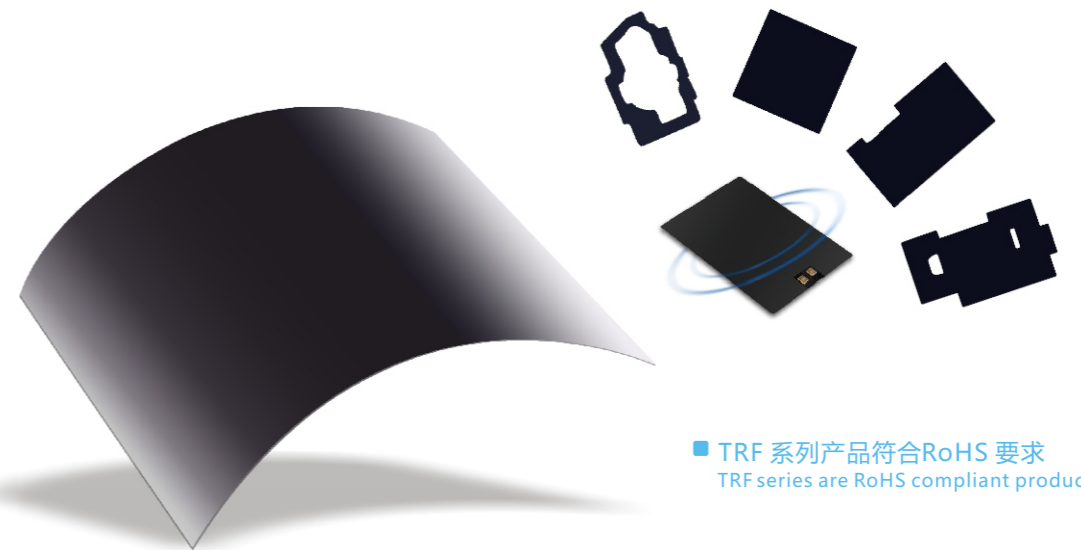




Ferrite Sheet

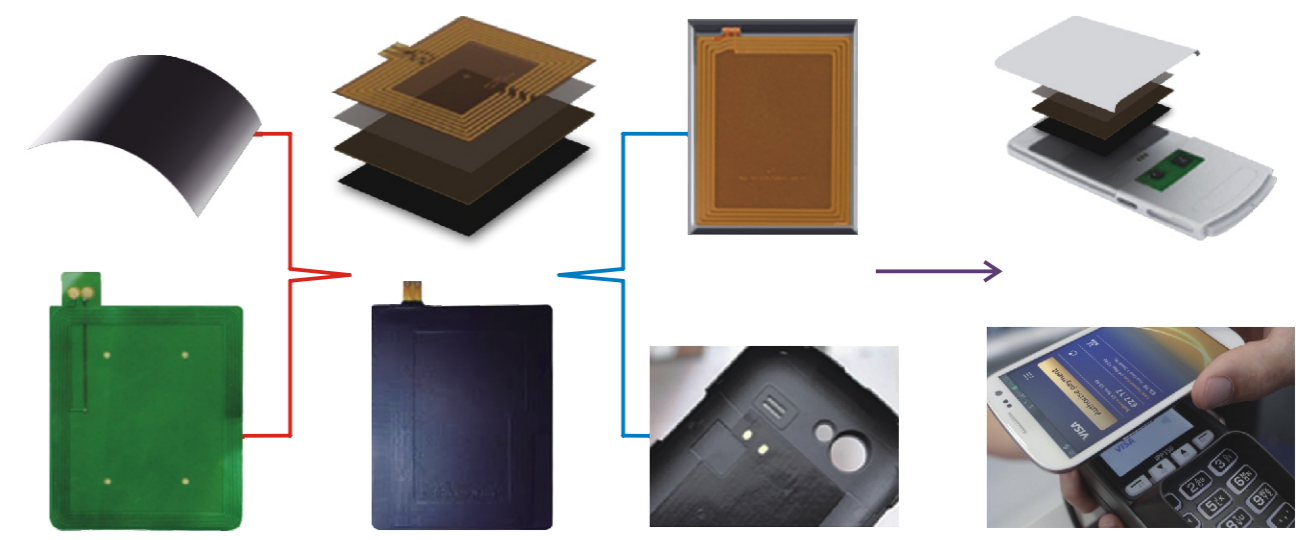
for NFC Antenna

NFC天线用铁氧体磁片



TRF 系列产品符合RoHS 要求
TRF series are RoHS compliant products

产品应用 Applications



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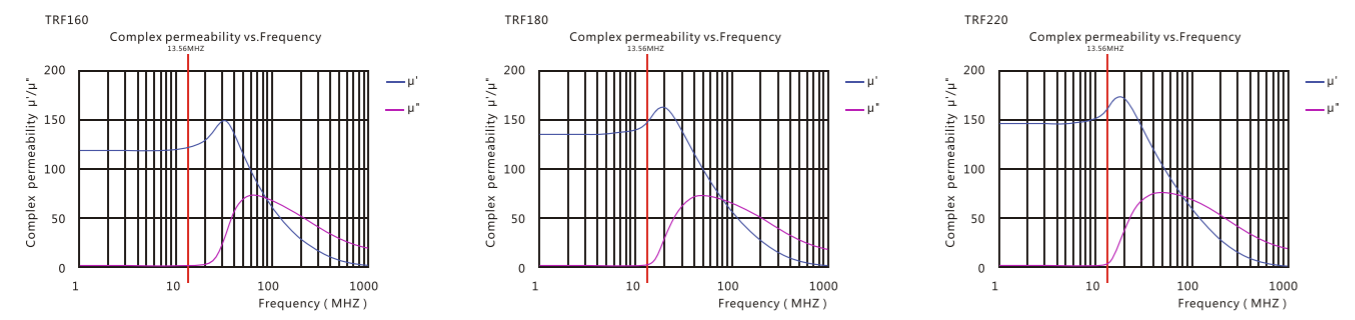
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Electrical Characteristics

Typical Value

Material	TRF160	TRF180	TRF220
Real part permeability μ' @13.56MHz	130±20%	150±20%	170±20%
Imaginary part permeability μ'' @13.56MHz	1.5	2.5	3.5
Operating frequency	13.56MHz		
Operating temperature	-40°C ~ 85°C		

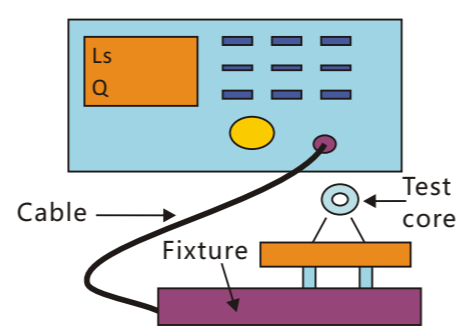
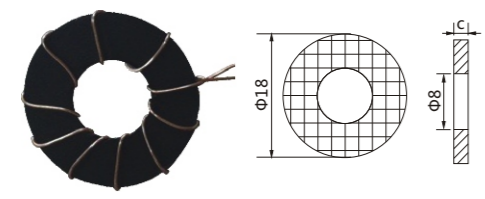
Permeability Characteristic



Measurement Condition

- Instrument:** Agilent 4395A
- Measuring size:** outer diameter 18mm / inner diameter 8mm
- Formula:** Calculating formula of μ' and μ''

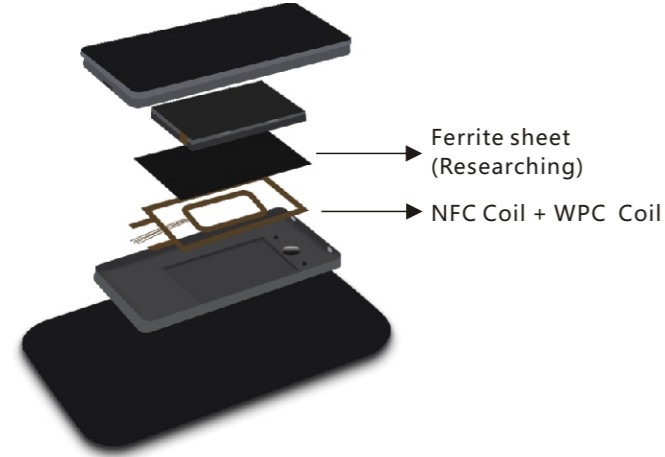
$$\mu' = \frac{L_s}{2N^2 h \ln(D/d)} \times 10^{10} \quad \mu'' = \frac{\mu'}{Q}$$



Reliability Test

TEST CONDITION	Remarks: Measure after left for 60 min. at room temperature	REQUIREMENTS
High Temperature Resistance	● Temperature : +85 ± 5°C ● Time : 96 hrs	● No visual damage
Low Temperature Resistance	● Temperature : -40 ± 5°C ● Time : 96 hrs	
Thermal Shock	● Cycle : -40°C/60min ↔ +85°C/60min ● Number of cycle : 30	● Permeability change ± within 15%
Humidity (Steady Condition)	● Humidity : 80% RH ● Temperature : +80 ± 3°C ● Time : 120 hrs	

产品趋势 Product Trends



注：铁氧体磁片同时可以满足NFC和WPC的需求，且互不干扰
The ferrite sheet can meet the WPC & NFC at the same time, without interference.

Features 铁氧体磁片作用

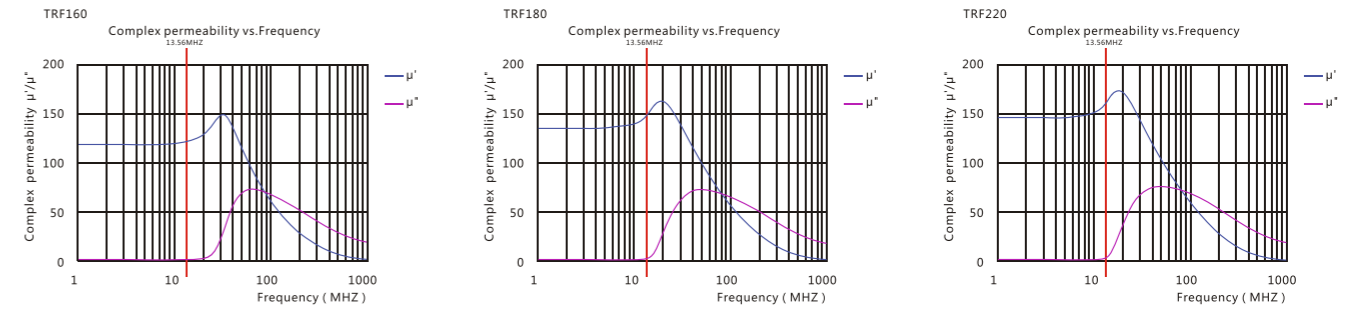
- 有效改善NFC天线产品的性能
Effective improvement of mobile NFC system
- 产品可以折弯
Flexible
- 带有双面胶与组合体紧密贴合
Suited for thin and compact devices
- 通过增加天线的磁场强度
有效增加感应距离
Increased magnetic field

电磁特性

基本特性

材料	TRF160	TRF180	TRF220
磁导率实部 μ' @13.56MHz	130±20%	150±20%	170±20%
磁导率虚部 μ'' @13.56MHz	1.5	2.5	3.5
工作频率	13.56MHz		
工作温度	-40°C ~ 85°C		

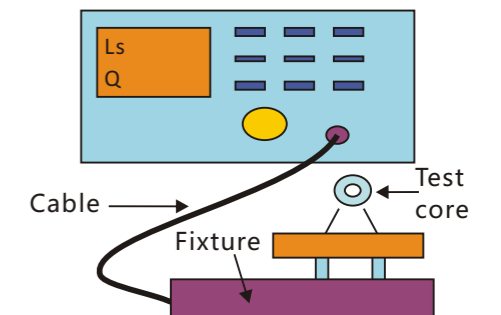
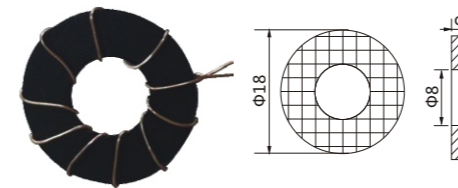
磁导率特性曲线



测试条件

- 测试设备：安捷伦 4395A 阻抗分析仪
- 测试尺寸：在薄片样品上冲制
外径为18mm，内径为8mm的磁环
- 计算公式：Calculating formula of μ' and μ''

$$\mu' = \frac{L_s}{2N^2 h \ln(D/d)} \times 10^{10} \quad \mu'' = \frac{\mu'}{Q}$$

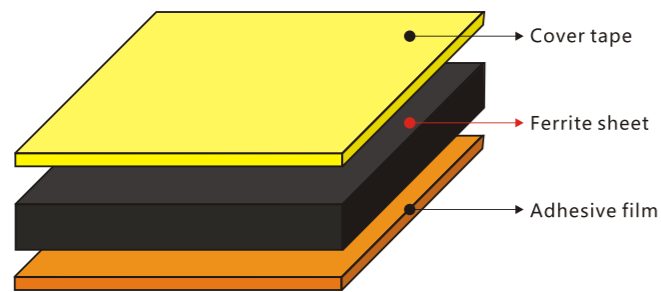


可靠性试验

测试条件		测试标准
高温测试	● 温度：+85 ± 5°C ● 时间：96 hrs ● 测试后室温放60分钟	● 不能有可见的破裂
低温测试	● 温度：-40 ± 5°C ● 时间：96 hrs ● 测试后室温放60分钟	
热冲击	● 循环：-40°C/60min ↔ +85°C/60min ● 循环次数：30 ● 测试后室温放60分钟	● 磁导率变化±15%内
高温湿度测试	● 湿度：80% RH ● 温度：+80 ± 3°C ● 时间：120 hrs ● 测试后室温放60分钟	

Structure

外观 Appearance



产品构成

Part Number

料号说明

TRF — 160 — I — L×W×T
(1) (2) (3) (4)

- (1) : TDG铁氧体磁片代码/ TDG flexible ferrite sheet
- (2) : 磁导率代码/ Permeability (μ' =160)
- (3) : 形状规格代码/ Type
- (4) : 尺寸代码 (mm)/ Size (mm)

Structure and Dimension (mm)

产品规格尺寸

Ferrite Thickness	Cover Film +Adhesive Thickness	Total Thickness	Sample Size L(mm)×W(mm)
0.06	0.01mm + 0.01mm	0.08	60×60 120×60
0.08	0.01mm + 0.01mm	0.10	
0.10	0.02mm + 0.02mm	0.14	
0.15	0.02mm + 0.02mm	0.19	
0.20	0.03mm + 0.03mm	0.26	

可根据客户设计尺寸提供模切产品
Provide die-cutting products according to customer requirements