



ISO9001 & ISO14001 & TS16949 **CHILISIN ELECTRONICS CORP.**

**Lead-Free & RoHs Compliance!!**

## **SPECIFICATION FOR APPROVAL**

**CUSTOMER :** ELTECH

**CUSTOMER P/N :** \_\_\_\_\_

**OUR DWG No :** CE1-360375

**QUANTITY :** X Pcs. **DATE :** 2013/9/4

**ITEM :** SL1013C-471K-N

| <b>SPECIFICATION<br/>ACCEPTED BY:</b> |  |
|---------------------------------------|--|
| <b>COMPONENT<br/>ENGINEER</b>         |  |
| <b>ELECTRICAL<br/>ENGINEER</b>        |  |
| <b>MECHANICAL<br/>ENGINEER</b>        |  |
| <b>APPROVED</b>                       |  |
| <b>REJECTED</b>                       |  |

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**DRAWN  
BY**

Jiusheng

**CHECKED  
BY**

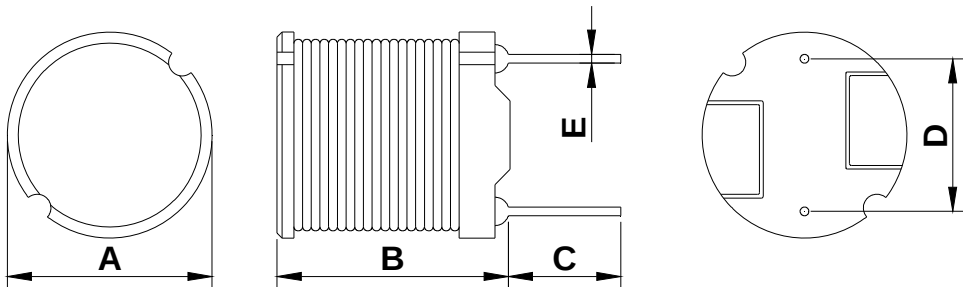
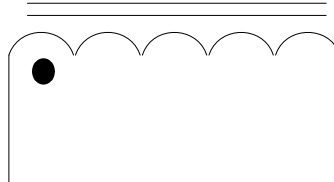
Liukan

**APPROVED  
BY**

Tangshan

**QRA  
BY**

## SPECIFICATION FOR APPROVAL

|                                                                                                                  |               |    |                   |      |    |                                                                                      |          |          |  |
|------------------------------------------------------------------------------------------------------------------|---------------|----|-------------------|------|----|--------------------------------------------------------------------------------------|----------|----------|--|
| CUSTOMER                                                                                                         |               |    | ELTECH            |      |    | CLS DWG. NO.                                                                         |          | Rev<br>A |  |
| CUSTOMER'S PART NO/DWG NO.                                                                                       |               |    | DESCRIPTION       |      |    | DATE                                                                                 |          |          |  |
|                                                                                                                  |               |    | SL1013C-471K-N    |      |    | 2013/9/4                                                                             |          |          |  |
| (1) MECHANICAL ASSEMBLY<br><br> |               |    |                   |      |    | A                                                                                    | 10.0±0.5 | m/m      |  |
|                                                                                                                  |               |    |                   |      |    | B                                                                                    | 14.4max  | m/m      |  |
|                                                                                                                  |               |    |                   |      |    | C                                                                                    | 5.0±1.0  | m/m      |  |
|                                                                                                                  |               |    |                   |      |    | D                                                                                    | 5.0±0.3  | m/m      |  |
|                                                                                                                  |               |    |                   |      |    | E                                                                                    | 0.8±0.05 | m/m      |  |
|                                                                                                                  |               |    |                   |      |    | F                                                                                    |          | m/m      |  |
|                                                                                                                  |               |    |                   |      |    | G                                                                                    |          | m/m      |  |
|                                                                                                                  |               |    |                   |      |    | H                                                                                    |          | m/m      |  |
|                                                                                                                  |               |    |                   |      |    | I                                                                                    |          | m/m      |  |
|                                                                                                                  |               |    |                   |      |    | J                                                                                    |          | m/m      |  |
| (2) ELECTRICAL REQUIREMENTS                                                                                      |               |    |                   |      |    | (3) SCHEMATIC                                                                        |          |          |  |
| L                                                                                                                | 470.0±10%     | uH | TEST<br>FREQUENCY | 1KHZ | 1V |  |          |          |  |
| RDC                                                                                                              | 0.65max       | Ω  |                   |      |    |                                                                                      |          |          |  |
| L(at 0.84A)                                                                                                      | L drop 10%max | uH | TEST<br>FREQUENCY | 1KHZ | 1V |                                                                                      |          |          |  |
|                                                                                                                  |               |    |                   |      |    |                                                                                      |          |          |  |
|                                                                                                                  |               |    |                   |      |    |                                                                                      |          |          |  |
| (4) TEST INSTRUMENTS                                                                                             |               |    |                   |      |    |                                                                                      |          |          |  |
| *HP4284A+HP42841A (L,IDC)<br>*CH502BC (RDC)                                                                      |               |    |                   |      |    |                                                                                      |          |          |  |
| *Storage Temperature: Under 25℃ ,Humidity < 75% RH(6 Month)<br>*Operating temperature -25℃ to +85℃               |               |    |                   |      |    |                                                                                      |          |          |  |
| <b>NOTE:</b><br><br>*Pin:8φ<br>*Solder:Sn99.3Cu0.7                                                               |               |    |                   |      |    | APPROVED BY<br>Tangshan                                                              |          |          |  |
|                                                                                                                  |               |    |                   |      |    | CHECKED BY<br>Liukan                                                                 |          |          |  |
|                                                                                                                  |               |    |                   |      |    | DRAWN BY<br>Jiusheng                                                                 |          |          |  |
|                                                                                                                  |               |    | VERSION           |      |    | No.1                                                                                 |          |          |  |
|                                                                                                                  |               |    |                   |      |    |                                                                                      |          |          |  |



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## TEST DATA FOR PREPRODUCTION SAMPLES

|                             |          |            |          |                   |  |              |             |          |       |      |          |  |
|-----------------------------|----------|------------|----------|-------------------|--|--------------|-------------|----------|-------|------|----------|--|
| CUSTOMER                    |          |            |          |                   |  | CLS DWG. NO. |             |          | Rev   |      |          |  |
| ELTECH                      |          |            |          |                   |  |              |             |          | A     |      |          |  |
| CUSTOMER'S PART NO./DWG.NO. |          |            |          | DESCRIPTION       |  |              |             | DATE     |       |      |          |  |
|                             |          |            |          | SL1013C-471K-N    |  |              |             | 2013/9/4 |       |      |          |  |
|                             |          |            |          |                   |  |              |             | QUANTITY |       | PCS. |          |  |
| MEAS. ITEM                  |          | L<br>uH    | RDC<br>Ω | L(at 0.84A)<br>uH |  |              |             |          |       |      |          |  |
| SPEC                        | CUSTOMER |            |          |                   |  |              |             |          |       |      |          |  |
|                             | SUGGEST  | 470.0±10%  | 0.65max  | L drop 10%max     |  |              |             |          |       |      |          |  |
| TEST FREQ.                  |          | 1KHZ<br>1V |          | 1KHZ<br>1V        |  |              |             |          |       |      |          |  |
| 1                           |          | 477.00     | 0.47     | 471.00            |  |              |             |          |       |      |          |  |
| 2                           |          | 476.00     | 0.47     | 470.00            |  |              |             |          |       |      |          |  |
| 3                           |          | 476.00     | 0.47     | 470.00            |  |              |             |          |       |      |          |  |
| 4                           |          | 475.00     | 0.47     | 470.00            |  |              |             |          |       |      |          |  |
| 5                           |          | 477.00     | 0.47     | 472.00            |  |              |             |          |       |      |          |  |
| 6                           |          | 479.00     | 0.47     | 473.00            |  |              |             |          |       |      |          |  |
| 7                           |          | 477.00     | 0.47     | 471.00            |  |              |             |          |       |      |          |  |
| 8                           |          | 476.00     | 0.47     | 471.00            |  |              |             |          |       |      |          |  |
| 9                           |          | 476.00     | 0.47     | 470.00            |  |              |             |          |       |      |          |  |
| 10                          |          | 479.00     | 0.47     | 473.00            |  |              |             |          |       |      |          |  |
| 11                          |          |            |          |                   |  |              |             |          |       |      |          |  |
| 12                          |          |            |          |                   |  |              |             |          |       |      |          |  |
| 13                          |          |            |          |                   |  |              |             |          |       |      |          |  |
| 14                          |          |            |          |                   |  |              |             |          |       |      |          |  |
| 15                          |          |            |          |                   |  |              |             |          |       |      |          |  |
| X                           |          | 476.80     | 0.47     | 471.10            |  |              |             |          |       |      |          |  |
| R                           |          | 4.00       | 0.00     | 3.00              |  |              |             |          |       |      |          |  |
| CUSTOMER SAMPLE             |          |            |          |                   |  |              |             |          |       |      |          |  |
| TEST CONDITION:             |          |            |          |                   |  |              | TEMP.       |          | 25 °C |      | R.H. 65% |  |
|                             |          |            |          |                   |  |              | APPROVED BY |          |       |      |          |  |
|                             |          |            |          |                   |  |              | Tangshan    |          |       |      |          |  |
|                             |          |            |          |                   |  |              | CHECKED BY  |          |       |      |          |  |
|                             |          |            |          |                   |  |              | Liukan      |          |       |      |          |  |
|                             |          |            |          |                   |  |              | DRAWN BY    |          |       |      |          |  |
|                             |          |            |          |                   |  |              | Jiusheng    |          |       |      |          |  |
|                             |          |            |          |                   |  |              |             |          |       |      |          |  |



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## TEST DATA FOR PREPRODUCTION SAMPLES

|                                      |          |         |                                      |         |          |  |                         |  |          |  |
|--------------------------------------|----------|---------|--------------------------------------|---------|----------|--|-------------------------|--|----------|--|
| CUSTOMER<br><b>ELTECH</b>            |          |         |                                      |         |          |  | CLS DWG. NO.            |  | Rev<br>A |  |
| CUSTOMER'S PART NO./DWG.NO.          |          |         | DESCRIPTION<br><b>SL1013C-471K-N</b> |         |          |  | DATE<br>2013/9/4        |  |          |  |
|                                      |          |         |                                      |         |          |  | QUANTITY                |  | PCS.     |  |
| MEAS.<br>ITEM                        | A<br>mm  | B<br>mm | C<br>mm                              | D<br>mm | E<br>mm  |  |                         |  |          |  |
| SPEC<br>CUSTOMER<br>SUGGEST          | 10.0±0.5 | 14.4max | 5.0±1.0                              | 5.0±0.3 | 0.8±0.05 |  |                         |  |          |  |
| TEST<br>FREQ.                        |          |         |                                      |         |          |  |                         |  |          |  |
| 1                                    | 10.09    | 14.09   | 5.02                                 | 5.05    | 0.81     |  |                         |  |          |  |
| 2                                    | 10.13    | 14.19   | 5.08                                 | 5.07    | 0.81     |  |                         |  |          |  |
| 3                                    | 10.01    | 14.22   | 5.09                                 | 5.01    | 0.82     |  |                         |  |          |  |
| 4                                    | 10.07    | 14.15   | 4.84                                 | 4.99    | 0.81     |  |                         |  |          |  |
| 5                                    | 10.08    | 14.07   | 4.76                                 | 4.96    | 0.82     |  |                         |  |          |  |
| 6                                    | 10.08    | 14.13   | 4.79                                 | 5.13    | 0.82     |  |                         |  |          |  |
| 7                                    | 10.07    | 14.05   | 4.57                                 | 5.06    | 0.82     |  |                         |  |          |  |
| 8                                    | 10.10    | 14.19   | 4.82                                 | 4.99    | 0.82     |  |                         |  |          |  |
| 9                                    | 10.09    | 14.26   | 4.74                                 | 5.06    | 0.79     |  |                         |  |          |  |
| 10                                   | 10.09    | 14.13   | 5.04                                 | 5.07    | 0.82     |  |                         |  |          |  |
| 11                                   |          |         |                                      |         |          |  |                         |  |          |  |
| 12                                   |          |         |                                      |         |          |  |                         |  |          |  |
| 13                                   |          |         |                                      |         |          |  |                         |  |          |  |
| 14                                   |          |         |                                      |         |          |  |                         |  |          |  |
| 15                                   |          |         |                                      |         |          |  |                         |  |          |  |
| X                                    | 10.08    | 14.15   | 4.88                                 | 5.04    | 0.81     |  |                         |  |          |  |
| R                                    | 0.12     | 0.21    | 0.52                                 | 0.17    | 0.03     |  |                         |  |          |  |
| CUSTOMER<br>SAMPLE                   |          |         |                                      |         |          |  |                         |  |          |  |
| TEST CONDITION: TEMP. 25 °C R.H. 65% |          |         |                                      |         |          |  | APPROVED BY<br>Tangshan |  |          |  |
|                                      |          |         |                                      |         |          |  | CHECKED BY<br>Liukan    |  |          |  |
|                                      |          |         |                                      |         |          |  | DRAWN BY<br>Jiusheng    |  |          |  |

Rev  
A**5. MATERIAL LIST :**

| ITEM | PART   | DESCRIPTION   | TEMP  | SUPPLIERS              | UL NO.  |
|------|--------|---------------|-------|------------------------|---------|
| 1    | WIRE   | 2SFBW         | 155°C | JUNG SHING<br>OR EQUIV | E174837 |
| 2    | CORE   | FERRITE       |       | CHENZHOU<br>OR EQUIV   |         |
| 3    | EPOXY  | FK661-500U    |       | QIFU<br>OR EQUIV       |         |
| 4    | Pin    | 0.8 $\varphi$ |       | BEIQIXIN<br>OR EQUIV   |         |
| 5    | Solder | Sn99.3Cu0.7   |       | SHENYUAN<br>OR EQUIV   |         |

|          |            |             |                           |      |          |
|----------|------------|-------------|---------------------------|------|----------|
| DRAWN BY | CHECKED BY | APPROVED BY | CUSTOMER : ELTECH         | DATE | 2013/9/4 |
| Jiusheng |            |             | PART NO :                 | REV  |          |
|          |            |             | ISSUE NO : SL1013C-471K-N | RACE |          |



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### 1-1 Mechanical Performance

| No    | Item      | Specification                                                                     | Test Method                                                                                                                                                                       |
|-------|-----------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1-1-1 | Vibration | Appearance: No damage<br>Z change: within $\pm 20\%$<br>RDC: within specification | Test device shall be soldered on the substrate<br><br>Oscillation Frequency: 10 to 55 to 10Hz for 1min<br><br>Amplitude: 1.5mm<br>Time: 2hrs for each axis (X, Y & Z), total 6hrs |

### 1-2 Environmental Performance

| No                                                      | Item                | Specification                                                                      | Test Method                                                                                                                                                                                                                                                  |                  |                  |            |   |       |    |   |      |   |   |      |    |   |      |   |
|---------------------------------------------------------|---------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|------------|---|-------|----|---|------|---|---|------|----|---|------|---|
| 1-2-1                                                   | Temperature Cycle   | Appearance: No damage<br><br>Z change: within±20%<br><br>RDC: within specification | One cycle:                                                                                                                                                                                                                                                   |                  |                  |            |   |       |    |   |      |   |   |      |    |   |      |   |
|                                                         |                     |                                                                                    | <table><tr><td>Step</td><td>Temperature (°C)</td><td>Time (min)</td></tr><tr><td>1</td><td>-25±3</td><td>30</td></tr><tr><td>2</td><td>25±2</td><td>3</td></tr><tr><td>3</td><td>85±3</td><td>30</td></tr><tr><td>4</td><td>25±2</td><td>3</td></tr></table> | Step             | Temperature (°C) | Time (min) | 1 | -25±3 | 30 | 2 | 25±2 | 3 | 3 | 85±3 | 30 | 4 | 25±2 | 3 |
|                                                         |                     |                                                                                    | Step                                                                                                                                                                                                                                                         | Temperature (°C) | Time (min)       |            |   |       |    |   |      |   |   |      |    |   |      |   |
|                                                         |                     |                                                                                    | 1                                                                                                                                                                                                                                                            | -25±3            | 30               |            |   |       |    |   |      |   |   |      |    |   |      |   |
|                                                         |                     |                                                                                    | 2                                                                                                                                                                                                                                                            | 25±2             | 3                |            |   |       |    |   |      |   |   |      |    |   |      |   |
|                                                         |                     |                                                                                    | 3                                                                                                                                                                                                                                                            | 85±3             | 30               |            |   |       |    |   |      |   |   |      |    |   |      |   |
|                                                         |                     |                                                                                    | 4                                                                                                                                                                                                                                                            | 25±2             | 3                |            |   |       |    |   |      |   |   |      |    |   |      |   |
| Total: 100cycles                                        |                     |                                                                                    |                                                                                                                                                                                                                                                              |                  |                  |            |   |       |    |   |      |   |   |      |    |   |      |   |
| Measured after exposure in the room condition for 24hrs |                     |                                                                                    |                                                                                                                                                                                                                                                              |                  |                  |            |   |       |    |   |      |   |   |      |    |   |      |   |
|                                                         |                     |                                                                                    |                                                                                                                                                                                                                                                              |                  |                  |            |   |       |    |   |      |   |   |      |    |   |      |   |
|                                                         |                     |                                                                                    |                                                                                                                                                                                                                                                              |                  |                  |            |   |       |    |   |      |   |   |      |    |   |      |   |
| 1-2-2                                                   | Humidity Resistance |                                                                                    | Temperature: 40±2℃<br>Relative Humidity: 90 ~ 95%<br>Time: 1000hrs<br>Measured after exposure in the room condition for 24hrs                                                                                                                                |                  |                  |            |   |       |    |   |      |   |   |      |    |   |      |   |
| 1-2-3                                                   | Heat Life           |                                                                                    | Temperature: 85±3℃<br>Relative Humidity: 0%<br>Applied Current: Rated Current<br>Time: 1000hrs<br>Measured after exposure in the room condition for 24hrs                                                                                                    |                  |                  |            |   |       |    |   |      |   |   |      |    |   |      |   |
| 1-2-4                                                   | Cold Resistance     |                                                                                    | Temperature: -25±3℃<br>Relative Humidity: 0%<br>Time: 1000hrs<br>Measured after exposure in the room condition for 24hrs                                                                                                                                     |                  |                  |            |   |       |    |   |      |   |   |      |    |   |      |   |