序 言 Foreword

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

天通控股磁业公司（TDG Ferrite Division）作为天通控股的的直属事业体，是一家软磁铁氧体磁芯专业化制造工厂，建立于1984年。经过20多年的努力，已成为中国国内最大的软磁铁氧体生产基地，工厂占地500余亩，现有员工3300余人，其中技术人员620人，同时设有省级技术研发中心，拥有先进的试验，检测设备。

公司于2002年创办了NiZn铁氧体材料和磁芯的生产及开发部门。侧重开发和生产NiZn功率铁氧体、抗电磁干扰（EMI）NiZn铁氧体材料及磁芯。依托TDG品牌效应和中外技术的整合，励图4年，现已成功开发生产出17种材料、16种磁芯类型700余个规格，适合SMD的带电极磁芯及用户特殊要求的其它类型的磁芯。客户遍及亚洲欧美。产品规格小、精度高、性能稳，深受客户信赖和好评。

质量是我们一贯的坚持，用户的满意是我们一贯的追求!

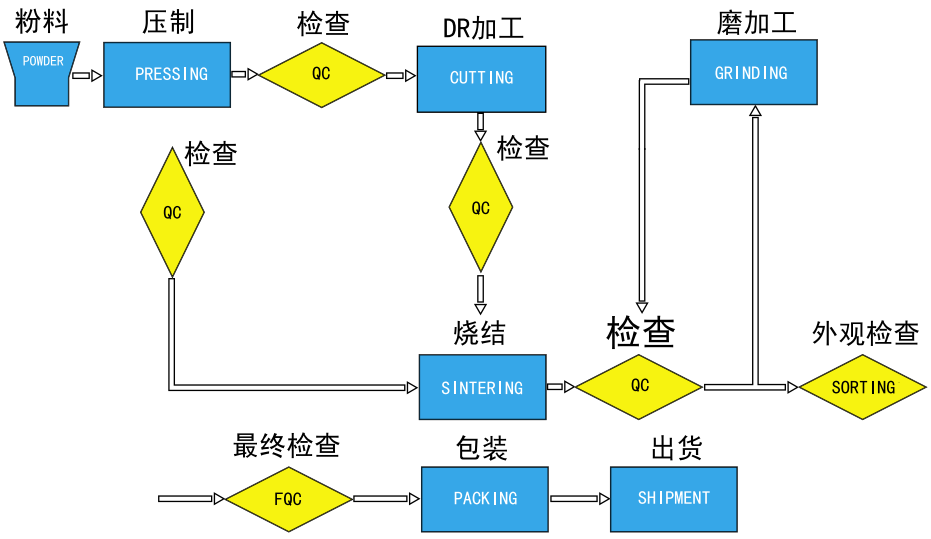
As the National and provincial key hi-tech enterprise listed one of the top 100 Chinese electronic components enterprises TDG Holding Co., Ltd was the first company going public in Shanghai SEM shares held by individuals.

Belonging to the TDG Holding CO. Ltd, TDG Ferrite Division is specialized in the soft ferrite manufacturing, which was set up in 1984. After twenty years hard working, now we have developed to be the biggest soft ferrite manufacturing base in China with total area covering about 40,0000 Sq meters and more than 3300 employees with 620 technical staff. TDG owns a provincial tech researching center which is equipped with the advanced test inspection instrument.

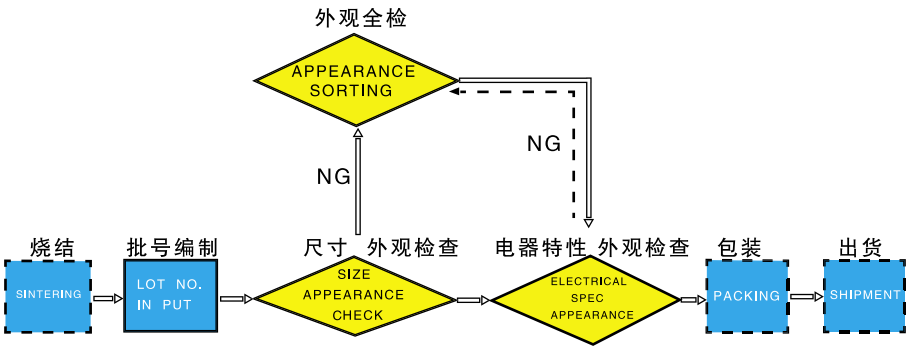
Founded in the 2002 the NiZn manufacturing and developing division is continuously specialized in researching and manufacturing the NiZn power ferrite core and EMI resistance material and cores. After 4 years working which based on the TDG brand, now we have total developed 17 kinds of materials as well as 16 kinds of the core more than 700 specification applicated for the SMD pin core and others required by our our customers. Our customers spread all over the Asia, America and Europe. The small-sized, high-precised and stabilized products are warmly popularized among our customers.

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

NiZn制造流程图
(Ni-Zn PRODUCTION FLOW DIAGRAM)



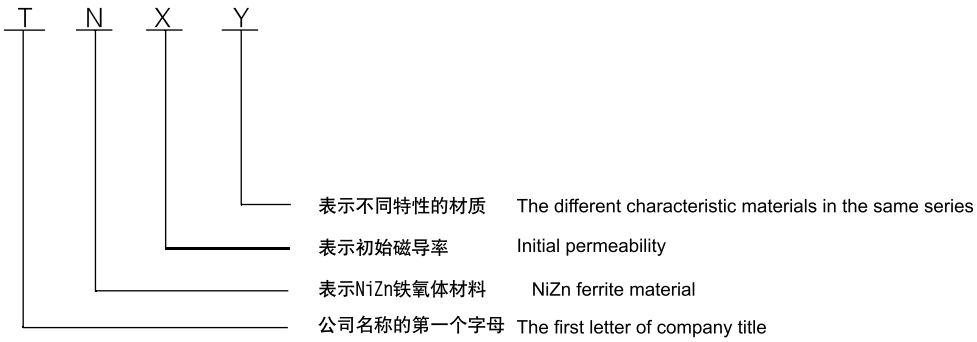
品管流程图
QC FLOW DIAGRAM



本公司对所生产的NiZn铁氧体材料等作了如下规范:

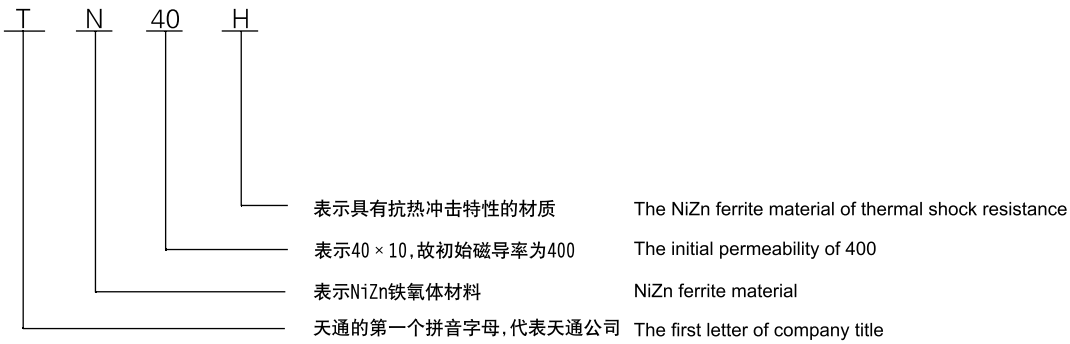
材料命名:

Material naming:



例:

Example:



H	抗热冲击系列NiZn铁氧体材质	The NiZn ferrite material of thermal shock resistance
B	高饱和磁通密度系列NiZn铁氧体材质	The NiZn ferrite material of high saturation magnetic flux density
L	低功耗系列NiZn铁氧体材质	The NiZn ferrite material of low core loss
P	高磁导率系列NiZn铁氧体材质	The NiZn ferrite material of high initial permeability
N	通用系列NiZn铁氧体材质	The commom NiZn ferrite material
G	镁铜锌系列铁氧体材质	The MgCuZn ferrite material

1．材质系列 Material Series:

材 质	初始磁导率 μi	饱和磁感应强度Bs		相对损耗因子tan δ / μi		比温度系数 α μir	居里温度Tc	密度d	电阻率p
Material	Initial permeability	Flux density		Relative loss factor		Relative temperature factor of μ_i	Curie temperature	Density	Electric resistivity
		mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}$/℃(20–60℃)	℃	g/cm^3	Ω · m
TN12B	120 ± 20%	430	4.0	≤65	0.1	22	>230	5.0	10^6
TN20H	200 ± 20%	430	4.0	≤45	0.1	45	>300	5.0	10^6
TN25H	250 ± 20%	420	4.0	≤30	0.5	30	>300	5.0	10^6
TN25N	250 ± 20%	360	4.0	≤110	0.1	25	>200	5.0	10^6
TN30H	300 ± 20%	415	4.0	≤30	0.1	20	>260	5.0	10^6
TN32N	320 ± 20%	340	4.0	≤30	0.1	20	>150	5.0	10^6
TN40H	400 ± 20%	410	4.0	≤25	0.1	25	>250	5.0	10^6
TN40L	400 ± 20%	440	4.0	≤20	0.1	17	>230	5.0	10^6
TN45B	450 ± 20%	440	4.0	≤25	0.1	15	>260	5.0	10^6
TN65B	650 ± 20%	400	4.0	≤17	0.1	18	>190	5.0	10^6
TN65H	650 ± 20%	400	4.0	≤15	0.1	8	>185	5.0	10^6
TN80L	800 ± 20%	410	4.0	≤13	0.1	9	>190	5.0	10^6
TN80G	800 ± 20%	270	4.0	≤30	0.1	15	>120	4.9	10^5
TN90H	900 ± 25%	340	4.0	≤20	0.1	15	>140	5.0	10^6
TN100B	1000 ± 20%	320	4.0	≤10	0.05	5	>130	5.0	10^6
TN150P	1500 ± 20%	280	0.8	≤20	0.1	3	>105	5.0	10^6
TN200B	2000 ± 20%	290	4.0	≤10	0.01	2	>100	5.0	10^6

注：通常特性指标的测试温度为25℃，特别标注除外。

所列材料的特性为该材料的典型值，实际材料可能稍有不同 ,测定样环：T12.7 × 7.9 × 6.5(mm)

The value of material’s characteristics is typical value.Sample core:T12.7 × 7.9 × 6.5(mm)

材 质	初始磁导率 μ_i	饱和磁感应强度Bs		相对损耗因子tan δ / μ_i		比温度系数 α μ ir	居里温度Tc	密度d	电阻率p
Material	Initial permeability	Flux density		Relative loss factor		Relative temperature factor of μ_i	Curie temperature	Density	Electric resistivity
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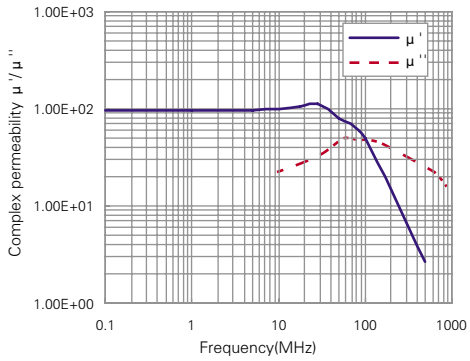
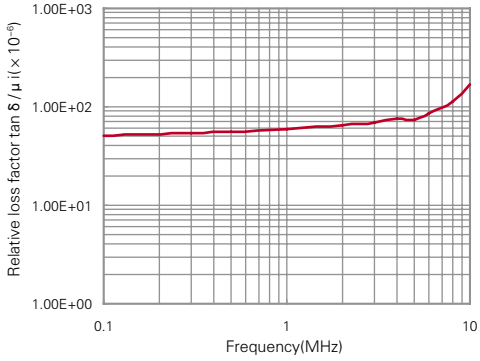
TN12B	120 ± 20%	430	4.0	≤65	0.1	22	>230	5.0	10^6

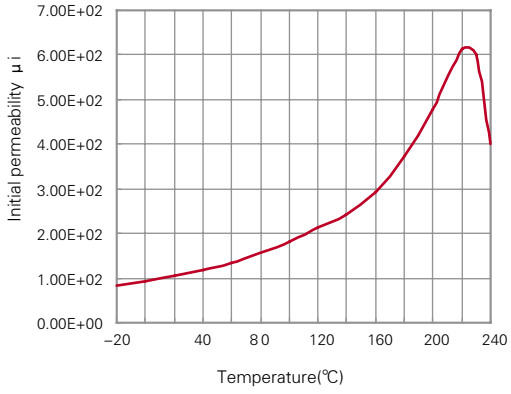
TN12B Complex permeability vs.Frequency



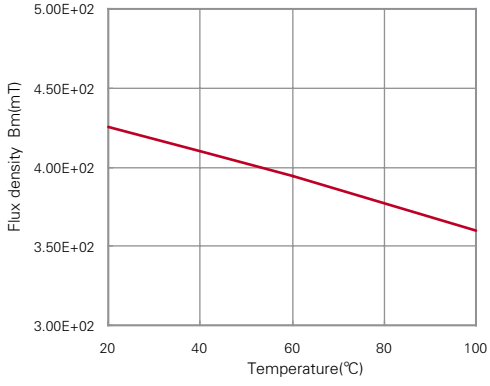
TN12B Relative loss factor vs.Frequency



TN12B Initial permeability vs.Temperature



TN12B Flux density vs.Temperature



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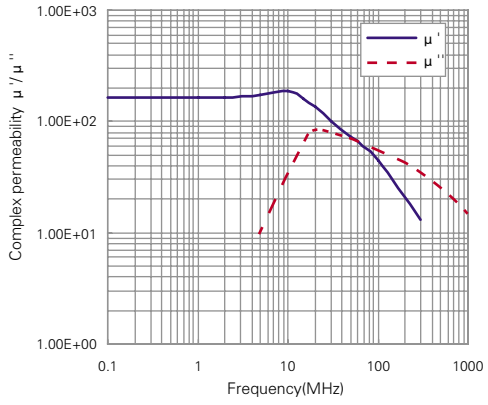
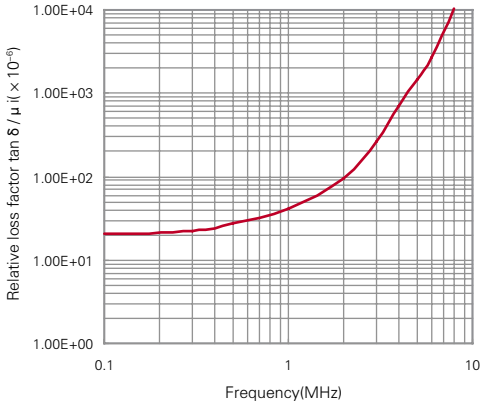
		mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}$/℃(20–60℃)	℃	g/cm^3	Ω·m
TN20H	200 ± 20%	430	4.0	≤45	0.1	45	>300	5.0	10^6

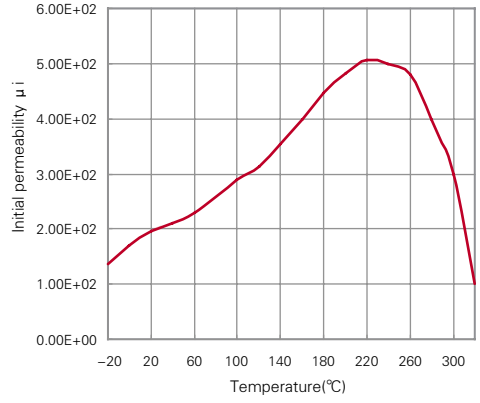
TN20H Complex permeability vs.Frequency



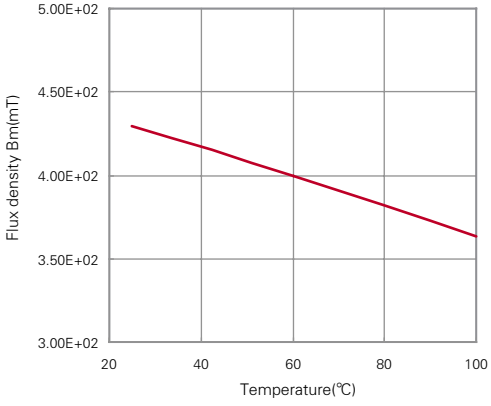
TN20H Relative loss factor vs. Frequency



TN20H Initial permeability vs.Temperature



TN20H Flux density vs.Temperature



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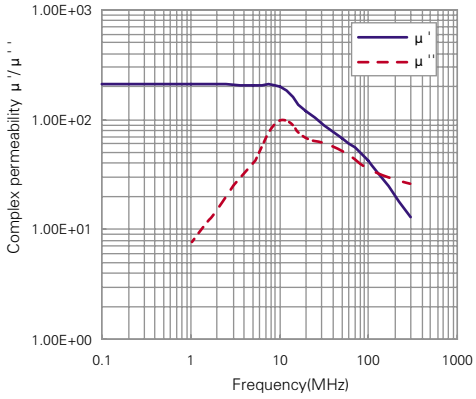
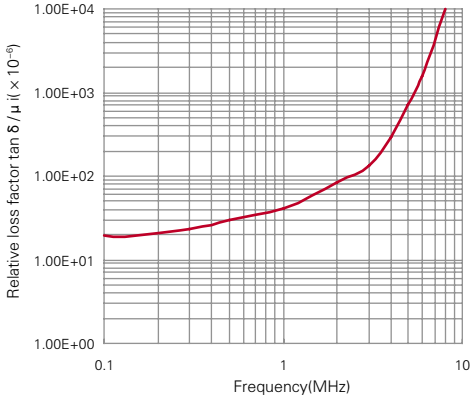
		mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}$/℃(20–60℃)	℃	g/cm^3	Ω·m
TN25H	250 ± 20%	420	4.0	≤30	0.5	30	> 300	5.0	10^6

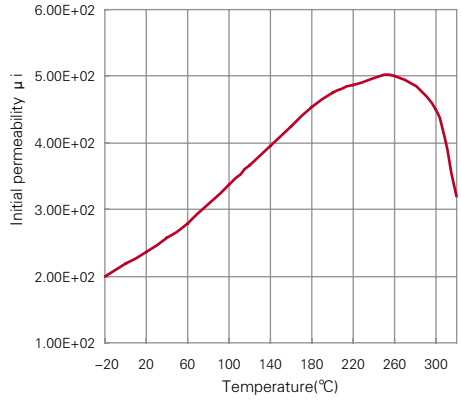
TN25H Complex permeability vs.Frequency



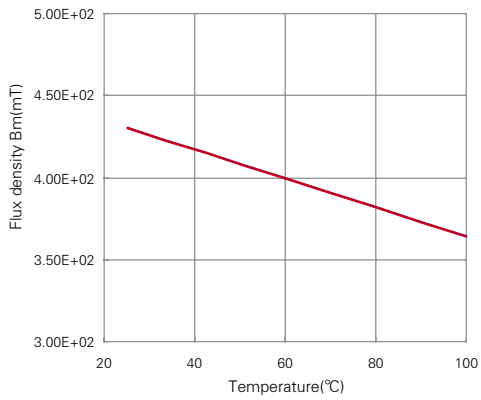
TN25H Relative loss factor vs.Frequency



TN25H Initial permeability vs.Temperature



TN25H Flux density vs.Temperature



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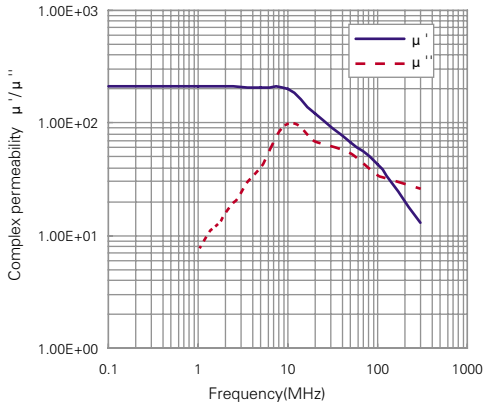
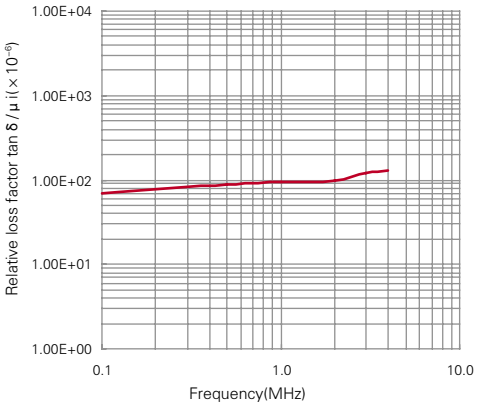
		mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}$/℃(20–60℃)	℃	g/cm^3	Ω·m
TN25N	250 ± 20%	360	4.0	≤110	0.1	25	>200	5.0	10^6

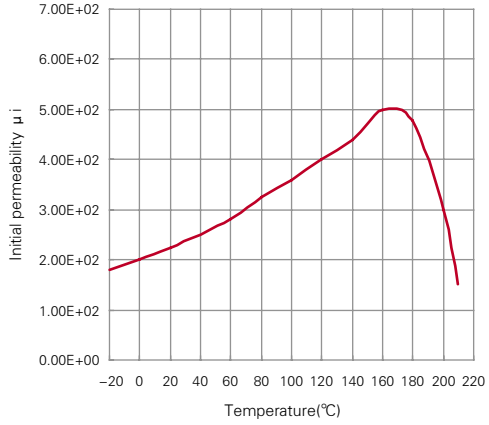
TN25N Complex permeability vs.Frequency



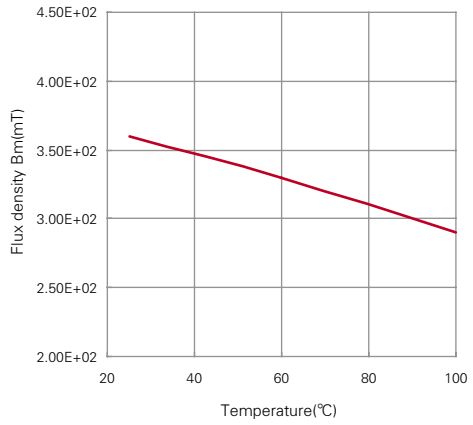
TN25N Relative loss factor vs.Frequency



TN25N Initial permeability vs.Temperature



TN25N Flux density vs.Temperature



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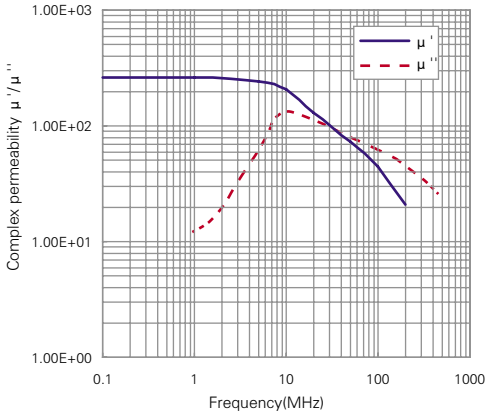
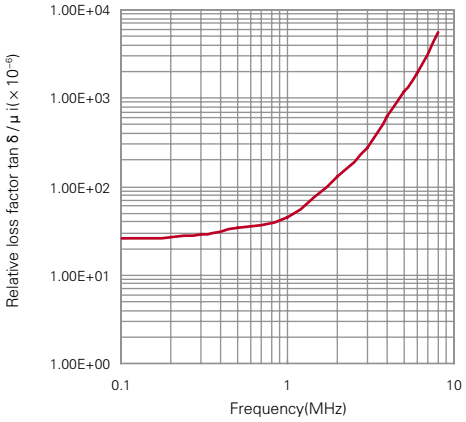
Material	Initial permeability	Flux density		Relative loss factor		Relative temperature factor of μ_i	Curie temperature	Density	Electric resistivity
		mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}$/℃(20–60℃)	℃	g/cm^3	Ω·m
TN30H	300 ± 20%	415	4.0	≤30	0.1	20	>260	5.0	10^6

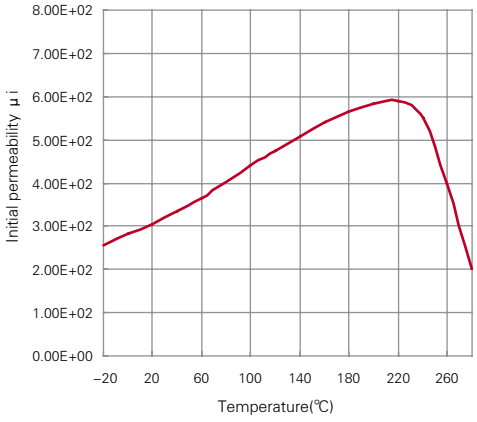
TN30H Complex permeability vs.Frequency



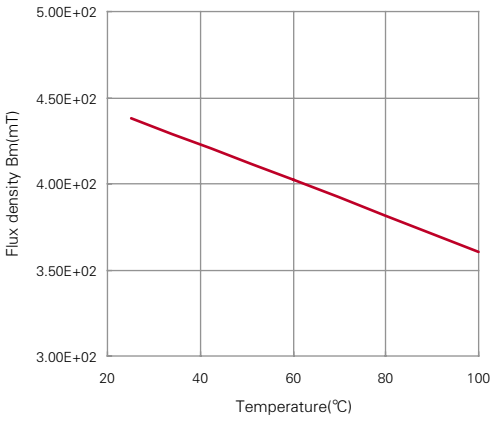
TN30H Relative loss factor vs.Frequency



TN30H Initial permeability vs.Temperature



TN30H Flux density vs.Temperature



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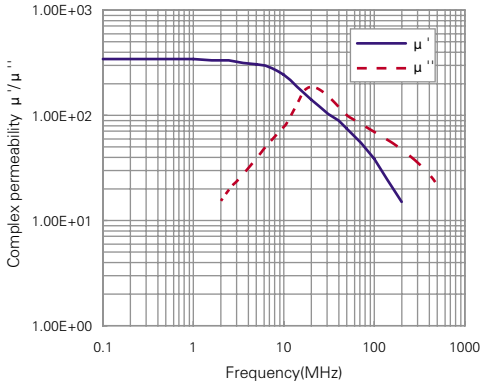
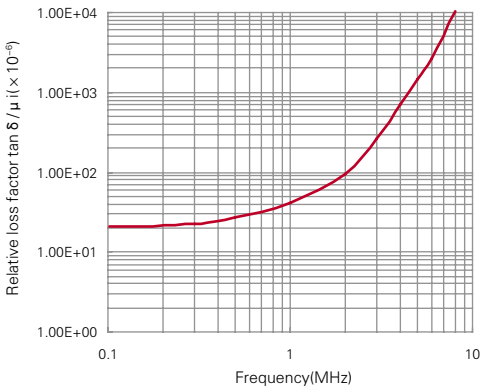
Material	Initial permeability	Flux density		Relative loss factor		Relative temperature factor of μ_i	Curie temperature	Density	Electric resistivity
		mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}$/℃(20–60℃)	℃	g/cm^3	Ω·m
TN32N	320 ± 20%	340	4.0	≤30	0.1	20	>150	5.0	10^6

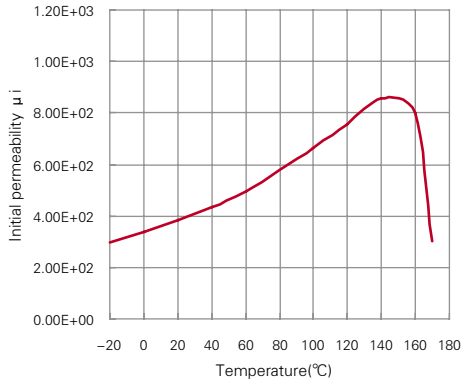
TN32N Complex permeability vs.Frequency



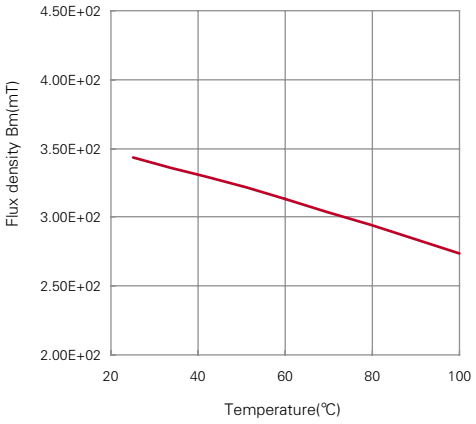
TN32N Relative loss factor vs.Frequency



TN32N Initial permeability vs.Temperature



TN32N Flux density vs.Temperature



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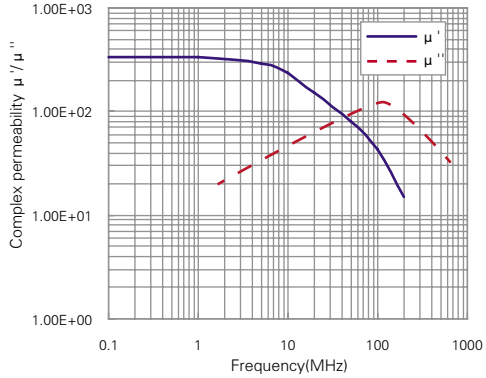
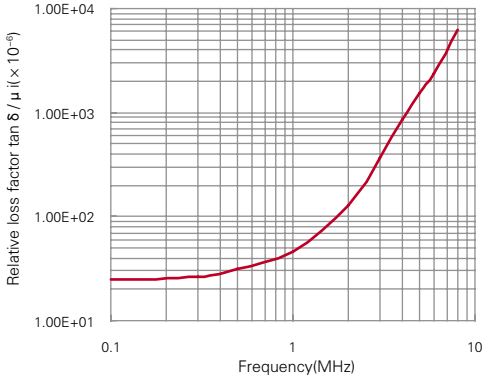
Material	Initial permeability	Flux density		Relative loss factor		Relative temperature factor of μ i	Curie temperature	Density	Electric resistivity
		mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}$/℃(20–60℃)	℃	g/cm^3	Ω·m
TN40H	400 ± 20%	410	4.0	≤25	0.1	25	>250	5.0	10^6

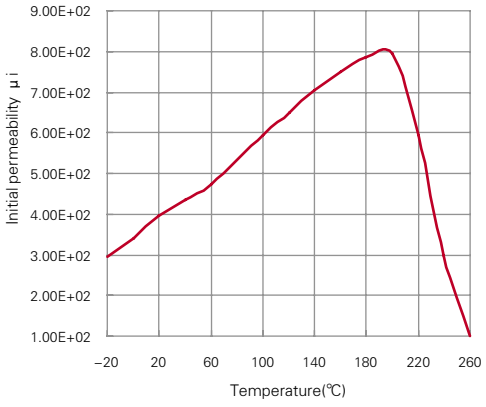
TN40H Complex permeability vs.Frequency



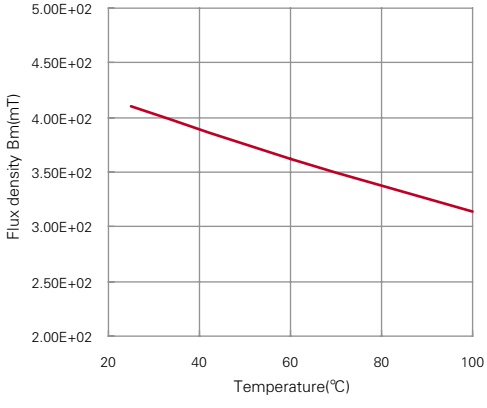
TN40H Relative loss factor vs.Frequency



TN40H Initial permeability vs.Temperature



TN40H Flux density vs.Temperature



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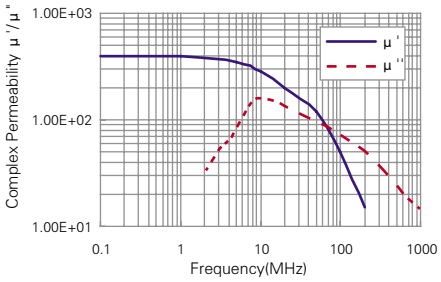
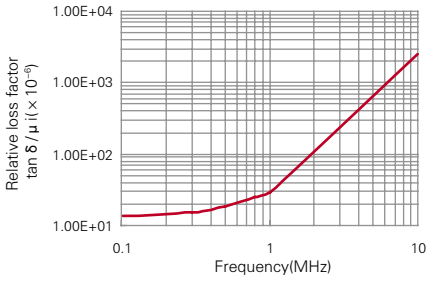
The value of material’s characteristics is typical value.Sample core:T12.7 × 7.9 × 6.5(mm)

材 质	初始磁导率 μ_i	饱和磁感应强度Bs		相对损耗因子tan δ / μ_i		比温度系数 α μir	居里温度Tc	密度d	电阻率p
Material	Initial permeability	Flux density		Relative loss factor		Relative temperature factor of μ_i	Curie temperature	Density	Electric resistivity
		mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}$/℃(20–60℃)	℃	g/cm^3	Ω·m
TN40L	400 ± 20%	440	4.0	≤20	0.1	17	>230	5.0	10^6

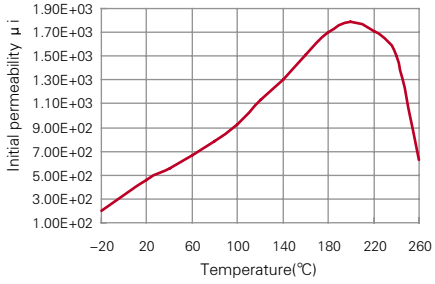
TN40L Complex Permeability vs.Frequency



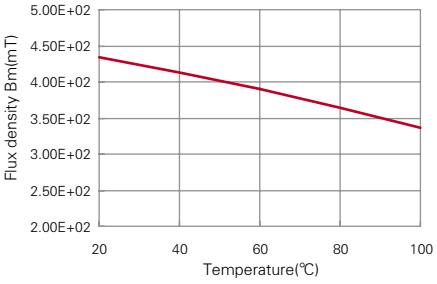
TN40L Relative loss factor vs.Frequency



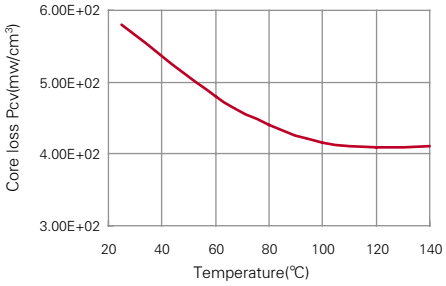
TN40L Initial permeability vs.Temperature



TN40L Flux density vs.Temperature



TN40L Core loss vs.Temperature



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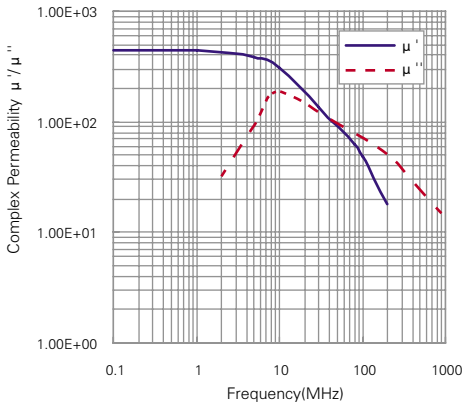
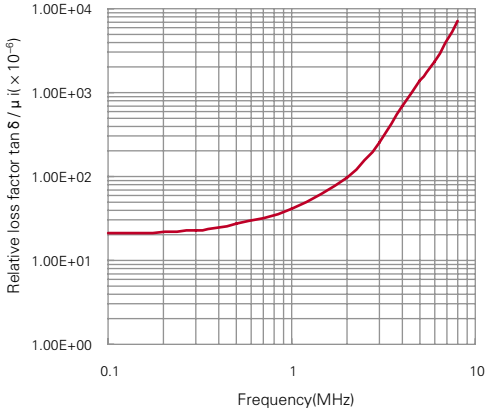
The value of material’s characteristics is typical value.Sample core:T12.7 × 7.9 × 6.5(mm)

材 质	初始磁导率 μ_i	饱和磁感应强度Bs		相对损耗因子tan δ / μ_i		比温度系数 α μ ir	居里温度Tc	密度d	电阻率p
Material	Initial permeability	Flux density		Relative loss factor		Relative temperature factor of μ_i	Curie temperature	Density	Electric resistivity
		mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}$/℃(20–60℃)	℃	g/cm^3	Ω·m
TN45B	450 ± 20%	440	4.0	≤25	0.1	15	>260	5.0	10^6

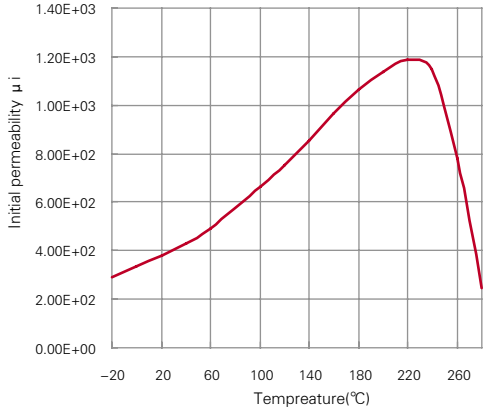
TN45B Complex Permeability vs.Frequency



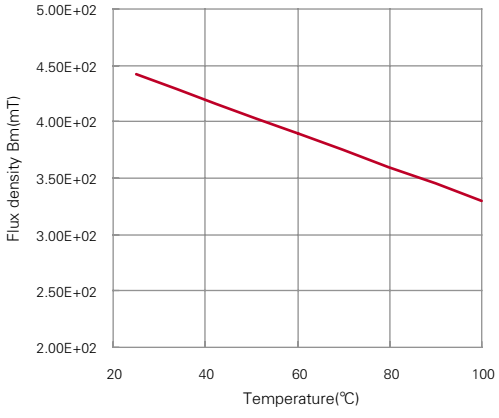
TN45B Relative loss factor vs.Frequency



TN45B Initial permeability vs.Temperature



TN45B Flux density vs.Temperature



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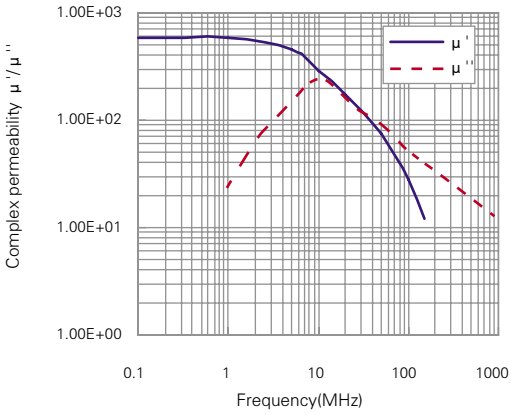
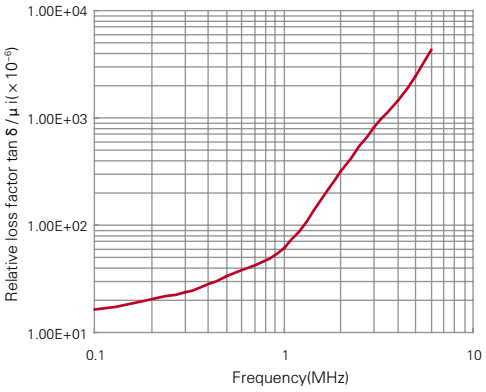
材 质	初始磁导率 μ i	饱和磁感应强度Bs		相对损耗因子tan δ / μ i		比温度系数 α μ ir	居里温度Tc	密度d	电阻率p
Material	Initial permeability	Flux density		Relative loss factor		Relative temperature factor of μ i	Curie temperature	Density	Electric resistivity
		mT	KA/m	×10⁻⁶	MHz	×10⁻⁶/℃(20–60℃)	℃	g/cm³	Ω·m
TN65B	650 ± 20%	400	4.0	≤17	0.1	18	>190	5.0	10⁶

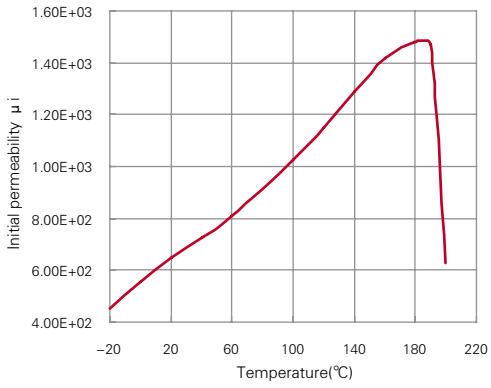
TN65B Complex permeability vs.Frequency



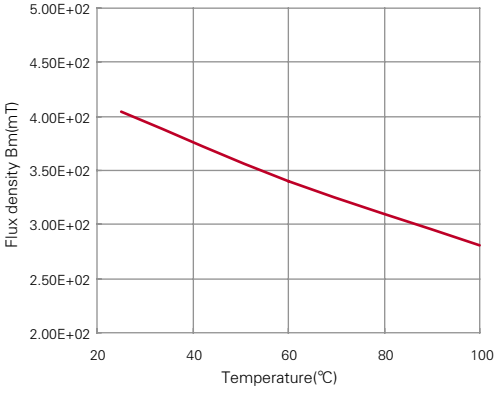
TN65B Relative loss factor vs.Frequency



TN65B Initial permeability vs.Temperature



TN65B Flux density vs.Temperature



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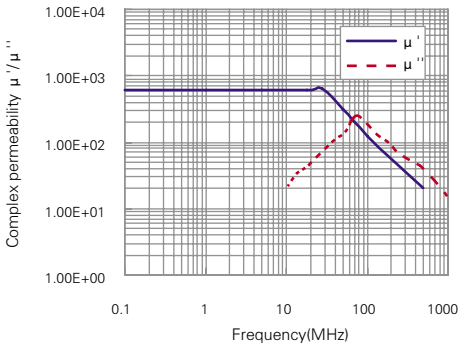
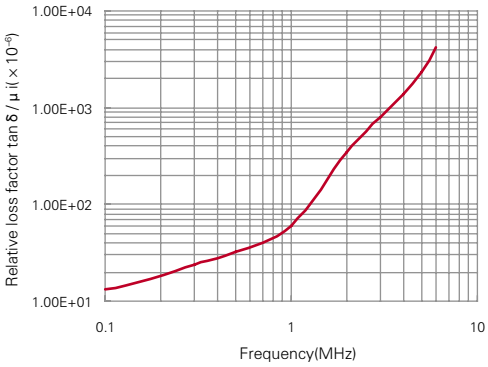
材 质	初始磁导率 μ_i	饱和磁感应强度Bs		相对损耗因子tan δ / μ_i		比温度系数 α μ ir	居里温度Tc	密度d	电阻率p
Material	Initial permeability	Flux density		Relative loss factor		Relative temperature factor of μ_i	Curie temperature	Density	Electric resistivity
		mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}$/℃(20–60℃)	℃	g/cm^3	Ω·m
TN65H	650 ± 20%	400	4.0	≤15	0.1	8	>185	5.0	10^6

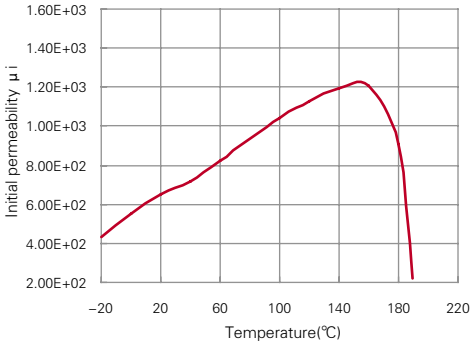
TN65H Complex permeability vs.Frequency



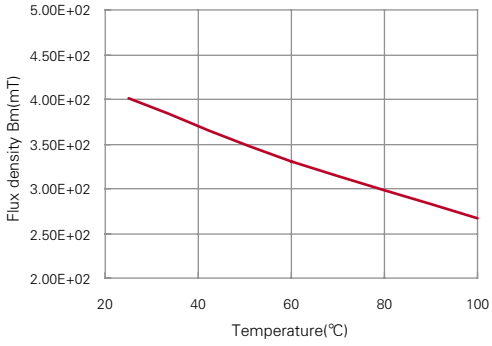
TN65H Relative loss factor vs.Frequency



TN65H Initial permeability vs.Temperature



TN65H Flux density vs.Temperature



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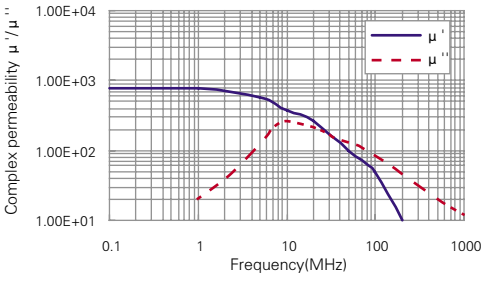
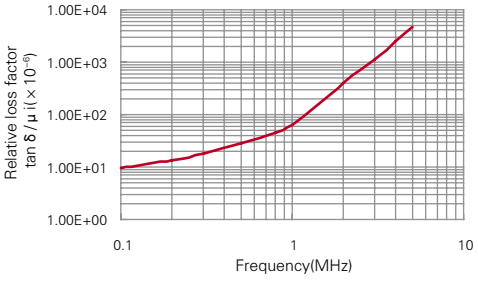
材 质	初始磁导率 μ_i	饱和磁感应强度Bs		相对损耗因子tan δ / μ_i		比温度系数 α μ_i r	居里温度Tc	密度d	电阻率p
Material	Initial permeability	Flux density		Relative loss factor		Relative temperature factor of μ_i	Curie temperature	Density	Electric resistivity
		mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}$/℃(20–60℃)	℃	g/cm^3	Ω·m
TN80L	800 ± 20%	410	4.0	≤13	0.1	9	>190	5.0	10^6

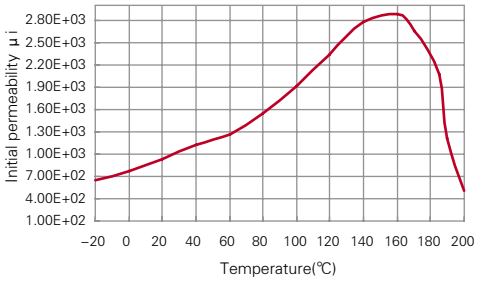
TN80L Complex permeability vs.Frequency



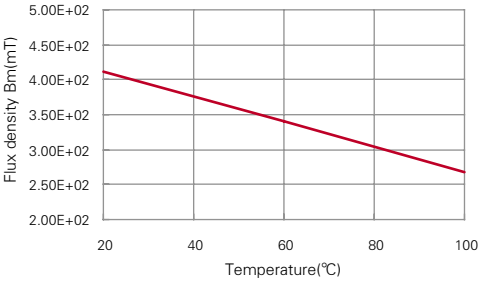
TN80L Relative loss factor vs.Frequency



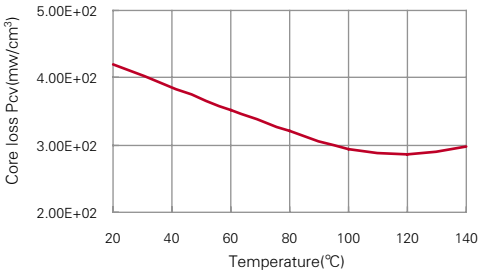
TN80L Initial permeability vs.Temperature



TN80L Flux density vs.Temperature



TN80L Core loss vs.Temperature



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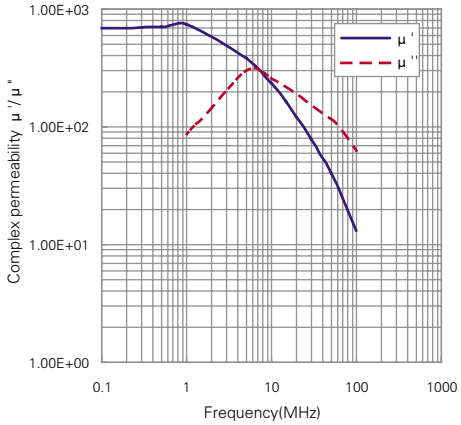
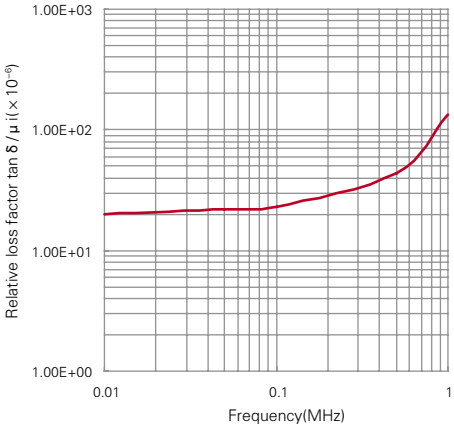
The value of material’s characteristics is typical value.Sample core:T12.7 × 7.9 × 6.5(mm)

材 质	初始磁导率 μ_i	饱和磁感应强度Bs		相对损耗因子tan δ / μ_i		比温度系数 α μ ir	居里温度Tc	密度d	电阻率p
Material	Initial permeability	Flux density		Relative loss factor		Relative temperature factor of μ_i	Curie temperature	Density	Electric resistivity
		mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}$/℃(20–60℃)	℃	g/cm^3	Ω·m
TN80G	800 ± 20%	270	4.0	≤30	0.1	15	>120	4.9	10^5

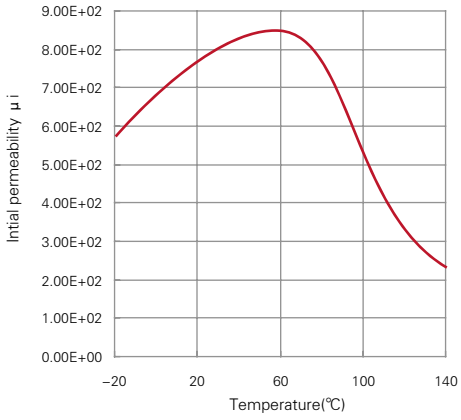
TN80G Complex permeability vs.Frequency



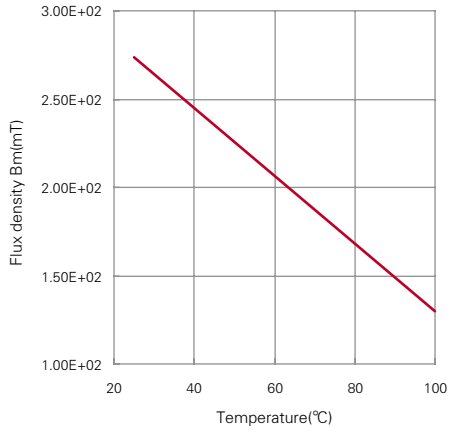
TN80G Relative loss factor vs.Frequency



TN80G Initial permeability vs.Temperature



TN80G Flux density vs.Temperature



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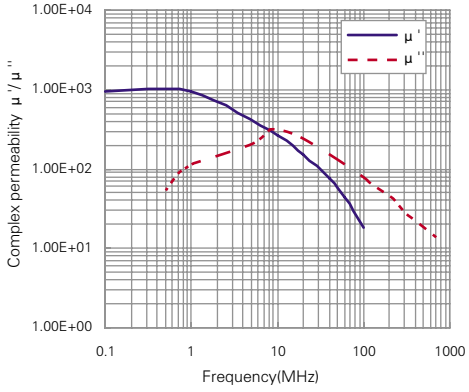
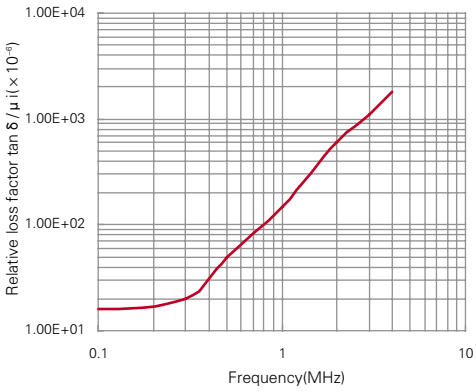
材 质	初始磁导率 μ_i	饱和磁感应强度Bs		相对损耗因子tan δ / μ_i		比温度系数 α μir	居里温度Tc	密度d	电阻率ρ
Material	Initial permeability	Flux density		Relative loss factor		Relative temperature factor of μi	Curie temperature	Density	Electric resistivity
		mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}$/℃(20–60℃)	℃	g/cm^3	Ω · m
TN90H	900 ± 25%	340	4.0	≤20	0.1	15	>140	5.0	10^6

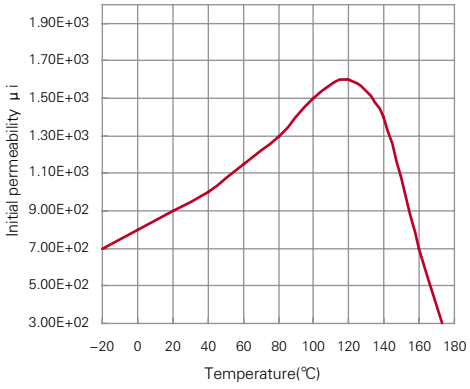
TN90H Complex permeability vs.Frequency



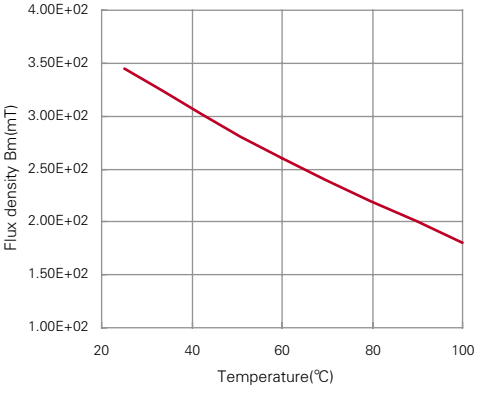
TN90H Relative loss factor vs.Frequency



TN90H Initial permeability vs.Temperature



TN90H Flux density vs.Temperature



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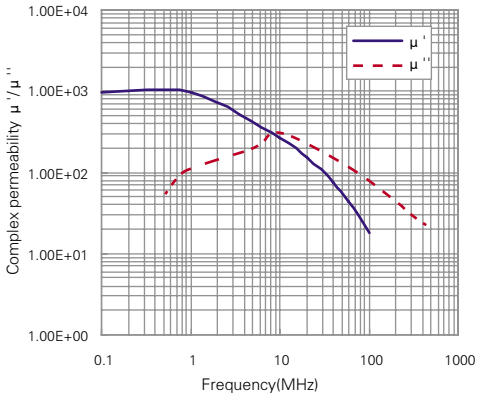
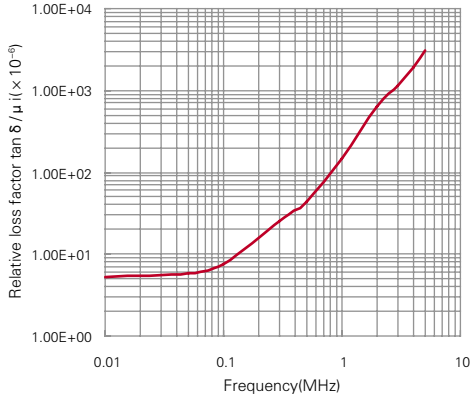
材 质	初始磁导率 μ_i	饱和磁感应强度Bs		相对损耗因子tan δ / μ_i		比温度系数 α μir	居里温度Tc	密度d	电阻率p
Material	Initial permeability	Flux density		Relative loss factor		Relative temperature factor of μ_i	Curie temperature	Density	Electric resistivity
		mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}$/℃(20–60℃)	℃	g/cm^3	Ω·m
TN100B	1000 ± 20%	320	4.0	≤10	0.05	5	>130	5.0	10^6

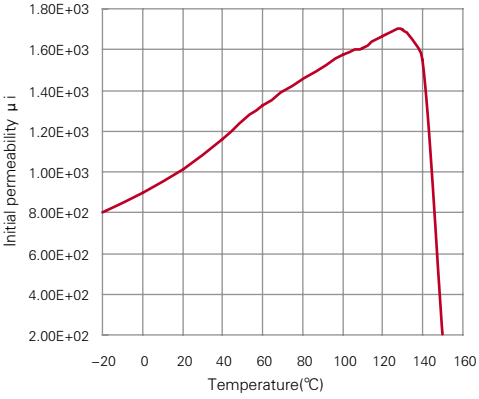
TN100B Complex permeability vs.Frequency



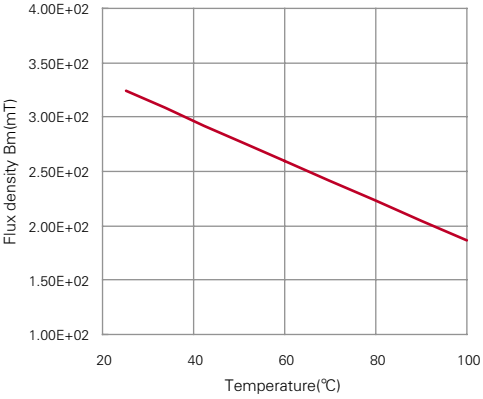
TN100B Relative loss factor vs.Frequency



TN100B Initial permeability vs.Temperature



TN100B Flux density vs.Temperature



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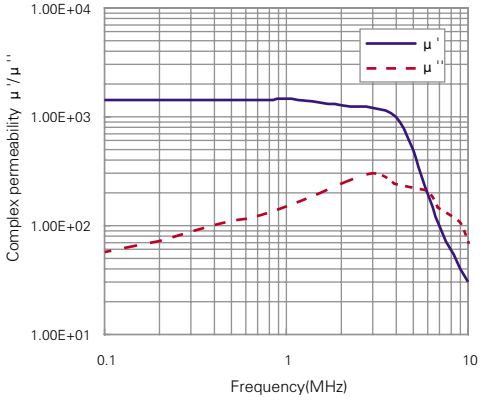
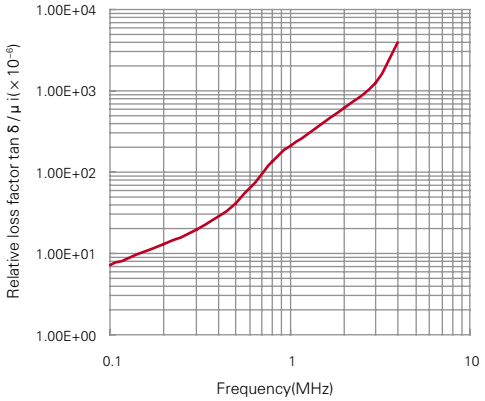
材 质	初始磁导率 μ_i	饱和磁感应强度Bs		相对损耗因子tan δ / μ i		比温度系数 α μ ir	居里温度Tc	密度d	电阻率p
Material	Initial Permeability	Flux density		Relative loss factor		Relative temperature factor of μ i	Curie Temperature	Density	Electric resistivity
		mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}$/℃(20–60℃)	℃	g/cm^3	Ω·m
TN150P	1500 ± 20%	280	0.8	≤20	0.1	3	>105	5.0	10^6

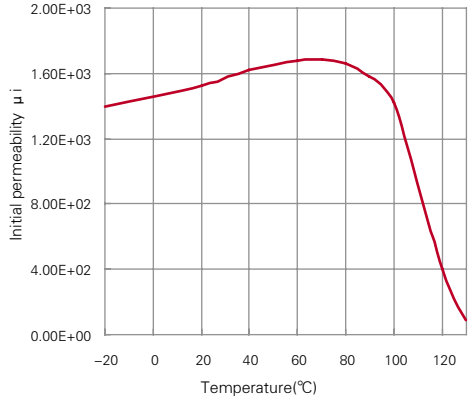
TN150P Complex permeability vs.Frequency



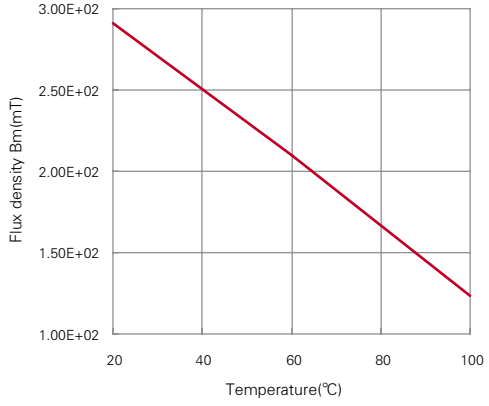
TN150P Relative loss factor vs.Frequency



TN150P Initial permeability vs.Temperature



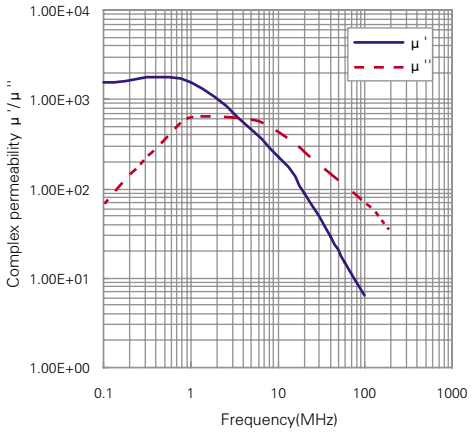
TN150P Flux density vs.Temperature



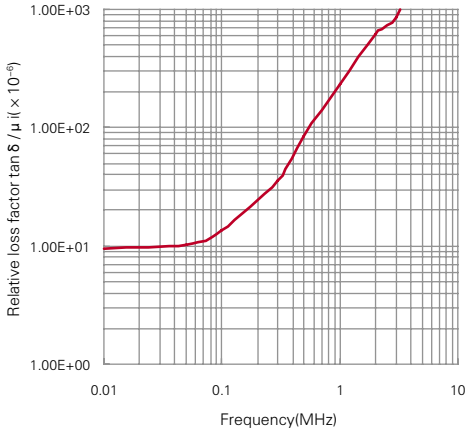
所列材料的特性为该材料的典型值，实际材料可能稍有不同 ,测定样环：T12.7 × 7.9 × 6.5(mm)
The value of material’s characteristics is typical value.Sample core:T12.7 × 7.9 × 6.5(mm)

材 质	初始磁导率 μ_i	饱和磁感应强度Bs		相对损耗因子tan δ / μ_i		比温度系数 α μ ir	居里温度Tc	密度d	电阻率p
Material	Initial permeability	Flux density		Relative loss factor		Relative temperature factor of μ i	Curie temperature	Density	Electric resistivity
		mT	KA/m	$\times 10^{-6}$	MHz	$\times 10^{-6}$/℃(20–60℃)	℃	g/cm^3	Ω·m
TN200B	2000 ± 20%	290	4.0	≤10	0.01	2	>100	5.0	10^6

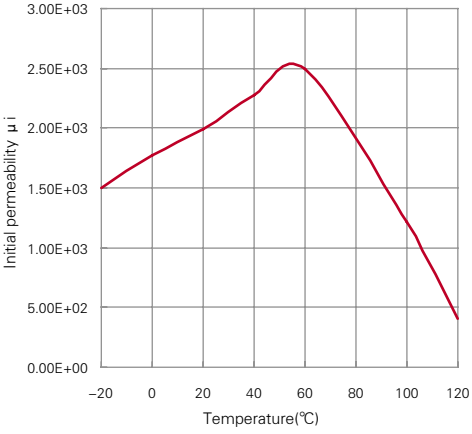
TN200B Complex permeability vs.Frequency



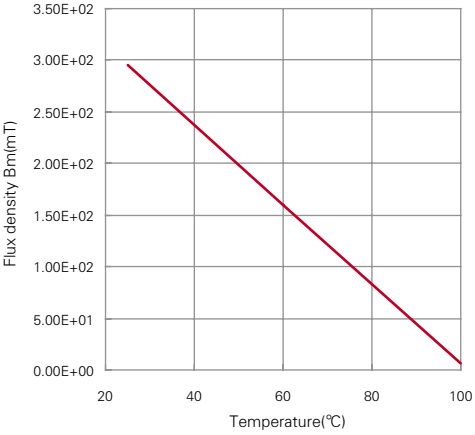
TN200B Relative loss factor vs.Frequency



TN200B Initial permeability vs.Temperature

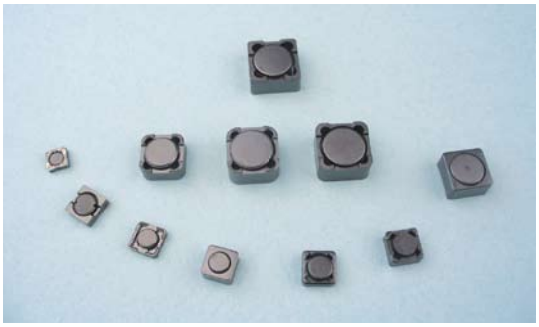


TN200B Flux density vs.Temperature



所列材料的特性为该材料的典型值，实际材料可能稍有不同 ,测定样环：T12.7 × 7.9 × 6.5(mm)
The value of material’s characteristics is typical value.Sample core:T12.7 × 7.9 × 6.5(mm)

SMD TYPE CORE



DRR TYPE CORE

◆ 命名表示：

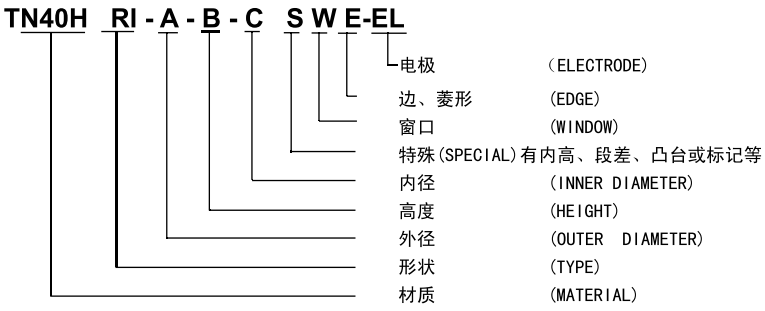
Ordering Core System:

TN25H DRR-AxB-nCnHnT-XPAI

芯径大小(例：1.5PAI—表示芯径为1.5mm)	(℄SIZE)	
凸台	(TONGUE)	
凸台数	(TONGUE QTY)	
空穴、孔	(HOLE)	
空穴、孔数	(HOLE QTY)	
槽	(CHAMFER)	
槽数	(CHAMFER QTY)	
高度	(HEIGHT)	
外径	(OUTER DIAMETER)	
形状	(TYPE)	
材质	(MATERIAL)	

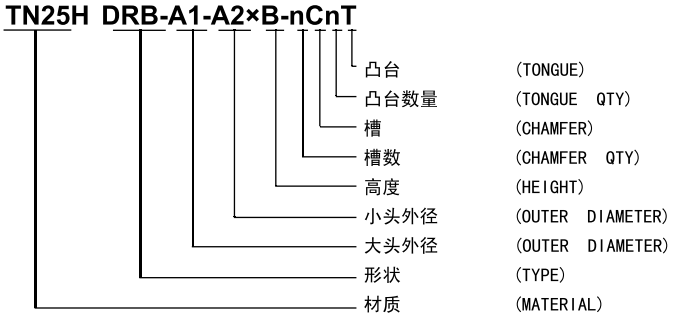
RI TYPE CORE

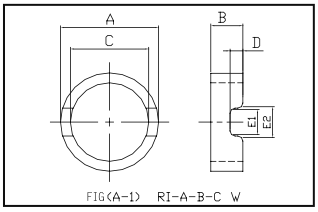
◆ 命名表示：
Ordering Core System:



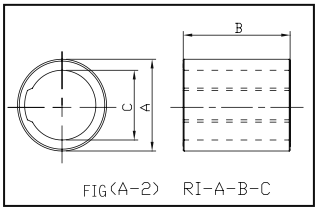
DRB TYPE CORE

◆ 命名表示：
Ordering Core System:

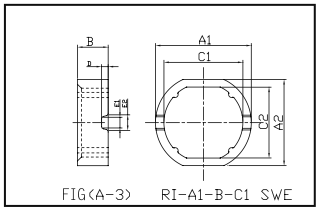




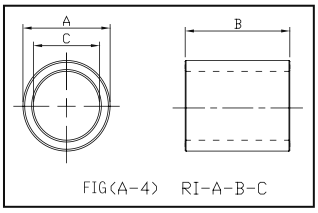
FIG(A-1) RI-A-B-C W



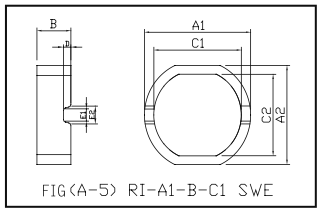
FIG(A-2) RI-A-B-C



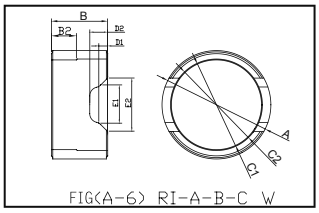
FIG(A-3) RI-A1-B-C1 SWE



FIG(A-4) RI-A-B-C



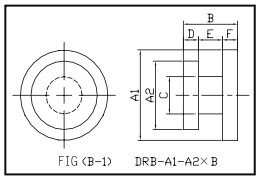
FIG(A-5) RI-A1-B-C1 SWE

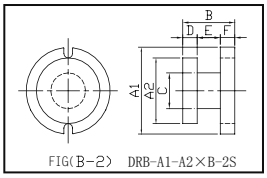


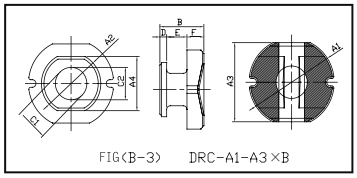
FIG(A-6) RI-A-B-C W

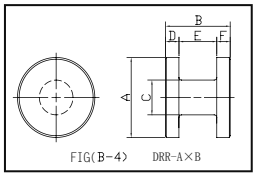
Dimensions

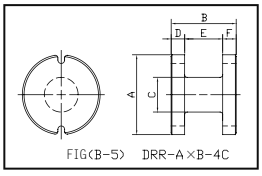
Part NO.	Dimensions(mm)						
	A1(A)	A2	B	C1（C）	D	E	FIG
RI-3.1-0.6-2.4W	3.1 ± 0.1		0.6 ± 0.1	2.4 ± 0.1			A-1
RI-3.5-1.25-2.7W	3.5 ± 0.1		1.25 ± 0.07	2.7 ± 0.1			A-1
RI-3.8-0.7-3.1W	3.8 ± 0.1		0.7 ± 0.07	3.1 ± 0.1			A-1
RI-3.8-1.1-3.1W	3.8 ± 0.1		1.1 ± 0.07	3.1 ± 0.1			A-1
RI-4.1-1.5-3.05W	4.1 ± 0.07		1.5+0.12	3.05 ± 0.07			A-1
RI-5.9-1.8-4.9W	$5.9^{+0.05}_{-0.15}$		1.8 ± 0.1	$4.9^{+0.1}_{-0.15}$			A-1
RI-5.9-2.2-4.9W	$5.9^{+0.05}_{-0.15}$		2.2 ± 0.1	$4.9^{+0.1}_{-0.15}$			A-1
RI-6.8-1.95-5.7W	$6.8^{-0.05}_{+0.15}$		1.95 ± 0.15	$5.7^{+0.05}_{-0.1}$			A-1
RI-6.8-2.15-5.7W	$6.8^{-0.05}_{+0.15}$		2.15 ± 0.15	$5.7^{+0.05}_{-0.1}$			A-1
RI-6.8-2.35-5.7W	$6.8^{-0.05}_{+0.15}$		2.35 ± 0.15	$5.7^{+0.05}_{-0.1}$			A-1
RI-6.8-3.7-5.8W	6.8 ± 0.2		3.7 ± 0.15	5.8 ± 0.2			A-1
RI-7.0-1.1-6.0W	$7.0^{+0.0}_{-0.2}$		1.1 ± 0.1	$6.0^{+0.0}_{-0.4}$			A-1
RI-9.8-3.0-8.0W	$9.8^{+0.06}_{-0.2}$		3.0 ± 0.1	8.0 ± 0.1			A-1
RI-9.8-3.8-8.0W	$9.8^{+0.06}_{-0.2}$		3.8 ± 0.1	8.0 ± 0.1			A-1
RI-12.2-4.1-10.1W	12.2 ± 0.25		4.1 ± 0.15	10.1 ± 0.15			A-6
RI-12.2-5.3-10.1W	12.2 ± 0.2		5.3 ± 0.15	10.1 ± 0.15			A-6
RI-12.2-6.3-10.1W	12.2 ± 0.2		6.3 ± 0.15	10.1 ± 0.15			A-6
RI-12.5-14.2-9.8	12.5 ± 0.2		14.2 ± 0.15	$9.8^{+0.2}_{-0.15}$			A-4

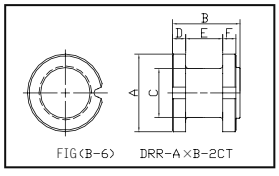


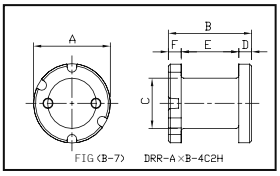












Dimensions

Part NO.	Dimensions(mm)							
	A1(A)	A2	B	C	D	E	F	FIG
DRB-2.6-2.0×0.9-0.9PAI	2.6±0.05	2.0±0.05	0.9±0.05	0.9±0.05	(0.25)	0.4±0.05	(0.25)	B-1
DRB-3.5-2.6×1.55-1.25PAI	3.5±0.1	2.6±0.1	1.55±0.07	1.25±0.07	(0.3)	0.95±0.07	(0.3)	B-1
DRB-3.5-2.6×1.0-1.2PAI	3.5±0.07	2.6±0.07	1.0±0.07	1.2±0.07	0.28±0.07	0.44±0.07	0.28±0.07	B-1
DRB-3.5-2.6×1.5-1.2PAI	3.5±0.1	2.6±0.1	1.5±0.1	1.2±0.1	0.4±0.1	0.7±0.1	0.4±0.1	B-1
DRB-4.1-2.9×1.8-2S	4.1±0.07	2.9±0.07	1.8±0.1	1.3±0.07	0.3±0.07	1.2±0.07	0.3±0.07	B-2
DRR-4.5×2.0-1.8PAI	4.5±0.07		2.0±0.1	1.8±0.1	0.45±0.1	1.1±0.1	0.45±0.1	B-4
DRR-4.5×2.4-2.0PAI	4.5±0.1		2.4+0-0.2	2.0±0.15	(0.4)	1.5±0.15	(0.4)	B-4
DRR-5.4×2.25-4C-2.6PAI	5.4±0.15		2.25±0.15	2.6±0.15	(0.53)	1.2±0.15	(0.52)	B-5
DRR-5.4×2.45-4C-2.6PAI	5.4±0.15		2.45±0.15	2.6±0.15	(0.5)	1.45±0.15	(0.5)	B-5
DRR-5.4×2.65-4C-2.4PAI	5.4±0.2		2.65±0.15	2.4±0.15	(0.65)	1.35±0.15	(0.65)	B-5
DRR-5.4×4-4C-2.5PAI	5.4±0.2		4.0±0.15	2.5±0.15	0.75±0.1	2.5±0.15	0.75±0.1	B-5
DRR-5.5×1.4-2.4PAI	5.5±0.1		1.4±0.05	2.4±0.1	(0.4)	0.6±0.1	(0.4)	B-4
DRR-7.4×3.2-4.6PAI	7.4±0.1		3.2±0.1	4.6±0.1	0.7±0.1	1.8±0.1	0.7±0.1	B-4
DRR-7.4×4-4.5PAI	7.4±0.1		4.0±0.1	4.5±0.1	0.8±0.1	2.4±0.1	0.8±0.1	B-4
DRR-9.6×4.3-4.0PAI	9.6±0.15		4.3±0.15	4.0±0.15	0.85±0.1	2.6±0.15	0.85±0.1	B-4
DRR-9.6×5.5-5.3PAI	9.6±0.1		5.5±0.15	5.3±0.15	0.95±0.1	3.6±0.15	0.95±0.1	B-4
DRR-9.6×6.5-5.5PAI	9.6±0.15		6.5±0.15	5.5±0.15	1.05±0.1	4.4±0.15	1.05±0.1	B-4
DRR-8×12.5-5.5PAI	8.0±0.1		12.5±0.2	5.5±0.1	1.75±0.15	9.0±0.2	1.75±0.15	B-4

Dimensions

Part NO.	Dimensions(mm)						
	A1(A)	A2	B	C1(C)	D	E	FIG
RI–12.7–5.6–11.2W	12.7 ± 0.2		5.6 ± 0.2	11.2 ± 0.2			A–1
RI–15–17–11.4	15.0 ± 0.3		17.0 ± 0.3	$11.4^{+0.3}_{-0.2}$			A–2
RI–16–14–13.6W	16.0 ± 0.15		14.0 ± 0.15	13.6 ± 0.15			A–1
RI–18–18.7–14	18.0 ± 0.3		18.7 ± 0.3	14.0 ± 0.2			A–2
RI–6.2–2.2–4.5SWE	6.2 ± 0.15	5.8 ± 0.15	2.2 ± 0.15	4.5 ± 0.15			A–5
RI–7.8–3.2–6.5SWE	7.8 ± 0.2	7.0 ± 0.2	3.2 ± 0.15	6.5 ± 0.2			A–5
RI–10–3.2–8.3SWE	10.0 ± 0.2	9.0 ± 0.2	3.2 ± 0.15	8.3 ± 0.2			A–3

Dimensions

Part NO.	Dimensions(mm)							
	A1(A)	A2	B	C	D	E	F	FIG
DRR-9.85×5.8-6.2PAI	9.85±0.15		5.8±0.2	6.2±0.15	1.1±0.15	3.6±0.2	1.1±0.15	B-4
DRR-10.2×17-2CT-7.5PAI	10.2±0.2		17.0±0.3	7.5±0.2	(2.0)	12.5±0.2	1.5±0.15	B-6
DRR-12×13-4C2H-7.6PAI	12.0±0.1		13.0±0.15	7.6±0.1	2.0±0.1	9.0±0.1	2.0±0.1	B-7
DRR-12.5×18.5-2CT-8.5PAI	12.5±0.2		18.5±0.4	8.5±0.25	(2.0)	14.0±0.2	1.5±0.15	B-6
DRC-5.8-4.0×3.2-EL	5.8±0.15	4.0±0.15	3.2±0.15	1.8±0.15	0.5±0.15	1.7±0.15	1.0±0.15	B-3
DRC-7.8-5.7×4.5-EL	7.8±0.15	5.7±0.15	4.5±0.15	3.5±0.45	0.9±0.15	2.3±0.15	1.3±0.15	B-3
DRC-10-7.0×5.2-EL	10.0±0.15	7.0±0.15	5.2±0.15	3.8±0.15	1.1±0.15	2.4±0.15	1.7±0.15	B-3

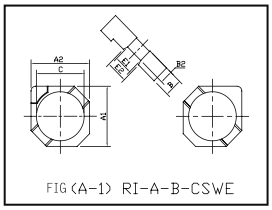


FIG (A-1) RI-A-B-CSWE

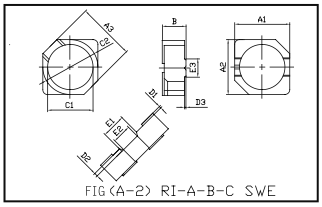
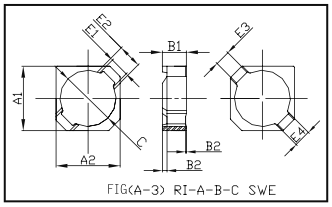
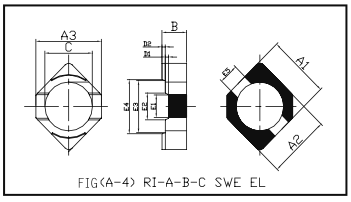


FIG (A-2) RI-A-B-C SWE


FIG(A-3) RI-A-B-C SWE


FIG(A-4) RI-A-B-C SWE EL

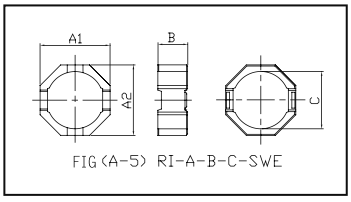
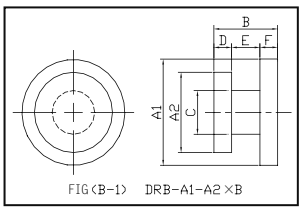


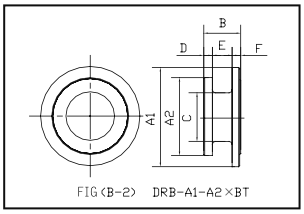
FIG (A-5) RI-A-B-C-SWE

Dimensions

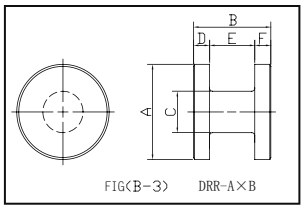
Part NO.	Dimensions(mm)						
	A1(A)	A2	A3	B	C1(C)		FIG
RI-3.0-0.925-2.4SWE	3.0 ± 0.1	3.0 ± 0.1		0.925 ± 0.1	2.4 ± 0.1		A-1
RI-3.0-1.25-2.4SWE	3.0 ± 0.1	3.0 ± 0.1		1.25 ± 0.1	2.4 ± 0.07		A-1
RI-3.0-1.65-2.4SWE	3.0 ± 0.1	3.0 ± 0.1		1.65 ± 0.1	2.4 ± 0.07		A-1
RI-3.8-1.35-3.1SWE	3.8 ± 0.1	3.8 ± 0.1	4.0 ± 0.1	1.35 ± 0.1	3.1 ± 0.1		A-1
RI-3.8-1.5-2.9SWE-EL	3.8 ± 0.1	3.8 ± 0.1	4.0 ± 0.1	1.5 ± 0.1	2.9 ± 0.1		A-4
RI-4.7-1.45-3.9SWE	4.7 ± 0.1	4.7 ± 0.1	4.9 ± 0.1	1.45 ± 0.1	3.9 ± 0.1		A-2
RI-4.7-2.45-3.9SWE	4.7 ± 0.1	4.7 ± 0.1	4.9 ± 0.1	2.45 ± 0.1	3.9 ± 0.1		A-2
RI-4.8-2.1-4.1SWE	4.8 ± 0.1	4.8 ± 0.1		2.1 ± 0.1	4.1 ± 0.1		A-3
RI-5.0-1.7-4.2WE	5.0 ± 0.1	5.0 ± 0.1		1.7 ± 0.1	4.2 ± 0.1		A-3
RI-5.6-2.1-4.9SWE	5.6 ± 0.1	5.6 ± 0.1		2.1 ± 0.1	4.9 ± 0.1		A-3
RI-5.7-1.45-4.8SWE	5.7 ± 0.15	5.7 ± 0.15	6.0 ± 0.15	1.45 ± 0.15	4.8 ± 0.15		A-2
RI-5.7-2.45-4.8SWE	5.7 ± 0.2	5.7 ± 0.2	6.0 ± 0.15	2.45 ± 0.15	4.8 ± 0.15		A-2
RI-6.7-1.5-5.5SWE	6.7 ± 0.1	6.7 ± 0.1	7.0 ± 0.1	$1.5^{+0.1}_{-0.05}$	5.5 ± 0.1		A-2
RI-6.7-2.5-5.6SWE	6.7 ± 0.2	6.7 ± 0.2	7.0 ± 0.2	2.5 ± 0.15	5.6 ± 0.15		A-2
RI-6.7-3.4-5.6SWE	6.7 ± 0.2	6.7 ± 0.2	7.0 ± 0.2	3.4 ± 0.2	5.6 ± 0.2		A-2
RI-8.0-3.4-6.3SWE	8.0 ± 0.2	8.0 ± 0.2		3.4 ± 0.15	6.3 ± 0.2		A-5
RI-10-2.9-8.2SWE	10.0 ± 0.2	10.0 ± 0.2	10.5 ± 0.2	2.9 ± 0.15	8.2 ± 0.2		A-1
RI-10-3.35-8.2SWE	10.0 ± 0.2	10.0 ± 0.2	10.5 ± 0.2	3.35 ± 0.15	8.2 ± 0.2		A-1
RI-10-4.25-8.2SWE	10.0 ± 0.2	10.0 ± 0.2	10.5 ± 0.2	4.25 ± 0.15	8.2 ± 0.2		A-1



FIG(B-1) DRB-A1-A2×B



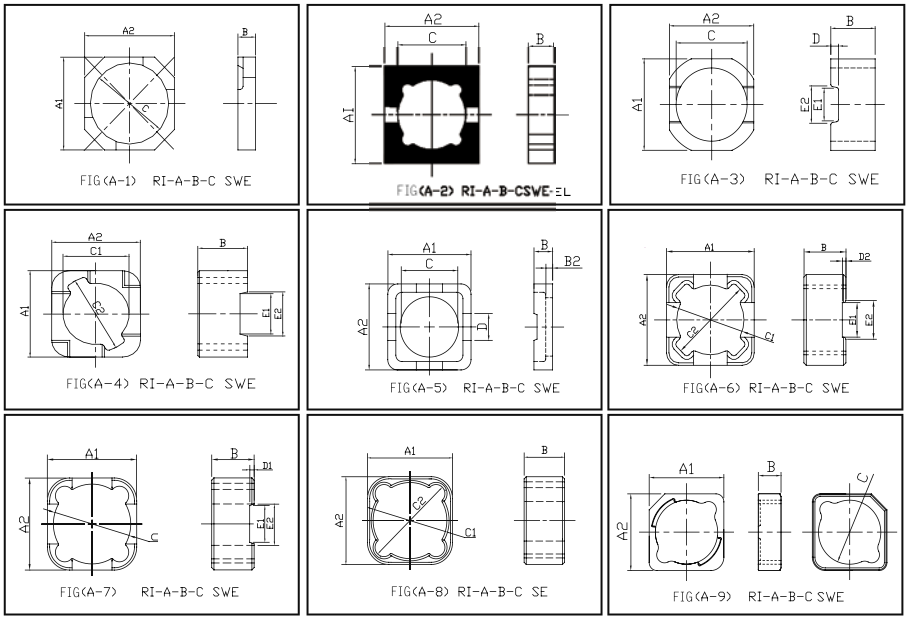
FIG(B-2) DRB-A1-A2×BT



FIG(B-3) DRR-A×B

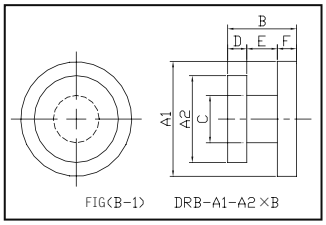
Dimensions

Part NO.	Dimensions(mm)							
	A1(A)	A2	B	C	D	E	F	FIG
DRB-2.8-2.0×1.05-0.85PAI	2.8±0.1	2.0±0.1	1.05±0.1	0.85±0.1	(0.28)	0.5±0.07	(0.27)	B-1
DRB-2.8-2.0-1.35-1.1PAI	2.8±0.1	2.0±0.1	1.35±0.1	1.1±0.07	0.3±0.07	(0.75)	0.3±0.07	B-1
DRB-2.8-2.0×1.75-1.1PAI	2.8±0.1	2.0±0.1	1.75±0.1	1.1±0.1	0.3±0.1	1.15	0.3±0.1	B-1
DRB-3.5-2.5×1.5-1.2PAI	3.2±0.1	2.5±0.1	1.5±0.1	1.2±0.07	0.4±0.07	0.7±0.07	0.4±0.07	B-1
DRB-3.45-2.52×1.6-1.45PAI	3.45±0.1	$2.52^{+0.03}_{-0.1}$	1.6±0.1	1.45±0.1	0.35±0.1	0.9±0.1	0.35±0.1	B-1
DRB-4.7-3.3×1.7-1.6PAI	$4.7^{+0}_{-0.2}$	3.3±0.1	1.7±0.1	1.6±0.1	0.4±0.1	0.9±0.1	0.4±0.1	B-1
DRB-4.7-3.3×2.7-2.0PAI	$4.7^{+0}_{-0.2}$	3.3±0.1	2.7±0.1	2.0±0.1	0.45±0.1	1.8±0.1	0.45±0.1	B-1
DRR-3.8×1.7	3.8±0.05		1.7±0.1	0.8±0.05	0.4±0.1	(0.9)	0.4±0.1	B-3
DRB-4.8-3.7×2.65-1.7PAI	4.8±0.1	3.7±0.1	2.65±0.1	1.7±0.1	0.5±0.1	1.65±0.1	0.5±0.1	B-1
DRB-5.6-4.5×2.65-2.0PAI	5.6±0.1	$4.5^{+0.1}_{-0.15}$	$2.65^{+0.15}_{-0.1}$	2.0±0.1	0.5±0.1	1.65±0.1	0.5±0.1	B-1
DRB-5.6-4.1×1.7-2.0PAI	5.6±0.15	4.1±0.15	1.7±0.1	2.0±0.15	0.45±0.1	0.8±0.1	0.45±0.1	B-1
DRB-5.6-4.1×2.7-2.05PA	5.6±0.15	4.1±0.15	2.7±0.15	2.05±0.15	0.45±0.1	1.8±0.1	0.45±0.1	B-1
DRB-6.6-4.8×1.7-2.3PAI	6.6±0.15	4.8±0.15	1.7±0.1	2.3±0.1	0.45±0.1	(0.75)	0.45±0.1	B-1
DRB-6.6-4.8×2.7-2.3PAI	6.6±0.15	4.8±0.15	2.7±0.15	2.3±0.15	0.5±0.15	$1.7^{+0}_{-0.1}$	0.5±0.15	B-1
DRB-6.6-4.8×3.7-2.6PAI	6.6±0.1	4.8±0.1	3.7±0.1	2.6±0.1	(0.5)	2.7±0.1	(0.5)	B-1
DRB-8.0-5.8×4.2-4.0PAI	8.0±0.15	5.8±0.15	4.2±0.15	4.0±0.15	0.8±0.1	2.6±0.15	0.8±0.1	B-1
DRB-9.8-7.55×3.3T	9.8±0.15	7.55±0.15	3.3±0.15	5.0±0.15	0.75±0.1	1.8±0.1	0.75±0.1	B-2
DRB-9.8-7.55×3.65T	9.8±0.15	7.55±0.15	3.65±0.15	5.0±0.15	0.85±0.1	1.95±0.1	0.85±0.1	B-2
DRB-9.8-7.55×4.65T	9.8±0.15	7.55±0.15	4.65±0.15	4.8±0.15	0.825±0.1	3.0±0.1	0.825±0.1	B-2

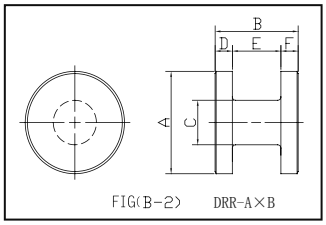


Dimensions

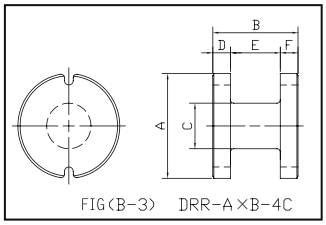
Part NO.	Dimensions(mm)						
	A1(A)	A2	A3	B	C1		FIG
RI-4.4-1.15-3.55SWE	$4.4^{+0.05}_{-0.15}$	$4.4^{+0.05}_{-0.15}$		$1.15^{+0.02}_{-0.08}$	3.55 ± 0.05		A-1
RI-5.05-1.7-3.85SWE-EL	5.05 ± 0.1	5.05 ± 0.1		$1.7^{+0.05}_{-0.15}$	3.85 ± 0.1		A-2
RI-5.2-1.6-4.1WE	5.2 ± 0.15	5.2 ± 0.15		1.6 ± 0.1	4.1 ± 0.1		A-3
RI-5.2-2.6-4.1WE	5.2 ± 0.15	5.2 ± 0.15		2.6 ± 0.1	4.1 ± 0.1		A-3
RI-6.0-2.55-4.85SWE	6.0 ± 0.15	5.7 ± 0.15		2.55 ± 0.15	4.8 ± 0.15		A-3
RI-6.0-3.05-4.85SWE	6.0 ± 0.15	5.7 ± 0.15		3.05 ± 0.15	4.8 ± 0.15		A-3
RI-6.2-2.3-4.4SWE	6.2 ± 0.15	5.9 ± 0.15		2.3 ± 0.15	4.4 ± 0.2		A-4
RI-6.2-4.3-4.4SWE	6.2 ± 0.15	5.9 ± 0.15		4.3 ± 0.15	4.4 ± 0.2		A-4
RI-6.7-1.8-4.7SWE	6.7 ± 0.15	6.7 ± 0.15		1.8 ± 0.15	4.7 ± 0.15		A-5
RI-6.7-2.75-4.7SWE	6.7 ± 0.15	6.7 ± 0.15		2.75 ± 0.15	4.7 ± 0.15		A-5
RI-6.7-4.15-4.7SWE	6.7 ± 0.15	6.7 ± 0.15		4.15 ± 0.15	4.7 ± 0.15		A-5
RI-7.3-2.7-5.7SWE	7.3 ± 0.15	7.3 ± 0.15		2.7 ± 0.15	5.7 ± 0.15		A-6
RI-7.3-3.5-5.7SWE	7.3 ± 0.15	7.3 ± 0.15		3.5 ± 0.15	5.7 ± 0.15		A-6
RI-10.1-2.8-8.35SWE	10.1 ± 0.15	10.1 ± 0.15		2.8 ± 0.15	8.35 ± 0.15		A-7
RI-10.1-3.9-8.35SWE	10.1 ± 0.15	10.1 ± 0.15		3.9 ± 0.15	8.35 ± 0.15		A-7



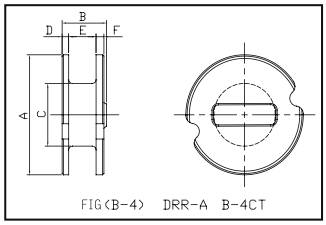
FIG(B-1) DRB-A1-A2×B



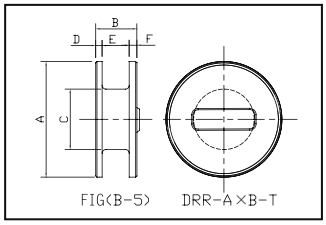
FIG(B-2) DRR-A×B



FIG(B-3) DRR-A×B-4C



FIG(B-4) DRR-A B-4CT



FIG(B-5) DRR-A×B-T

Dimensions

Part NO.	Dimensions(mm)							
	A1(A)	A2	B	C	D	E	F	FIG
DRB-4.2-3.1×1.4-1.8PAI	4.2±0.08	3.1±0.05	$1.4^{+0.0}_{-0.15}$	1.8±0.05	$0.3^{+0.02}_{-0.08}$	(0.8)	$0.3^{+0.02}_{-0.08}$	B-1
DRR-3.65×1.7-1.8PAI	3.65±0.1		$1.7^{+0.05}_{-0.15}$	1.8±0.1	(0.45)	0.8±0.1	(0.45)	B-2
DRR-3.85×1.7-4C	3.85±0.1		1.7±0.1	1.7±0.1	(0.45)	0.8±0.1	(0.45)	B-3
DRR-3.85×2.7-4C	3.85±0.15		2.7±0.1	2.0±0.1	0.4±0.1	1.8±0.1	0.4±0.1	B-3
DRR-4.5×2.7-4C	4.5±0.15		2.7±0.15	2.0±0.15	0.5±0.1	1.7±0.15	0.5±0.1	B-3
DRR-4.5×3.2-4C	4.5±0.15		3.2±0.15	2.2±0.15	0.55±0.1	2.1±0.15	0.55±0.1	B-3
DRR-4×2.4	4.0±0.1		2.4±0.15	2.0±0.1	(0.55)	1.3±0.15	(0.55)	B-2
DRR-4×4.4	4.0±0.1		4.4±0.15	2.4±0.1	(0.55)	3.3±0.15	(0.55)	B-2
DRR-4.5×2.1-1.5PAI	4.5±0.1		2.1±0.1	1.4±0.1	(0.5)	1.1±0.1	(0.5)	B-2
DRR-4.5×3.0-1.65PAI	4.5±0.1		3.0±0.1	1.65±0.1	(0.6)	1.8±0.1	(0.6)	B-2
DRR-4.5×4.4-1.8PAI	4.5±0.15		4.4±0.15	1.8±0.15	(0.7)	3.0±0.15	(0.7)	B-2
DRR-5.3×2.8	5.3±0.15		2.8±0.15	2.5±0.15	0.65±0.1	1.5±0.15	0.65±0.1	B-2
DRR-5.3×3.7	5.3±0.15		3.7±0.15	2.8±0.15	0.6±0.15	2.5±0.15	0.6±0.15	B-2
DRR-7.9×3.0	7.9±0.15		3.0±0.15	4.6±0.15	0.5±0.15	2.0±0.15	0.5±0.15	B-2
DRR-7.9×4.0	7.9±0.15		4.0±0.15	4.5±0.15	1.0±0.15	2.0±0.15	1.0±0.15	B-2

Dimensions

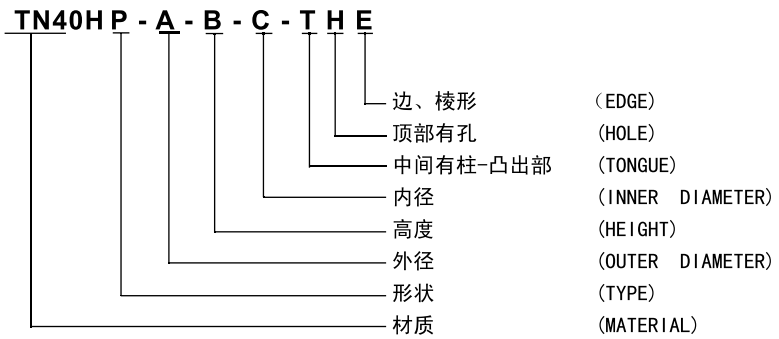
Part NO.	Dimensions(mm)						
	A1(A)	A2	A3	B	C1		FIG
RI–10.1–4.9–8.35SWE	10.1 ± 0.15	10.1 ± 0.15		4.9 ± 0.15	8.35 ± 0.15		A–7
RI–10.1–5.9–8.35SWE	10.1 ± 0.15	10.1 ± 0.15		5.9 ± 0.15	8.35 ± 0.15		A–7
RI–12–3.0–10.4SWE	12.0 ± 0.2	12.0 ± 0.2		3.0 ± 0.15	$10.4^{+0.3}_{-0.0}$		A–7
RI–12–3.65–10.4SWE	12.0 ± 0.2	12.0 ± 0.2		3.65 ± 0.15	$10.4^{+0.3}_{-0.0}$		A–7
RI–12–5.1–10.4SWE	12.0 ± 0.2	12.0 ± 0.2		5.1 ± 0.15	$10.4^{+0.3}_{-0.0}$		A–7
RI–12–6.6–10.4SWE	12.0 ± 0.2	12.0 ± 0.2		6.6 ± 0.15	$10.4^{+0.3}_{-0.0}$		A–7
RI–12.1–3.65–10.7SWE	12.1 ± 0.2	12.1 ± 0.2		3.65 ± 0.2	$10.7^{+0.2}_{-0.1}$		A–7
RI–12.1–5.1–10.7SWE	12.1 ± 0.2	12.1 ± 0.2		5.1 ± 0.2	$10.7^{+0.2}_{-0.1}$		A–7
RI–12.1–6.6–10.7SWE	12.1 ± 0.2	12.1 ± 0.2		6.6 ± 0.2	$10.7^{+0.2}_{-0.1}$		A–7
RI–12.2–3.05–10.6SE	12.2 ± 0.2	12.2 ± 0.2		3.05 ± 0.1	$10.6^{+0.1}_{-0.1}$		A–8
RI–12.2–4.38–10.6SE	12.2 ± 0.2	12.2 ± 0.2		4.38 ± 0.1	$10.6^{+0.1}_{-0.1}$		A–8
RI–12.2–6.41–10.6SE	12.2 ± 0.2	12.2 ± 0.2		6.41 ± 0.1	$10.6^{+0.1}_{-0.15}$		A–8
RI–12.2–4.6–10.6SE	12.2 ± 0.2	12.2 ± 0.2		4.6 ± 0.15	$10.6^{+0.1}_{-0.1}$		A–8
RI–9.2–3.6–7.4SWE	9.2 ± 0.15	8.5 ± 0.15		3.6 ± 0.1	7.4 ± 0.1		A–9
RI–11.5–3.5–9.6SWE	11.5 ± 0.15	11.5 ± 0.15		3.5 ± 0.1	9.6 ± 0.1		A–9
RI–12.05–6.6–10.6SWE	12.05 ± 0.2	12.05 ± 0.2		6.6 ± 0.1	10.6 ± 0.1		A–7

Dimensions

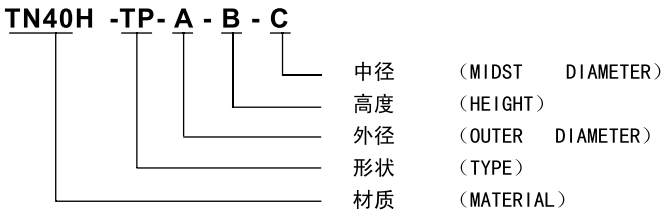
Part NO.	Dimensions(mm)							
	A1(A)	A2	B	C	D	E	F	FIG
DRR-7.9×5.0	7.9±0.15		5.0±0.15	4.5±0.15	1.0±0.15	3.0±0.15	1.0±0.15	B-2
DRR-7.9×6.0	7.9±0.15		6.0±0.15	5.4±0.15	1.0±0.15	4.0±0.15	1.0±0.15	B-2
DRR-9.85×3.3-5.0PAI	9.85±0.1		3.3±0.15	5.0±0.15	0.75±0.1	1.8±0.15	0.75±0.1	B-2
DRR-10×3.85-5.0PAI	10.0±0.1		3.85±0.1	5.0±0.1	0.95±0.1	1.95±0.1	0.95±0.1	B-2
DRR-10×5.3	10.0±0.1		$5.3^{+0.0}_{-0.2}$	5.2±0.1	1.15±0.1	2.9±0.1	1.15±0.1	B-2
DRR-10×7.1	10.0±0.1		7.1±0.1	6.3±0.1	1.1±0.1	4.9±0.1	1.1±0.1	B-2
DRR-10×3.85	$10.0^{+0.07}_{-0.1}$		3.85±0.2	4.8±0.15	0.975	1.9±0.15	0.975	B-2
DRR-10×5.2	$10.0^{+0.07}_{-0.1}$		5.2±0.2	5.2±0.15	1.1±0.1	3±0.15	1.1±0.1	B-2
DRR-10×7.0-6.2PAI	$10.0^{+0.07}_{-0.1}$		7.0±0.2	6.2±0.15	1.0±0.1	5±0.15	1±0.1	B-2
DRR-9.9×3.65-5.0PAI	$9.9^{+0.06}_{-0.1}$		3.65±0.1	5.0±0.1	0.925±0.1	1.8±0.12	0.925±0.1	B-2
DRR-9.9×5.05-5.0PAI	$9.9^{+0.06}_{-0.1}$		5.05±0.1	5.2±0.1	1.1±0.1	2.85±0.12	1.1±0.1	B-2
DRR-9.9×7.0-6.4PAI	$9.9^{+0.06}_{-0.1}$		7.0±0.1	6.4±0.1	1.1±0.1	4.8±0.15	1.1±0.1	B-2
DRB-9.9-9.2×4.8	9.9±0.15	9.2±0.15	4.8±0.15	4.8±0.15	0.9±0.1	3.0±0.15	0.9±0.1	B-1
DRR-6.7×3.5-4CT-3.3PAI	6.7±0.1		3.2±0.1	3.3±0.1	(0.55)	2.1±0.1	(0.55)	B-4
DRR-9×3.4T-4CT-4.7PAI	9.0±0.1		3.1±0.1	4.7±0.1	(0.5)	2.1±0.1	(0.5)	B-4
DRR-10×7.1-T-5.8PAI	10.0±0.1		7.1±0.1	5.8±0.1	(1.0)	5.1±0.1	(1.0)	B-5

◆ 命名表示：
Ordering Core System:

P TYPE CORE



TP Type Core



◆ 适用材质：TN25H、TN40H、TN65H、TN100B等
Available Material：TN25H、TN40H、TN65H、TN100B etc

◆ 使用范围:用于中周变压器、射频圈、震荡线圈等
Application:IFT、EMI/RFI Suppression、Choke Coil etc

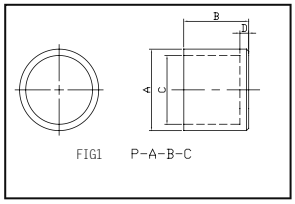


FIG1 P-A-B-C

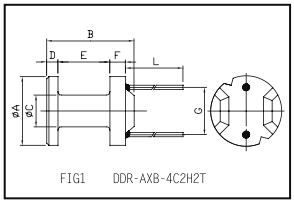


FIG1 DDR-AXB-4C2H2T

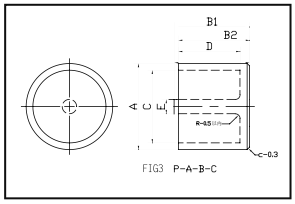


FIG3 P-A-B-C

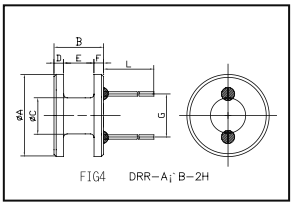


FIG4 DRR-A¡B-2H

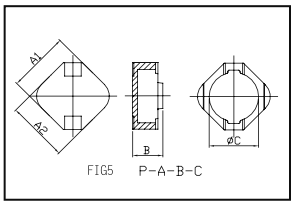


FIG5 P-A-B-C

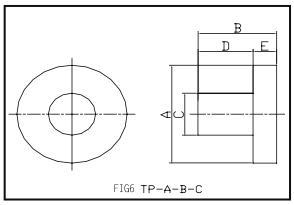


FIG6 TP-A-B-C

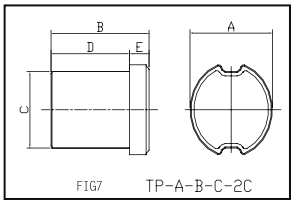


FIG7 TP-A-B-C-2C

Dimensions

Part NO.	Dimensions(mm)								
	A1(A)	B1(B)(A2)	B2	C	D	E	F	G	FIG
P-7.0-6.3-5.7T	7.0 ±0.15	(6.3)	6.0 ±0.15	5.2 $^{+0.3}_{-0}$	4.5 ±0.15	2.0 ±0.1			3
P-11.4-10-9.5	11.4 ±0.2	10.0 ±0.2		9.4 ±0.2	8.9 ±0.2				1
DRR-8×7.5-4C2H2T-0822-4.8PAI	8.0 ±0.2	7.5 ±0.2		4.8 ±0.15	1.1 ±0.15	3.6 ±0.15	1.8 ±0.15	5.0 ±0.15	2
P-10.5-11.5-8.4	10.5 ±0.15	11.5 ±0.2		8.4 $^{+0.2}_{-0.1}$	1.5 ±0.1				1
DRR-7×7.8-2H-0620-4.8PAI	7.0 ±0.1	7.8 ±0.2		4.8 ±0.1	1.65 ±0.15	4.5 ±0.15	1.65 ±0.15		4
P-5.05-2.47-4.04	5.05 ±0.1	5.05 ±0.1		2.47 ±0.1	4.04 ±0.1				5
TP-4.7-2.01-1.47	4.7 ±0.1	1.47 ±0.1		2.01 ±0.1	0.4 ±0.1				6
P-12.7-13.6-10.0	12.7 $^{+0.1}_{-0.3}$	14.2 ±0.2		10.0 ±0.2	1.0 ±0.1				1
TP-8.3-10-6.7	8.3 ±0.15	10.0 ±0.15		6.7 ±0.1	8.0 ±0.1	2.0 ±0.1			7

DRR TYPE CORE

◆ 命名表示：

Ordering Core System:

TN25H DRRn-AxB-nCnHnT-ΦL-XPAI

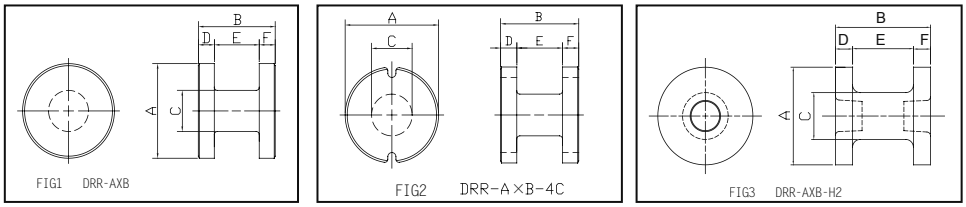
芯径大小(例：1.5PAI—表示芯径为1.5mm)	(℄SIZE)
穿线长度(取最长边)	(LEAD WIRE LENGTH)
线径	(LEAD WIRE SIZE)
凸台	(TONGUE)
凸台数	(TONGUE QTY)
空穴、孔	(HOLE)
空穴、孔数	(HOLE QTY)
槽	(CHAMFER)
槽数	(CHAMFER QTY)
长度	(LENGTH)
外径	(OUTER DIAMETER)
工形数量，工形为1个时不写。	(工 QTY)
形状	(TYPE)
材质	(MATERIAL)

◆ 适用材质：TN12B、TN25H、TN4OH、TN65H等

Available Material:TH12B、TN25H、TN4OH、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:IFT、Oscillating Coil 、Choke Coil、 Linearity Coil 、Fix Inductor etc



Dimensions

Part NO.	Dimensions(mm)						
	A	B	C	D	E	F	FIG
DRR-1.6×1.8-H2-0.9PAI	1.6±0.1	1.8±0.15	0.9±0.1	0.3±0.05	1.2±0.1	0.3±0.05	3
DRR-2.3×4-H2-1.45PAI	2.3±0.15	4±0.15	1.45±0.1	(0.9)	2.2±0.15	(0.9)	3
DRR-2.5×2.5-H2-1.2PAI	2.5±0.15	2.5±0.2	1.2±0.1	(0.45)	1.6±0.1	(0.45)	3
DRR-3×6-H2-1.7PAI	3±0.15	6±0.15	1.7±0.15	(1.5)	3±0.15	(1.5)	3
DRR-4.2×3-4CH2-2.0PAI	4.2±0.15	3.0±0.2	2.0±0.15	(0.75)	1.5±0.15	(0.75)	6
DRR-4.5×6.5-2CH-2.0PAI	4.5±0.2	6.5±0.2	$2.0^{+0.2}_{0.1}$	(1.38)	3.75±0.25	(1.38)	8
DRR-5×8-H2-1.7PAI	5.0±0.15	8.0±0.3	1.7±0.15	1.9±0.2	4.2±0.15	1.9±0.2	3
DRR-5×10-4CH2-2.5PAI	5.0±0.15	10.0±0.2	2.5±0.5	(1.75)	6.5±0.2	(1.75)	6
DRR-5×13-4CH2-2.5PAI	5.0±0.15	13.0±0.2	2.5±0.15	(3.0)	7.0±0.2	(3.0)	6
DRR-5×13-H2-2.5PAI	5.0±0.15	13.0±0.2	2.5±0.15	(3.0)	7.0±0.2	(3.0)	3
DRR-5×4-2.5PAI	5.0±0.15	4.0±0.15	2.5±0.15	0.75±0.15	2.5±0.15	0.75±0.15	1
DRR-6×8-4C-2.7PAI	6.0±0.20	8.0±0.2	2.7±0.15	2.0±0.15	4.0±0.15	2.0±0.15	2
DRR-7.8×6.4-4C	7.8±0.12	6.4±0.15	$3.2^{+0.15}_{-0.1}$	1.35±0.10	$3.7^{+0.15}_{-0.1}$	1.35±0.10	2
DRR-7.8×7-3.5PAI	7.8±0.2	7.0±0.15	3.5±0.15	1.7±0.15	3.6±0.2	1.7±0.15	1
DRR-7.9×7-5.5PAI	7.9±0.15	7.0±0.15	5.5±0.15	1.0±0.10	5.0±0.1	1.0±0.10	1
DRR-8×8-3.5PAI	$8.0^{+0}_{-0.3}$	8.0±0.2	3.5±0.15	1.75±0.15	4.5±0.15	1.75±0.15	1
DRR-8×10-4C-4.0PAI	8.0±0.15	10.0±0.30	4.0±0.15	(2.0)	6±0.15	(2.0)	2
DRR-8×11-3.5PAI	$8.0^{+0}_{-0.3}$	$11.0^{+0.1}_{-0.3}$	3.5±0.15	2.0±0.2	6.9±0.2	2.0±0.2	1
DRR-8×12-3.4PAI	$8.0^{+0}_{-0.4}$	12.0±0.2	3.4±0.15	2.25±0.15	7.5±0.15	2.25±0.15	1
DRR-8×12-4.0PAI	8.0±0.15	12.0±0.2	4.0±0.15	(2.25)	7.5±0.2	(2.25)	1
DRR-8.4×4.3-3.6PAI	8.4±0.2	4.3±0.2	3.6±0.15	(0.95)	2.4±0.15	(0.95)	1
DRR-8.4×4.6-4C-4.0PAI	8.4±0.15	4.6±0.1	4.0±0.10	0.9±0.10	2.4±0.10	1.3±0.10	2
DRR-8.4×10-4.8PAI	8.4±0.1	10.0±0.1	4.8±0.1	1.05±0.1	7.9±0.1	1.05±0.1	1
DRR-9.6×6.5-4.7PAI	9.6±0.1	6.5±0.15	4.7±0.15	1.05±0.1	4.4±0.15	1.05±0.1	1
DRR-9.6×8.0-5.0PAI	$9.6^{+0.0}_{-0.15}$	8.0±0.15	5.0±0.1	1.5±0.1	5.0±0.15	1.5±0.1	1

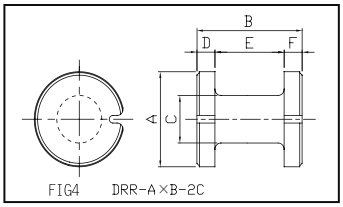


FIG4 DRR-A×B-2C

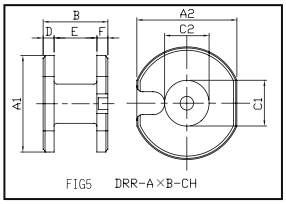
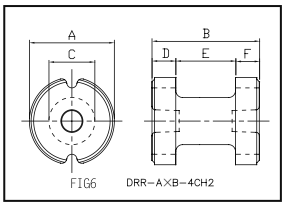
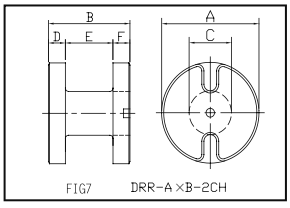


FIG5 DRR-A×B-CH

Dimensions

Part NO.	Dimensions(mm)						
	A	B	C	D	E	F	FIG
DRR-10×8-4.0PAI	10.0±0.2	8.0±0.30	4.0±0.15	1.5±0.15	5.0±0.2	1.5±0.15	1
DRR-10×10-3.2PAI	10.0±0.2	10.0±0.30	3.2±0.15	1.5±0.15	7.0±0.2	1.5±0.15	1
DRR-10×10-4.25PAI	10.0±0.2	10.0±0.2	4.25±0.15	(2.5)	5.0±0.2	(2.5)	1
DRR-10×10-4C-6.0PAI	10.0±0.2	10.0±0.2	6.0±0.2	2.0±0.15	6.0±0.2	2.0±0.15	2
DRR-10×11-3.5PAI	10.0±0.3	11.0±0.30	3.5±0.15	2.0±0.15	7.0±0.15	2.0±0.15	1
DRR-10×11-4.35PAI	10.0±0.20	11.0±0.30	$4.35^{+0.2}_{-0.1}$	(2.0)	7.0±0.2	(2.0)	1
DRR-10×12-3.4PAI	10.0±0.2	12.0±0.2	3.4±0.15	2.5±0.15	7.0±0.2	2.5±0.15	1
DRR-10×12-4.1PAI	10.0±0.2	12.0±0.30	4.1±0.10	2.0±0.2	8.0±0.2	2.0±0.2	1
DRR-10×15-4.0PAI	10.0±0.2	15.0±0.30	4.0±0.15	2.5±0.15	10.0±0.2	2.5±0.15	1
DRR-10×16-4.0PAI	10.0±0.20	16.0±0.30	6.0±0.15	3.0±0.15	10±0.20	3.0±0.15	1
DRR-12×11-4.0PAI	12.0±0.15	11.0±0.25	4.0±0.15	2.5±0.2	6.0±0.2	2.5±0.2	1
DRR-12×13-4.5PAI	12.0±0.15	13.0±0.30	4.5±0.15	2.5±0.2	8.0±0.2	2.5±0.2	1
DRR-12×15-4.5PAI	12.0±0.2	15.0±0.2	$4.5^{+0.1}_{-0.2}$	(2.5)	10.0±0.1	(2.5)	1
DRR-12×15-4.8PAI	12.0±0.2	15.0±0.30	4.8±0.15	2.5±0.2	10.0±0.2	2.5±0.2	1
DRR-12×15-6.0PAI	12.0±0.2	15.0±0.30	6.0±0.2	2.5±0.2	10.0±0.2	2.5±0.2	1
DRR-12×20-6.0PAI	12.0±0.2	20.0±0.30	6.0±0.2	3.0±0.25	14.0±0.3	3.0±0.25	1
DRR-13×15-6.4PAI	13.0±0.1	15.0±0.15	6.4±0.1	3.0±0.2	(9.0)	3.0±0.2	1
DRR-14×14-4C-4.3PAI	14.0±0.3	14.0±0.5	4.3±0.2	2.5±0.2	9.0±0.2	2.5±0.2	2
DRR-14×15-5.1PAI	14.0±0.2	15.0±0.30	5.1±0.15	(2.5)	10±0.2	(2.5)	1
DRR-14×15-5.5PAI	14.0±0.5	15.0±0.30	5.5±0.15	(3.0)	9±0.2	(3.0)	1
DRR-14×16.5-4C-6.85PAI	14.0±0.3	16.5±0.5	6.85±0.15	3.0±0.2	10.5±0.3	3.0±0.2	2
DRR-14×16.5-4C-7.2PAI	14.0±0.3	16.5±0.5	7.2±0.15	3.0±0.2	10.5±0.3	3.0±0.2	2
DRR-14×17.5-6.0PAI	14.0±0.3	17.5±0.4	6.0±0.15	2.75±0.2	12.0±0.3	2.75±0.2	1
DRR-14×20-6.0PAI	14.0±0.3	20.0±0.4	6.0±0.2	4.0±0.2	12.0±0.25	4.0±0.25	1
DRR-15×13-7.0PAI	15.0±0.3	13.0±0.30	7.0±0.15	2.5±0.2	8.0±0.2	2.5±0.2	1





Dimensions

Part NO.	Dimensions(mm)						
	A	B	C	D	E	F	FIG
DRR-15×15-5.0PAI	15.0±0.25	15.0±0.4	5.0±0.15	2.5±0.25	10.0±0.25	2.5±0.25	1
DRR-15×18-7.7PAI	15.0±0.2	18±0.2	7.7±0.1	3.0±0.2	12.0±0.2	3.0±0.2	1
DRR-15×18-8.3PAI	15.0±0.3	18.0±0.4	8.3±0.15	2.5±0.3	13.0±0.3	2.5±0.3	1
DRR-15×18-8.5PAI	15.0±0.3	18.0±0.4	8.5±0.3	2.5±0.3	13.0±0.3	2.5±0.3	1
DRR-15×22-2C-7.5PAI	15.0±0.2	22.0±0.25	7.5±0.15	3.0±0.2	16.0±0.25	3.0±0.2	4
DRR-16×18-8.0PAI	16.0±0.3	18.0±0.4	8.0±0.2	2.5±0.3	13.0±2.5	2.5±0.3	1
DRR-18×18-8.5PAI	18.0±0.4	18.0±0.4	8.5±0.4	2.5±0.3	13.0±0.4	2.5±0.3	1
DRR-18×20-10.0PAI	18.0±0.4	20.0±0.4	10.0±0.4	3.0±0.3	14.0±0.3	3.0±0.3	1
DRR-6×6-2CH-2.5PAI	6.0±0.2	6.0±0.2	2.5±0.3	(1.45)	3.1±0.2	(1.45)	7
DRR-8×10-2CH-3.9PAI	8.0±0.2	10.0±0.25	3.9±0.2	(2.1)	5.8±0.2	(2.1)	7
DRR-9.85×4.0-C-H-3.8PAI	9.85±0.15	4.0±0.15	3.9±0.15	0.85±0.15	2.3±0.15	0.85±0.15	5
DRR-9.85×6.8-C-H-4.0PAI	9.85±0.15	6.8±0.2	4.0±0.15	1.15±0.15	4.5±0.2	1.15±0.15	5
DRR-14×17-2CH-7.1PAI	14±0.30	17±0.30	$7.1^{+0.2}_{-0.1}$	(3.5)	$9.9^{+0.2}_{-0.0}$	(3.5)	7
DRR-14.2×12-2CH-7.0PAI	14.2±0.3	12±0.30	7.0±0.2	(2.4)	$7.0^{+0.4}_{-0.0}$	(2.4)	7
DRR-8×7-4CH2-3.2PAI	$8.0^{+0.0}_{-0.3}$	7.0±0.30	3.2±0.2	(1.6)	3.8±0.2	(1.6)	6
DRR-10.9×13-4CH2-6.0PAI	10.9±0.2	13±0.30	6.0±0.2	(2.25)	8.5±0.2	(2.25)	6
DRR-11.1×10-4CH2-5.85PAI	11.1±0.2	10±0.20	5.85±0.15	(2.18)	2.65±0.15	(2.18)	6

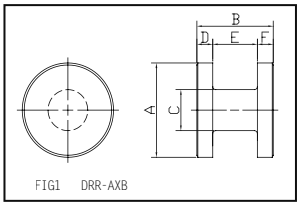


FIG1 DRR-AXB

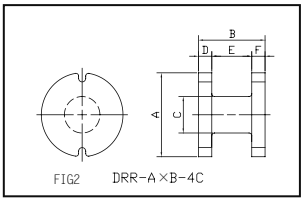


FIG2 DRR-A×B-4C

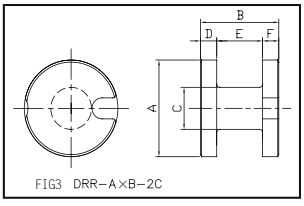


FIG3 DRR-A×B-2C

Dimensions

Part NO.	Dimensions(mm)						
	A	B	C	D	E	F	FIG
DRR-2.5×0.8-1.1PAI	2.5±0.07	0.8±0.07	1.1±0.07	0.25±0.07	0.3±0.07	0.25±0.07	1
DRR-2.5×0.8-1.2PAI	2.5±0.07	0.8±0.07	1.2±0.07	0.25±0.07	0.3±0.07	0.25±0.07	1
DRR-2.6×0.8-1.2PAI	2.6±0.07	0.8±0.07	1.2±0.07	0.25±0.07	0.3±0.07	0.25±0.07	1
DRR-2.65×1.0-4C-1.2PAI	2.65±0.07	1.0±0.07	1.2±0.07	0.25±0.07	0.5±0.07	0.25±0.07	2
DRR-2.8×0.84-1.2PAI	2.8±0.1	0.84±0.1	1.2±0.1	0.27±0.07	0.3±0.07	0.27±0.07	1
DRR-2.8×1.25-1.3PAI	2.8±0.15	1.25±0.15	1.3±0.1	(0.375)	0.5±0.1	(0.375)	1
DRR-2.8×1.75-1.2PAI	2.8±0.15	1.75±0.15	1.2±0.1	(0.375)	1.0±0.1	(0.375)	1
DRR-2.9×0.88-1.1PAI	2.9±0.07	0.88±0.05	1.1±0.05	0.275±0.05	0.33±0.05	0.275±0.05	1
DRR-2.9×1.2-1.13PAI	2.90±0.07	1.2±0.05	1.13±0.05	0.32±0.05	0.56±0.07	0.32±0.05	1
DRR-4×0.9-1.8PAI	4.0±0.07	0.9±0.05	1.8±0.05	(0.3)	0.3±0.05	(0.3)	1
DRR-5.4×1.0-2.6PAI	5.4±0.07	1.0±0.07	2.6±0.07	0.35±0.07	0.3±0.07	0.35±0.07	1
DRR-5.5×1.0-2.6PAI	5.5±0.07	1.0±0.07	2.6±0.07	0.35±0.07	0.3±0.07	0.35±0.07	1
DRR-6.5×1.9-2C-2.5PAI	6.5±0.1	1.9±0.1	2.5±0.07	0.5±0.07	0.9±0.1	0.5±0.07	3

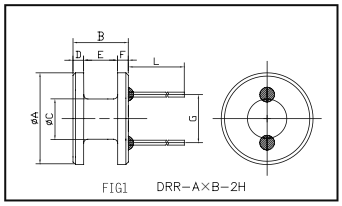


FIG1 DRR-A×B-2H

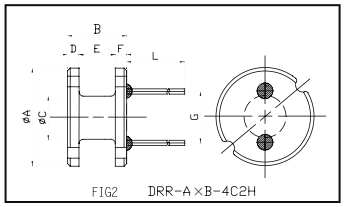


FIG2 DRR-A×B-4C2H

Dimensions

Part NO.	Dimensions(mm)							
	A	B	C	D	E	F	G	FIG
DRR-4×6-2H-0520-2.0PAI	4.0±0.2	6.0±0.2	2.0±0.15	(1.25)	3.5±0.2	(1.25)	2.0±0.5	1
DRR-5×6-2H-0620-2.0PAI	5.0±0.15	6.0±0.2	2.0±0.15	(1.25)	3.5±0.3	(1.25)	2.5±0.5	1
DRR-5×7-2H-06135-2.5PAI-P2.5	5.0±0.15	7.0±0.2	2.5±0.15	(2.0)	3.0±0.2	(2.0)	2.5±0.5	1
DRR-6×8-2H-0620-2.5PAI-P4	6.0±0.15	8.0±0.2	2.5±0.15	(2.0)	4.0±0.2	(2.0)	4.0±0.3	1
DRR-6×8-2H-06515-3.0PAI-P3	6.0±0.2	8.0±0.2	3.0±0.15	(1.9)	4.2±0.2	(1.9)	3.0±0.5	1
DRR-6×8-2H-06515-2.5PAI-P3	6.0±0.15	8.0±0.15	2.5±0.15	(2.0)	4.0±0.2	(2.0)	3.0±0.5	1
DRR-6×8-2H-06515-2.5PAI-P2.5	6.0±0.15	8.0±0.15	2.5±0.15	(2.0)	4.0±0.2	(2.0)	2.5±0.5	1
DRR-6×8.3-2H-06515-3.0PAI-P3	6.0±0.15	8.3±0.15	3.0±0.15	(2.05)	4.2±0.2	(2.05)	3.0±0.5	1
DRR-6×10-2H-0620-3.0PAI	6.0±0.2	10.0±0.2	3.0±0.15	2.0±0.15	6.0±0.15	2.0±0.15	3.0±0.5	1
DRR-7×10.1-2H-06515-3.45PAI	7.0±0.15	10.1±0.2	3.45±0.2	2.05±0.15	6.0±0.2	2.05±0.15	3.0±0.5	1
DRR-8×10-2H-0620-3.5PAI	8.0±0.2	10.0±0.3	3.5±0.15	(2.0)	6.0±0.2	(2.0)	5.0±0.5	1
DRR-8×10-2H-06515-4.0PAI	8.0±0.2	10.0±0.2	4.0±0.2	(2.0)	6.0±0.2	(2.0)	5.0±0.5	1
DRR-8×10-2H-06515-4.5PAI	8.0±0.2	10.0±0.2	4.5±0.2	(2.0)	6.0±0.2	(2.0)	5.0±0.5	1
DRR-9×12-2H-0816-4.0PAI-P5.0	9.0±0.2	12.0±0.3	4.0±0.15	(2.5)	7.0±0.2	(2.5)	5.0±0.5	1
DRR-9×12-2H-0816-4.0PAI-P5.5	9.0±0.2	12.0±0.3	4.0±0.15	(2.5)	7.0±0.2	(2.5)	5.5±0.5	1
DRR-9×12-2H-0816-4.0PAI-P6.0	9.0±0.2	12.0±0.3	4.0±0.15	(2.5)	7.0±0.2	(2.5)	6.0±0.5	1
DRR-9×12-2H-0816-5.0PAI-P5.0	9.0±0.2	12.0±0.3	5.0±0.2	2.5±0.1	7.0±0.2	2.5±0.2	5.0±0.5	1
DRR-9×12-2H-0816-5.0PAI-P6.0	9.0±0.2	12.0±0.2	5.0±0.2	2.5±0.2	7.0±0.2	2.5±0.2	6.0±0.5	1
DRR-10×8-2H-0816-4.0PAI-P5.0	10.0±0.2	8.0±0.3	4.0±0.2	2.0±0.2	4.0±0.2	2.0±0.2	5.0±0.5	1
DRR-10×8-2H-0816-4.5PAI-P6.0	10.0±0.2	8.0±0.3	4.5±0.2	2.0±0.2	4.0±0.3	2.0±0.2	6.0±0.5	1
DRR-10×8-2H-0816-5.0PAI-P6.0	10.0±0.2	8.0±0.2	5.0±0.15	2.0±0.2	4.0±0.3	2.0±0.2	6.0±0.5	1
DRR-10×8-2H-0816-5.0PAI-P6.0E4.6	10.0±0.2	8.0±0.2	5.0±0.15	(1.7)	4.6±0.2	(1.7)	6.0±0.5	1
DRR-10×10-2H-0816-5.0PAI-P7.0	10.0±0.25	10.0±0.3	5.0±0.15	2.0±0.15	6.0±0.2	2.0±0.15	7.0±0.5	1
DRR-10×12-2H-0816-4.0PAI-P5.0	10.0±0.2	12.0±0.2	4.0±0.2	(2.5)	7.0±0.3	(2.5)	5.0±0.3	1
DRR-10×12-2H-0816-4.0PAI-P6.0	10.0±0.2	12.0±0.3	4.0±0.15	(2.5)	7.0±0.2	(2.5)	6.0±0.5	1

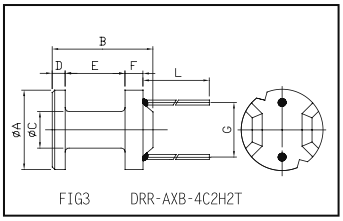


FIG3 DRR-AXB-4C2H2T

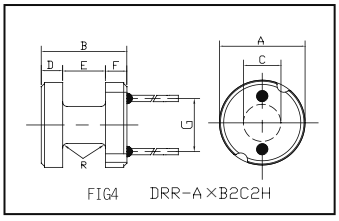


FIG4 DRR-A×B2C2H

Dimensions

Part NO.	Dimensions(mm)							
	A	B	C	D	E	F	G	FIG
DRR-10×12-2H-0816-4.0PAI-P7.0	10.0±0.2	12.0±0.3	4.0±0.15	(2.5)	7.0±0.2	(2.5)	7.0±0.5	1
DRR-10×12-2H-0816-5.0PAI-P5.0			5.0±0.15	(2.5)	7.0±0.2	(2.5)	5.0±0.5	1
DRR-10×12-2H-0816-5.0PAI-P6.0	10.0±0.2	12.0±0.3	5.0±0.15	(2.5)	7.0±0.2	(2.5)	6.0±0.5	1
DRR-10×12-2H-0816-5.0PAI-P7.0			5.0±0.15	(2.5)	7.0±0.2	(2.5)	7.0±0.5	1
DRR-10×12-2H-0825-5.5PAI-P5.0	10.0±0.2	12.0±0.3	5.5±0.15	(2.5)	7.0±0.2	(2.5)	5.0±0.5	1
DRR-10×12-2H-0816-5.5PAI-P6.0			5.5±0.15	(2.5)	7.0±0.2	(2.5)	6.0±0.5	1
DRR-10×12-2H-0816-6.0PAI-P7.0	10.0±0.2	12.0±0.2	6.0±0.2	2.5±0.15	7.0±0.2	2.5±0.15	7.0±0.5	1
DRR-10×15-2H-0816-5.0PAI-P6.0			5.0±0.15	2.5±0.15	10.0±0.2	2.5±0.15	6.0±0.5	1
DRR-10×15-2H-0816-5.0PAI-P6.5	10.0±0.2	15.0±0.2	5.0±0.15	(2.2)	10.6±0.2	(2.2)	6.5±0.5	1
DRR-10×15-2H-0816-5.5PAI-P6.0			5.5±0.15	(2.5)	10.0±0.2	(2.5)	6.0±0.5	1
DRR-10×16-2H-0816-5.0PAI-P5.0	10.0±0.2	16.0±0.3	5.0±0.2	(3.0)	10.0±0.2	(3.0)	5.0±0.5	1
DRR-10×16-2H-0820-5.0PAI-P6.0			5.0±0.2	(3.0)	10.0±0.2	(3.0)	6.0±0.5	1
DRR-10×16-2H-0816-5.0PAI-P7.0	10.0±0.2	16.0±0.3	5.0±0.2	(3.0)	10.0±0.2	(3.0)	7.0±0.5	1
DRR-10×16-2H-0816-5.5PAI-P6.0			5.5±0.15	(2.5)	11.0±0.2	(2.5)	6.0±0.5	1
DRR-10×16-2H-0816-6.0PAI-P5.0	10.0±0.2	16.0±0.3	6.0±0.15	(2.5)	11.0±0.2	(2.5)	5.0±0.5	1
DRR-10×16-2H-0816-6.0PAI-P6.0			6.0±0.15	2.75±0.15	10.5±0.2	2.75±0.15	6.0±0.5	1
DRR-10×16-2H-0816-6.0PAI-P7.0	10.0±0.2	16.0±0.3	6.0±0.2	(3.0)	10.0±0.2	(3.0)	7.0±0.5	1
DRR-12×16-2H-0816-6.5PAI			6.5±0.2	(3.0)	10.0±0.2	(3.0)	7.5±0.5	1
DRR-14×15-2H-1015-6.0PAI	14.0±0.2	15.0±0.3	6.0±0.15	(2.5)	10.0±0.25	(2.5)	7.5±0.5	1
DRR-14×15-2H-0816-7.5PAI			7.5±0.15	2.5±0.15	10.0±0.2	2.5±0.2	10.0±0.5	1
DRR-14×19-2H-0816-8.0PAI	14.0±0.3	19.0±0.3	8.0±0.15	(2.5)	14.0±0.15	(2.5)	7.5±0.5	1
DRR-14×19-2H-0816-8.5PAI			8.5±0.2	(2.5)	14.0±0.2	(2.5)	7.5±0.5	1
DRR-14×19-2H-1016-9.0PAI	14.0±0.2	19.0±0.3	9.0±0.15	(2.5)	14.0±0.15	(2.5)	7.5±0.15	1
DRR-16×18-2H-1022-10.0PAI			10.0±0.2	(2.5)	13.0±0.2	(2.5)	10.0±0.5	1

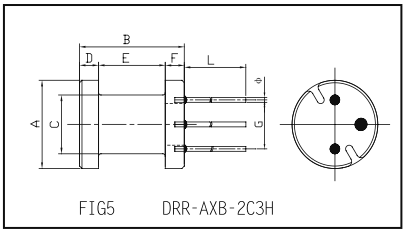


FIG5 DRR-AXB-2C3H

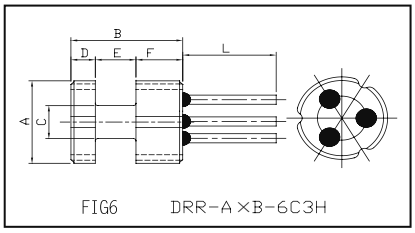


FIG6 DRR-AXB-6C3H

Dimensions

Part NO.	Dimensions(mm)							
	A	B	C	D	E	F	G	FIG
DRR-4.5×5.0-4C2H-0620-2.0PAI	4.5±0.15	5.0±0.15	2.0±0.15	1.4±0.2	2.2±0.15	1.4±0.15	2.0±0.5	2
DRR-6×8-4C2H-0620-2.5PAI-P3	6.0±0.2	8.0±0.2	2.5±0.2	2.0±0.2	4.0±0.2	2.0±0.2	3.0±0.5	2
DRR-6×7.5-4C2H-0616-2.7PAI	6.5±0.2	7.5±0.2	2.7±0.1	(2.15)	3.2±0.15	(2.15)	3.0±0.5	4
DRR-7.5×6.8-4C2H-0616-3.2PAI	7.5±0.8	6.8±0.2	3.2±0.15	1.6±0.15	3.6±0.15	1.6±0.15	5.0±0.5	3
DRR-7.8×6.3-4C2H-0655-3.2PAI	7.8±0.12	6.3±0.2	3.2±0.15	1.2±0.15	3.7±0.15	1.4±0.15	5.0±0.5	2
DRR-8×8-2C2H-0616-3.0PAI	8.0±0.15	8.0±0.15	3.5±0.15	2.0±0.15	4.0±0.15	2.0±0.15	5.0±0.5	4
DRR-8×10-4C2H-06516-3.5PAI	$8.0^{+0.0}_{-0.25}$	$10.0^{+0.0}_{-0.3}$	3.5±0.2	1.925±0.15	6.0±0.15	1.925±0.15	5.0±0.5	2
DRR-9×12-4C2H-06515-4.0PAI	9.0±0.2	12.0±0.2	4.0±0.2	2.5±0.2	7.0±0.2	2.5±0.2	5.0±0.5	2
DRR-9×12-4C2H-0816-6.5PAI	9.0±0.15	12.0±0.2	6.5±0.2	1.8±0.15	8.4±0.2	1.8±0.15	5.0±0.5	2
DRR-10×12-4C2H-0816-4.7PAI	10.0±0.1	12.0±0.25	4.7±0.1	3.0±0.2	6.0±0.2	3.0±0.2	5.0±0.5	2
DRR-10×12.5-2C2H-0816-5.5PAI	10.0±0.2	12.5±0.3	5.5±0.2	2.2±0.15	8.2±0.2	2.2±0.15	6.3±0.4	2
DRR-10×16-2C2H-0816-5.0PAI-P6.0	10.0±0.2	16.0±0.3	5.0±0.15	3.0±0.10	10.0±0.2	3.0±0.10	6.0±0.5	2
DRR-10×16-4C2H-0816-5.5PAI-P5.0	10.0±0.2	16.0±0.3	5.5±0.15	3.0±0.2	10.0±0.2	3.0±0.2	5.0±0.5	2
DRR-10×16-4C2H-0816-6.0PAI-P6.3	10.0±0.2	$16.0^{+0.5}_{-0.0}$	6.0±0.2	(2.5)	$11.3^{+0.2}_{-0.3}$	(2.5)	6.3±0.5	2
DRR-12×13-4C2H-0816-6.0PAI	$12.0^{+0.1}_{-0.2}$	$13.0^{+0}_{-0.3}$	6.0±0.2	2.0±0.2	9.0±0.2	2.0±0.2	7.5±0.5	2
DRR-14×15-4C2H-1022-7.0PAI-P8.0	14.0±0.2	15.0±0.2	7.0±0.15	2.5±0.15	10.0±0.2	2.5±0.15	8.0±0.5	2
DRR-18×22-2C3H-1010-12.0PAI	18.0±0.3	22.0±0.4	12.0±0.2	(4.0)	14.0±0.2	(4.0)	10.0±0.5	5
DRR-4.5×5.5-6C3H-0520-1.8PAI	4.5±0.15	5.5±0.15	1.8±0.15	1.1±0.15	2.2±0.15	2.2±0.15	2.5±0.3	6
DRR-4.5×6.2-4C2H2T-0542-2.0PAI	4.5±0.08	6.2±0.15	2.0±0.1	0.8±0.07	3.3±0.15	(1.4)	2.5±0.3	3
DRR-4.5×7.0-4C2H2T-0542-2.0PAI	4.5±0.08	7.0±0.15	2.0±0.1	1.0±0.07	3.9±0.15	(1.4)	2.5±0.3	3
DRR-4.5×7.0-4C2H2T-05275-2.3PAI	4.5±0.08	7.0±0.15	2.3±0.1	1.0±0.07	3.9±0.15	(1.4)	2.5±0.3	3
DRR-5.8×6.3-4C2H2T-0627-2.4PAI	5.8±0.15	6.3±0.2	2.4±0.15	0.8±0.15	3.3±0.15	1.4±0.15	4.0±0.5	3
DRR-6×5-4C2H2T-0616-3.0PAI	6.0±0.15	$5.0^{+0.1}_{-0.3}$	3.0±0.15	0.8±0.2	2.0±0.5	1.2±0.5	4.0±0.3	3
DRR-6.7×7.0-4C2H2T-0627-2.7PAI	6.7±0.2	7.0±0.2	2.7±0.15	1.3±0.15	3.2±0.15	1.5±0.15	5.0±0.5	3

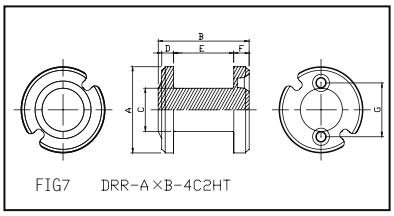


FIG7 DRR-A×B-4C2HT

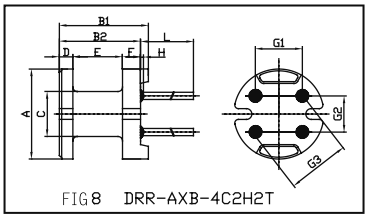
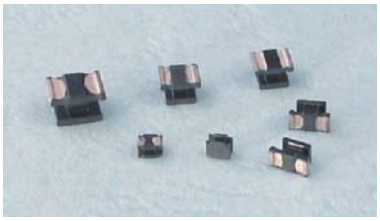


FIG 8 DRR-AXB-4C2H2T

Dimensions

Part NO.	Dimensions(mm)							
	A	B	C	D	E	F	G	FIG
DRR-7.8×7.0-4C2H2T-0616-3.4PAI	7.8±0.1	7.0±0.15	3.4±0.2	0.9±0.07	3.2±0.15	1.7±0.07	5.0±0.5	3
DRR-7.8×7.2-4C2H2T-0615-3.0PAI	7.8±0.15	7.2±0.2	3.3±0.5	1.1±0.15	3.3±0.15	1.8±0.15	5.0±0.5	3
DRR-7.8×9.2-4C2H2T-06515-3.0PAI	7.8±0.15	9.2±0.2	3.0±0.2	1.2±0.2	5.2±0.15	1.8±0.15	5.0±0.5	3
DRR-8×7.5-4C2H2T-0623-3.2PAI	8.0±0.2	7.5±0.2	3.2±0.15	1.1±0.15	3.6±0.15	1.8±0.15	5.0±0.5	3
DRR-8×10.1-4C2H2T-0623-3.7PAI	$8.0^{+0.1}_{-0.2}$	10.1±0.2	3.7±0.15	1.3±0.15	6.0±0.2	1.8±0.15	5.0±0.5	3
DRR-8×10.1-4C2H2T-0623-4.45PAI	$8.0^{+0.1}_{-0.2}$	10.1±0.2	4.5±0.15	1.3±0.15	6.0±0.2	1.8±0.15	5.0±0.5	3
DRR-9×12-4C2H2T-0620-4.5PAI	$9.0^{+0.2}_{-0.15}$	12.0±0.3	5.5±0.15	1.5±0.15	$7.5^{+0.2}_{-0.15}$	2.0±0.15	5.0±0.3	3
DRR-10×10.1-4C2H2T-06515-4.3PAI	10.0±0.2	10.1±0.2	4.3±0.2	1.5±0.15	5.5±0.2	2.0±0.15	5.0±0.3	3
DRR-10×14-4C2H2T-0815-5.0PAI	10.0±0.3	14.0±0.3	5.0±0.15	1.5±0.15	9.0±0.2	2.0±0.15	5.0±0.5	3
DRR-11×14-4C2H2T-0655-6.6PAI	11.0±0.2	14.0±0.2	6.6±0.15	1.5±0.2	8.5±0.2	2.0±0.2	5.0±0.5	3
DRR-12×14.5-4C2H2T-0805-6.0PAI	12.0±0.2	14.5±0.3	6.0±0.5	2.0±0.15	8.5±0.2	2.0±0.5	7.5±0.5	3
DRR-6.7×4.6-8C4HT-0542-2.4PAI	6.7±0.15	4.6±0.15	2.4±0.15	(0.7)	2.2±0.15	(1.0)		
DRR-10×8.1-4C4H2T-0816-4.2PAI	10.0±0.2	8.1±0.2	4.3±0.2	1.35±0.15	3.9±0.2	1.75±0.15		8
DRR-10×10.1-4C4H2T-06515-4.3PAI	10.0±0.2	10.1±0.2	4.3±0.2	1.5±0.2	5.5±0.2	2.0±0.15		8
DRR-9×11-4C2HT-4.5PAI	9.0±0.1	11.0±0.2	4.5±0.15	1.3±0.15	7.4±0.15	1.8±0.15	5.0±0.5	7
DRR-12×13-4C2HT-6.0PAI	12.0±0.15	13.0±0.15	6.0±0.15	1.7±0.15	8.6±0.2	$2.2^{+0.15}_{-0.1}$	7.5±0.5	7

DRS TYPE CORE



◆ 命名表示：
Ordering Core System:

TN25H DRS-A1-A2×B-EL

电极	(ELECTRODE)
高度	(HEIGHT)
小外径	(OUTER DIAMETER)
大外径	(OUTER DIAMETER)
形状	(TYPE)
材质	(MATERIAL)

◆ 适用材质：TN25H、TN40H、TN65H 等
Available Material：TN25H、TN40H、TN65H etc

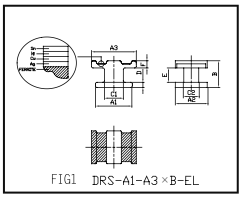


FIG1 DRS-A1-A3×B-EL

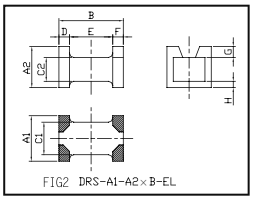


FIG2 DRS-A1-A2×B-EL

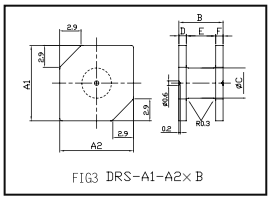


FIG3 DRS-A1-A2× B

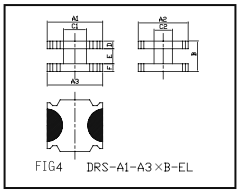


FIG4 DRS-A1-A3×B-EL

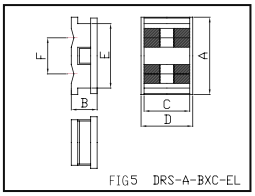


FIG5 DRS-A-BXC-EL

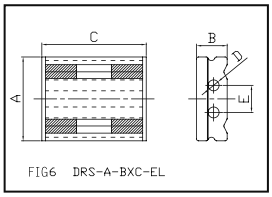


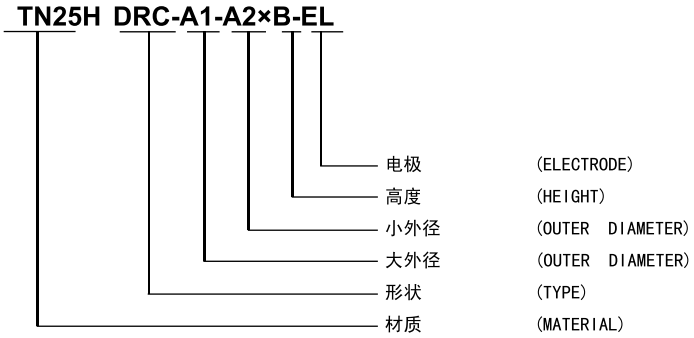
FIG6 DRS-A-BXC-EL

Dimensions

Part NO.	Dimensions(mm)									
	A1(A)	A2	A3	B	C 1(C)	C2	D	E	F	FIG
DRS-2.5-3.2-1.5-EL	2.5±0.15	2.5±0.15	3.2±0.15	1.5±0.1	1.15±0.1	1.2±0.1	0.4±0.1	0.6±0.1	0.5±0.1	1
DRS-2.3-3.2×1.8-EL	2.3±0.15	1.6±0.15	3.2±0.15	1.8±0.15	1.1±0.1	1.0±0.1	0.45±0.1	0.85±0.1	0.5±0.1	1
DRS-2.5-3.2×2.0-EL	2.5±0.2	2.5±0.2	3.2±0.3	2.0±0.2	1.1±0.1	1.1±0.1	(0.55)	0.9±0.1	(0.55)	1
DRS-2.5-3.2×2.0-EL-A	2.5±0.05	2.5±0.08	3.2±0.08	2.0±0.2	1.1±0.08	1.2±0.08	0.45±0.05	0.95±0.08	0.6±0.08	1
DRS-3.7-4.5×2.65-EL	3.7±0.15	3.2±0.15	4.5±0.15	2.65±0.15	$1.7^{+0.05}_{-0.15}$	1.5±0.1	0.6±0.1	1.35±0.1	0.7±0.1	1
DRS-1.3-0.85-2.0-EL	1.3±0.1	0.85±0.1		2.0±0.1	0.9±0.1	0.5±0.1	0.5±0.07	1.0±0.1	0.5±0.07	2
F-2.0-1.3-0.3	2.0±0.1			1.3±0.1	0.3±0.07					
DRS-1.9-1.9×1.0-EL	1.9±0.1	1.6±0.1		1.0±0.2	0.8±0.1	0.6±0.1	(0.25)	0.5±0.1	(0.25)	
DRS2-7.5-3.0×6-EL	7.5±0.2			3.0±0.1	5.3±0.2		6.0±0.2	$6.5^{+0.2}_{-0.1}$	4.2±0.3	4
DRS-4.65-1.7-5.5-0.6H2S-EL	4.65±0.2			1.7±0.2	5.75±0.2		0.6±0.1	1.5±0.3		6
DRS-10-10×6	10.0±0.15	10.0±0.15		6.0±0.15	Φ4.0±0.15		1.0±0.1	4.0±0.15	1.0±0.1	3

DRC TYPE CORE

◆ 命名表示：
Ordering Core System:



◆ 适用材质：TN25H、TN40H、TN65H等
Available Material：TN25H、TN40H、TN65H etc

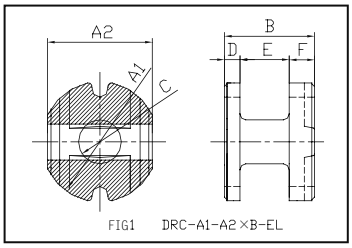


FIG1 DRC-A1-A2×B-EL

Dimensions

Part NO.	Dimensions(mm)							
	A 1	A2	B	C	D	E	F	FIG
DRC-3.5-3.0×1.1-EL	3.5±0.15	3.0±0.15	1.1±0.15	1.4±0.1	0.35±0.1	0.4±0.1	0.35±0.1	1
DRC-3.5-3.0×1.6-1.3PAI-EL	3.5±0.15	3.0±0.15	1.6±0.15	1.3±0.1	0.45±0.1	0.6±0.1	0.55±0.1	1
DRC-3.5-3.0×2.1-EL	3.5±0.15	3.0±0.15	2.1±0.15	1.5±0.1	0.4±0.1	1.1±0.1	0.6±0.1	1
DRC-4.5-4.0×2.0-EL	4.5±0.15	4.0±0.15	2.0±0.15	1.3±0.1	0.4±0.1	1.0±0.1	0.6±0.1	1
DRC-4.5-4.0×2.1-1.5PAI-EL	4.5±0.15	4.0±0.15	2.1±0.15	1.5±0.15	0.45±0.1	1.0±0.1	0.65±0.1	1
DRC-4.5-4.0×3.2-1.8PAI-EL	4.5±0.15	4.0±0.15	3.2±0.10	1.8±0.15	0.6±0.1	1.6±0.1	1.0±0.1	1
DRC-4.5-4.0×3.2-EL	4.5±0.15	4.0±0.15	3.2±0.15	2.0±0.1	0.6±0.1	1.45±0.1	1.15±0.1	1
DRC-5.8-5.2×2.0-EL	5.8±0.15	5.2±0.15	2.0±0.15	2.4±0.15	(0.5)	0.65±0.15	(0.85)	1
DRC-5.8-5.2×2.5-EL	5.8±0.15	5.2±0.15	2.5±0.15	2.5±0.15	0.6±0.1	0.9±0.15	1.0±0.1	1
DRC-5.8-5.2×3.0-EL	5.8±0.20	5.2±0.15	3.0±0.15	2.5±0.20	(0.5)	1.6±0.15	(0.9)	1
DRC-5.8-5.2×4.5-EL	5.8±0.20	5.2±0.20	4.5±0.20	2.2±0.20	(0.8)	2.4+0.2-0.1	(1.3)	1
DRC-5.8-5.2×4.5-2.4PAI-EL	5.8±0.15	5.2±0.15	4.5±0.15	2.4±0.20	(0.8)	2.4±0.15	(1.3)	1
DRC-5.8-5.2×4.5-2.8PAI-EL	5.8±0.20	5.2±0.20	4.5±0.20	2.8±0.20	(0.8)	2.4+0.2-0.1	(1.3)	1
DRC-5.8-5.2×4.5-3.0PAI-EL	5.8±0.15	5.2±0.20	4.5±0.20	3.0±0.20	(0.8)	2.4±0.20	(1.3)	1
DRC-7.8-7.0×3.5-EL	7.8±0.15	7.0±0.15	3.5±0.15	3.0±0.15	0.8±0.1	1.5±0.1	1.2±0.1	1
DRC-7.8-7.0×5.0-EL	7.8±0.15	7.0±0.15	5.0±0.15	3.0±0.15	1.0±0.1	2.6±0.1	1.4±0.1	1
DRC-7.8-7.0×5.0-4.0PAI-EL	7.8±0.15	7.0±0.15	5.0±0.15	4.0±0.1	1.0±0.1	2.6±0.1	1.4±0.1	1
DRC-10-9.0×4.0-EL	10.0±0.15	9.0±0.15	4.0±0.15	4.0±0.1	1.0±0.1	1.7±0.2	1.3±0.1	1
DRC-10-9.0×4.0-3.6PAI-EL	10.0±0.15	9.0±0.15	4.0±0.15	3.6±0.1	(1.0)	1.7±0.2	(1.3)	1
DRC-10-9.0×5.4-EL	10.0±0.15	9.0±0.15	5.4±0.15	4.0±0.1	1.2±0.1	2.6±0.1	1.6±0.1	1
DRC-10-9.0×5.4-4.6PAI-EL	10.0±0.15	9.0±0.20	5.4±0.10	4.6±0.15	1.1±0.15	2.5±0.15	1.8±0.15	1
DRC-10-9.0×8.2-EL	10.0±0.15	9.0±0.20	8.2±0.20	4.5±0.15	1.35±0.15	5.5±0.15	1.35±0.1	1
DRC-10-9.0×11.5-5.0PAI-EL	10.0±0.15	9.0±0.20	11.5±0.20	5.0±0.15	(2.0)	7.0±0.2	(2.5)	1

DRH TYPE CORE

◆ 命名表示：
Ordering Core System:

TN25H DRH-A×B-H

内径	(INNER DIAMETER)
高度	(HEIGHT)
外径	(OUTER DIAMETER)
形状	(TYPE)
材质	(MATERIAL)

◆ 适用材质：TN25H、TN40H、TN65H、TN65B
Available Material：TN25H、TN40H、TN65H、TN65B

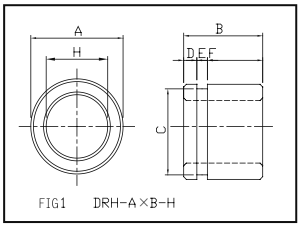


FIG1 DRH-A×B-H

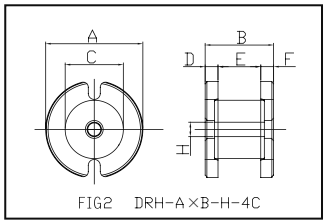


FIG2 DRH-A×B-H-4C

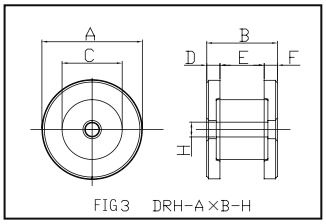
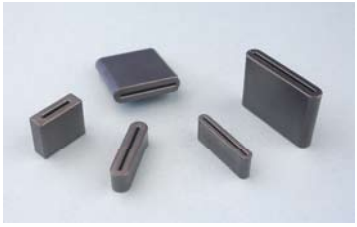


FIG3 DRH-A×B-H

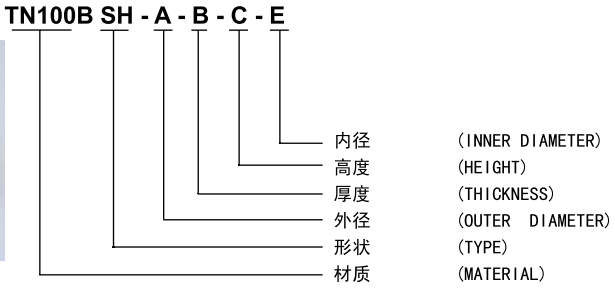
Dimensions

Part NO.	Dimensions(mm)								
	A	B	C	D	E	F	H	R	FIG
DRH-10.5×9.0-7.0-9.5PAI	10.5±0.1	9.0±0.1	9.5±0.1	$1.3^{+0.03}_{-0.10}$	1.2±0.1	6.3±0.15	7.0±0.15		1
DRH-10.5×9.0-7.0-9.5PAI-B	10.5±0.1	9.0±0.1	9.5±0.15	$1.3^{+0.03}_{-0.10}$	1.2±0.1	6.5±0.15	7.0±0.15		1
DRH-28×20-4.2-4C	28.0±0.5	20.0±0.7	17.0±0.5	3.75±0.3	12.5±0.6	3.75±0.3	4.2±0.25		2
DRH-16×20.6-4.5-9.3PAI	16.0±0.7	20.6±0.5	9.3±0.2	3.8±0.2	13.0±0.3	3.8±0.2	4.5±0.2		3
DRH-16×20.6-4.5-9.8PAI	16.0±0.7	20.6±0.5	9.8±0.2	3.8±0.2	13.0±0.3	3.8±0.2	4.5±0.2		3
DRH-16×20.6-4.5-10.0PAI	16.0±0.7	20.6±0.5	10.0±0.2	3.8±0.2	13.0±0.3	3.8±0.2	4.5±0.2		3
DRH-33.3×25-4.6	33.3±0.5	25.0±0.5	19.5±0.3	5.0±0.4	15.0±0.6	5.0±0.4	4.6±0.3		3

SH TYPE CORE

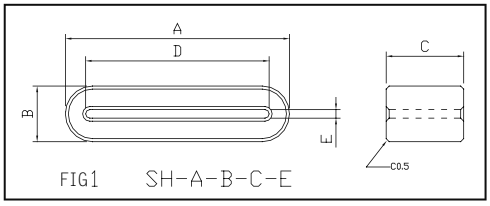


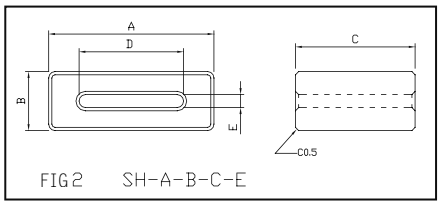
◆ 命名表示：
Ordering Core System:



◆ 适用材质：TN65H, TN65B, TN80G, TN100B等
Available Material: TN65H, TN65B, TN80G, TN100B etc

◆ 使用范围:平面电缆滤波器等
Application:Internal Cable Between Pc Boards And Data Connectors etc



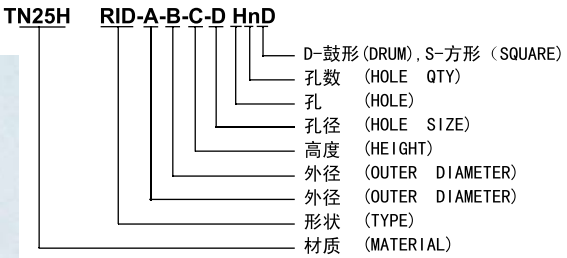


Dimensions

Part NO.	Dimensions(mm)					
	A	B	C	D	E	FIG
SH-31-3-12	$31.0^{+0.7}_{-0.4}$	3.0±0.4	12.0±0.4	27.4±0.5	$1.0^{+0.3}_{-0.5}$	1
SH-31-5-12	$31.0^{+0.7}_{-0.4}$	5.0±0.4	12.0±0.4	27.4±0.5	$1.0^{+0.3}_{-0.5}$	1
SH-23.8-6.3-7	23.8±0.5	6.3±0.4	7.0±0.5	18.8±0.4	1.1±0.3	1
SH-33.5-6.5-12.3	33.5±0.8	6.5±0.4	12.3±0.5	28.3±0.5	1.3±0.3	1
SH-39.8-6.5-12.3	39.8±0.9	6.5±0.4	12.3±0.5	34.6±0.9	1.3±0.3	1
SH-32-7.75-9.7	32.0±0.64	7.75±0.5	9.7±0.4	27.4±0.5	$1.0^{+0.3}_{-0.5}$	1
SH-32-7.75-35	32.0 ±0.64	7.75 ±0.4	35.5 ±1.05	$25.1^{+0.5}_{-0.4}$	$0.9^{+0.5}_{-0.3}$	1
SH-22.35-7.75-19.05	22.35±0.5	7.75±0.38	19.05±0.64	14.0±0.25	1.5±0.25	2
SH-40-7.6-28.6-1.3	40.0±1.0	7.6±0.5	28.6±0.6	33.7±1.0	$1.3^{+0.4}_{-0.3}$	1
SH-40-6.5-12.0-1.5	40.0±1.0	6.5±0.5	12.0±0.5	34.0±1.0	1.5±0.2	1

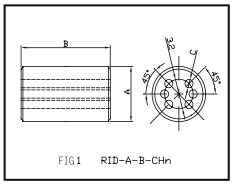
RID TYPE CORE

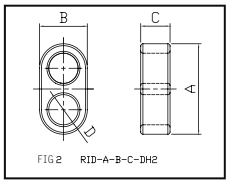
◆ 命名表示：
Ordering Core System:

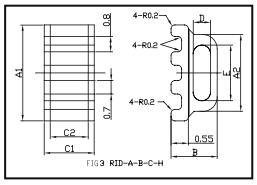


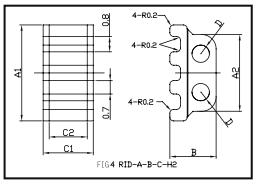
◆ 适用材质：TN12B、TN25H、TN40H、TN65H、TN100B、TN200B等
Available Material：TN12B、TN25H、TN40H、TN65H、TN100B、TN200B etc

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









Dimensions

Part NO.	Dimensions(mm)						
	A(A 1)	A2	B	C(C1)	C 2	D	FIG
RID-3.4-1.3-2.0-0.6H2S	3.4±0.1		1.3±0.1	2.0±0.1		0.6±0.1	5
RID-3.4-1.9-2.0-0.9H2	3.4±0.3		1.9±0.2	2.0±0.15		0.9±0.1	2
RID-3.5-2.0-2.0-0.8H2	3.5±0.2		2.0±0.2	2.0±0.2		0.8±0.1	2
RID-3.5-2.0-2.36-0.8H2	3.5±0.2		2.0±0.2	2.36±0.2		0.8±0.1	2
RID-3.5-2.0-3.0-0.8H2	3.5±0.2		2.0±0.2	3.0±0.2		0.8±0.1	2
RID-4.8-2.35-3.0-0.9H2	4.8±0.2		2.35±0.2	3.0±0.2		0.9±0.1	2
RID-4.9-2.2-3.0-0.95-H2S	4.9±0.2		2.2±0.1	3.0±0.15		0.95±0.1	5
RID-5.0-3.0-2.0-1.25H2	5.0±0.2		3.00±0.2	2.0±0.2		1.25±0.15	2
RID-5.0-3.0-3.0-1.25H2	5.0±0.2		3.00±0.4	3.0±0.4		1.25±0.3	2
RID-5.0-2.4-2.6-0.9H2S	5.0±0.3	4.0±0.2	2.40±0.2	2.6±0.2	$2.0^{+0.03}_{-0.2}$	0.9±0.15	3

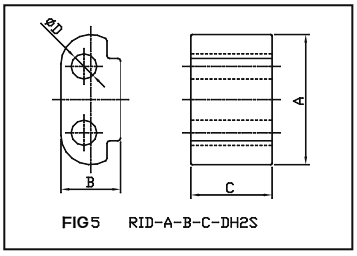
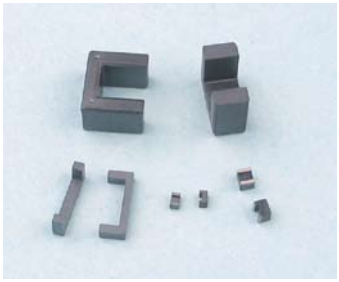


FIG5 RID-A-B-C-DH2S

Dimensions

Part NO.	Dimensions(mm)						
	A(A 1)	A2	B	C(C1)	C 2	D	FIG
RID-5.0-2.4-2.6-0.9H2S	5.0 ± 0.3	4.0 ± 0.2	2.40 ± 0.2	2.6 ± 0.2	2.0 ± 0.2	0.9 ± 0.15	4
RID-5.1-2.6-4.0-1.4H2	5.1 ± 0.3		2.6 ± 0.3	4.0 ± 0.3		1.4 ± 0.2	2
RID-12-6.5-4-4H2	12.0 ± 0.3		6.5 ± 0.5	4.0 ± 0.2		4.0 ± 0.2	2
RID-6-10-0.9H6	6.0 ± 0.25		10.0 ± 0.3	0.9 ± 0.12			1

UU TYPE CORE



◆ 命名表示：
Ordering Core System:

TN100B UU - A-EL

- 电极 (ELECTRODE)
- 外径 (OUTER DIAMETER)
- 形状 (TYPE)
- 材质 (MATERIAL)

◆ 适用材质：TN12B、TN25H、TN65B、TN100B、TN200B等
Available Material：TN12B、TN25H、TN65B、TN100B、TN200B etc

◆ 使用范围:主要适用于滤波器等
Application:Line Filters etc

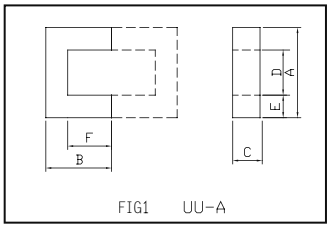


FIG1 UU-A

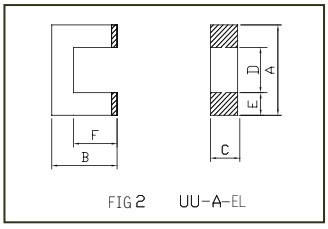


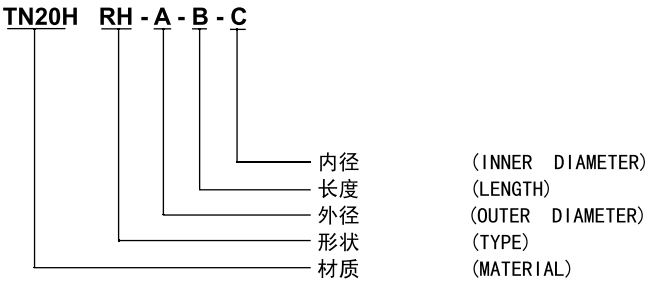
FIG 2 UU-A-EL

Dimensions

Part NO.	Dimensions(mm)						
	A	B	C	D	E	F	FIG
UU-9.8	9.8 ±0.2	3.1 ±0.15	1.35 ±0.2	7.2±0.2	1.3 ±0.15	2.1±0.15	1
UU-10.5	10.5±0.2	7.9±0.2	5.0±0.15	5.3±0.2		5.3±0.2	1
UU-2.0-EL	2.03±0.06	1.14±0.06	1.27±0.06	1.03±0.06	0.5±0.06	0.7±0.06	2
UU-2.4-EL	2.42±0.1	1.85±0.1	2.03±0.1	1.42±0.1	0.5±0.1	1.4±0.1	2

RH TYPE CORE

◆ 命名表示：
Ordering Core System:



◆ 适用材质：TN12B、TN65B、TN80G、TN100B、TN200B等
Available Material：TN12B、TN65B、TN80G、TN100B、TN200B etc

◆ 使用范围：产品主要适用于磁珠滤波器等抗干扰
Application:EMI Coil

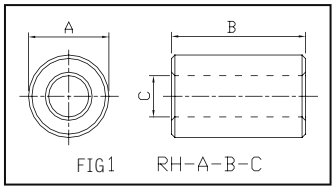


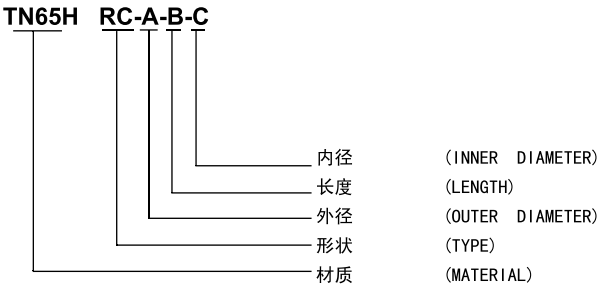
FIG1 RH-A-B-C

Dimensions

Part NO.	Dimensions(mm)			
	A	B	C	FIG
RH-3.0-12-1.0	3.0 ± 0.15	12.0 ± 0.4	1.0 ± 0.1	1
RH-3.5-5.7-0.8	3.5 ± 0.15	5.7 ± 0.4	0.8 ± 0.1	1
RH-3.5-4-1.0	3.5 ± 0.15	4.0 ± 0.3	1.0 ± 0.1	1
RH-3.5-4.5-1.0	3.5 ± 0.15	4.5 ± 0.4	1.0 ± 0.1	1
RH-3.5-6.0-1.0	3.5 ± 0.15	6.0 ± 0.4	1.0 ± 0.1	1
RH-3.5-4-1.2	3.5 ± 0.15	4.0 ± 0.3	1.2 ± 0.15	1
RH-3.5-5-1.2	3.5 ± 0.15	5.0 ± 0.4	1.2 ± 0.15	1
RH-3.5-6-1.2	3.5 ± 0.15	6.0 ± 0.4	1.2 ± 0.15	1
RH-3.5-3-1.3	3.5 ± 0.15	3.0 ± 0.25	1.3 ± 0.15	1
RH-3.5-5-1.3	3.5 ± 0.15	5.0 ± 0.4	1.3 ± 0.15	1
RH-3.5-1.3-1.5	3.5 ± 0.15	1.3 ± 0.15	1.5 ± 0.15	1
RH-3.5-4.5-1.5	3.5 ± 0.15	4.5 ± 0.4	1.5 ± 0.15	1
RH-3.5-5-1.5	3.5 ± 0.15	5.0 ± 0.4	1.5 ± 0.15	1
RH-4-10-2	4.0 ± 0.2	10.0 ± 0.4	2.0 ± 0.2	1
RH-5-13-2.2	$5.0^{+0.5}_{-0.15}$	$13.0^{+0.6}_{-0.2}$	2.2 ± 0.25	1
RH-5-13-3.0	$5.0^{+0.4}_{-0.2}$	$13.0^{+0.5}_{-0.2}$	$3.0^{+0.25}_{-0.1}$	1
RH-6-8-3	6.0 ± 0.2	8.0 ± 0.3	3.0 ± 0.2	1
RH-6-10-3	6.0 ± 0.15	10.0 ± 0.25	3.0 ± 0.15	1
RH-6-12-3	6.0 ± 0.2	12.0 ± 0.3	3.0 ± 0.15	1
RH-12-23-5.2	12.0 ± 0.3	23.0 ± 0.5	5.2 ± 0.3	1
RH-12.7-10-7.9	12.7 ± 0.3	10.0 ± 0.3	7.9 ± 0.3	1
RH-12.7-12.7-7.9	12.7 ± 0.3	12.7 ± 0.3	7.9 ± 0.3	1
RH-16-10-9.0	16.0 ± 0.3	10.0 ± 0.3	9.0 ± 0.3	1
RH-16-16-9.0	16.0 ± 0.3	16.0 ± 0.3	9.0 ± 0.3	1
RH-17.5-28.5-9.5	17.5 ± 0.4	28.5 ± 0.75	9.5 ± 0.3	1

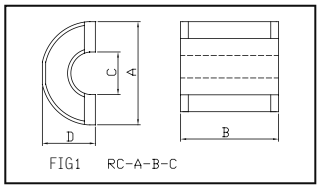
RC TYPE CORE

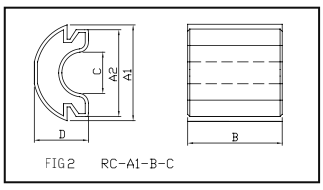
◆ 命名表示：
Ordering Core System:

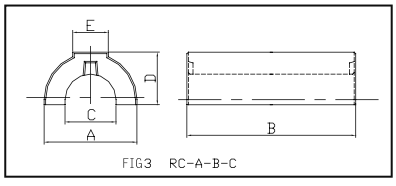


◆适用材质：TN65B、TN65H、TH80G、TN100B、TN150B等
Available Material：TN65B、TN65H、TH80G、TN100B、TN150B etc

◆使用范围：主要适用于通讯、计算机等用内外主电流源线滤波
Application:Internal And External Power Cable etc







Dimensions

Part NO.	Dimensions(mm)						
	A1	A2	B	C	D	E	FIG
RC-10-20-4.9	10.0±0.4		20.0±0.5	4.9±0.4	4.4±0.4		1
RC-13-23-7	13.0±0.5		23.0±0.5	7.0±0.4	6.0±0.2		1
RC-14-28-7	14.0±0.4	13.0±0.4	28.0±0.5	7.0±0.2	7.0±0.25	6.0±0.15	2
RC-15.6-28.8-8.6	15.6±0.3		29.0±0.4	8.6±0.3	7.8±0.15		3
RC-16-28-9	16.0±0.5	15.0±0.5	28.0±0.5	9.0±0.4	8.0±0.2		2
RC-16-29.8-9	16.0±0.3		29.8±0.3	(9.0)	8.1±0.1		1
RC-22-28-11	22.0±0.5	21.0±0.5	28.0±0.5	11.0±0.4	11.0±0.2		2
RC-26-29.6-13	26.0±0.5		29.6±0.4	13.0+0.1-0.5	13.4±0.2		1
RC-26-29-13	26.0±0.5		29.0±0.5	13.0±0.4	13.0±0.2		1

R TYPE CORE

◆ 命名表示:
Ordering Core System:

TN25H R - A - B - Hn - φL

穿线长度	(LEAD WIRE LENGTH)	
线径	(CHAMFER)	
孔数	(CHAMFER QTY)	
孔	(LENGTH)	
长度	(OUTER DIAMETER)	
外径	(OUTER DIAMETER)	
形状	(TYPE)	
材质	(MATERIAL)	

◆适用材质：TN12B、TN25H、TN40H、TN100B等
Available Material：TN12B、TN25H、TN40H、TN100B etc

◆使用范围: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
Application:Intermediate Frequency Transformer、Inductors、Choke Coil、High Performance Medium、Dc Power And Signal Filtering

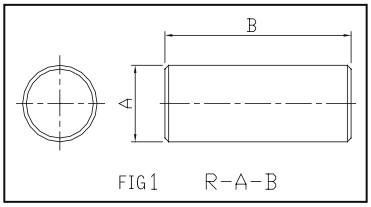


FIG1 R-A-B

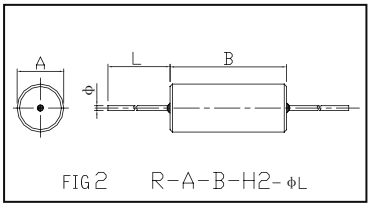


FIG2 R-A-B-H2-ΦL

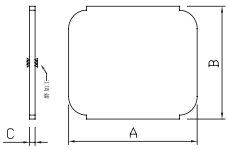


FIG3 R-A-B-C

Dimensions

Part NO.	Dimensions(mm)				
	A	B	C		FIG
R-1.2-6.8	$1.2^{+0.0}_{-0.2}$	6.8 ± 0.2			1
R-1.7-6.0	1.7 ± 0.1	6.0 ± 0.2			1
R-1.9-4.1	1.9 ± 0.07	4.1 ± 0.1			1
R-2-4.9	$2.0^{+0.03}_{-0.05}$	4.9 ± 0.2			1
R-2-5.5	2.0 ± 0.15	5.5 ± 0.2			1
R-2-6.5	2.0 ± 0.15	6.5 ± 0.2			1
R-3-5	3.0 ± 0.15	5.0 ± 0.15			1
R-3-10	3.0 ± 0.15	10.0 ± 0.3			1
R-3-15	3.0 ± 0.15	15.0 ± 0.3			1
R-3.85-20	3.85 ± 0.15	20.0 ± 0.5			1
R-4-6	4.0 ± 0.15	6.0 ± 0.2			1
R-4-7	4.0 ± 0.15	7.0 ± 0.2			1
R-4-13	4.0 ± 0.2	13.0 ± 0.4			1
R-4-15	4.0 ± 0.15	15.0 ± 0.5			1
R-4-20	4.0 ± 0.15	20.0 ± 0.5			1
R-4-25	4.0 ± 0.15	25.0 ± 0.4			1
R-5-15	5.0 ± 0.15	15.0 ± 0.3			1
R-5-18	5.0 ± 0.15	18.0 ± 0.3			1
R-5-20	5.0 ± 0.2	20.0 ± 0.5			1
R-5-25	5.0 ± 0.2	25.0 ± 0.5			1
R-5-30	5.0 ± 0.2	30.0 ± 0.5			1

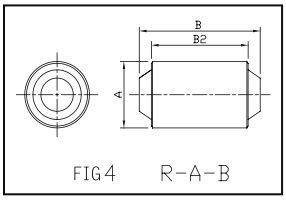


FIG4 R-A-B

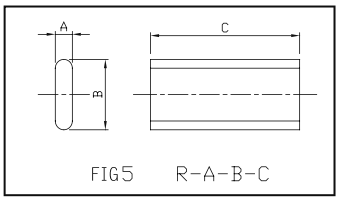


FIG5 R-A-B-C

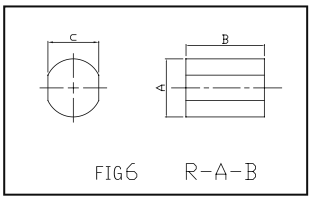


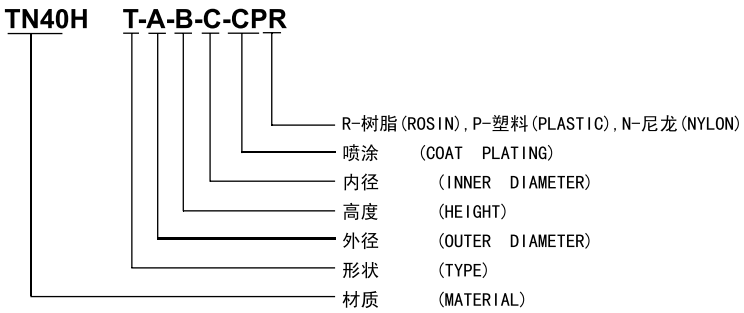
FIG6 R-A-B

Dimensions

Part NO.	Dimensions(mm)				
	A	B	C	D	FIG
R-6-15	6.0 ± 0.2	15.0 ± 0.5			1
R-6-18	6.0 ± 0.2	18.0 ± 0.3			1
R-6-20	6.0 ± 0.2	20.0 ± 0.5			1
R-6-22	6.0 ± 0.2	22.0 ± 0.4			1
R-6-25	6.0 ± 0.2	25.0 ± 0.5			1
R-6-30	6.0 ± 0.2	30.0 ± 0.5			1
R-6-40	6.0 ± 0.6	40.0 ± 0.6			1
R-7.5-25	7.5 ± 0.2	25.0 ± 0.3			1
R-8-20	8.0 ± 0.2	20.0 ± 0.5			1
R-8-25	8.0 ± 0.2	25.0 ± 0.5			1
R-8-30	8.0 ± 0.2	30.0 ± 0.5			1
R-8-39	8.0 ± 0.2	39.0 ± 0.5			1
R-8-40	8.0 ± 0.2	40.0 ± 0.5			1
R-10-29	10.0 ± 0.2	29.0 ± 0.6			1
R-10-30	10.0 ± 0.2	$30.0^{+0.4}_{-1.2}$			1
R-10-39	10.0 ± 0.2	$39.0^{+0.5}_{-1.1}$			1
R-2-10-H2-0635	2.0 ± 0.1	10.0 ± 0.2			2
R-2-8-36	$2.0^{+0.0}_{-0.2}$	$8.0^{+0.0}_{-0.2}$	36 ± 0.5		5
R-3-12-50	3.0 ± 0.1	12.0 ± 0.2	$50^{+0.2}_{-0.8}$		5
R-4-45	4.0 ± 0.2	45.0 ± 1.0	3.8 ± 0.2		6
R-10-50	10.0 ± 2.0	50 ± 1.0	9.0 ± 2.0		6
R-21-17.7-0.9	$21.0^{+0.2}_{-0.15}$	$17.7^{+0.2}_{-0.15}$	0.9 ± 0.1		3

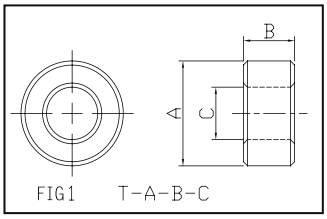
T TYPE CORE

◆ 命名表示：
Ordering Core System:



◆ 适用材质：TN40H、TN65B、TN100B、TN200B等
Available Material：TN40H、TN65B、TN100B、TN200B etc

◆ 用途:滤波线圈/射频线圈、增益调和线圈、抗流线圈、滤波器等
Application:EMI/RFI Suppression、Plus And Matching Transformer、Choke Coil、 Input Filter etc



Dimensions

Part NO.	Dimensions(mm)			
	A	B	C	FIG
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	4.0 ± 0.2	2.0 ± 0.15	2.0 ± 0.15	1
T-4-3-2-CPN	4.0 ± 0.2	3.0 ± 0.2	2.0 ± 0.15	1
T-4-3.5-2-CPN	4.0 ± 0.2	3.5 ± 0.2	2.0 ± 0.2	1
T-4.4-1.2-2.8	$4.4^{+0.3}_{-0.1}$	1.2 ± 0.1	2.8 ± 0.1	1
T-4.4-2.5-2.8	$4.4^{+0.3}_{-0.1}$	2.5 ± 0.15	2.8 ± 0.15	1
T-4.4-4.6-2.5-CPN	$4.4^{+0.3}_{-0.1}$	4.6 ± 0.15	2.5 ± 0.15	1
T-4.8-1.5-2.8	4.8 ± 0.2	1.5 ± 0.15	2.8 ± 0.15	1
T-5-2-2.2	5.0 ± 0.2	2.0 ± 0.2	2.2 ± 0.2	1
T-5-2.5-2.2	5.0 ± 0.2	2.5 ± 0.2	2.2 ± 0.2	1
T-6-2-3	6.0 ± 0.2	2.0 ± 0.2	3.0 ± 0.2	1
T-6-2-4-CPY	6.0 ± 0.2	2.0 ± 0.2	4.0 ± 0.2	1
T-6-3-3-CPY	6.4MAX	3.5MAX	2.6MIN	1
T-8-3-4-CPY	8.6MAX	3.5MAX	3.5MIN	1
T-8-4-4	8.0 ± 0.2	$4.0^{+0.0}_{-0.3}$	4.0 ± 0.2	1
T-8-4-4-CPY	8.6MAX	4.5MAX	3.5MIN	1
T-8-5-4	8.0 ± 0.2	5.0 ± 0.2	4.0 ± 0.2	1
T-9-3-5	9.0 ± 0.2	3.0 ± 0.2	5.0 ± 0.2	1
T-10-3-5	10.0 ± 0.2	3.0 ± 0.2	5.0 ± 0.2	1
T-10-4-6-CPY	10.5MAX	4.6MAX	5.5MIN	1

Dimensions

Part NO.	Dimensions(mm)			
	A	B	C	FIG
T-10-5-5	10.0 ± 0.2	5.0 ± 0.2	5.0 ± 0.2	1
T-10-5-5-CPY	10.5MAX	5.6MAX	4.5MIN	1
T-12-6-6	12 ± 0.2	6 ± 0.2	6 ± 0.2	1
T-12.7-6.5-7.9	12.7 ± 0.2	6.5 ± 0.2	7.9 ± 0.2	1
T-13-3-7	13.0 ± 0.2	3.0 ± 0.15	7.0 ± 0.15	1
T-13-3-7-CPY	14.0MAX	3.7MAX	6.3MIN	1
T-13-5-7	13 ± 0.3	5 ± 0.3	7 ± 0.3	1
T-14-7-9-CPY	14.5MAX	7.5MAX	8.5MIN	1
T-15.88-5.58-7.16	15.88 ± 0.2	5.58 ± 0.2	7.16 ± 0.2	1
T-16-4-9	16.0 ± 0.5	4.0 ± 0.3	9.0 ± 0.5	1
T-17.5-13.5-9.5	17.5 ± 0.5	13.5 ± 0.5	9.5 ± 0.5	1
T-18.5-10.25-9.75	18.5 ± 0.5	10.25 ± 0.5	9.75 ± 0.5	1
T-20-5-10	20 ± 0.5	5 ± 0.3	10 ± 0.2	1
T-20-7-10	20 ± 0.5	7 ± 0.5	10 ± 0.5	1
T-20-10-10	20 ± 0.5	10 ± 0.5	10 ± 0.5	1
T-25-8-15	25.0 ± 0.5	8.0 ± 0.5	15.0 ± 0.5	1
T-25-10-15	25 ± 0.5	10 ± 0.5	15 ± 0.5	1
T-25-12-15	25 ± 0.5	12 ± 0.5	15 ± 0.5	1
T-29-5-19	29.0 ± 0.5	5.0 ± 0.5	19.0 ± 0.5	1

参考资料

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)。

在磁芯中，加正弦波电流，可用有效磁路长度*le*来计算磁场强度：

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

$$1\mathrm{Oe}=\frac{1\times10^{3}}{4\pi}\approx79.58A/m$$

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：

$B=\mu_0 H+J$或 $B=\mu_0(H+M)$

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，μ_0为真空磁导率，其值为$4\pi\times10^{-7}$亨利/米(H/m)。

B、J单位特斯拉，H、 M单位为A/m，1T=1^4Gs。

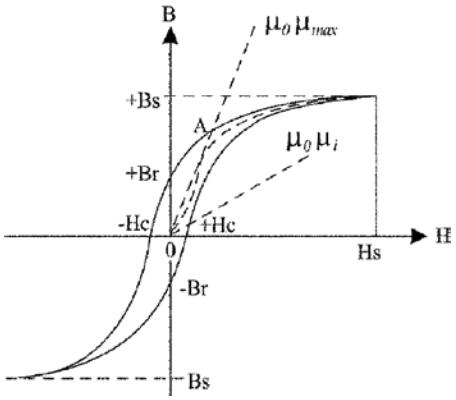
在磁芯中可用有效面积Ae来计算磁通密度：

正弦波为：$\hat{B}=\frac{0.225V}{fNAe}$

电压单位伏特(V)，频率单位Hz，N为匝数，$\hat{B}$单位(T)，Ae单位为m^2。

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：



B_S为饱和磁化强度，Br为剩余磁化强度，Hc为矫顽力。

H_S为饱和磁化场，不同磁性材料产，磁滞回线表现形式不一样，B_S、B_r、H_C、H_S都不一样。

4、磁导率

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

2) $\frac{B}{H}=\mu_0\mu_r$ ，μ_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) $\frac{1}{\mu_0}\frac{\Delta B}{\Delta H_{(\Delta H\to 0)}}=\mu_i$ 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：磁化场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中，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：

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

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，

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

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$\frac{1}{\mu} = \frac{1}{\mu_p} - \frac{1}{j\mu_p}$

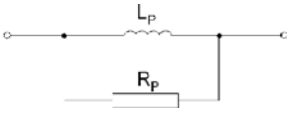
μ_s，μ_s，μ_p，μ_p，都是频率的函数。

5、阻抗

电感产生感抗$X_L=j\omega L$,电容产生容抗$Xc=\frac{1}{j\omega C}$，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。

串联电路



并联电路

串联电路中阻抗$Zs=Rs+j\omega Ls$

并联电路中阻抗$Zp=\frac{1}{1/(j\omega Lp)+1/Rp}$

Zs、Zp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。由于磁芯损耗，引起信号相移，其表示为:

$tg\delta_m=\frac{Rs}{\omega Ls}=\frac{\mu_s'}{\mu_s''}$ 或 $tg\delta_m=\frac{\omega Lp}{Rp}=\frac{\mu_p''}{\mu_p'}$

$tg\delta_m$称为损耗因子，表示的是损耗功率与无功率的比值。因磁芯损耗包括磁滞损耗，涡流损耗、剩余损耗，所以损耗因子可表示为:

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

7、比损耗因子

$\frac{tg\delta_m}{\mu_i}$或$\frac{tg\delta}{\mu_i}$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，$(tg\delta)_{gap}$它与无气隙时损耗因子的关系为:

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

因μ_e、μ_i>>1，所以有：

$$\frac{(tg\delta)_{gap}}{\mu_e}=\frac{tg\delta}{\mu_i}\text{，即有}(tg\delta)_{gap}=\frac{tg\delta\cdot\mu_e}{\mu_i}$$

由于μ_e<μ_i，所以开气隙后，损耗因子减小，Q值增加。

磁芯开制气隙后，磁芯内部磁场强度H_i大大减小，由H*i*=H*e*-H*d*=H*e*-N*M*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*=$\frac{NI}{le}$)，M是磁化强度。退磁因子为0~4π，对闭路磁芯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、品质因素Q

磁性器件作滤波器的电感时，通常用品质因素(Q)来表示它的质量，

品质因素Q=$\frac{1}{tg\delta}=\frac{\omega L}{R_{tot}}$，$R_{tot}$表示总电阻，它是线圈和磁芯的呈现电阻。

R_{toi}表示损耗，包括磁芯损耗、铜线损耗。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，磁芯损耗用下式表示：

$P_m=P_h+P_e+P_r$，P_h、P_e、P_r，分别表示磁滞损耗、涡流损耗、剩余损耗，在功率铁氧体中常用$P_m=P_h+P_e+P_r$将总损耗分离，然后再分析损耗原因。

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

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

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$AL=\frac{1}{N^2}$，当AL单位为$\frac{nH}{N^2}$时。$AL=\frac{L}{N^2}\cdot 10^9$ 这里L的单位为亨利，一般N取100，当N取得很大磁芯又是闭路时，不宜采用AL来表达，因可能进入μm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：

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

在无隙情况下，$\mu_i=\frac{C_1}{0.4\pi}AL$，这里$C_1$为磁芯常数，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。

事先设定了AL值及磁芯尺寸，就可求得所用材料的磁导率μ_i。

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芯时，称为静磁场的影响，有时，简单地称为直流迭加。

当磁芯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：

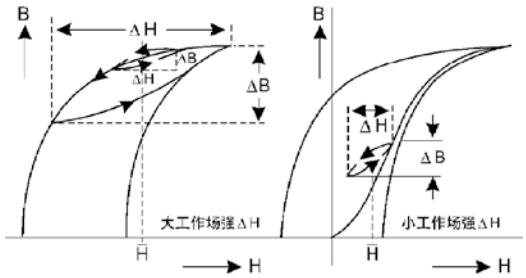
$$H=H_{DC}+\frac{\Delta H}{2}\sin\omega t$$

当正弦磁场作用时，磁通密度形成小磁滞回线时，其峰值用ΔB/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)。

$$\mu_\Delta=\frac{1}{\mu_0}\frac{\Delta B}{\Delta H}$$

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：



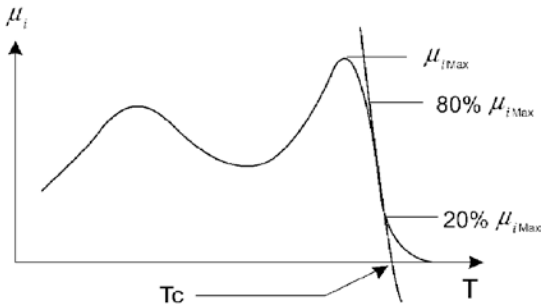
直流磁场H叠加一个幅度为ΔH/2的交流磁场后的磁滞回线

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，这二点联线，延长到与温度轴的交点，即为居里温度。

Consult Data

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 le of the spiral coils:

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

$$1\text{Oe} = \frac{1\times10^3}{4\pi} \approx 79.58 A/m$$

2. Magnetic flux density, magnetic polarizability, magnetization.

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

$B=\mu_0 H+J$ 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 Tesla = 10^4 Gauss

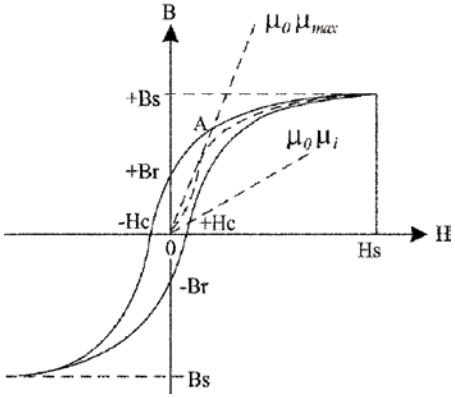
In magnetic cores, the magnetic flux density can be calculated using effective area A_e :

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

Where V is electric potential in Volt, f frequency in Hz, N turn number, $\hat{B}$ 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, B_S is saturation induction, B_r residual induction, H_C coercivity, and H_S saturation field. Different magnetic materials display various hysteresis, leading to different B_S , B_r , H_C , and H_S .

4. Permeability

1) $\frac{B}{H}=\mu_0(1+\frac{M}{H})=\mu_{absolute}$ called absolute permeability with dimension.

2) $\frac{B}{H}=\mu_0\mu_r$, $\mu_r$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) $\frac{1}{\mu_0}\frac{\Delta B}{\Delta H_{(\Delta H\to 0)}}=\mu_i$ 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 H should be less than 1mT, generally B=0.1mT.

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

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

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 μe for the small gap. For large gap, the effective permeability will larger than that 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 $\frac{1}{\mu_0}\frac{B}{H}=\mu_\alpha$, is called amplitude permeability.

6)In 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.

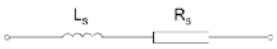
In serial circuit, $\mu = \mu_s' - j\mu_s''$

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

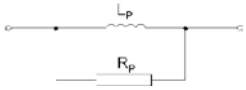
μ_s, μ_s, μ_p, μ_p, are all the functions of frequency.

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.



Parallel representation.

Series representation $Zs=Rs+j\omega Ls$

Parallel representation $Zp= \frac{1}{1/(j\omega Lp)+1/Rp}$

Zs and *Zp* 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:

$$tg\delta_m = \frac{Rs}{\omega Ls} = \frac{\mu_s''}{\mu_s'} \quad \text{or} \quad tg\delta_m = \frac{\omega Lp}{Rp} = \frac{\mu_p''}{\mu_p'}$$

where $tg\delta_m$ 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:

$tg\delta_m = tg\delta_h + tg\delta_e + tg\delta_r$, Where $tg\delta_h$, $tg\delta_e$, and $tg\delta_r$ is called hysteresis loss factor, eddy loss factor, and residual loss factor respectively (see the following Figure).

7. Specific Loss factor

$\frac{tg\delta_m}{\mu_i}$ or $\frac{tg\delta}{\mu_i}$ 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$(tg\delta)_{gap}$, The relation between gap loss factor and loss gactor without the gap is:

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

Becauseμ_e、$\mu_i >> 1$, the above equation becomes

$$\frac{(tg\delta)_{gap}}{\mu_e} = \frac{tg\delta}{\mu_i}, \quad \text{i.e} (tg\delta)_{gap} = \frac{tg\delta \cdot \mu_e}{\mu_i}$$

Where $\mu_e < \mu_i$, It is clear that $(tg\delta)_{gap} > tg\delta$, 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 demagnetising factor N increases, H*i* will decrease on the contrary. Here H*e* is the magnetic field produced by the winding with current($He = \frac{NI}{le}$), m is intensity of magnetization, demagnetising factor is 0~4π, 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*.

$$Q = \frac{1}{tg\delta} = \frac{\omega L}{R_{tot}}$$

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 closely 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: $\alpha_{\mu t} = \frac{\mu_{i2} - \mu_{i1}}{\mu_{i1}} \times \frac{1}{T_2 - T_1}$

Where μ_{i1}, μ_{i2} indicate initial permeability at T_1, T_2 respectively.

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

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

12. Dropping coefficient and Specific dropping coefficient.

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

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

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

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 μm area or approach saturation area.

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

When without the gap, $\mu_i=\frac{C1}{0.4\pi}AL$, where C1 of core parameters 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.

13. 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

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

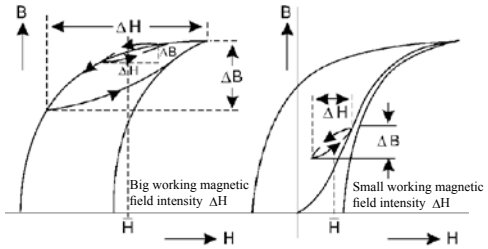
Due to sine field, the change of magnetic flux density shows a small hysteresis loop in the large one and its peak value is $\Delta B/2$ (See the following figures). The average slope of the small hysteresis loop is incremental permeability (as mentioned above):

$$\mu_\Delta=\frac{1}{\mu_0}\frac{\Delta B}{\Delta H}$$

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).

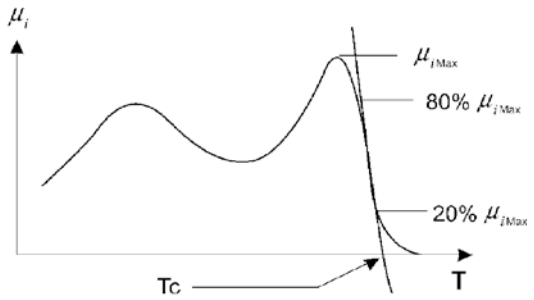


Where is the hysteresis loop, After folding between DC magnetic field and AC field with ΔH/2

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 temperature of magnetic materials from ferromagnetism to paramagnetism. There are several methods to determine Curie temperature. The method used by Tiantong Elec.Co., Ltd. is shown as the following figure.



As temperature increases, one can find the two points with thepermeability falling down to 80% μimax and 20% μimax respectively.Connecting the two points and extrapolating the line to *T* axis, the point of intersection is Curie temperature.

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