

# **CUSTOMER ACCEPTANCE SPECIFICATION**

**CUSTOMER :**

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**PRODUCT : TN13/7.5/5**

**MATERIAL: 3F3**

**Ferroxcube 12NC : 4341 030 37921**

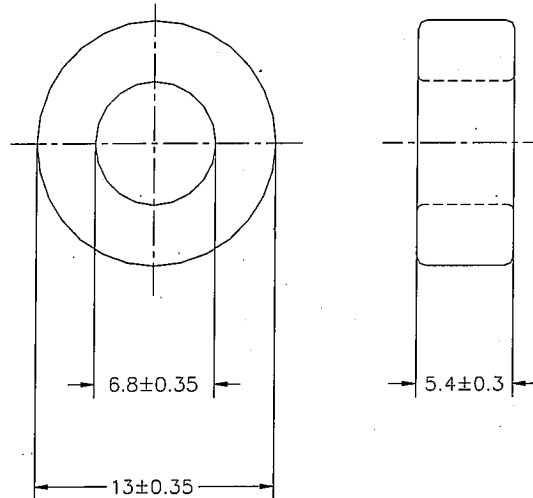
**DATE : 2015/10/28**

**CUSTOMER APPROVAL**

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# Product Drawing and Specification



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## Dimensions According To: IEC 205

|                                    |                                      |                           |                         |                        |
|------------------------------------|--------------------------------------|---------------------------|-------------------------|------------------------|
| $\Sigma 1/A : 2.46 \text{mm}^{-1}$ | $\Sigma 1/A^2 : 0.20 \text{mm}^{-3}$ | $A_e : 12.23 \text{mm}^2$ | $V_e : 368 \text{mm}^3$ | $L_e : 30.1 \text{mm}$ |
| Weight-2g/pcs                      |                                      |                           |                         |                        |

## Electrical Specifications

| Property            | Specification<br>(1) | Unit            | Test Conditions |           |           |             |
|---------------------|----------------------|-----------------|-----------------|-----------|-----------|-------------|
|                     |                      |                 | Frequency       | Induction | Equipment | Temperature |
|                     |                      |                 | (kHz)           | (mT)      | (1)       | (°C)        |
| AL                  | $900 \pm 25\%$       | $\text{nH/N}^2$ | 10              | 0.1V      | HP-4284A  | $25 \pm 3$  |
| Power losses<br>(2) | $\leq 0.040$         | W               | 100             | 100       | ----      | 100         |
|                     | $\leq 0.069$         |                 | 400             | 50        |           |             |

(1): Or similar

(2): Average within the specified value  
Individual values could go up to +20%

## OTHER SPECIFICATIONS

VISUAL REQUIREMENTS according to: GUV-4-0-0/1  
High voltage insulation  $\geq 1.5 \text{kV}$

|              |                                                                                                                               |                       |               |                      |                                                                                          |            |
|--------------|-------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|----------------------|------------------------------------------------------------------------------------------|------------|
| ROUGHNESS    | UNIT                                                                                                                          | SCALE                 | PROJ<br>EUROP | UN-D 28              | TOLERANCES:<br>UNLESS OTHERWISE STATED<br>DIMENSION: $\pm 3\%$<br>ACC: TO DIN 406 TEIL 4 | UN-D 603   |
|              | mm                                                                                                                            | 2:1                   |               | <br>Ra in mikron(μm) |                                                                                          |            |
| 3F3: MA01    | <b>CORE- FAMILY</b><br><b>TN13/7.5/5-3F3</b><br>(Bare dimensions: $12.5 \times 7.5 \times 5$ )<br>Toroid Coated with Nylon 11 |                       |               |                      | 1                                                                                        | 2006/11/15 |
| 6TG : 531530 |                                                                                                                               |                       |               |                      | 4341 030 3792_                                                                           |            |
| 2006/11/15   |                                                                                                                               |                       |               |                      | BL1TN0130705U9010P                                                                       |            |
| - -          |                                                                                                                               |                       |               |                      |                                                                                          |            |
| - -          |                                                                                                                               |                       |               |                      |                                                                                          |            |
| Name: Emily  | Check: <i>Peter</i>                                                                                                           | Approve: <i>Jeddy</i> | 110 - 02      | 010                  | SH 1                                                                                     | A.4        |

|    |                 |                                            |
|----|-----------------|--------------------------------------------|
| TR | Dat. 2006/11/15 | Property of Ferroxcube Dongguan Ltd.-China |
|----|-----------------|--------------------------------------------|

Revision:001

No:FXC-F-0168

Customer:

Part No: BL1TN0130705U9010P

Type: 4341 030 37921

## Material Specification of 3F3

### • Standard Characteristics of 3F3

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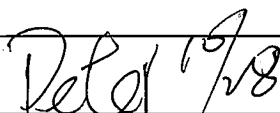
| ITEM                                                                  | UNIT               | VALUE          |
|-----------------------------------------------------------------------|--------------------|----------------|
| Initial permeability, $\mu_i$<br>(25°C, $\leq 10\text{KHz}$ , 0.25mT) |                    | 2000 $\pm$ 20% |
| Saturation magnetic flux density, $B_s$<br>(25°C, 10KHz, 1200A/m)     | mT                 | $\approx 440$  |
| Saturation magnetic flux density, $B_s$<br>(100°C, 10KHz, 1200A/m)    | mT                 | $\approx 370$  |
| Curie Temperature, $T_c$                                              | °C                 | $\geq 200$     |
| Power Loss<br>100 °C, 100KHz, 100mT, $P_v$                            | KW/m <sup>3</sup>  | $\approx 80$   |
| Power Loss<br>100 °C, 400KHz, 50mT, $P_v$                             | KW/m <sup>3</sup>  | $\approx 150$  |
| Specific resistivity, $\rho$<br>DC: 25 °C                             | $\Omega \text{ m}$ | $\approx 2$    |
| Sintered Density, $D_s$                                               | g/cm <sup>3</sup>  | $\approx 4.75$ |

These properties refer to ring core with dimensions  $\Phi 25 \times \Phi 15 \times 10 \text{ mm}$ .

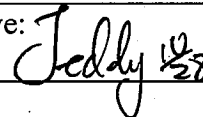
Actual properties depend on shape and dimensions of the core.

Name :Fengping

Check:



Approve:



Date :2015/10/28

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Specification of **3F3**

12NC : 4341 030 37921

### Specifications

| Characteristics                 |                                              | Testing Condition                                                                                                                                                                                                                                                                                                                        |
|---------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inductance Factor<br>(AL value) | <b>900 ±25%</b><br><b>(nH/N<sup>2</sup>)</b> | Equipment:Hewlett Packard 4263B<br>Number of turns : <b>10 turns</b><br>Wire diameter : <b>0.35mm</b> (single-line conductor)<br>Temperature : <b>25°C</b><br>Measuring frequency : <b>10 kHz</b><br>Voltage : <b>0.1V</b><br>Effective dimension:<br><b>Ae=12.23mm<sup>2</sup></b><br><b>Le=30.1mm</b>                                  |
| Power Loss<br>(PV)              | <b>(1) ≤ 0.040 W</b><br><b>(2) ≤ 0.069W</b>  | Equipment : <b>EMMA</b> (Philips equipment)<br>Number of turns: <b>5 turns</b><br>Wire diameter : <b>0.35mm</b> (multi-line strand)<br>Temperature : <b>100°C</b><br>(1) Measuring frequency: <b>100kHz</b> (sinusoidal)<br><b>Flux density:100mT</b><br>(2) Measuring frequency: <b>400kHz</b> (sinusoidal)<br><b>Flux density:50mT</b> |
| Insulation                      | <b>≥1500 V<sub>DC</sub></b>                  | Equipment: Ztech High pulse tester<br>Temperature : <b>25°C</b><br>DC Voltage : <b>1500 Volt</b><br>The core to be tested via direct contact with two probes where<br>1500 V <sub>DC</sub> is applied.                                                                                                                                   |
| Dimension                       | See Drawing                                  | Caliper or Gauge                                                                                                                                                                                                                                                                                                                         |
| Coating                         | Nylon                                        | White in color                                                                                                                                                                                                                                                                                                                           |

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Name :Fengping

Check:

*Peter*

Approve:

*Jolly*

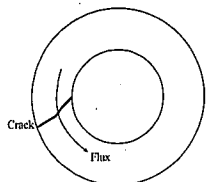
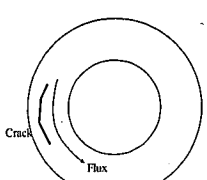
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Specification of 3F3

12NC : 4341 030 37921

**Mechanical defect:**

| Location of Defect                                                                                               | Maximum area of chipping |                     | Maximum length of crack |                 |
|------------------------------------------------------------------------------------------------------------------|--------------------------|---------------------|-------------------------|-----------------|
|                                                                                                                  | Single Chipping          | Sum over Chippings  | Single crack            | Sum over cracks |
| <b>Crack ⊥ Flux Path</b><br>    | <4 mm <sup>2</sup>       | <10 mm <sup>2</sup> | <1 mm                   | <2 mm           |
| <b>Crack // Flux Path</b><br> | <4 mm <sup>2</sup>       | <10 mm <sup>2</sup> | <3 mm                   | <15 mm          |

**Inspection Criteria**

All the inspections are executed according to the regulations of DIN ISO 2859 and MIL STD-414

| Item                               | AQL in DIN ISO 2859 | Level In DIN ISO 2859 | AQL In MIL-414 | Level In MIL-414 |
|------------------------------------|---------------------|-----------------------|----------------|------------------|
| Dimensions                         | 1.0%                | II                    | ----           | ----             |
| A <sub>L</sub> value               | ----                | ----                  | 1.0%           | II               |
| Mechanical defect<br>Chips, Cracks | 1.0%                | II                    | ----           | ----             |

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