# 产品承认书

## SPECIFICATION FOR APPROVAL

| | |
|---|---|
| CUSTOMER： | |
| CUSTOMER P/N： | |
| CND-TEK P/N. : | CND-DCM321620F2SF-600 |
| DESCRIPTION： | Wire Wound Type Common Mode Filter |
| REF NO: | QTC-002 |
| REV/NO: | A/0 |
| DATE: | 2018/06/18 |

ATTACHMENT：

■ SPECIFICATION

■ SAMPLE　Q'TY OF SAMPLES　　PCS

| | √ | CUSTOMER'S SIGNATURE | REMARK |
|---|---|---|---|
| FULL APPROVED | | | |
| CONDITIONAL APPROVED | | | |
| REJECTED | | | |

# CND-DCM321620F2SF-600

## Wire Wound Type Common Mode Filter

V1.0.3
AUG16,2018


深圳磁联达电子有限公司

**Shenzhen CND-TEK Electronics Co.,Ltd**

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Http: //www.cd-tek.com

# 变更履历表

| 变更日期 | 变更内容 | 版次 | 备注 |
| --- | --- | --- | --- |
| 2018-8-16 | 新制作 | A0 | |
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# 1. FEATURES:

1.1 High common mode impedance at high frequency effects excellent noise suppression performance.

1.2 CND-DCM321620F2SF-600 Series realizes small size and low profile. 3.2x1.6X2.0 mm.

1.3 100% Lead(Pb) & Halogen-Free and RoHS compliant.

1.4 Operating Temperature range: -40~+125℃ (Including self - temperature rise)

1.5 Storage temperature range: -40~+125℃ (on board)

## 2.ELECTRICAL SPECIFICATIONS @25℃

2.1 Inductance( μ H) [100kHz/0.1V] Min : 60

2.2 Test Frequency (MHz) :100

2.3 DCResistance (Ω) max: 1.70

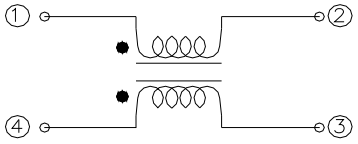
2.4 Rated Current (mA)max: 200

2.5 Rated Volt.(Vdc)max: 50

2.6 Withstand Volt. (Vdc) max:125

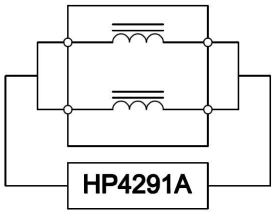
2.7 IR ( Ω ) min: 10M

## 3. SCHEMATICS:

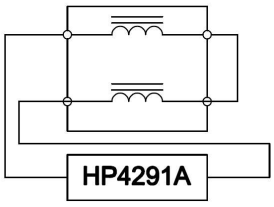



MEASURING CIRCUITS 2LINE

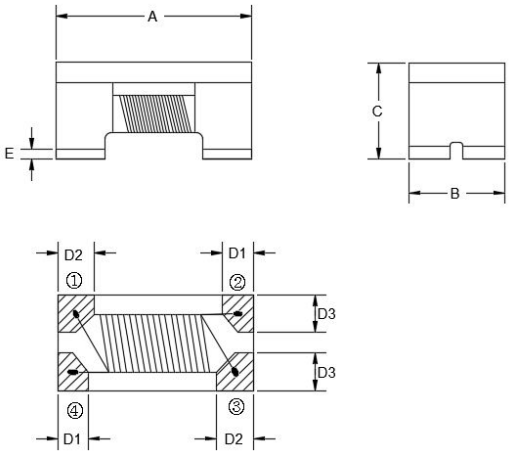
**Common mode**



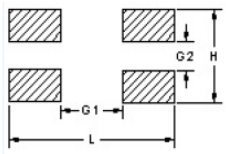

**Differential mode**




## 4. DIMENSIONS & MARKING:




**Recommended PC Board Pattern**

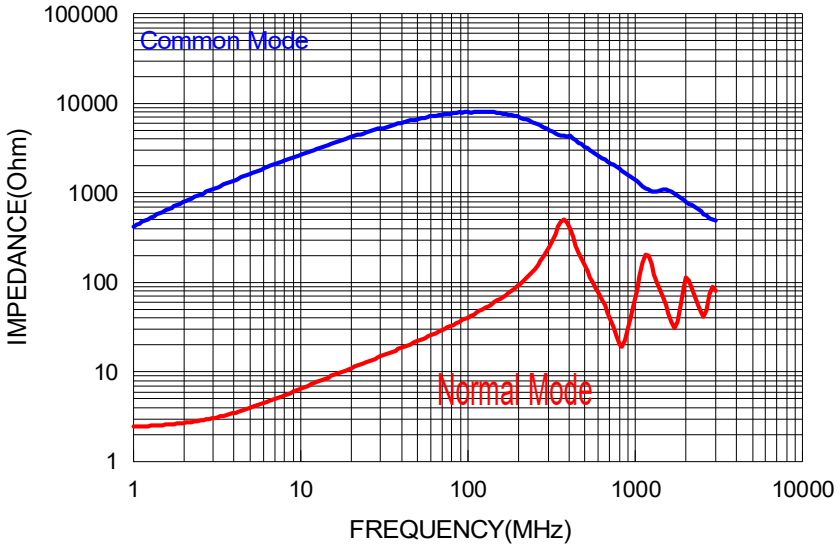



PC board should be designed so that products are not sufficient under mechanical stress as warping the board.
Products shall be positioned in the sideway direction against the mechanical stress to prevent failure.

| Series | A(mm) | B(mm) | C(mm) | D1(mm) | D2(mm) | D3(mm) | E(mm) | L(mm) | H(mm) | G1(mm) | G2(mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 321620F2SF | 3.2±0.2 | 1.6±0.2 | 2.0±0.2 | 0.52±0.1 | 0.62±0.1 | 0.64±0.1 | 0.12 (typ.) | 3.7 | 1.7 | 2.3 | 0.5 |

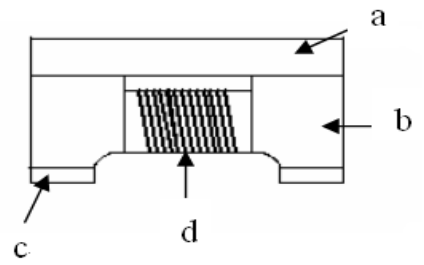
| DRAWN BY: | CHECKED BY: | APPROVED BY: | CUSTOMER: |
|---|---|---|---|
| zouwenqiang | Liyonghua | wangshengli | PART NO. :CND-DCM321620F2SF-600 |

## 5. Typical Impedance v.s. Frequency Curve:




## 6. Materials:

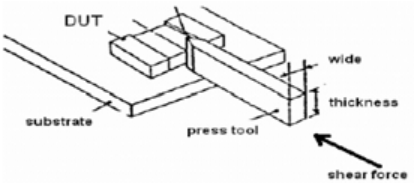
| No. | Description | Specification |
|---|---|---|
| a. | Upper Plate | Ferrite |
| b. | Core | Ferrite Core |
| c | Termination | Tin (Pb Free) |
| d | Wire | Enameled Copper Wire |



## 7、Reliability and Test Condition：

| Item | Performance | Test Condition |
|---|---|---|
| Operating temperature | -40~+125 ℃ (Including self - temperature rise) | |
| Storage temperature | -40~+125℃ (on board) | |
| **Electrical Performance Test** | | |
| Z(common mode) | Refer to standard electrical characteristics list. | Agilent-4291A+ Agilent -16197A |
| DCR | | Agilent-4338B |
| I.R. | | Agilent4339 |
| Temperature Rise Test | Rated Current < 1A ΔT 20℃Max<br>Rated Current ≧ 1A ΔT 40℃Max | 1.Applied the allowed DC current.<br>2.Temperature measured by digital surface thermometer |
| **Reliability Test** | | |
| Life Test | Appearance：No damage.<br>Inductance：within±10% of initial value<br>Impedance：within±15% of initial value<br>RDC :within ±15% of initial value and shall not exceed the specification value | Preconditioning: Run through IR reflow for 2 times.( IPC/JEDEC J-STD-020DClassification Reflow Profiles)<br>Temperature：125±2℃<br>Applied current：rated current<br>Duration：1000±12hrs<br>Measured at room temperature after placing for 24±2 hrs |
| Load Humidity | | Preconditioning: Run through IR reflow for 2 times.( IPC/JEDEC J-STD-020DClassification Reflow Profiles<br>Humidity：85±2％R.H,<br>Temperature：85℃±2℃<br>Duration：1000hrs Min. with 100% rated current<br>Measured at room temperature after placing for 24±2 hrs |
| Moisture Resistance | | Preconditioning: Run through IR reflow for 2 times.( IPC/JEDEC J-STD-020DClassification Reflow Profiles<br>1. Baked at50℃ for 25hrs, measured at room temperature after placing for 4 hrs.<br>2. Raise temperature to 65±2℃ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25℃ in 2.5hrs.<br>3. Raise temperature to 65±2℃ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25℃ in 2.5hrs,keep at 25℃ for 2 hrs then keep at -10℃ for 3 hrs<br>4. Keep at 25℃ 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at room temperature after placing for 1~2 hrs. |
| Thermal shock | | Preconditioning: Run through IR reflow for 2 times.( IPC/JEDECJ-STD-020DClassification Reflow Profiles Condition for 1 cycle<br>Step1：-40±2℃ 30±5min<br>Step2：25±2℃ ≦0.5min<br>Step3：125±2℃ 30±5min<br>Number of cycles： 500<br>Measured at room temperature after placing for 24±2 hrs |
| Vibration | | Oscillation Frequency: 10～2K～10Hz for 20 minutes<br>Equipment： Vibration checker<br>Total Amplitude:1.52mm±10%<br>Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations)。 |

## 7、Reliability and Test Condition：

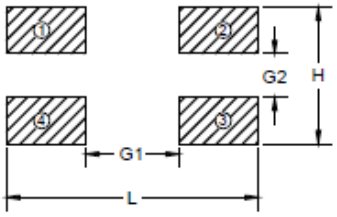
<table>
<tr><th>Item</th><th>Performance</th><th>Test Condition</th></tr>
<tr><td>Shock</td><td rowspan="2">Appearance：No damage.<br>Inductance：within±10% of initial value<br>Impedance：within±15% of initial value<br>RDC：within ±15% of initial value and shall not exceed the specification value</td><td>
<table>
<tr><td>Type</td><td>Peak value (g ' s)</td><td>Normal duration (D) (ms)</td><td>Wave form</td><td>Velocity change (Vi)ft/sec</td></tr>
<tr><td>SMD</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr>
<tr><td>Lead</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr>
</table>
shocks in each direction along 3 perpendicular axes.
</td></tr>
<tr><td>Bending</td><td>Shall be mounted on a FR4 substrate of the following dimensions: >=0805:40x100x1.2mm <0805:40x100x0.8mm<br>Bending depth:<br>>=0805inch(2012mm):1.2mm<br><0805 inch(2012mm):0.8mm<br>duration of 10 sec.</td></tr>
<tr><td>Soderability</td><td>More than 95% of the terminal electrode should be covered with solder。</td><td>Preheat: 150℃,60sec.。<br>Solder: Sn96.5% Ag3% Cu0.5%<br>Temperature: 245±5℃。<br>Flux for lead free: Rosin. 9.5%。<br>Dip time: 4±1sec。<br>Depth: completely cover the termination</td></tr>
<tr><td>Resistance to Soldering Heat</td><td rowspan="2">Appearance：No damage.<br>Inductance：within±10% of initial value<br>Impedance：within±15% of initial value<br>RDC：within ±15% of initial value and shall not exceed the specification value</td><td>Number of heat cycles: 1
<table>
<tr><td>Temperature (°C)</td><td>Time(s)</td><td>Temperature ramp/immersion and emersion rate</td></tr>
<tr><td>260 ±5(solder temp)</td><td>10 ±1</td><td>25mm/s ±6 mm/s</td></tr>
</table>
</td></tr>
<tr><td>Terminal Strength</td><td>Preconditioning:Run through IR reflow for 2 times.( IPC/JEDEC J-STD-020DClassification Reflow Profiles<br>With the component mounted on a PCB with the device to be tested, apply a force (>0805 inch(2012mm):1kg , <=0805 inch(2012mm):0.5kg)to the side of a device being tested.<br>This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested.<br> 

</td></tr>
</table>

## 8、Soldering and Mounting:

### 8.1 Recommended PC Board Pattern

| | |
|---|---|
| L(mm) | 3.70 |
| H(mm) | 1.70 |
| G1(mm) | 2.30 |
| G2(mm) | 0.50 |




**PC board should be designed so that products can prevent damage from mechanical stress when warping the board.**

**Products shall be positioned in the sideway direction to against the mechanical stress to prevent failure.**

### 8.2 Soldering

**Mildly activated rosin fluxes are preferred. CND-TEK terminations are suitable for all wave and re-flow soldering systems.**

**If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.**

**8-2.1 Lead Free Solder re-flow:**

**Recommended temperature profiles for re-flow soldering in Figure 1.**

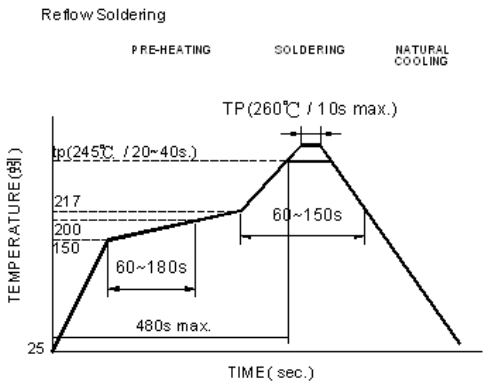
**8-2.2 Soldering Iron(Figure 2):**

**Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that**

**a soldering iron must be employed the following precautions are recommended.**

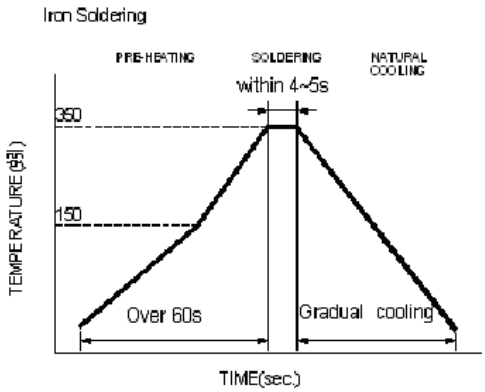
**Preheat circuit and products to 150℃ ·Never contact the ceramic with the iron tip ·Use a 20 watt soldering iron with tip diameter of 1.0mm**

**355 tip temperature (max) 1.0mm tip diameter (max) Limit soldering time to 4~5 sec.**




Reflow times: 3 times max.

Fig.1

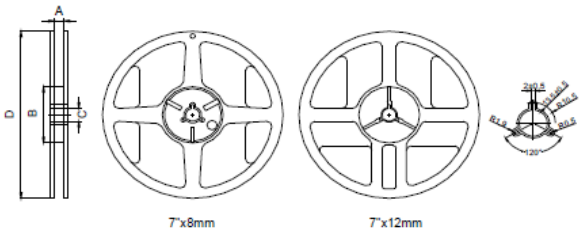



Iron Soldering times: 1 times max.

Fig.2

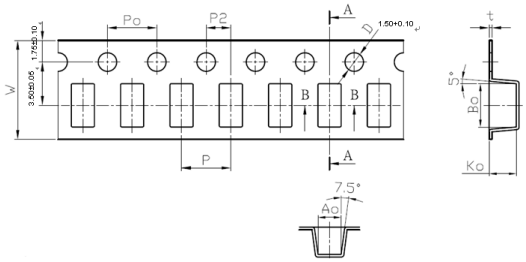
## 9、Packaging Information：

### 9.1 Reel Dimension




| Type | A(mm) | B(mm) | C(mm) | D(mm) |
|---|---|---|---|---|
| 7"x8mm | 9.0±0.5 | 60±2 | 13.5±0.5 | 178±2 |

### 9.2 Tape Dimension / 8mm

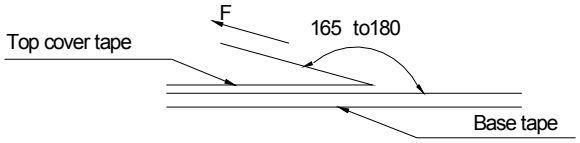



| Series | P(mm) | Po(mm) | P2(mm) | Bo(mm) | Ao(mm) | Ko(mm) | W(mm) | t(mm) |
|---|---|---|---|---|---|---|---|---|
| CND-DMY162032F-600T02 | 4.00±0.10 | 4.00±0.10 | 2.00±0.05 | 3.50±0.10 | 1.88±0.10 | 2.20±0.10 | 8.00±0.10 | 0.26±0.05 |

### 9.3 Packaging Quantity

| Chip size | Chip/Reel | Inner Box | Middle Box | Carton |
|---|---|---|---|---|
| CND-DMY162032F-600T02 | 2000 | 10000 | 50000 | 100000 |

### 9.4 Tearing Off Force




The force for tearing off cover tape is 15 to 80 grams in the arrow direction under the following conditions.

| Room Temp. (℃) | Room Humidity (%) | Room atm (hPa) | Tearing Speed mm/min |
|---|---|---|---|
| 5~35 | 45~85 | 860~1060 | 300 |

**Application .....**

- Storage Conditions (component level)
  To maintain the solderability of terminal electrodes:
  1. CND-TEK products meet IPC/JEDEC J-STD-020D standard-MSL, level 1.
  2. Temperature and humidity conditions: Less than 40℃ and 60% RH.
  3. Remmended products should be used within 12 months form the time of delivery.
  4. The packaging material should be kept where no chlorine or sulfur exists in the air.

- Transportation
  1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
  2. The use of tweezers or vacuum pick up is strongly recommended for individual components.
  3. Bulk handling should ensure that abrasion and mechanical shock are minimized.

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