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昊磁电子科技有限公司

ISO9001:2000
认证企业

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急招

专业宽频高导磁芯磁环。200KHZ 电感测试稳定。(EE25
AL) 8500。UU30 UU33 磁环最大做到 T240 PQ95 EE180)

欢迎来电洽谈, 另因扩大生产招业务主管(兼职也可)

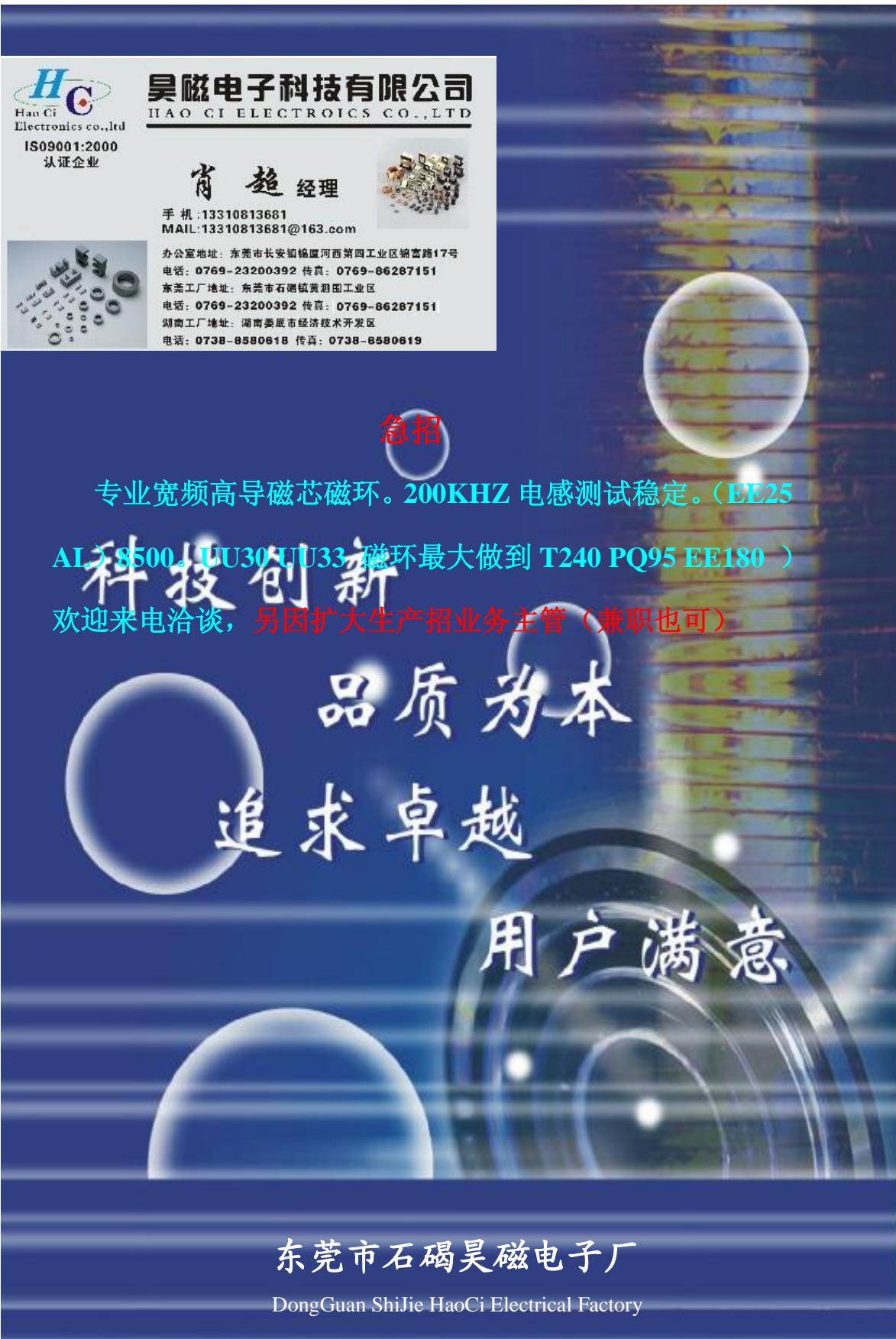
品质为本

追求卓越

用户满意

东莞市石碣昊磁电子厂

DongGuan ShiJie HaoCi Electrical Factory



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东莞市石碣昊磁电子厂

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昊磁电子公司简介

本公司是一家集高性能软磁铁氧体跟磁性元件（变压器，电感）的生产、研发、信息服务一体的高新科技公司.

2000 年，磁芯生产基地在湖南娄底经济开发区成立。 公司实力雄厚，拥有先进的软磁系列产品的生产及检测设备。

2003 年，磁性元件事业处成立，人数 350 人。专业生产高频变压器。电感等电子元件。

2004 年。应对珠三角电源客户。东莞成立昊磁电子厂。专业工程师 15 人，员工人数 100 人。



磁芯烧结车间



钟罩炉工段



东莞市石碣昊磁电子厂

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术语及定义 TERMS & DEFINITIONS

1. 初始磁导率 μ_i

初始磁导率是磁性材料的磁导率 (B/H) 在磁化曲线始端的极限值，即

$$\mu_i = \frac{1}{\mu_0} \lim_{H \rightarrow 0} \frac{B}{H}$$

式中 μ_0 为真空磁导率 ($4\pi \times 10^{-7} \text{ H/m}$)

H 为磁场强度 (A/m)

B 为磁通密度 (T)

1. Initial permeability, μ_i

The initial permeability μ_i is the limit value at the initial magnetization curve's origin point and is given by the following formula:

$$\mu_i = \frac{1}{\mu_0} \lim_{H \rightarrow 0} \frac{B}{H}$$

Where

μ_0 : Permeability of vacuum ($4\pi \times 10^{-7} \text{ H/m}$)

H: Magnetic field strength (A/m)

B: Magnetic flux density (T)

2. 有效磁导率 μ_e

在闭合磁路中，如果漏磁可忽略，可以用有效磁导率来表征磁芯的性能。

$$\mu_e = \frac{L}{\mu_0 N^2} \cdot \frac{l_e}{A_e}$$

式中 L 为装有磁芯的线圈的电感量 (H)

N 为线圈匝数

l_e 为有效磁路长度 (m)

A_e 为有效截面积 (m^2)

2. Effective permeability, μ_e

This is usually defined as the permeability of a core forming a closed circuit where leakage flux is negligibly small.

$$\mu_e = \frac{L}{\mu_0 N^2} \cdot \frac{l_e}{A_e}$$

Where

L: self-inductance of core with coil (H)

N: number of turns

l_e : effective magnetic path length (m)

A_e : effective cross-sectional area (m^2)

3. 饱和磁通密度 B_s (T)

磁化到饱和状态的磁通密度。见图 1。

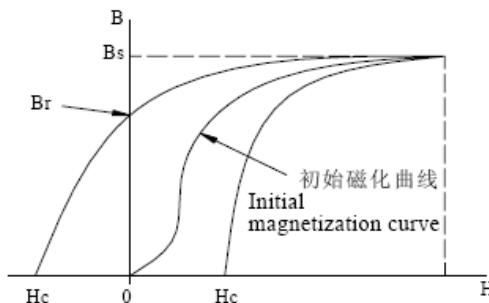


图 1 (Fig 1)

4. 剩余磁通密度 B_r (T)

从饱和状态去除磁场后，剩余的磁通密度。

见图 1。

4. Residual magnetic flux density, B_r (T)

The value of flux density retained by the core when the magnetic field is reduced from the state of the effective saturation magnetic flux density to zero. (Fig. 1)

术语及定义 TERMS & DEFINITIONS

5. 威顽力 Hc (A / m)

从饱和状态去除磁场后，磁芯继续被反向磁场磁化，直至磁通密度减为零，此时的磁场强称为威顽力。见图 1。

6. 损耗因数 tan δ

损耗因数是磁滞损耗、涡流损耗和剩余损耗三者之和

$$\tan \delta = \tan \delta_h + \tan \delta_e + \tan \delta_r$$

式中 $\tan \delta_h$ 为磁滞损耗因数

$\tan \delta_e$ 为涡流损耗因数

$\tan \delta_r$ 为剩余损耗因数

7. 相对损耗因数 $\tan \delta / \mu$

相对损耗因数是损耗因数与磁导率之比：

$\tan \delta / \mu_i$ (适用于材料)

$\tan \delta / \mu_e$ (适用于磁路中含有气隙的磁芯)

8. 品质因数 Q

品质因数为损耗因数的倒数：

$$Q = 1 / \tan \delta$$

9. 温度系数 α_μ (1/K)

温度系数为温度在 T_1 和 T_2 范围内变化时，每变化 1K 相应的磁导率的相对变化量：

$$\alpha_\mu = \frac{\mu_2 - \mu_1}{\mu_1} \cdot \frac{1}{T_2 - T_1} \quad (T_2 > T_1)$$

式中 μ_1 为温度为 T_1 时的磁导率

μ_2 为温度为 T_2 时的磁导率

10. 相对温度系数 α_{μ_r} (1/K)

温度系数和磁导率之比，即

$$\alpha_{\mu_r} = \frac{\mu_2 - \mu_1}{\mu_2^2} \cdot \frac{1}{T_2 - T_1} \quad (T_2 > T_1)$$

11. 居里温度 Tc (°C)

在该温度下材料由铁磁性(或亚铁磁性)转变成顺磁性。见图 2。

5. Coercivity, Hc (A / m)

The value of magnetic field strength whereby the flux density becomes zero under the intensification, in the opposite direction, of the magnetic field. (Fig.1)

6. Loss factor, tan δ

This is the sum of the hysteresis loss factor, eddy current loss factor and residual loss factor.

$$\tan \delta = \tan \delta_h + \tan \delta_e + \tan \delta_r$$

Where $\tan \delta_h$ is the hysteresis loss factor

$\tan \delta_e$ is the eddy current loss factor

$\tan \delta_r$ is the residual loss factor

7. Relative loss factor, $\tan \delta / \mu$

This is the ratio of loss factor to permeability.

$\tan \delta / \mu_i$ (for materials)

$\tan \delta / \mu_e$ (for cores with gaps in the magnetic circuit)

8. Quality factor, Q

This is the reciprocal of the loss factor and is given by

$$Q = 1 / \tan \delta .$$

9. Temperature coefficient, α_μ (1/K)

This is the fractional difference of permeability per 1K in a temperature range of from T_1 to T_2 .

$$\alpha_\mu = \frac{\mu_2 - \mu_1}{\mu_1} \cdot \frac{1}{T_2 - T_1} \quad (T_2 > T_1)$$

Where μ_1 : permeability at temperature T_1

μ_2 : permeability at temperature T_2

10. Relative temperature coefficient, α_{μ_r} (1/K)

This is the temperature coefficient per unit permeability and is given by the following equation:

$$\alpha_{\mu_r} = \frac{\mu_2 - \mu_1}{\mu_2^2} \cdot \frac{1}{T_2 - T_1} \quad (T_2 > T_1)$$

11. Curie temperature, Tc

It is the critical temperature level at which the ferromagnetic state of the material changes to paramagnetic state. (Fig. 2)



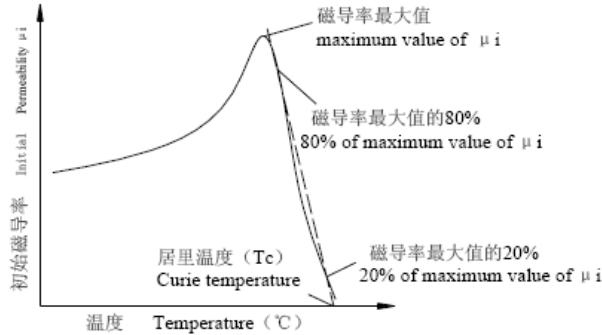


图 2 (Fig 2)

12. 减落因数 D_F

在恒温条件下，完全退磁的磁芯的磁导率随时间的衰减变化，即

$$D_F = \frac{\mu_1 - \mu_2}{\log \frac{T_2}{T_1}} \cdot \frac{1}{\mu_1^2} \quad (T_2 > T_1)$$

式中 μ_1 为退磁后 t_1 分钟的磁导率
 μ_2 为退磁后 t_2 分钟的磁导率

12. Disaccommodation factor , D_F

This is the factor representing the variation of permeability through time after a complete demagnetization of the core at a constant temperature.

$$D_F = \frac{\mu_1 - \mu_2}{\log \frac{T_2}{T_1}} \cdot \frac{1}{\mu_1^2} \quad (T_2 > T_1)$$

Where

μ_1 : permeability t_1 minutes after complete demagnetization.

μ_2 : permeability t_2 minutes after complete demagnetization.

13. 电阻率 ρ (Ω/m)

具有单位截面积和单位长度的磁性材料的电阻。

13. Electrical resistivity , ρ (Ω/m)

This is the electrical resistance per unit length and cross-sectional area of a magnetic core.

14. 密度 d (kg/m^3)

单位体积材料的重量，即

$$d = W/V$$

式中 W 为磁芯的重量 (kg)
 V 为磁芯的体积 (m^3)

14. Density, d (kg/m^3)

This is the weight per unit volume of a magnetic core as expressed below:

$$d = W/V$$

Where W : weight of magnetic body (kg)

V : volume of magnetic body (m^3)

15. 功率损耗 P_c (kW/m^3 、 W/kg)

磁芯在高磁通密度下的单位体积损耗或单位重量损耗。该磁通密度可表示为

$$B_m = \frac{E}{4.44 f N A_e}$$

式中 E 为施加在线圈上的电压有效值 (V)
 B_m 为磁通密度的峰值 (T)

15. Power loss P_c (kW/m^3 、 W/kg)

Power loss denotes the loss by an electrical transformer, such as a switching power supply, under a magnetization condition featuring a high frequency and large amplitude. Operating magnetic flux density is given by the following equation.

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f 为频率 (Hz)

N 为线圈匝数

Ae 为有效截面积 (m^2)

$$B_m = \frac{E}{4.44 f N A_e}$$

Where

E: voltage effective value applied to coil

Bm: peak value of magnetic flux density

f: frequency (Hz)

N: number of coil turns

Ae: effective cross-sectional area (m^2)

16. 电感因数 A_L (nH / N^2)

电感因数定义为具有一定形状和尺寸的磁芯上每一匝线圈产生的电感量，即

$$A_L = L / N^2$$

式中 L 为装有磁芯的线圈的电感量 (H)

N 为线圈匝数

16. Inductance factor A_L (nH / N^2)

This is the inductance per turn of the coil wound around the ferrite cores with definite shape and dimension.

$$A_L = L / N^2$$

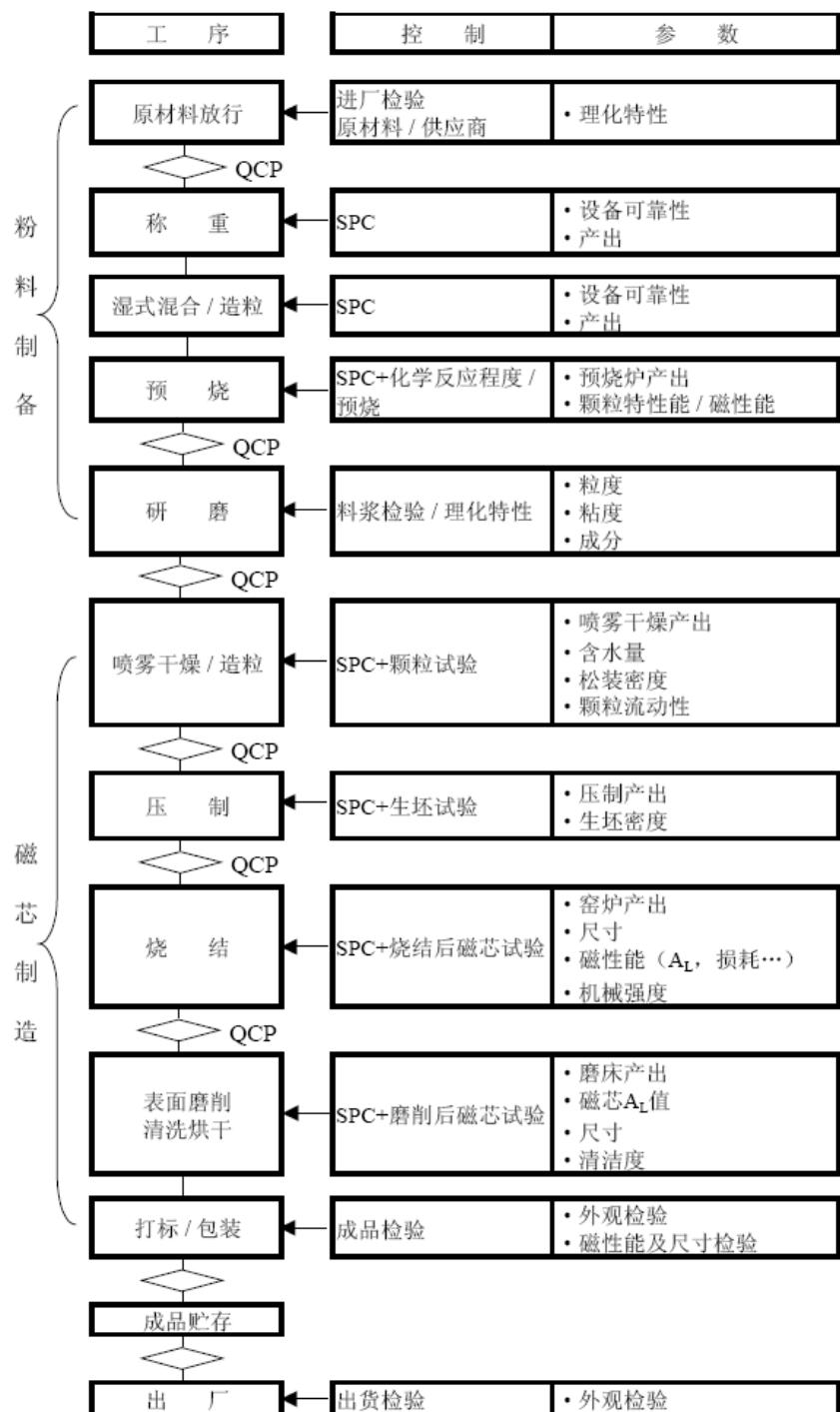
Where

L: inductance of the coil with ferrite core.

N: turns of the coil



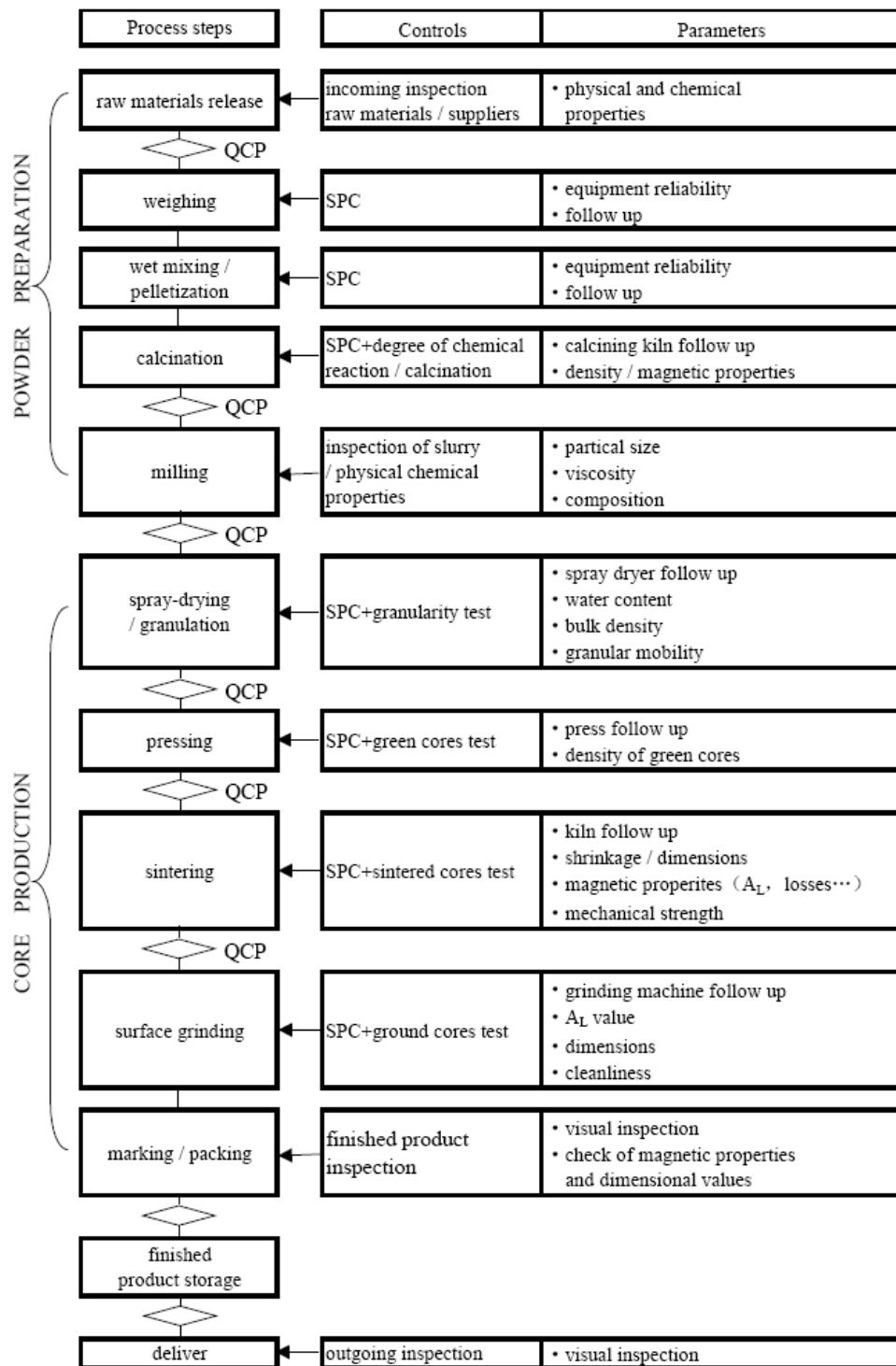
图一 MnZn 铁氧体磁芯典型工艺流程图



图一中 QCP: 质量控制点 SPC: 统计工序控制

质量 *QUALITY*

Fig. 1 Typical Manufacturing Flow Chart of MnZn Ferrite Cores



In Fig. 1, QCP is Quality Control Point and SPC is Statistical Process Control.

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■ Material Characteristics (3)

| | Symbol | Unit | Measuring Conditions | | | High Permeability Materials | |
|------------------------------------|-----------------------|----------------------|----------------------|-------------|-----------|-----------------------------|------------|
| | | | Freq. | Flux den. | Temp. | HC-5 | HC-7 |
| Initial Permeability | μ_f | | 10kHz | < 0.25mT | 25°C | 5000 ± 25% | 7000 ± 25% |
| Relative Loss factor | $\tan \delta / \mu_f$ | 10 ⁻⁶ | 10kHz | < 0.25mT | 25°C | < 4 | < 8 |
| | | | 100kHz | | 25°C | < 15 | < 30 |
| Saturation Flux Density | B _s | mT | 10kHz | H = 1200A/m | 25°C | 440 | 400 |
| | | | | | 100°C | 300 | 200 |
| Remanence | Brms | mT | 10kHz | H = 1200A/m | 25°C | 80 | 150 |
| | | | | | 100°C | 90 | 110 |
| Temperature Factor of Permeability | α_F | 10 ⁻⁶ | 10kHz | < 0.25mT | 0 - 20°C | 0 ~ 2 | -1 ~ 1 |
| | | | | | 20 - 70°C | 0 ~ 2 | -1 ~ 1 |
| Hysteresis Material Constant | η_B | 10 ⁻⁶ /mT | 10kHz | 1.5-3.0mT | 25°C | < 0.8 | < 1.2 |
| Disaccommodation Factor | D _s | 10 ⁻⁶ | 10kHz | < 0.25mT | 25°C | < 3 | < 2 |
| Curie Temperature | T _c | °C | | | | > 140 | > 130 |
| Resistivity | ρ | Ω·m | | | | 0.20 | 0.35 |
| Density | d | g/cm ³ | | | | 4.85 | 4.90 |

■ Material Characteristics (4)

| | Symbol | Unit | Measuring Conditions | | | High Permeability Materials | | | |
|------------------------------------|-----------------------|----------------------|----------------------|-------------|-----------|-----------------------------|-------------|-------------|-------------|
| | | | Freq. | Flux den. | Temp. | HC-10 | HC-1A | HC-12 | HC-15 |
| Initial Permeability | μ_f | | 10kHz | < 0.25mT | 25°C | 10000 ± 30% | 10000 ± 30% | 12000 ± 30% | 15000 ± 30% |
| Relative Loss factor | $\tan \delta / \mu_f$ | 10 ⁻⁶ | 10kHz | < 0.25mT | 25°C | < 10 | < 10 | < 10 | < 10 |
| | | | 100kHz | | 25°C | < 60 | < 60 | < 60 | < 110 |
| Saturation Flux Density | B _s | mT | 10kHz | H = 1200A/m | 25°C | 410 | 380 | 380 | 400 |
| | | | | | 100°C | 210 | 180 | 180 | 170 |
| Remanence | Brms | mT | 10kHz | H = 1200A/m | 25°C | 140 | 95 | 130 | 220 |
| | | | | | 100°C | 110 | 75 | 110 | 100 |
| Temperature Factor of Permeability | α_F | 10 ⁻⁶ | 10kHz | < 0.25mT | 0 - 20°C | 0 ~ 1.5 | -1 ~ 1 | 0 ~ 1.5 | -1 ~ 1 |
| | | | | | 20 - 70°C | -0.5 ~ 1 | -1 ~ 1 | -0.5 ~ 1 | -1 ~ 1 |
| Hysteresis Material Constant | η_B | 10 ⁻⁶ /mT | 10kHz | 1.5-3.0mT | 25°C | < 0.5 | < 1 | < 0.5 | < 0.5 |
| Disaccommodation Factor | D _s | 10 ⁻⁶ | 10kHz | < 0.25mT | 25°C | < 2 | < 2 | < 2 | < 2 |
| Curie Temperature | T _c | °C | | | | > 130 | > 120 | > 110 | > 110 |
| Resistivity | ρ | Ω·m | | | | 0.15 | 0.15 | 0.12 | 0.10 |
| Density | d | g/cm ³ | | | | 4.90 | 4.90 | 4.90 | 5.00 |

Remark:

HC-1A Best impedance, and permeability v. s. frequency performance for 10,000 μ_f materials.

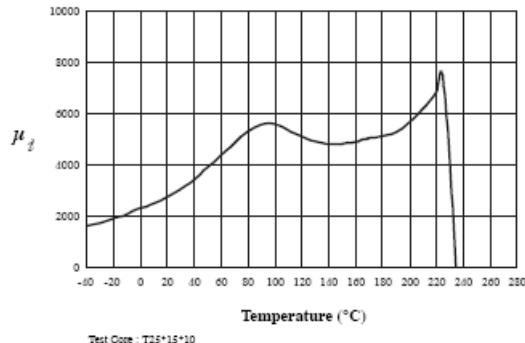
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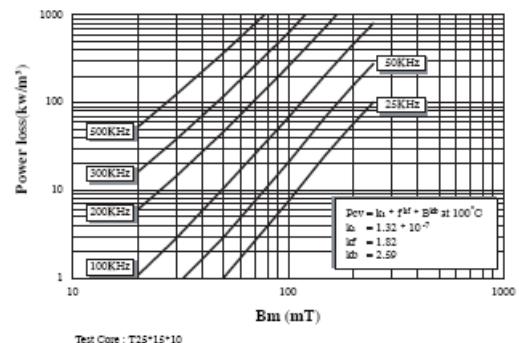
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Material Characteristics-HCP4

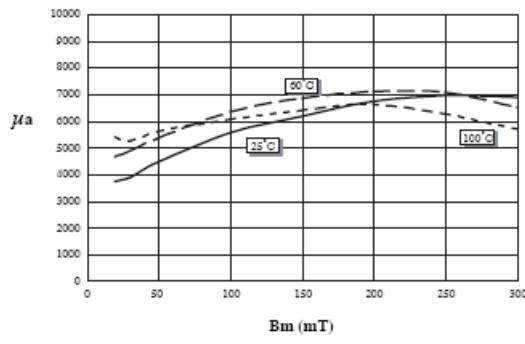
Initial Permeability V.S. Temperature



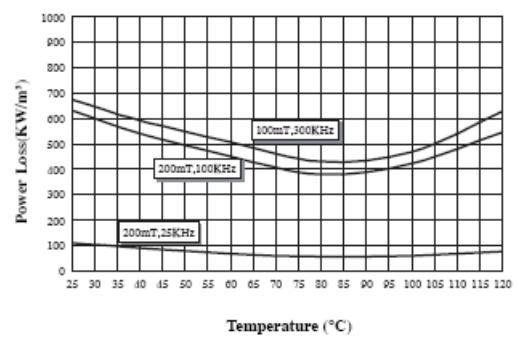
Power Loss V.S. Temperature/Flux Density/Frequency



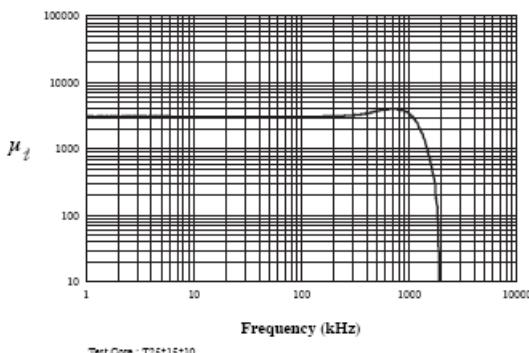
Amplitude Permeability V.S. Flux Density (Bm)



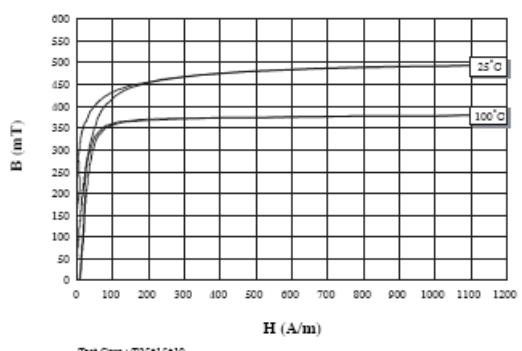
Power Loss V.S. Temperature



Initial Permeability V.S. Frequency



Saturation Flux Density V.S. Magnetic Field



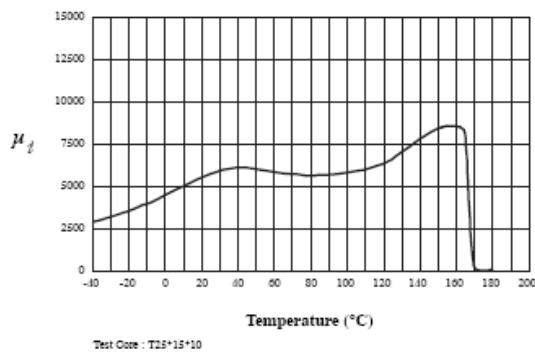
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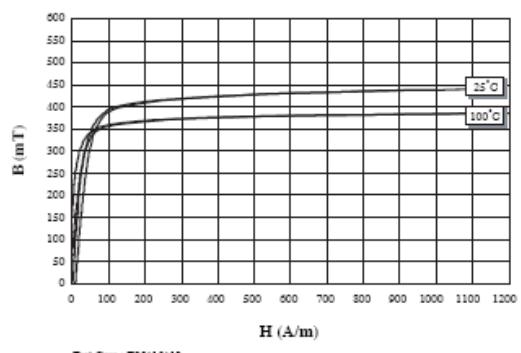
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Material Characteristics-HC-5

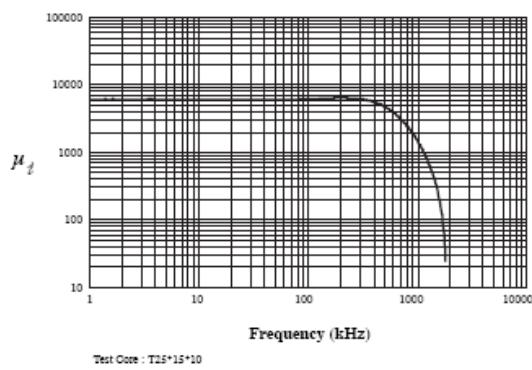
Initial Permeability V.S. Temperature



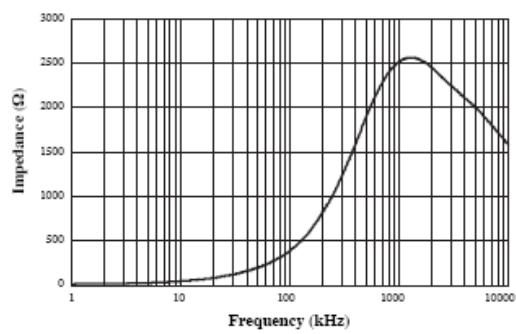
Saturation Flux Density V.S. Magnetic Field



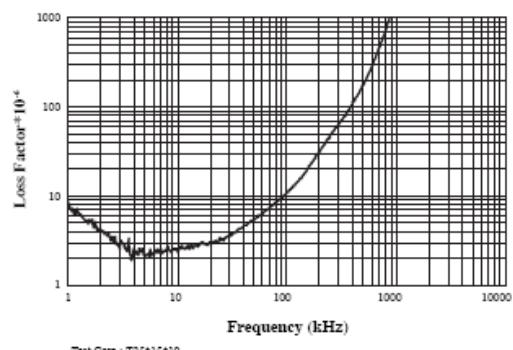
Initial Permeability V.S. Frequency



Impedance V.S. Frequency



Loss Factor V.S. Frequency

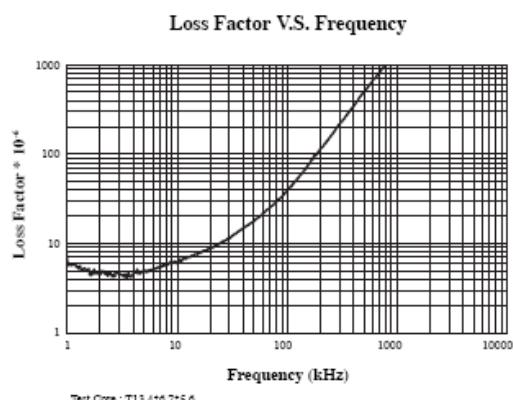
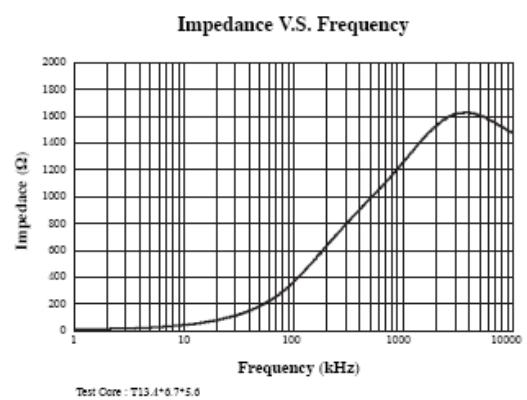
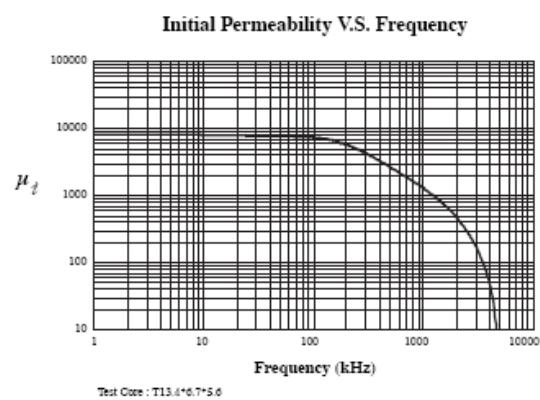
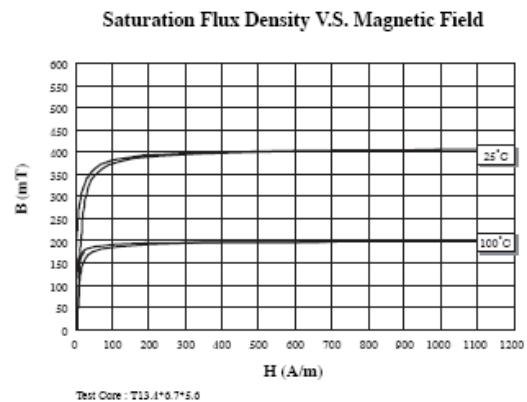
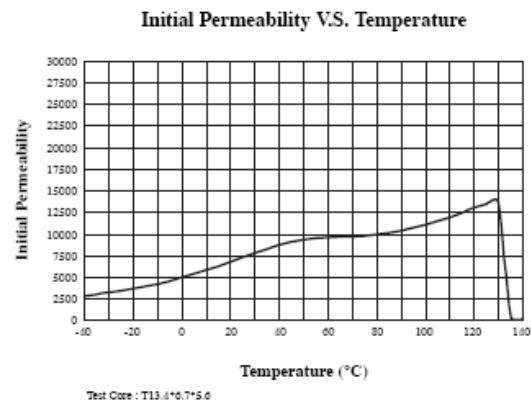


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Material Characteristics-HC-7

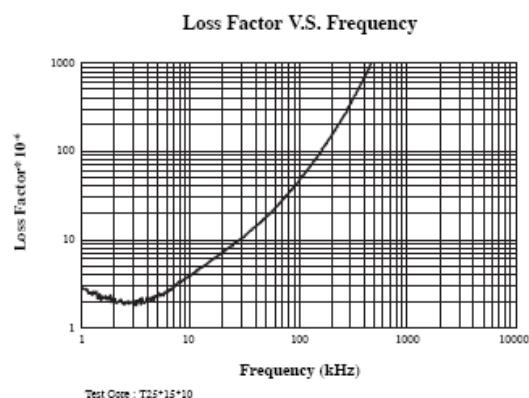
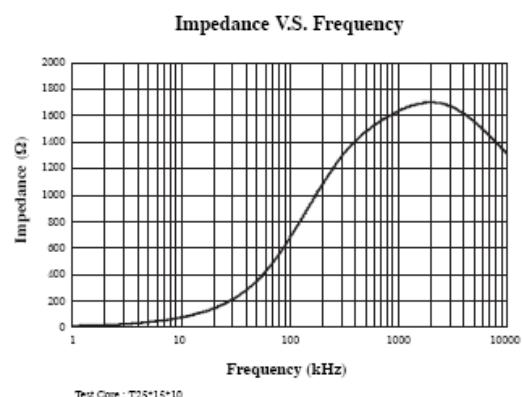
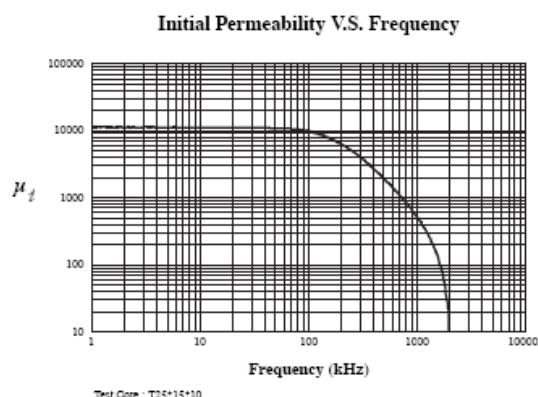
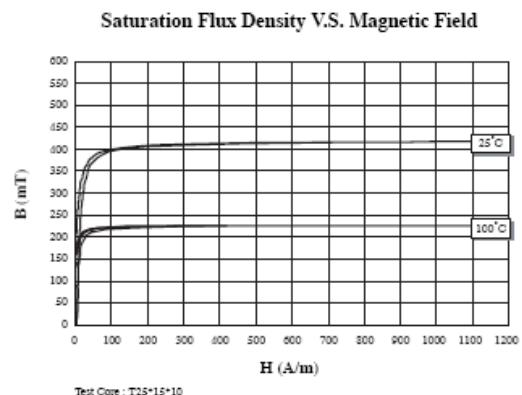
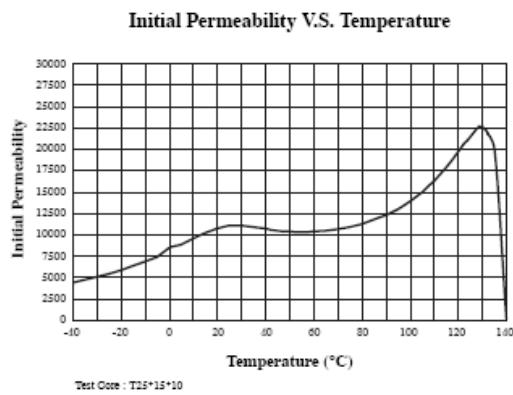


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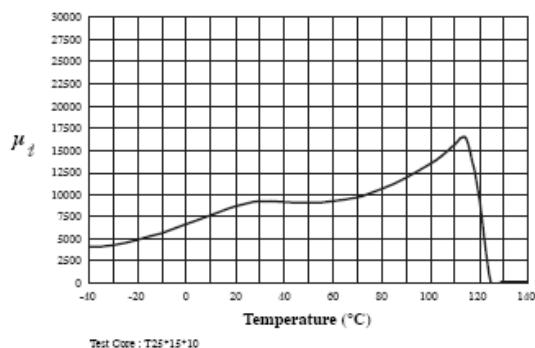
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Material Characteristics- HC-10

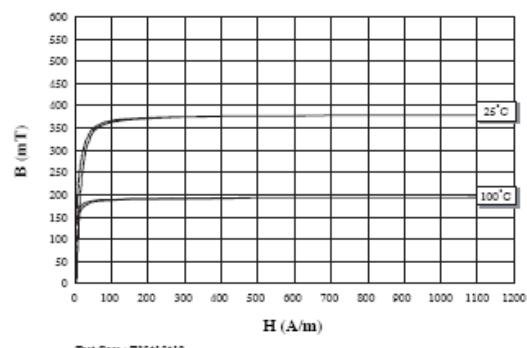


Material Characteristics- HC-1A

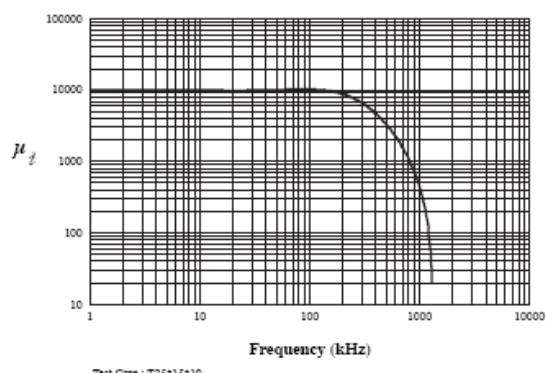
Initial Permeability V.S. Temperature



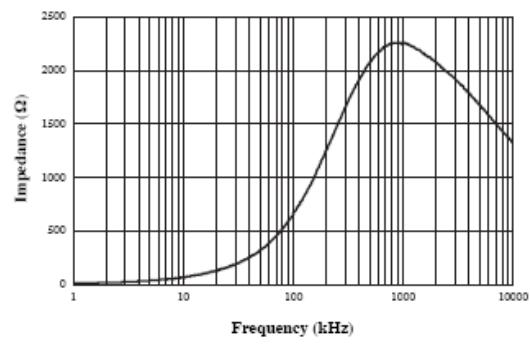
Saturation Flux Density V.S. Magnetic Field



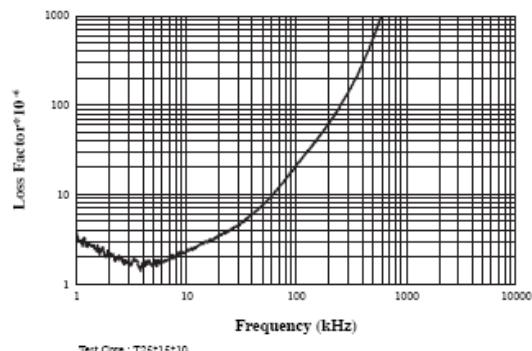
Initial Permeability V.S. Frequency



Impedance V.S. Frequency



Loss Factor V.S. Frequency

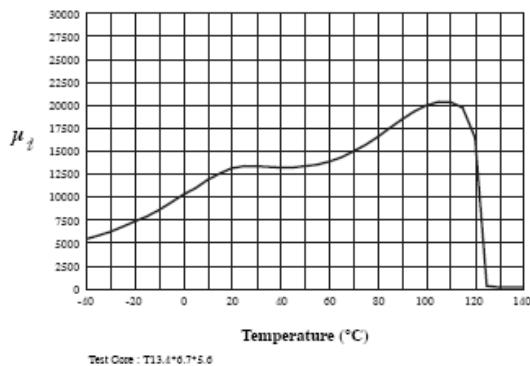


东莞市石碣昊磁电子厂

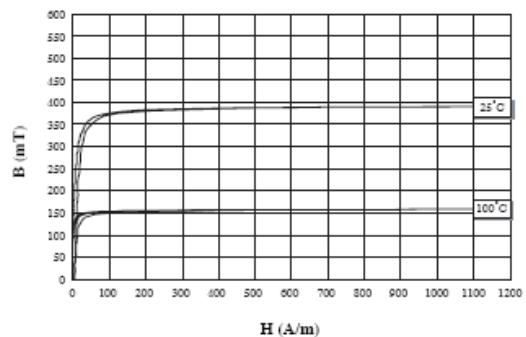
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Material Characteristics- HC-12

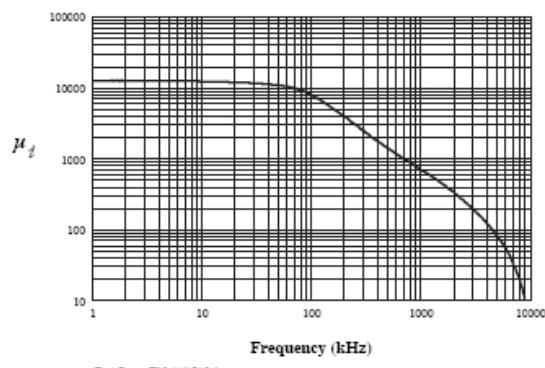
Initial Permeability V.S. Temperature



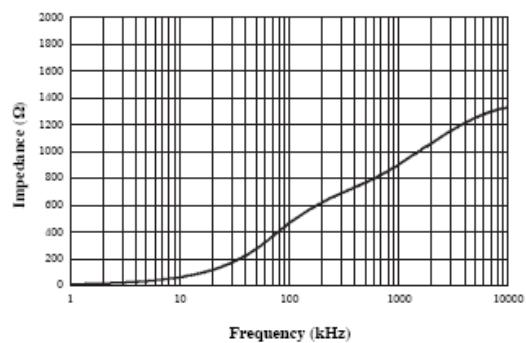
Saturation Flux Density V.S. Magnetic Field



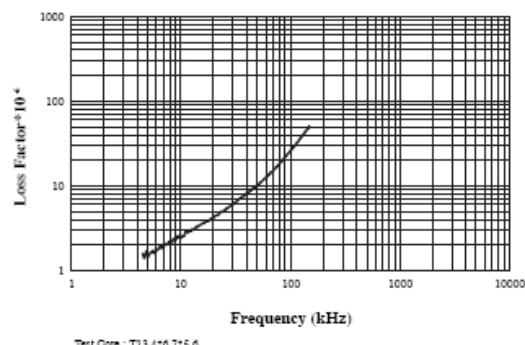
Initial Permeability V.S. Frequency



Impedance V.S. Frequency



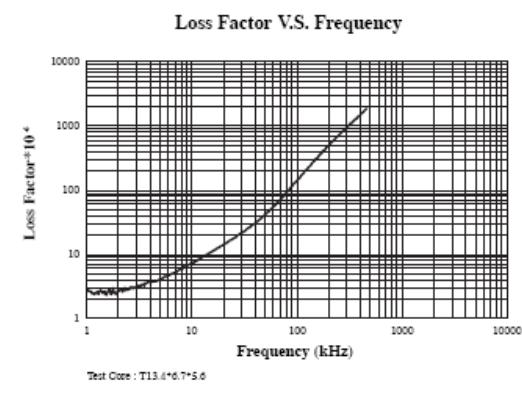
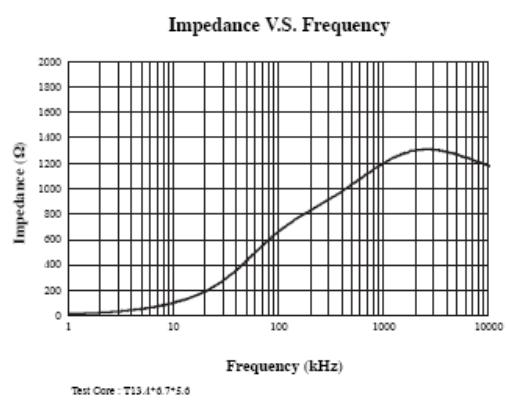
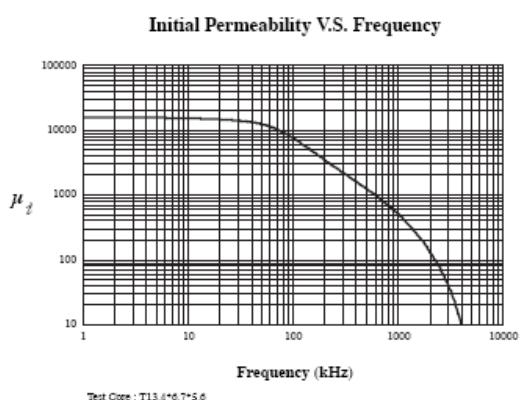
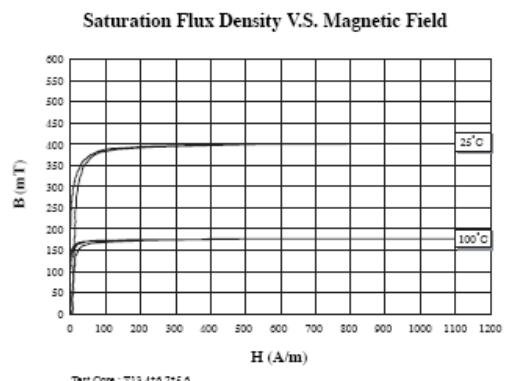
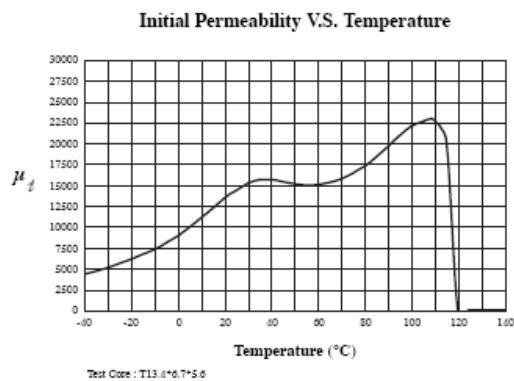
Loss Factor V.S. Frequency



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Material Characteristics- HC-15



EE、EF、EI型磁芯 EE、EF&EI CORES

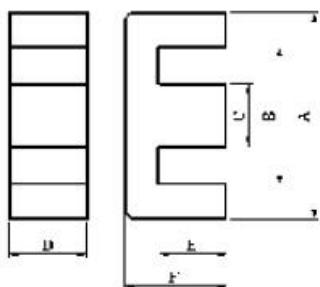


图 1 Fig.1

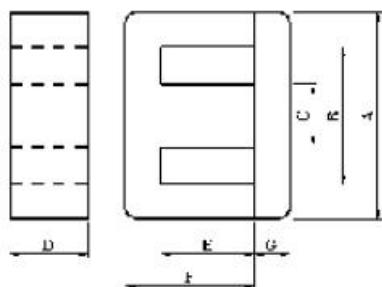


图 2 Fig.2

尺寸 Dimensions

| 型号 Type | 形状 Shape | 尺寸 Dimensions (mm) | | | | | | | 重量 (克/ 付) W(g/s et) |
|------------|-------------|----------------------|--------|---------------------|---------------------|---------------------|----------------|---|---------------------------------|
| | | A | B min. | C | D | E | F | G | |
| EE10 | 1 | 10.20±0.30 | 7.60 | 2.40±0.15 | 4.65±0.20 | 4.30±0.15 | 5.50±0.15 | | 1.6 |
| EE13 | 1 | 13.00±0.30 | 10.00 | 2.75±0.15 | 6.15±0.15 | 4.60±0.10 | 6.00±0.15 | | 2.7 |
| EE13A | 1 | 13.00+0.50/-0. 30 | 10.40 | 2.75+0.10 /-0.15 | 6.15+0.05 /-0.15 | 4.6+0.20/- 0 | 6.00±0.15 | | 2.7 |
| EE13D | 1 | 13.00±0.30 | 8.90 | 3.50±0.20 | 9.80±0.20 | 4.70±0.10 | 6.50±0.15 | | 5.3 |
| EE16D | 1 | 16.00±0.30 | 11.70 | 4.00±0.20 | 4.60±0.20 | 5.30±0.20 | 7.30±0.20 | | 3.2 |
| EE16 | 1 | 16.00±0.30 | 11.70 | 4.00±0.20 | 4.90±0.20 | 5.30±0.20 | 7.30±0.20 | | 3.5 |
| EE16L | 1 | 16.00±0.30 | 11.60 | 4.00±0.20 | 4.90±0.20 | 10.20± 0.20 | 12.25± 0.20 | | 5.3 |
| EE19 | 1 | 19.10±0.40 | 14.10 | 4.85±0.25 | 4.85±0.25 | 5.75±0.15 | 8.00±0.20 | | 4.7 |
| EE19L | 1 | 20.00±0.30 | 14.40 | 4.55±0.15 | 4.85±0.15 | 11.20± 0.20 | 13.55± 0.25 | | 8.0 |
| EE22 | 1 | 22.00±0.40 | 13.70 | 6.00+0/-0.6 0 | 6.00+0/-0.6 0 | 5.30±0.20 | 9.30±0.20 | | 8.7 |
| EE22B | 1 | 22.00±0.40 | 15.60 | 5.75±0.25 | 5.75±0.25 | 5.60±0.20 | 9.70±0.20 | | 8.7 |
| EE25 | 1 | 25.30±0.50 | 19.00 | 6.25±0.20 | 6.20±0.25 | 6.75±0.25 | 9.90±0.25 | | 10 |
| EE25L | 1 | 25.30+0.50/-0. 30 | 19.30 | 6.50±0.25 | 6.35±0.25 | 12.7+0.40/ -0.20 | 15.95±0.2 5 | | 15 |
| EE35 | 1 | 34.90±0.40 | 25.50 | 9.40±0.20 | 12.15± 0.25 | 9.70±0.20 | 14.25± 0.20 | | 43 |
| EE41 | 1 | 40.60±0.60 | 28.60 | 12.50± | 12.50± | 10.50± | 16.50± | | 60.5 |

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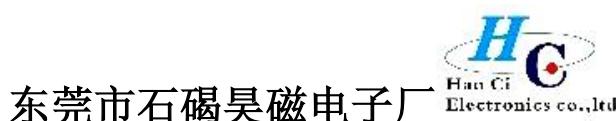


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| | | | | 0.25 | 0.25 | 0.30 | 0.25 | | |
|---------|---|---------------------|-------|------------------|----------------|-------------------|------------------|-------------------|------|
| EE50 | 1 | 50.00±0.70 | 34.20 | 14.60± 0.40 | 14.60± 0.40 | 13.10± 0.30 | 21.55± 0.30 | | 116 |
| EE55 | 1 | 55.15±1.05 | 37.50 | 16.90± 0.25 | 20.70± 0.55 | 18.90± 0.40 | 27.50± 0.30 | | 216 |
| EE65 | 1 | 65.20±1.3 | 44.20 | 19.65± 0.35 | 27.00± 0.40 | 22.55± 0.35 | 32.50± 0.30 | | 390 |
| EE70 | 1 | 70.50±1.50 | 48.00 | 16.70± 0.50 | 24.50± 0.60 | 24.65± 0.65 | 35.50± 0.50 | | 370 |
| EE70B | 1 | 70.50±1.50 | 48.00 | 21.50± 0.50 | 30.50± 0.60 | 22.00± 0.60 | 33.20± 0.40 | | 500 |
| EE85 | 1 | 85.00±2.0 | 55.00 | 27.20+0/-0. 6 | 26.50± 0.50 | 28.75± 0.50 | 44.00± 1.00 | | 675 |
| EE85B | 1 | 85.00±2.0 | 55.00 | 27.20+0/-0. 6 | 31.50± 0.50 | 28.75± 0.50 | 44.00± 1.00 | | 810 |
| EE110 | 1 | 110.00+2.5/-1. 0 | 74.20 | 36.00± 1.00 | 36.00± 1.00 | 37.20+1.4/ 0 | 56.00+0/-1 .0 | | 1560 |
| EF20 | 1 | 20.00±0.40 | 14.10 | 5.65±0.25 | 5.70±0.20 | 7.20±0.20 | 10.00± 0.20 | | 7.5 |
| EF25 | 1 | 25.05±0.75 | 17.50 | 7.25±0.25 | 7.20±0.30 | 8.95±0.25 | 12.55± 0.25 | | 15 |
| EF20N | 1 | 20.30±0.40 | 14.80 | 5.70±0.20 | 5.60±0.20 | 7.30±0.20 | 10.00± 0.20 | | 7.2 |
| EF25/7 | 1 | 25.05±0.75 | 17.50 | 7.25±0.25 | 7.20±0.30 | 8.95±0.25 | 12.55± 0.25 | | 15 |
| EF25/11 | 2 | 25.05±0.75 | 17.50 | 7.25±0.25 | 11.00± 0.30 | 8.95±0.25 | 12.55± 0.25 | | 23.0 |
| EI22 | 1 | 22.00±0.40 | 15.60 | 6.00+0/-0.5 | 6.00+0/-0.5 | 10.80+0.4 0/-0 | 15.00 ± 0.40 | 4.00 ± 0.20 | 8.4 |
| EI28 | 2 | 28.00±0.50 | 18.60 | 7.20±0.30 | 10.70± 0.30 | 12.50± 0.30 | 17.00± 0.30 | 3.50 ± 0.20 | 20 |
| EI33 | 2 | 33.00±0.60 | 23.60 | 9.70±0.30 | 12.70± 0.30 | 19.250± 030 | 23.75± 0.25 | 5.00 ± 0.30 | 40 |
| EI33L | 2 | 33.00±0.60 | 23.60 | 9.70±0.30 | 12.70± 0.30 | 19.55± 0.30 | 24.05± 0.25 | 5.00 ± 0.30 | 40 |

有效参数及磁特性 Effective Parameter & Magnetic Characteristics



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| 型号 Type | 有效参数 Effective Parameter | | | | A ₁ (nH/N ² ±25%) 1kHz,100T _s , 25°C | P _{c max} (W) 100kHz,200mT, 100°C |
|------------|------------------------------------|--------|----------------------|----------------------|--|--|
| | C ₁ (mm ⁻¹) | Le(mm) | Ae(mm ²) | Ve(mm ³) | HC-7 | HCP4 |
| EE10 | 2.16 | 26.1 | 12.0 | 313 | | 870 |
| EE13 | 1.77 | 30.2 | 17.1 | 517 | | 1130 |
| EE13A | 1.76 | 30.6 | 17.3 | 547.9 | | 1000min |
| EE13D | 0.839 | 30.1 | 35.8 | 1080 | | 2100 |
| EE16 | 1.81 | 35.5 | 19.6 | 695 | 2000 | 1040 |
| EE16D | 1.93 | 35.5 | 18.4 | 667 | | 970 |
| EE16L | 2.84 | 55.0 | 19.4 | 1067 | | 760 |
| EE19 | 1.75 | 39.8 | 22.7 | 903 | 2400 | 1150 |
| EE19L | 2.59 | 62.1 | 23.9 | 1486 | | 800 |
| EE22 | 1.02 | 40.2 | 39.5 | 1590 | 4850 | 2100 |
| EE22B | 1.15 | 42.9 | 37.2 | 1600 | | 1800 |
| EE25 | 1.32 | 49.9 | 37.9 | 1890 | | 1650 |
| EE25L | 1.87 | 73.5 | 39.4 | 2890 | 3100 | 1150 |
| EE35 | 0.621 | 69.5 | 112.0 | 7770 | | 3420 |
| EE41 | 0.514 | 77.1 | 150.0 | 11570 | | 4130 |
| EE50 | 0.425 | 96 | 226 | 21700 | | 5000 |
| EE55 | 0.355 | 124 | 349 | 43200 | | 6000 |
| EE65 | 0.274 | 147 | 535 | 78700 | | 7800 |
| EE70 | 0.344 | 159 | 461 | 73200 | | 6500 |
| EE70B | 0.226 | 150 | 665 | 99800 | | 9000 |
| EE85 | 0.264 | 188 | 714 | 134000 | | 8300 |
| EE85B | 0.220 | 189 | 859 | 162000 | | 10000 |
| EE110 | 0.191 | 244 | 1280 | 312000 | | 11500 |
| EF20 | 1.431 | 46.1 | 32.2 | 1480 | | 1500 |
| EF25 | 1.114 | 57.8 | 51.8 | 2990 | | 2000 |
| EF20N | 1.55 | 47 | 30.4 | 1430 | | 1350 |
| EF25/7 | 1.114 | 57.8 | 51.8 | 2990 | 4900 | 2000 |
| EF25/11 | 0.73 | 57.8 | 79.2 | 4570 | | 2950 |
| EI22 | 1.148 | 42.5 | 37.0 | 1570 | | 1950 |

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PEE、PEI型磁芯 PEE&EIF CORES

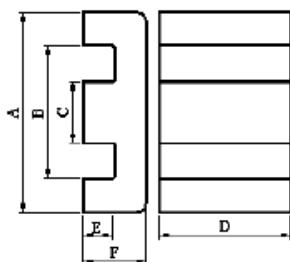


图 1 Fig.1

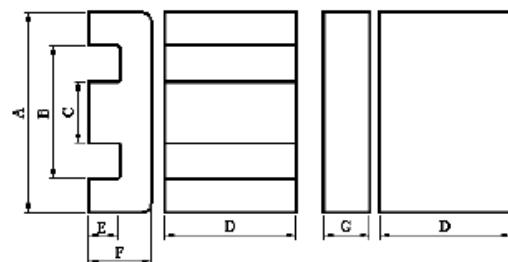


图 2 Fig.2

尺寸 Dimensions

| 型号 Type | 形状 Shape | 尺寸 Dimensions (mm) | | | | | | | 重量 (克/ 付) W(g/s et) |
|------------|-------------|--------------------|------------|-----------|------------|-----------|-----------|-----------|---------------------------------|
| | | A | B | C | D | E | F | G | |
| PEE14 | 1 | 14.00±0.30 | 11.00±0.25 | 3.00±0.10 | 5.00±0.20 | 1.75±0.10 | 3.25±0.10 | | 1.2 |
| PEE18 | 1 | 18.00±0.35 | 14.00±0.30 | 4.00±0.10 | 10.00±0.20 | 2.20±0.10 | 4.20±0.10 | | 4.8 |
| PEI22 | 2 | 21.80±0.20 | 16.80±0.40 | 5.00±0.10 | 15.80±0.30 | 3.60±0.10 | 6.10±0.10 | 2.50±0.10 | 10.0 |
| PEE22 | 2 | 21.80±0.20 | 16.80±0.40 | 5.00±0.10 | 15.80±0.30 | 1.10±0.10 | 3.60±0.10 | | 9.0 |

有效参数及磁特性 Effective Parameter & Magnetic Characteristics

| 型号 Type | 有效参数 Effective Parameter | | | | A_L (nH/N ² ±25%) 1kHz, 100Ts, 25°C | | Pc max (W) 100kHz, 200mT, 100°C | |
|------------|------------------------------------|--------|----------------------|----------------------|--|-------|---------------------------------------|-------|
| | C ₁ (mm ⁻¹) | Le(mm) | Ae(mm ²) | Ve(mm ³) | HCP4 | HCP4A | HCP4 | HCP4A |
| PEE14 | 1.31 | 19.7 | 15.0 | 296 | 1500 | 1500 | 0.15 | 0.12 |
| PEE18 | 0.627 | 25.1 | 40.0 | 1000 | 2700 | 3100 | 0.50 | 0.40 |
| PEI22 | 0.34 | 26.8 | 79.0 | 2120 | 5000 | 5700 | 1.06 | 0.85 |
| PEE22 | 0.304 | 24 | 79 | 1900 | 5700 | 6200 | 0.95 | 0.77 |

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东莞市石碣昊磁电子厂

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EER、ETD 型磁芯

EER&ETD CORES

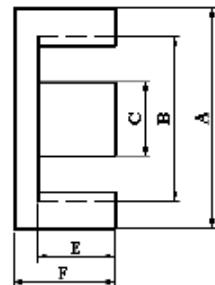
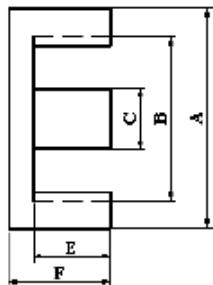


图 1 Fig.1

图 2 Fig.2

尺寸 Dimensions

| 型号 Type | 形状 Shape | 尺寸 Dimensions (mm) | | | | | | 重量 (克/付) W(g/set) |
|------------|-------------|--------------------|--------|------------|------------|------------|------------|-------------------------|
| | | A | B min. | C | D | E | F | |
| EER28/20 | 1 | 28.55±0.55 | 21.40 | 9.90±0.25 | 11.40±0.25 | 6.60±0.2 | 10.00±0.20 | 21 |
| EER28/28 | 1 | 28.55±0.55 | 21.20 | 9.90±0.25 | 11.40±0.25 | 9.65±0.25 | 14.00±0.20 | 29 |
| EER29/28 | 1 | 29.30±0.40 | 22.5 | 9.90±0.20 | 11.40±0.20 | 10.00±0.20 | 14.20±0.20 | 28 |
| EER28/34 | 1 | 28.55±0.55 | 21.20 | 9.90±0.25 | 11.40±0.25 | 12.50±0.25 | 16.90±0.25 | 33 |
| EER35/30 | 2 | 35.00±0.70 | 25.30 | 11.30±0.30 | 11.30±0.40 | 10.00±0.20 | 15.00±0.20 | 39 |
| EER35/42 | 2 | 35.00±0.70 | 25.60 | 11.30±0.30 | 11.30±0.40 | 15.40±0.30 | 21.40±0.25 | 53 |
| EER36/43 | 2 | 36.00±0.70 | 27.8 | 11.30±0.30 | 11.30±0.30 | 15.60±0.20 | 21.60±0.20 | 51 |
| EER40/45 | 2 | 40.00±1.00 | 28.75 | 13.30±0.40 | 13.30±0.40 | 15.40±0.30 | 22.40±0.30 | 80 |
| EER40/45L | 2 | 40.00±1.00 | 28.75 | 13.30±0.40 | 13.30±0.40 | 16.00±0.20 | 23.00±0.30 | 82 |
| ETD34/26 | 2 | 34.20±0.80 | 25.60 | 10.80±0.30 | 10.80±0.30 | 7.80±0.30 | 13.00±0.20 | 32 |
| ETD34/35 | 2 | 34.20±0.80 | 25.60 | 10.80±0.30 | 10.80±0.30 | 12.10±0.30 | 17.30±0.20 | 39 |
| ETD39/36 | 2 | 39.10±0.90 | 29.30 | 12.50±0.30 | 12.50±0.30 | 12.60±0.40 | 17.80±0.20 | 54 |



东莞市石碣昊磁电子厂

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| | | | | | | | | |
|----------|---|------------------|-------|------------------|------------------|------------------|------------------|-----|
| ETD39/40 | 2 | 39.10 ± 0.90 | 29.30 | 12.50 ± 0.30 | 12.50 ± 0.30 | 14.60 ± 0.40 | 19.80 ± 0.20 | 58 |
| ETD39/42 | 2 | 39.10 ± 0.09 | 29.30 | 12.50 ± 0.30 | 12.50 ± 0.30 | 15.80 ± 0.40 | 21.00 ± 0.20 | 61 |
| ETD49/49 | 2 | 48.70 ± 1.10 | 36.10 | 16.30 ± 0.40 | 16.40 ± 0.40 | 18.10 ± 0.40 | 24.70 ± 0.20 | 123 |
| ETD59/62 | 2 | 59.80 ± 1.30 | 43.60 | 21.65 ± 0.45 | 21.65 ± 0.45 | 22.50 ± 0.40 | 31.00 ± 0.20 | 260 |

有效参数及磁特性 Effective Parameter & Magnetic Characteristics

| 型号 Type | 有效参数 Effective Parameter | | | | A_e (nH/N ² ± 25%) 1kHz, 100T _b , 25°C | P _{c max} (W) 100kHz, 200mT, 100°C |
|------------|------------------------------------|--------|----------------------|----------------------|--|---|
| | C ₁ (mm ⁻¹) | Le(mm) | Ae(mm ²) | Ve(mm ⁵) | HCP4 | HCP4 |
| EER28/20 | 0.611 | 49.5 | 81.0 | 4010 | 3430 | 2.01 |
| EER28/28 | 0.732 | 63.0 | 86.0 | 5410 | 2730 | 2.75 |
| EER28/34 | 0.87 | 74.4 | 85.4 | 6360 | 2400 | 3.20 |
| EER29/28 | 0.792 | 66.1 | 83.5 | 5510 | 2500 | 2.70 |
| EER35/42 | 0.850 | 93.0 | 109 | 10160 | 2500 | 5.10 |
| EER35/30 | 0.655 | 70.3 | 107 | 7550 | 3000 | 3.78 |
| EER36/43 | 0.919 | 95.5 | 104 | 9920 | 2400 | 4.9 |
| EER40/45 | 0.651 | 98.5 | 151 | 14900 | 3300 | 7.50 |
| EER40/45L | 0.666 | 101 | 151 | 15200 | 3250 | 7.6 |
| ETD34/26 | 0.629 | 61.9 | 98.4 | 6080 | 3000 | 3.05 |
| ETD34/35 | 0.815 | 79.0 | 97.0 | 7660 | 2500 | 3.85 |
| ETD39/36 | 0.676 | 84.6 | 125 | 10570 | 3100 | 5.30 |
| ETD39/40 | 0.741 | 92.6 | 124 | 11560 | 2900 | 5.80 |
| ETD39/42 | 0.780 | 97.4 | 124 | 12150 | 2700 | 6.08 |

| | | | | | | |
|----------|-------|-----|-----|-------|------|-------|
| ETD49:49 | 0.542 | 114 | 211 | 24140 | 4000 | 12.10 |
| ETD59:62 | 0.383 | 141 | 367 | 51630 | 5700 | 25.90 |



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EFD 型磁芯 EED CORES

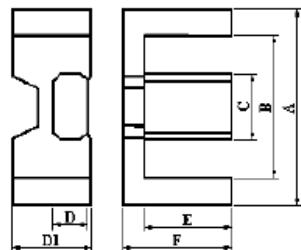


图 1 Fig.1

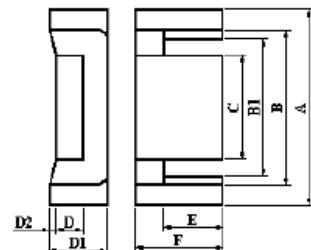


图 2 Fig.2

尺寸 Dimensions

| 型号 Type | 形状 Shape | 尺寸 Dimensions (mm) | | | | | | | | 重量 (克/ 付) W(g/s et) | |
|------------|-------------|--------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|----------------|---------------------------------|------|
| | | A | B | B1 | C | D | D1 | D2 | E | | |
| EFD12.8 | 2 | 12.80± 0.30 | 9.90 +0.35 | 8.95 +0.40 | 6.80 - 0.30 | 1.80 - 0.25 | 3.80 +0.10/-0.2 0 | 0.43 ± 0.05 | 3.95± 0.15 | 5.80± 0.15 | 1.52 |
| EFD15 | 1 | 15.00± 0.30 | 11.00± 0.25 | ----- -- | 5.30±0.15 | 2.40± 0.10 | 4.60± 0.15 | ----- ----- | 5.50± 0.25 | 7.50± 0.20 | 2.8 |
| EFD15.3 | 2 | 15.30± 0.40 | 11.80 +0.50 | 11.20 +0.50 | 8.00-0.20 | 1.70 - 0.20 | 3.80 +0.10/-0.2 0 | 0.43 ± 0.05 | 4.55± 0.15 | 6.55± 0.15 | 2.02 |
| EFD20 | 1 | 20.00± 0.55 | 15.40± 0.50 | ----- -- | 8.90±0.20 | 3.60± 0.15 | 6.70± 0.15 | ----- ----- | 7.70± 0.25 | 10.00± 0.15 | 7.0 |
| EFD20L | 1 | 20.00± 0.55 | 15.40± 0.50 | ----- -- | 8.90±0.20 | 3.60± 0.15 | 5.60± 0.10 | ----- ----- | 9.30± 0.15 | 11.50± 0.15 | 7.2 |
| EFD25 | 1 | 25.00± 0.65 | 18.70± 0.60 | ----- -- | 11.40± 0.20 | 5.20± 0.15 | 9.10± 0.20 | ----- ----- | 9.30± 0.25 | 12.50± 0.15 | 16.7 |
| EFD30 | 1 | 30.00± 0.80 | 22.40± 0.80 | ----- -- | 14.60± 0.25 | 4.90± 0.15 | 9.10± 0.20 | ----- ----- | 11.20± 0.30 | 15.00± 0.20 | 24.0 |

有效参数及磁特性 Effective Parameter & Magnetic Characteristics

| 型号 Type | 有效参数 Effective Parameter | | | | A_L (nH/N ² ±25%) 1kHz, 100T _s , 25°C | P _{c max} (W) 100kHz, 200mT, 100°C | |
|------------|------------------------------------|---------------------|-----------------------------------|-----------------------------------|---|---|------|
| | C ₁ (mm ⁻⁴) | L _e (mm) | A _e (mm ²) | V _e (mm ³) | | HCP4/HCP4A | HCP4 |
| EFD12.8 | 2.23 | 25.4 | 11.4 | 289 | 900 | 0.15 | 0.12 |
| EFD15 | 2.27 | 34.0 | 15.0 | 510 | 890 | 0.26 | 0.21 |



东莞市石碣昊磁电子厂

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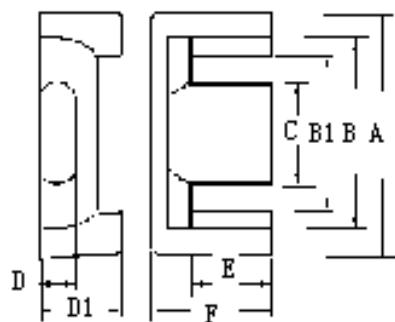
| | | | | | | | |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| EFD15.3 | 2.15 | 29.3 | 13.6 | 399 | 950 | 0.20 | 0.17 |
| EFD20 | 1.52 | 47.0 | 31.0 | 1460 | 1330 | 0.73 | 0.59 |
| EFD20L | 1.93 | 52.1 | 27.0 | 1408 | 1050 | 0.70 | 0.56 |
| EFD25 | 0.98 | 57.0 | 58.0 | 3300 | 2150 | 1.65 | 1.32 |
| EFD30 | 0.98 | 68.0 | 69.0 | 4700 | 2200 | 2.35 | 1.88 |



东莞市石碣昊磁电子厂

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EPC 型磁芯 EPC CORES



尺寸 Dimensions

| 型号 Type | 尺寸 Dimensions (mm) | | | | | | | | 重量 (克/付) W(g/set) |
|------------|--------------------|--------|------------|------------|-----------|-----------|-----------|------------|-----------------------------|
| | A | B min. | B1 | C | D | D1 | E | F | |
| EPC13 | 13.20±0.30 | 10.50 | 8.20 min | 5.60±0.15 | 2.10±0.10 | 4.60±0.15 | 4.60±0.20 | 6.60±0.20 | 2.1 |
| EPC17 | 17.60±0.40 | 14.30 | 12.00±0.50 | 7.70±0.20 | 2.80±0.15 | 6.00±0.20 | 6.05±0.20 | 8.55±0.20 | 4.5 |
| EPC19 | 19.60±0.50 | 15.90 | 13.40±0.50 | 8.20±0.20 | 2.40±0.15 | 6.00±0.20 | 7.25±0.20 | 9.75±0.20 | 5.5 |
| EPC25 | 25.10±0.50 | 20.65 | 17.50±0.50 | 11.50±0.20 | 4.00±0.10 | 8.00±0.20 | 9.00±0.30 | 12.50±0.20 | 13.0 |

有效参数及磁特性 Effective Parameter & Magnetic Characteristics

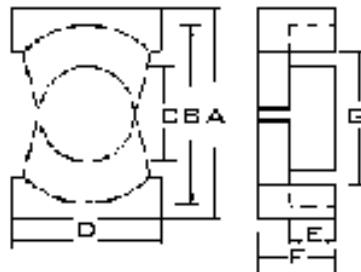
| 型号 Type | 有效参数 Effective Parameter | | | | A_L (nH/N ² ±25%) 1kHz, 100T _s , 25°C | $P_{c\max}$ (W) 100kHz, 200mT, 100°C | |
|------------|------------------------------------|---------------------|-----------------------------------|-----------------------------------|---|--|-------|
| | C _i (mm ⁻¹) | L _e (mm) | A _e (mm ²) | V _e (mm ³) | | HCP4/HCP4A | HCP4 |
| EPC13 | 2.45 | 30.6 | 12.5 | 383 | 870 | 0.192 | 0.155 |
| EPC17 | 1.76 | 40.2 | 22.8 | 917 | 1200 | 0.460 | 0.37 |
| EPC19 | 1.89 | 43.3 | 23.0 | 996 | 1200 | 0.500 | 0.40 |
| EPC25 | 1.28 | 59.2 | 46.4 | 2748 | 1600 | 1.400 | 1.12 |



东莞市石碣昊磁电子厂

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PQ 型磁芯 PQ CORES



尺寸 Dimensions

| 型号 Type | 尺寸 Dimensions (mm) | | | | | | | 重量 (克/付) W(g/set) |
|------------|--------------------|---------------|------------|------------|------------|------------|-------|-------------------------|
| | A | B | C | D | E | F | G min | |
| PQ20/16 | 20.50±0.40 | 18.00±0.40 | 8.80±0.20 | 14.00±0.40 | 5.15±0.10 | 8.10±0.10 | 12.00 | 13.0 |
| PQ20/20 | 20.50±0.40 | 18.00±0.40 | 8.80±0.15 | 14.00±0.40 | 7.15±0.15 | 10.10±0.10 | 12.00 | 15.0 |
| PQ26/15 | 26.50±0.45 | 22.50±0.45 | 12.00±0.20 | 19.00±0.45 | 2.55±0.10 | 7.40±0.10 | 15.50 | 25.0 |
| PQ26/20 | 26.50±0.45 | 22.50±0.45 | 12.00±0.20 | 19.00±0.45 | 5.75±0.15 | 10.10±0.15 | 15.50 | 31.0 |
| PQ26/25 | 26.50±0.45 | 22.50±0.45 | 12.00±0.20 | 19.00±0.45 | 8.05±0.15 | 12.40±0.20 | 15.50 | 36.0 |
| PQ30/20 | 30.00±0.50 | 25.50+0/-0.50 | 13.30±0.30 | 20.50±0.50 | 6.45±0.10 | 9.75±0.15 | | 32.0 |
| PQ32/20 | 32.00±0.50 | 27.50±0.50 | 13.45±0.25 | 22.00±0.50 | 5.75±0.15 | 10.30±0.15 | 19.00 | 42.0 |
| PQ32/30 | 32.00±0.50 | 27.50±0.50 | 13.45±0.25 | 22.00±0.50 | 10.65±0.15 | 15.20±0.20 | 19.00 | 55.0 |

有效参数及磁特性 Effective Parameter & Magnetic Characteristics

| 型号 Type | 有效参数 Effective Parameter | | | | A_L (nH/N ² ±25%) 1kHz, 100T _s , 25°C | P _c max (W) 100kHz, 200mT, 100°C | |
|------------|------------------------------------|---------------------|-----------------------------------|-----------------------------------|---|---|-------|
| | C _i (mm ⁻¹) | L _e (mm) | A _e (mm ²) | V _e (mm ³) | | HCP4 | HCP4A |
| PQ20/16 | 0.605 | 37.4 | 62.0 | 2310 | 3500 | 1.16 | 0.93 |
| PQ20/20 | 0.738 | 45.4 | 62.0 | 2790 | 3000 | 1.40 | 1.12 |
| PQ26/15 | 0.296 | 36.2 | 122.0 | 4416 | 7200 | 2.21 | 1.77 |
| PQ26/20 | 0.391 | 46.3 | 119.0 | 5490 | 5500 | 2.75 | 2.20 |
| PQ30/20 | 0.338 | 49.3 | 145.8 | 7183 | 6500 | 3.60 | 2.95 |
| PQ26/25 | 0.472 | 55.5 | 118.0 | 6530 | 4500 | 3.30 | 2.62 |



东莞市石碣昊磁电子厂

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RM 型磁芯 RM CORES

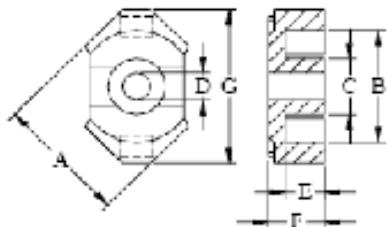


图 1 Fig.1

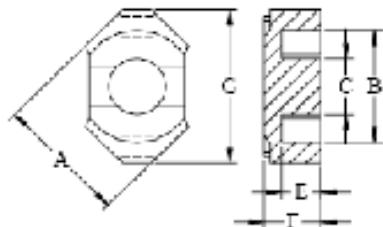


图 2 Fig.2

尺寸 Dimensions

| 型号 Type | 形状 Shape | 尺寸 Dimensions (mm) | | | | | | | 重量 (克/付) W(g/set) |
|------------|-------------|--------------------|------------|------------|-----------------|------------|------------|------------|-------------------------|
| | | A | B | C | D | E | F | G | |
| RM6 | 1 | 14.40±0.30 | 12.65±0.25 | 6.30±0.10 | 3.00 +0.1/-0 | 4.30±0.10 | 6.20±0.10 | 17.60±0.30 | 4.7 |
| RM6 | 2 | 14.40±0.20 | 12.65±0.25 | 6.30±0.10 | | 4.30±0.10 | 6.20±0.10 | 17.60±0.30 | 5.3 |
| RM8 | 1 | 19.30±0.40 | 17.30±0.30 | 8.40±0.15 | 4.50±0.10 | 5.50±0.10 | 8.20±0.10 | 22.75±0.45 | 10.9 |
| RM8 | 2 | 19.30±0.40 | 17.30±0.30 | 8.40±0.15 | | 5.50±0.10 | 8.20±0.10 | 22.75±0.45 | 12.0 |
| RM10 | 2 | 24.15±0.55 | 21.65±0.45 | 10.70±0.20 | | 6.35±0.15 | 9.30±0.10 | 27.85±0.65 | 22.0 |
| RM12 | 2 | 29.20±0.60 | 25.45±0.55 | 12.60±0.20 | | 8.55±0.15 | 12.25±0.10 | 36.85±0.75 | 42.0 |
| RM14 | 2 | 34.15±0.65 | 29.50±0.50 | 14.75±0.25 | | 10.55±0.15 | 15.05±0.10 | 41.60±0.60 | 70.0 |

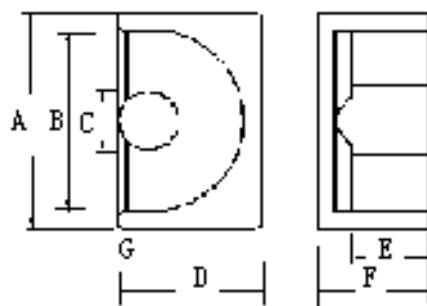
有效参数及磁特性 Effective Parameter & Magnetic Characteristics

| 型号 Type | 形状 Shape | 有效参数 Effective Parameter | | | | A_L (nH/N ² ±25%) 1kHz,100T _s , 25°C | | P _{c max} (W) 100kHz,200mT, 100°C | |
|------------|-------------|------------------------------------|---------------------|-----------------------------------|-----------------------------------|--|----------------|--|-------|
| | | C _r (mm ⁻¹) | L _e (mm) | A _e (mm ²) | V _e (mm ³) | HCP-10 | HCP4/ HCP4A | HCP4 | HCP4A |
| RM6 | 1 | 0.86 | 26.9 | 31.3 | 840 | 8200 | 2400 | 0.42 | 0.54 |
| RM6 | 2 | 0.78 | 28.6 | 36.6 | 1050 | 9000 | 2600 | 0.53 | 0.42 |
| RM8 | 1 | 0.67 | 35.1 | 52.0 | 1840 | 12000 | 3000 | 0.93 | 0.74 |
| RM8 | 2 | 0.59 | 38.0 | 64.0 | 2430 | 13000 | 3300 | 1.22 | 0.98 |

东莞市石碣昊磁电子厂 HAO CHI Electronics Co., Ltd.

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EP 型磁芯 EP CORES



尺寸 Dimensions

| 型号 Type | 尺寸 Dimensions (mm) | | | | | | | 重量 (克/付) W(g/set) |
|------------|--------------------|----------|-----------|-----------|-----------|-----------|------|-------------------------|
| | A | B | C | D | E | F | G | |
| EP7 | 9.2±0.2 | 7.4±0.2 | 3.3±0.1 | 6.35±0.15 | 2.6±0.1 | 3.7±0.1 | 1.80 | 1.4 |
| EP10 | 11.5±0.3 | 9.4±0.2 | 3.3±0.15 | 7.65±0.2 | 3.7±0.1 | 5.1±0.15 | 1.85 | 2.8 |
| EP13 | 12.5±0.3 | 10.0±0.3 | 4.35±0.15 | 8.80±0.2 | 4.6±0.1 | 6.42±0.15 | 2.4 | 5.1 |
| EP17 | 18.0±0.4 | 12.0±0.4 | 5.68±0.18 | 11.0±0.25 | 5.65±0.15 | 8.40±0.15 | 3.34 | 12 |

有效参数及磁特性 Effective Parameter & Magnetic Characteristics

| 型号 Type | 有效参数 Effective Parameter | | | | A_L (nH/N ² ±25%) 1kHz, 100T _s , 25°C | | | | P _{c max} (W) 100kHz, 200mT, 100°C | |
|------------|------------------------------------|---------------------|-----------------------------------|-----------------------------------|---|------|-------|----------------|---|-------|
| | C ₁ (mm ⁻¹) | L _e (mm) | A _e (mm ²) | V _e (mm ³) | HC-5 | HC-7 | HC-10 | HCP4/ HCP4A | HCP4 | HCP4A |
| EP7 | 1.52 | 15.7 | 10.3 | 162 | 2700 | 4000 | 5500 | 1100 | 0.081 | 0.065 |
| EP10 | 1.70 | 19.2 | 11.3 | 217 | 2600 | 3600 | 4900 | 1000 | 0.11 | 0.088 |
| EP13 | 1.24 | 24.2 | 19.5 | 472 | 3500 | 5000 | 7000 | 1370 | 0.24 | 0.191 |
| EP17 | 0.84 | 28.5 | 33.9 | 966 | 5100 | 7100 | 10200 | 2220 | 0.48 | 0.39 |



东莞市石碣昊磁电子厂

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ET、FT型磁芯 ET&FT CORES

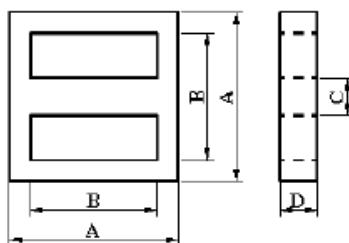


图 1 Fig.1

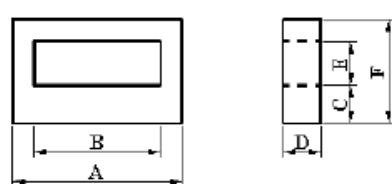


图 2 Fig.2

尺寸 Dimensions

| 型号 Type | 形状 Shape | 尺寸 Dimensions (mm) | | | | | | 重量 (克/付) W(g/set) |
|------------|-------------|--------------------|-------|-----------|-----------|-------|------------|-------------------------|
| | | A | B min | C | D | E min | F | |
| ET24 | 1 | 24.20±0.50 | 19.00 | 4.00±0.30 | 4.00±0.30 | | | 5.6 |
| ET24B | 1 | 24.20±0.50 | 19.00 | 4.00±0.30 | 4.50±0.30 | | | 6.0 |
| ET28 | 1 | 28.45±0.55 | 22.20 | 5.00±0.30 | 5.00±0.30 | | | 9.6 |
| ET35 | 1 | 35.30±0.60 | 26.80 | 7.50±0.30 | 7.50±0.30 | | | 25.0 |
| FT20 | 2 | 20.60±0.30 | 15.70 | 4.20±0.20 | 4.60±0.20 | 7.35 | 14.10±0.30 | 3.8 |

有效参数及磁特性 Effective Parameter & Magnetic Characteristics

| 型号 Type | 有效参数 Effective Parameter | | | | A _L (nH/N ² ±25%) 1kHz, 100Ts, 25°C | | |
|------------|------------------------------------|--------|----------------------|----------------------|---|-------|-------|
| | C ₁ (mm ⁻¹) | Le(mm) | Ae(mm ²) | Ve(mm ³) | HC-7 | HC-10 | HC-15 |
| ET24 | 3.46 | 60.8 | 17.5 | 1060 | 2500 | 3600 | 5400 |
| ET24B | 3.09 | 61.4 | 19.8 | 1220 | 2800 | 4000 | 6000 |
| ET28 | 2.67 | 71.1 | 26.6 | 1890 | 3200 | 4700 | 7000 |
| ET35 | 1.494 | 86.6 | 57.9 | 5020 | 5800 | 8300 | 12500 |
| FT20 | 4.41 | 53.1 | 12.0 | 639 | 2100 | 2800 | 4200 |

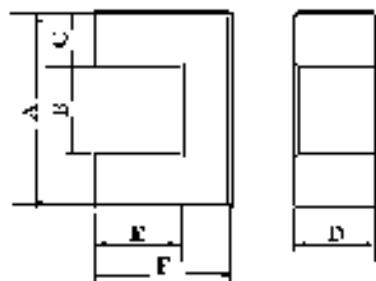
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东莞市石碣昊磁电子厂

TEL: 0769-23200392 FAX: 0769-86287151 13310813681 肖生

UF 型磁芯 UF CORES



尺寸 Dimensions

| 型号 Type | 尺寸 Dimensions (mm) | | | | | | 重量 (克/付) W(g/set) |
|------------|--------------------|-------|-----------|-----------|-----------|------------|-------------------------|
| | A | B min | C | D | E | F | |
| UF9.8 | 9.80±0.20 | 4.00 | 2.80±0.15 | 2.75±0.20 | 4.25±0.15 | 7.10±0.15 | 1.3 |
| UF10.5 | 10.50±0.30 | 5.20 | 2.50±0.20 | 5.00±0.30 | 5.40±0.20 | 7.90±0.20 | 2.5 |
| UF16 | 16.00±0.30 | 6.70 | 4.60±0.20 | 6.00±0.20 | 6.00±0.15 | 10.00±0.20 | 6.5 |

有效参数及磁特性 Effective Parameter & Magnetic Characteristics

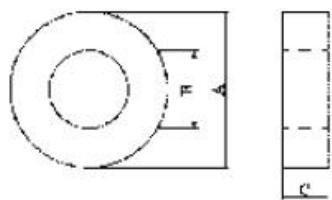
| 型号 Type | 有效参数 Effective Parameter | | | | A _L (nH/N ² ±25%) 1kHz, 100Ts, 25°C | | | | P _c max (W) 100kHz, 200mT, 100°C | |
|------------|------------------------------------|---------|-----------------------|-----------------------------------|---|------|-------|-------|--|-------|
| | C _i (mm ⁻¹) | Ie (mm) | Ae (mm ²) | V _e (mm ³) | HCP4/ HCP4A | HC-7 | HC-10 | HC-15 | HCP4 | HCP4A |
| UF9.8 | 4.50 | 34.3 | 7.61 | 261 | 480 | 1200 | 1600 | 2400 | 0.131 | 0.105 |
| UF10.5 | 3.24 | 40.5 | 12.4 | 505 | 680 | 1600 | 2200 | 3300 | 0.253 | 0.203 |
| UF16 | 1.98 | 51.3 | 26.0 | 1330 | 1100 | 2800 | 3600 | 5400 | 0.666 | 0.533 |



东莞市石碣昊磁电子厂

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环型磁芯 TOROIDAL CORES



尺寸及有效参数 Dimensions & Effective Parameter

| 型号 Type | 尺寸 Dimensions (mm) | | | 有效参数 Effective Parameter | | | | 重量 (克/付) W(g/set) |
|----------------|--------------------|------------|-----------|------------------------------------|--------|----------------------|----------------------|-------------------------|
| | A | B | C | C ₁ (mm ⁻¹) | Le(mm) | Ae(mm ²) | Ve(mm ³) | |
| H8/4/4 | 8.00±0.30 | 4.00±0.30 | 4.00±0.30 | 2.27 | 17.4 | 7.68 | 133 | 0.72 |
| H9/5/5 | 9.10±0.30 | 5.10±0.20 | 5.00±0.20 | 2.14 | 20.8 | 9.7 | 202 | 1.0 |
| H9.53/5.59/4.9 | 9.53±0.3 | 5.59±0.25 | 4.9±0.25 | 2.4 | 22. | 9.43 | 214 | 1.1 |
| H10/6/5 | 10.00±0.50 | 6.00±0.40 | 5.00±0.40 | 2.51 | 24.1 | 9.59 | 230 | 1.2 |
| H12/6/4 | 12.00±0.30 | 6.00±0.30 | 4.00±0.25 | 2.27 | 26.1 | 11.5 | 301 | 1.5 |
| H12.7/7.9/7.5 | 12.70±0.25 | 7.92±0.25 | 7.50±0.15 | 1.77 | 31.2 | 17.6 | 549 | 2.7 |
| H14/7.5/7 | 14.00±0.30 | 7.50±0.30 | 7.00±0.30 | 1.44 | 31.7 | 22.0 | 697 | 3.6 |
| H14/7.5/7A | 13.70±0.30 | 7.90±0.30 | 6.80±0.30 | 1.68 | 32.8 | 19.2 | 620 | 3.2 |
| H14/8/7 | 14.00±0.40 | 8.00±0.30 | 7.00±0.30 | 1.62 | 32.8 | 20.3 | 665 | 3.5 |
| H14/9/5 | 14.00±0.40 | 9.00±0.30 | 5.00±0.30 | 2.89 | 35.0 | 12.1 | 423 | 2 |
| H15.8/12/8 | 15.80±0.20 | 12.00±0.20 | 8.00±0.20 | 2.85 | 43.1 | 15.1 | 651 | 3.3 |
| H16/12/8 | 16.00±0.20 | 12.00±0.20 | 8.00±0.20 | 2.77 | 43.4 | 15.7 | 680 | 3.4 |
| H16/9/7 | 16.0±0.30 | 9.00±0.30 | 7.00±0.30 | 1.56 | 37.2 | 23.8 | 964 | 4.2 |

东莞市石碣昊磁电子厂



Huan Ci
Electronics co.,ltd

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| | | | | | | | | |
|------------|-----------------|----------------|----------------|-------|-------|-------|--------|------|
| H16/9.6/8 | 16.00± 0.30 | 9.60± 0.30 | 8.00± 0.30 | 1.54 | 38.5 | 25.1 | 964 | 4.6 |
| H18/8/5 | 18.00± 0.50 | 8.00± 0.40 | 5.00± 0.40 | 1.56 | 36.7 | 23.5 | 861 | 4.9 |
| H18/10/10 | 18.00± 0.50 | 10.00± 0.40 | 10.00± 0.40 | 1.07 | 41.5 | 38.9 | 1610 | 8.6 |
| H18/12/8 | 18.00± 0.50 | 12.00± 0.40 | 8.00± 0.30 | 1.94 | 45.8 | 23.7 | 1090 | 5.8 |
| H20/10/10 | 20.0±0.40 | 10.0± 0.30 | 10.0± 0.30 | 0.91 | 43.5 | 48.0 | 2090 | 11 |
| H22/14/10 | 22.00± 0.40 | 14.00± 0.40 | 10.00± 0.30 | 1.39 | 54.7 | 39.3 | 2150 | 11 |
| H25/15/10 | 25.00± 0.50 | 15.00± 0.50 | 10.00± 0.30 | 1.23 | 60.2 | 48.9 | 2944 | 15 |
| H25/15/12 | 25.00± 0.50 | 15.00± 0.50 | 12.00± 0.30 | 1.03 | 60.2 | 58.5 | 3520 | 18 |
| H28/19/12 | 28.0±0.50 | 19.0± 0.50 | 12.0± 0.30 | 1.35 | 72 | 53.3 | 3840 | 19.2 |
| H29/19/15 | 29.00± 0.60 | 19.00± 0.40 | 15.00± 0.50 | 0.99 | 73.2 | 73.9 | 5409 | 27 |
| H31/19/15 | 31.00± 0.60 | 19.00± 0.40 | 15.00± 0.50 | 0.86 | 75.5 | 88.2 | 6660 | 34 |
| H36/23/15 | 36.0±0.6 | 23.0±0.5 | 15.0±0.4 | 0.94 | 90.0 | 95.6 | 8590 | 42 |
| H38/22/14 | 38.00± 1.00 | 22.00± 0.80 | 14.00± 0.50 | 0.82 | 89.7 | 109.3 | 9802 | 50 |
| H47/27/13 | 47.00± 1.10 | 27.00± 0.80 | 13.00± 0.50 | 0.87 | 110.5 | 126.7 | 14002 | 72 |
| H50/25/15 | 50.0±1.1 | 25.0±0.8 | 15.0±0.6 | 0.45 | 109 | 240 | 26100 | 101 |
| H58/32/18 | 58.3±1.1 | 32.0±0.8 | 18.0±0.6 | 0.58 | 134 | 230 | 30700 | 155 |
| H60/40/25 | 60.0±1.1 | 40.0±0.8 | 25.0±0.5 | 0.62 | 153 | 247 | 37700 | 190 |
| H68/44/15 | 68.00± 1.50 | 44.00± 1.00 | 15.00± 0.50 | 0.96 | 170.5 | 177.2 | 30209 | 152 |
| H124/60/40 | 122.50± 2.50 | 60.00± 2.00 | 40.00± 2.50 | 0.226 | 289 | 1280 | 370000 | 1520 |



磁特性 Magnetic Characteristics

| 型号 Type | A_L (nH/N ² ±25) 1kHz,100T _s , 25°C | | | | | P _c max (W) 100kHz,200mT, 100°C | |
|----------------|---|-------|-------|-------|----------------|--|-------|
| | HC-5 | HC-7 | HC-10 | HC-15 | HCP4/H CP4A | HCP4 | HCP4A |
| | 2770 | 4150 | 5550 | 8000 | 1350 | 0.07 | 0.055 |
| H9/5/5 | 3000 | 4000 | 5700 | 8500 | 1300 | 0.10 | 0.08 |
| H9.55/5.59/4.9 | 2610 | 3660 | 5230 | 7840 | 1200 | 0.11 | 0.09 |
| H10/6/5 | 2550 | 3500 | 5100 | 7600 | 1100 | 0.12 | 0.096 |
| H12/6/4 | 2750 | 3850 | 5500 | 8200 | 1200 | 0.15 | 0.12 |
| H12.7/7.9/7.5 | 3570 | 4800 | 6900 | 10300 | 1500 | 0.28 | 0.224 |
| H14/7.5/7A | 4360 | 6540 | 8720 | 13000 | 1900 | 0.35 | 0.28 |
| H14/7.5/7A | 3740 | 5240 | 7490 | 11230 | 1720 | 0.31 | 0.25 |
| H14/8/7 | 3900 | 5500 | 7800 | 11700 | 1700 | 0.34 | 0.27 |
| H14/9/5 | 2170 | 3060 | 4340 | 6400 | 960 | 0.20 | 0.16 |
| H15.8/12/8 | 2200 | 3080 | 4400 | 6600 | 1010 | 0.33 | 0.26 |
| H16/12/8 | 2270 | 3200 | 4540 | 6700 | 1010 | 0.34 | 0.272 |
| H16/9/7 | 4030 | 5640 | 8060 | 12080 | 1850 | 0.48 | 0.39 |
| H16/9.6/8 | 4000 | 5600 | 8100 | 12000 | 1800 | 0.48 | 0.384 |
| H18/8/5 | 4050 | 5700 | 8100 | 12000 | 1800 | 0.44 | 0.352 |
| H18/10/10 | 5880 | 8200 | 11000 | 16000 | 2600 | 0.80 | 0.64 |
| H18/12/8 | 3240 | 4540 | 6490 | 9730 | 1490 | 0.55 | 0.44 |
| H20/10/10 | 6930 | 9700 | 13860 | 20790 | 3190 | 1.05 | 0.84 |
| H22/14/10 | 4500 | 6300 | 9000 | 13500 | 2000 | 1.1 | 0.88 |
| H25/15/10 | 5100 | 7100 | 10200 | 15000 | 2200 | 1.5 | 1.2 |
| H25/15/12 | 6100 | 8600 | 12300 | 18000 | 2700 | 1.76 | 1.4 |
| H28/19/12 | 4650 | 6510 | 9300 | 13960 | 2140 | 1.92 | 1.536 |
| H29/19/15 | 6340 | 8900 | 12700 | 19000 | 2800 | 2.7 | 2.16 |
| H31/19/15 | 7300 | 10300 | 14700 | 22000 | 3200 | 3.4 | 2.72 |
| H36/23/15 | 6720 | 9400 | 13440 | 20160 | 3090 | 4.30 | 3.44 |



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| | | | | | | | |
|------------|-------|-------|-------|-------|-------|-------|-------|
| H38/22/14 | 7650 | 10700 | 15300 | 22900 | 3400 | 4.9 | 3.9 |
| H47/27/13 | 7200 | 10100 | 14400 | 21000 | 3200 | 7.0 | 5.6 |
| H50/25/15 | 10400 | 14550 | 20790 | 31190 | 4780 | 13.05 | 10.44 |
| H58/32/18 | 10700 | 14990 | 21400 | 32110 | 4920 | 15.35 | 12.28 |
| H60/40/25 | 10140 | 14200 | 20270 | 30410 | 4660 | 18.85 | 15.08 |
| H68/44/15 | 6500 | 9100 | 13000 | 19000 | 2900 | 15.1 | 12.1 |
| H124/60/40 | | | | | 12800 | 7.4* | |

Pcv _{max} : 25kHz, 100mT, 100°C (±)

材料牌号对照表 Material brands Comparision Table

与我公司 CP、CH 材料系列性能和用途相对应的国外主要厂商材料牌号参见下表。

Show below are the material brands of main international manufacturers, which characteristic and application scope correspond to those of our CP and series.

| 厂商 Manufacturers | 材料牌号 Material Brands | | | | | | | |
|---------------------|----------------------|------------|-------|------------|-------------|------------------|--------|--------|
| HAOCI | HCP4 | HCP4A | HC-5D | HC-5 | HC-7 | HC-10 | HC-12 | HC-15 |
| TDK | PC40 | PC44 | DN50 | HSB / HS52 | HSB2 / HS72 | HSC2 / HS10 | HSC4 | HSC3 |
| FDK | 6H20 | 6H40 | | 2H06 | 2H07 | 2H10 | | 2H15 |
| TOKIN | BH2 | BH1 | 5000B | 6000H | 7000H | | 12001H | |
| HITACHI | ML24D | ML25D | | MQ53D | MP70D | MP10T | | MP15T |
| NICERA | NC-2H | 2HMS | | NC-5Y | NC-7 | NC-10H | | |
| KAWATETSU | MB3 | MB4 | | MA055 | MA07A | MA100 | | |
| SAMWHA | PL-7 | PL-9 | | SM-50 | SM-70S | SM-100 / SM-100T | | SM-150 |
| FERROXCUBE | 3C90 / 3C94 | 3C96 / 3F3 | | 3E4 | 3E25 / 3E27 | 3E5 / 3E55 | 3E6 | 3E7 |
| EPCOS | N67 / N87 | N97 | | T35 | T37 | T38 | T42 | T46 |
| AVX/TPC | F1 | F2 | | A4 / A5 | A3 | A2 | A1 | A0 |



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