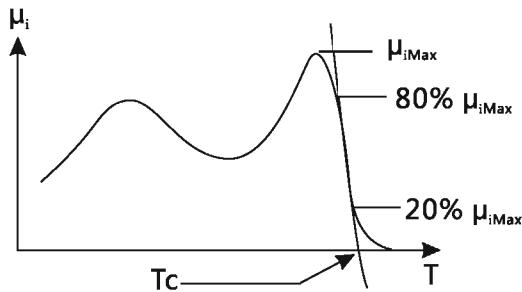


直流磁场H叠加一个幅度为 $\Delta H/2$ 的交流磁场后的磁滞回线

从中可推知迭加特性与材料特性的关系。由于许多电路中，往往存在直流电成份，这相当于加了一个直流偏置场，而它会影响增量磁导率的大小，所以迭加特性很重要。

15、居里温度

居里温度是磁性材料从铁磁性（亚铁磁性）到顺磁性的转变温度，或称磁性消失温度，表示方式有多种。天通材料标准中规定的确定居里温度的方法如下图：



随温度升高，磁导率下降到最大值的80%，20%时，这二点连线，延长到与温度轴的交点，即为居里温度。

Concepts

Main concepts and definitions

1、Magnetic field

Current induces magnetic field. In spiral coils, the magnetic field (H) induced by current can be expressed as :

$$H = \frac{NI}{l}$$

Where all parameters, are in SI unit system and N is turn number, I (A) is current, l(m) is the length of the spiral coils. In magnetic core, the field strength H induced by alternate current can be calculated in term of the effective length l_e of the spiral coils :

$$H = \frac{\sqrt{2} IN}{l_e} \text{ (A/m)}$$

$$1 O_e = \frac{1 \times 10^3}{4\pi} \approx 79.58 \text{ A/m}$$

2、Magnetic flux density, magnetic polarizability, magnetization.

In magnetic material, the magnetic flux density varies as applied field H. It behaviors as :

$$B = \mu_0 H + J \text{ or } B = \mu_0 (H + M)$$

Where B is magnetic flux density also called magnetic induction, J magnetic polarization, M magnetization, and μ_0 vacuum permeability with the value of $4\pi \times 10^{-7}$ H/m. The units of B and J are Tesla (T) and those of H and M are A/m.

$$1 \text{ Tesla} = 10^4 \text{ Gauss}$$

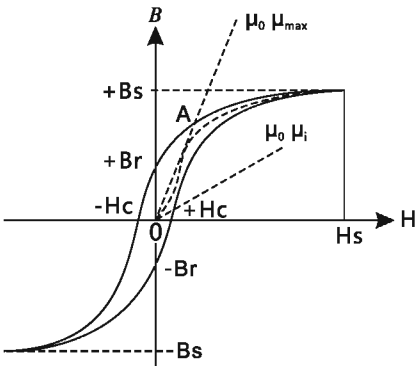
In magnetic cores, the magnetic flux density can be calculated using effective area A_e :

$$\hat{B} = \frac{0.225V}{fNA_e} \text{ For sine wave}$$

Where V is electric potential in volt, f frequency in H_z , N turn number, B in mT and A_e in m^2 .

3、Saturation magnetization, remanent magnetization, and coercivity.

Besides the linear relation between B and H in vacuum, B behaviors a nonlinear relation as H in magnetic materials displaying the hysteresis shown in the figure.



In the figure. Bs is saturation induction, Br residual induction, Hc coercivity and Hs saturation field. Differem magnetic materials display various hysresis leading to different Bs, Br, Hc, and Hs.

4、Permeability

- (1) $\frac{B}{H} = \mu_0 (1 + \frac{B}{H}) = \mu_{\text{absolute}}$ called absolute permeability with dimension.
- (2) $\frac{B}{H} = \mu_0 \mu_r$, μ_r where μ_r is called relative permeability, which is a pure number without dimension.

Usually we use the relative permeability, neglecting the footnote r.

- (3) $\frac{1}{\mu_0} \frac{\Delta B}{\Delta H (\Delta H \rightarrow 0)} = \mu_i$ is called initial permeability. It depends on temperature and frequency.

The measurement of μ_i should be made in a closed magnetic circuit at certain temperature and frequency in a very weak applied field. In measurement, it requires that the change of magnetic flux density (ΔB) induced by ΔH should be less than 1mT, generally $B=0.1\text{mT}$.

- (4) For unclosed magnetic circuit with a gap, measured permeability is called effective permeability expressed as:

$$\frac{\mu_i}{1 + g\mu_i / l_e} = \mu_e$$

Where g is the length of the gap. And l_e the effective length of the magnetic circuit. It notes that this equation only an approximation of μ_e for the small gap. For large gap. the effective permeability will larger than calculated using above equation.

- (5) When an applied field H is larger without a DC bias field, it induces the magnetic flux density B, in which

$$\mu_a = \frac{1}{\mu_0} \frac{B}{H}$$

, is called amplitude permeability.

- (6) When an alternate field with a DC bias field, the permeability. $\mu_\Delta = \frac{1}{\mu_0} \left[\frac{\Delta B}{\Delta H} \right]_{H_{DC}}$

is called incremental permeability, For the electric inductance measured in the AC field superposed with a bias DC field, the permeability is probably also the incremental permeability.

- (7) The permeability in above (1) -(6) are all obtained in the low frequency or near to DC situation. When the frequency is high, the permeability is complex.

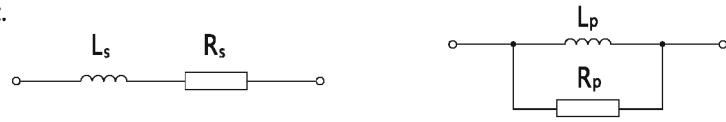
In serial circuit , $\mu = \mu'_s - j\mu''_s$,

In parallel circuit , $\frac{1}{\mu} = \frac{1}{\mu_p} - \frac{1}{j\mu_p}$

μ'_s , μ''_s , μ'_p , μ''_p , are all the functions of frequency

5、Impedance

Inductive impedance in an electric inductance is $X_L = j\omega L$, and condenser impedance in a condenser is $X_C = \frac{1}{j\omega C}$, These two are generally called electrical impedance. Adding pure resistance R , they are in all called impedance. In magnetic devices, we only consider inductive impedance and pure resistance for the issue of relative low frequency, neglecting condenser impedance. There is the difference between serial and parallel circuit.



Series representation
Series representation $Z_s = R_s + j\omega L_s$

Parallel representation
Parallel representation $Z_p = \frac{1}{1/(j\omega L_p) + 1/R_p}$

Z_s and Z_p depend on frequency, and their characteristics are called impedance frequency characteristics and related to the frequency characteristics of magnetic materials, and they are connected with winding parameters. In complex permeability, its frequency characteristics is determined by the frequency characteristics of both μ' and μ'' actually, the impedance frequency characteristic is the characteristic of the magnetic device but the characteristic of material.

6、Loss factor

Loss factor indicates the loss property of material in small signal. It induces phase shift of signal due to magnetic core loss, which can be expressed as :

$$\text{tg}\delta_m = \frac{R_s}{\omega L_s} = \frac{\mu'_s}{\mu''_s} \text{ or } \text{tg}\delta_m = \frac{\omega L_p}{R_p} = \frac{\mu'_p}{\mu''_p}$$

Where $\text{tg}\delta_m$ is called loss factor indicating the ratio of loss power and input power. Because magnetic core loss induces hysteresis loss, eddy loss, and residual loss, the loss factor can be expressed as : $\text{tg}\delta_m = \text{tg}\delta_h + \text{tg}\delta_e + \text{tg}\delta_r$, where $\text{tg}\delta_h$, $\text{tg}\delta_e$, and $\text{tg}\delta_r$ is called hysteresis loss factor, eddy loss factor, and residual loss factor respectively (see the following figure).

7、Specific loss factor

$\frac{\text{tg}\delta_m}{\mu_i}$ or $\frac{\text{tg}\delta}{\mu_i}$ is called specific loss factor, which is independent of geometrical size of material, indicating small signal loss characteristic of the material.

8、The influence of gap

When the magnetic circuit is unclosed with a gap, the loss factor is called gap loss factor $(\text{tg}\delta)_{\text{gap}}$, the relation between gap loss factor and loss factor without the gap is:

$$\frac{(\text{tg}\delta)_{\text{gap}}}{\mu_e - 1} = \frac{\text{tg}\delta}{\mu_i - 1}$$

Because μ_e 、 $\mu_i > 1$, the above equation becomes $\frac{(\text{tg}\delta)_{\text{gap}}}{\mu_e} = \frac{\text{tg}\delta}{\mu_i}$, i.e $(\text{tg}\delta)_{\text{gap}} = \frac{\text{tg}\delta \cdot \mu_e}{\mu_i}$

Where $\mu_e < \mu_i$, It is clear that $(\text{tg}\delta)_{\text{gap}} > \text{tg}\delta$, Q value increasing

After the gap is made, the internal magnetic intensity of core decreases in large scale, form the formula $H_i = H_e - H_d = H_e - NM$, we could see when demagnetizing factor N increases, H_i will decrease on the contrary.

Here he is the magnetic field produced by the, winding witz current ($H_e = \frac{NI}{l_e}$), m is intensity of magnetization, demagnetising factor is $0-4\pi$, if magnetic circuit is closed, $N=0$, when the gap is bigger, demagnetising factor is bigger, and it is the same on the contrary. Gap-making will increase the stability of magnetic field and temperature.

9、Quality factor Q

When magnetic device is used as electric inductance in wave filter, its property is usually characteriaed , using quality factor Q . $Q = \frac{1}{\text{tg}\delta} = \frac{\omega L}{R_{\text{tot}}}$

When R_{tot} is total resistance including coil and core resistance. R_{tot} indicates loss including magnetic core loss and copper wire loss. Q value is clesly related to frequency and coil parameters.

10、Power loss in large signal field

In large singnal field , magnetic core loss can be expressed as: $P_m = P_h + P_e + P_r$, When P_h , P_e , and P_r indicate hysteresis loss, eddy loss and residual loss respectively. In power ferrite, P_m is often used to analyze power loss, interpreted as dividing the total power loss and then analysing the cause and cores of power loss.

11、Temperature coefficient and specific temperature coefficient.

Temperatuer factor is: $\alpha_{\mu i} = \frac{\mu_{i2} - \mu_{i1}}{\mu_{i1}} \times \frac{1}{T_2 - T_1}$ Where μ_{i1}, μ_{i2} indicate initial permeability at T_1, T_2 respectively.

Sepcific temperature factor is: $\alpha_{\mu ir} = \frac{\alpha_{\mu i}}{\mu_{i1}} = \frac{\mu_{i2} - \mu_{i1}}{(\mu_{i1})^2} \times \frac{1}{T_2 - T_1}$

$\alpha_{\mu i}$ and $\alpha_{\mu ir}$ all indicate temperature stability of permeability.

12、Dropping coefficient and specific dropping coefficient.

Dropping coefficient is: $D_A = \frac{\mu_{i1} - \mu_{i2}}{\mu_{i1}} \times \frac{1}{\lg(t_1/t_2)}$

Where μ_{i1}, μ_{i2} indicate initial permeability at the same temperature at different time t_1, t_2 respectively.

Sepcific dropping coefficient is: $D_F = \frac{D_A}{\mu_{i1}} = \frac{\mu_{i1} - \mu_{i2}}{\mu_{i1}^2} \times \frac{1}{\lg(t_1/t_2)}$

Both D_A and D_F indicates the change under the influence of magnetic interference and mechanical lash.

13、Electric inductance factor AL

The inductance value of an electric inductance or a transformer with N turn coils is L. It defines that $AL = \frac{1}{N^2}$

When the unit AL is $\frac{nH}{N^2}$, taking $N=100$ commonly, but sometimes the parameter of AL is not used, because when the turns of winding are too many and in circumstance of closed magnetic circuit the magaetic flied is likely to enter resonance area or approach saturation area.

$$T_s = \left[\frac{\text{Set } L(nH)}{AL (nH/N)^2} \right]^{1/2}$$

When without the gap, $\mu_i = \frac{C_1}{0.4\pi} AL$, where C_1 of core parameter is mm^{-1} , AL is $\frac{nH}{N^2}$

AL value is related to the size and surface roughness of the gap. If known AL value and magnetic core size, one can easily obtain permeability μ_i used material.

14、Static field effect -DC superposition

When an alternate field and a DC field act on a magnetic core simultaneously, it is called static magnetic influence. Sometimes it is call DC superposition.

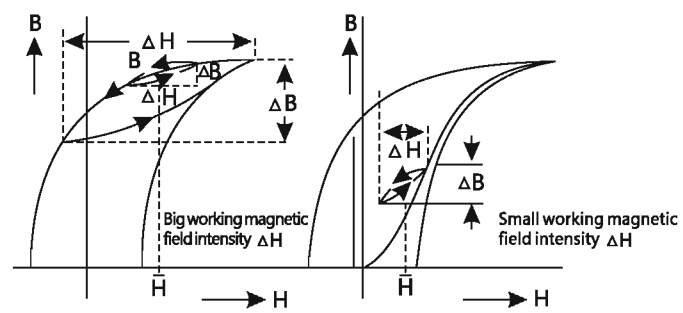
When there is a sine field with the amplify of $\Delta H/2$ acting on a DC field in the magnetic core, the applied fields is

$$H = H_{DC} + \frac{\Delta H}{2} \sin \omega t$$

Due to sine field, the change of magnetic flus density shows a small hysteresis loop in the large one and its peak value is $\Delta B/2$ (See the following figures). The average slope of the small hysteresis loop is incremental permeability (as mentioned above):

$$\mu_{\Delta} = \frac{1}{\mu_0} \left[\frac{\Delta B}{\Delta H} \right] H_{DC}$$

Where the sine field is called applied and field DC field called displacing field or bias field. The incremental permeability changes as displacing field. The measurement of DC superposition characteristic is to measure the incremental permeability in DC displacing field and to compare it to that measured without DC displacing field. There are two typical small hysteresis loops for different alternate fields (shown in the following figures).

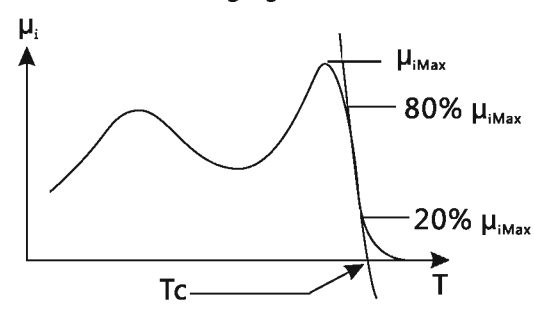


Where is the hysteresis loop, After folding between DC magnetic field and AC field with $\Delta H/2$

From them one can know the relationship between the superposing characteristic and material property. The superposing characteristic is very important due to the existence of DC in many electric circuits.

15、Curie temperature

Curie temperature is the transition temperaure of magnetic materials from ferromagnetism to paramag-netism. There are several methods to determine Curie temperature. The method used by TDG is shown as the following figure.



As temperature increases, one can find the two points with the perme-ability falling down to 80% μ_{iMax} and 20% μ_{iMax} respectively. Connecting the two points and extrapolating the line to T axis, the point of intersection is curie temperature.

原料检测
Raw Material
Test



ICP 等离子发射光谱仪
ICP-OES



X 荧光分析仪
X-ray Fluorescence Analyzer

性能测试
Performance
Test



HP 4284A 精密LCR测试仪
HP 4284A Precision LCR Meter



B-H 分析仪
B-H Analyzer



网络频谱阻抗分析仪
Network/Spectrum/Impedance Analyzer



ATS-1 THD测试仪
THD Analyzer



MATS 软磁直流测试仪
MATS Soft Magnetic DC Tester

可靠性
实验测试
Reliability
Test



电动振动台
Electric Vibrator



高低温试验箱
High-Low Temperature Test-Box



金相显微镜
Metallographic Microscope



高低温冷热冲击箱
High-Low Temperature Thermal Shock Box



高低温交变湿热箱
High-Low Temperature Alternating Test-Box



磁心雕刻机
Carving