

## High Current SMD Common Mode Filter \ PCM Series

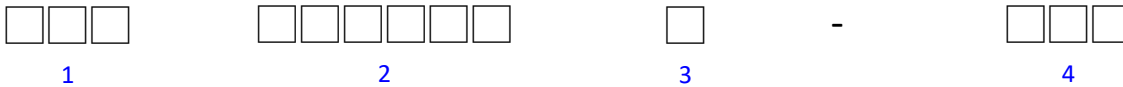
### Feature:

1. High impedance at high frequency effects noise suppression performance.
2. The choke coils structure enables noise without degrading the signal.

### Applications:

1. The PCM Series is SMD common mode filter specifically designed to eliminate common mode noise in USB 2.0, IEEE1394, and LVDS applications.

### Product Identification



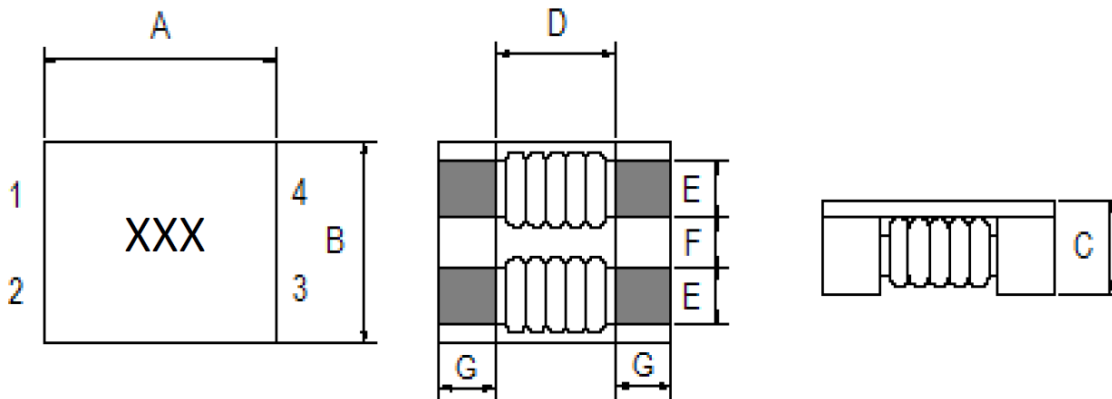
| Series name | Dimensions (WxLxH) |                | Internal code |
|-------------|--------------------|----------------|---------------|
| PCM         | 040402             | 4.7*4.5*2.0 mm | S             |

| Impedance |      |
|-----------|------|
| 301       | 300Ω |

### Rating

1. Operating temperature -40°C ~ +105°C
2. Storage conditions -40°C ~ +105°C

### Shape and Dimension

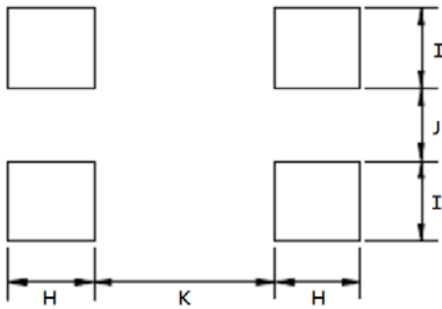


### Dimensions in mm

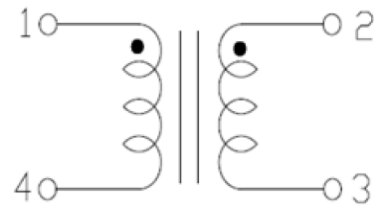
| TYPE       | A(mm)       | B(mm)       | C(mm)     | D(mm)     | E(mm)       | F(mm)       | G(mm)       |
|------------|-------------|-------------|-----------|-----------|-------------|-------------|-------------|
| PCM070603S | 7.00 ± 0.50 | 6.00 ± 0.50 | 3.80 Max. | 3.5 Typ.  | 1.50 ± 0.20 | 1.50 ± 0.20 | 1.75 ± 0.20 |
| PCM090704S | 9.00 ± 0.50 | 7.00 ± 0.50 | 4.80 Max. | 5.7 Typ.  | 1.50 ± 0.20 | 2.00 ± 0.20 | 1.70 ± 0.20 |
| PCM121106S | 12.0 ± 0.50 | 10.8 ± 0.50 | 6.40 Max. | 7.0 Typ.  | 2.70 ± 0.20 | 2.50 ± 0.20 | 2.50 ± 0.20 |
| PCM151360S | 15.0 ± 0.50 | 13.0 ± 0.50 | 6.00 Max. | 10.4 Typ. | 2.70 ± 0.20 | 3.80 ± 0.20 | 2.30 ± 0.20 |

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### Shape and Dimension

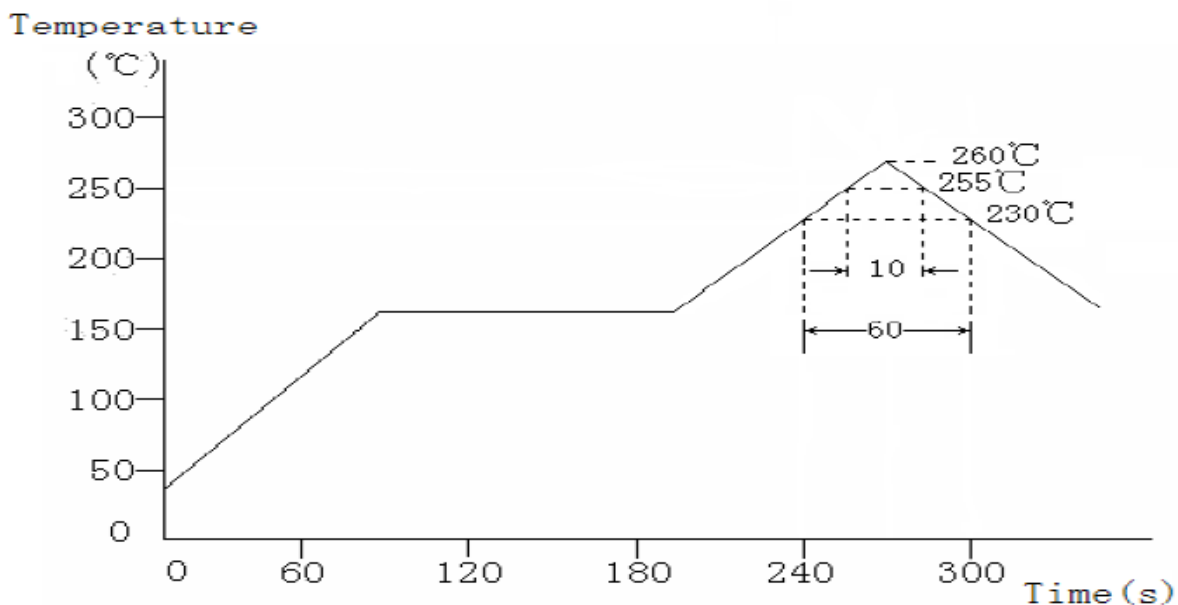


### Equivalent Circuit Schematic :



| TYPE       | H(mm)     | l(mm)     | J(mm)     | K(mm)      |
|------------|-----------|-----------|-----------|------------|
| PCM070603S | 2.20 Ref. | 1.50 Ref. | 1.50 Ref. | 2.50 Ref.  |
| PCM090704S | 3.00 Ref. | 1.75 Ref. | 1.50 Ref. | 5.00 Ref.  |
| PCM121106S | 2.70 Ref. | 2.90 Ref. | 2.30 Ref. | 6.80 Ref.  |
| PCM151360S | 3.00 Ref. | 3.00 Ref. | 3.40 Ref. | 10.00 Ref. |

### Recommended Reflow Soldering Conditions.



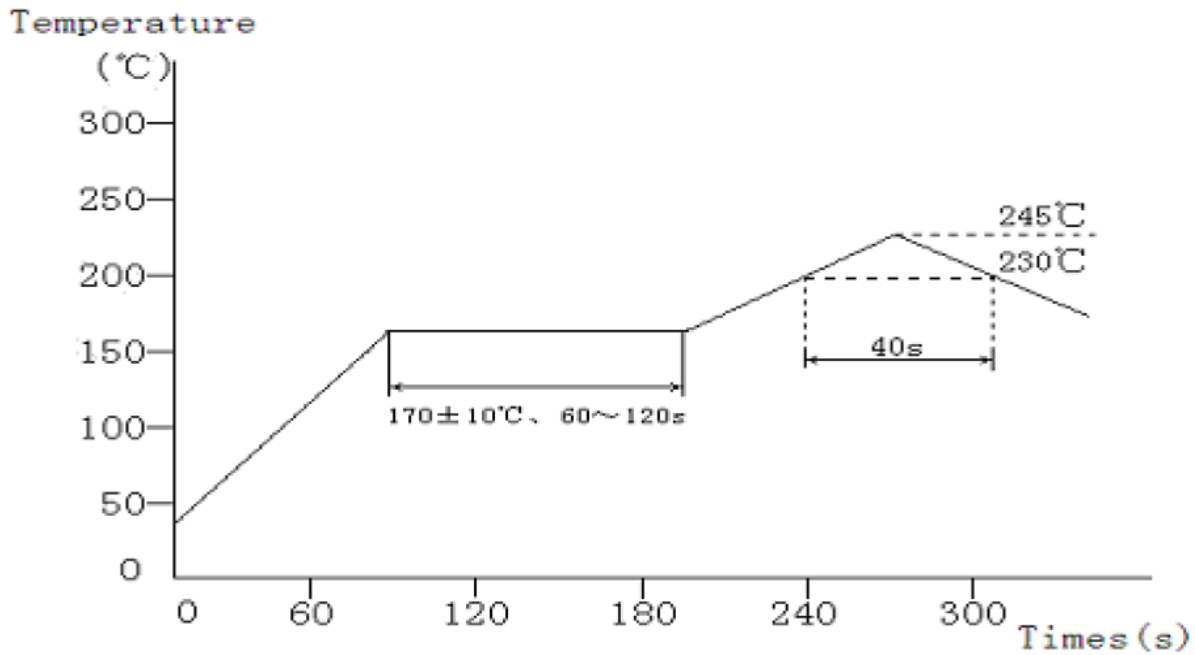
No mechanical and electrical defects are found after testing based on the above profile and keeping under the conditions of room temperature and humidity for 2 hours.

Twice reflow test is acceptable with the test interval remaining 1 hour under the normal conditions.

The reflow test profile may vary with the testing instruments.

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### Recommended Reflow Conditions.



The recommended reflow profile is based on the testing instruments used. Solder ability will reflow conditions, testing method, etc. So it is necessary to make a confirmation of them when the reflow conditions are set up.

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### Electrical Characteristics ( PCM070603S TYPE )

| Part No.       | Impedance(N1=N2)<br>( $\Omega$ ) at 100MHz |      | Rated Current<br>(A) Max. | DCR(N1=N2)<br>(M $\Omega$ ) Max. | Insulation<br>Resistance<br>(M $\Omega$ ) Min. | Rated Volt.<br>(V) Max. |
|----------------|--|------|---------------------------|----------------------------------|--|-------------------------|
|                | Min.                                       | Typ. |                           |                                  |  |                         |
| PCM070603S-400 | 40   | 70   | 15                        | 5                                | 10   | 125                     |
| PCM070603S-101 | 100  | 140  | 9.0                       | 10                               | 10   | 125                     |
| PCM070603S-301 | 225  | 300  | 5.0                       | 10                               | 10   | 125                     |
| PCM070603S-501 | 275  | 350  | 5.0                       | 10                               | 10   | 125                     |
| PCM070603S-601 | 500  | 700  | 4.0                       | 15                               | 10   | 125                     |
| PCM070603S-701 | 500  | 700  | 4.0                       | 15                               | 10   | 125                     |
| PCM070603S-102 | 800  | 1020 | 3.0                       | 17                               | 10   | 125                     |
| PCM070603S-132 | 910  | 1300 | 2.5                       | 21                               | 10   | 125                     |
| PCM070603S-272 | 2000                                       | 2700 | 1.0                       | 63                               | 10   | 125                     |
| PCM070603S-302 | 2500                                       | 3000 | 0.9                       | 75                               | 10   | 125                     |

### Electrical Characteristics ( PCM090704S TYPE )

| Part No.       | Impedance(N1=N2)<br>( $\Omega$ ) at 100MHz |      | Rated Current<br>(A) Max. | DCR(N1=N2)<br>(M $\Omega$ ) Max. | Insulation<br>Resistance<br>(M $\Omega$ ) Min. | Rated Volt. (V)<br>Max. |
|----------------|--|------|---------------------------|----------------------------------|--|-------------------------|
|                | Min.                                       | Typ. |                           |                                  |  |                         |
| PCM090704S-301 | 225  | 300  | 6.0                       | 6                                | 10   | 50                      |
| PCM090704S-501 | 450  | 600  | 5.5                       | 8                                | 10   | 50                      |
| PCM090704S-701 | 500  | 700  | 5.0                       | 10                               | 10   | 50                      |
| PCM090704S-102 | 750  | 1000 | 4.0                       | 13                               | 10   | 50                      |
| PCM090704S-272 | 2000                                       | 2700 | 2.0                       | 86                               | 10   | 50                      |

### Electrical Characteristics ( PCM121106S TYPE )

| Part No.       | Impedance(N1=N2)<br>( $\Omega$ ) at 100MHz |      | Rated Current<br>(A) Max. | DCR(N1=N2)<br>(M $\Omega$ ) Max. | Insulation<br>Resistance<br>(M $\Omega$ ) Min. | Rated Volt. (V)<br>Max. |
|----------------|--|------|---------------------------|----------------------------------|--|-------------------------|
|                | Min.                                       | Typ. |                           |                                  |  |                         |
| PCM121106S-800 | 80   | 230  | 10                        | 2                                | 10   | 125                     |
| PCM121106S-701 | 500  | 700  | 8.0                       | 6                                | 10   | 125                     |
| PCM121106S-801 | 600  | 800  | 8.0                       | 8                                | 10   | 125                     |
| PCM121106S-102 | 750  | 1000 | 8.0                       | 14                               | 10   | 125                     |
| PCM121106S-222 | 2200                                       | 2500 | 1.8                       | 35                               | 10   | 125                     |
| PCM121106S-272 | 2300                                       | 2700 | 1.5                       | 50                               | 10   | 125                     |

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### Electrical Characteristics (PCM151360S TYPE)

| Part No.       | Impedance(N1=N2)<br>( $\Omega$ ) at 100MHz |      | Rated Current<br>(A) Max. | DCR(N1=N2)<br>( $M\Omega$ ) Max. | Insulation<br>Resistance<br>( $M\Omega$ ) Min. | Rated Volt. (V)<br>Max. |
|----------------|--|------|---------------------------|----------------------------------|--|-------------------------|
|                | Min.                                       | Typ. |                           |                                  |  |                         |
| PCM151360S-301 | 250  | 300  | 13                        | 5                                | 10   | 80                      |
| PCM151360S-551 | 450  | 550  | 10                        | 6                                | 10   | 80                      |
| PCM151360S-701 | 500  | 700  | 10                        | 7                                | 10   | 80                      |

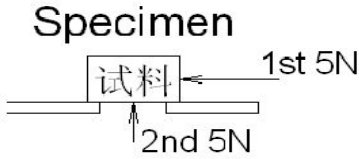
### Note

1. IDC: The actual value of D.C. current when the temperature rise is  $\Delta t = 40^\circ\text{C}$  ( $T_a = 20^\circ\text{C}$ ).

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### 4. Reliability and Test Conditions(可靠性測試條件)

#### General Characteristics

| Item                  | Conditions   | Specification   |
|-----------------------|--|---|
| Temperature drift     | To be measured in the range of -25°C to 80°C.  | Inductance temperature coefficient 2000 ppm/°C or less      |
| Storage Temperature   | With taping.   | -40°C ~ +105°C  |
| Operating Temperature | Including self temperature rise.   | -40°C ~ +105°C  |
| Adhesion strength     | <p>A static load using a R0.5 pressing tool shall be applied the arrow and to the body of the specimen in the direction of the arrow and shall be hold for 10±5s. Measure after removing pressure.</p> <p style="text-align: center;">  </p> | No Terminal detachment                                      |
| Mechanical shock      | <p>Peak acceleration: 981 m/S<sup>2</sup> Duration of pulse: 3 times in each of 3(X,Y,Z)axes.</p> <p>The specimen must be fixed on test board.</p> <p>Three successive shock shall be applied in the perpendicular direction of each surface of the specimen.</p>  | Change from an initial value<br>L : within±10%              |
| Vibration             | The specimen shall be subjected to a vibration of 1.5mm amplitude, sweep frequency 10~55Hz (10Hz to 55Hz to 10Hz in a period of one minute) for 1 h in each of 3(X,Y,Z) axes.  | Change from an initial value<br>L : within±10%              |
| Solderability         | Terminals shall be immersed for 5 to 10 seconds in flux at room temperature. Dip sample into solder bath containing molten solder at 245±5°C for 3±0.5 seconds.  | New solder shall cover 90% minimum of the surface immersed. |

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|                              |  |  |
|------------------------------|--|--|
| Resistance to soldering<br>h | <p>Test method</p> <p>Reflow soldering method</p> <p>Preheat 150~180°C 90±30s</p> <p>Peak temp 250(+ 5,-0)°C (230°C min , 30±10s)</p> <p>The specimen shall be subjected to the reflow process under the above condition 2 times. Test board shall be 0.8mm thick.</p> <p>Base material shall be glass epoxy resin.</p> <p>Measurement</p> <p>The specimen shall be stored at standard atmospheric conditions for 1 h in prior to the measurement.</p> | Change from an initial value<br>L : within±10% |
| Dump heat                    | <p>The specimen shall be stored at a temperature of 40±2°C with relative humidity of 50 ~ 95% for 500 ± 2h. Then it shall be stabilized under standard atmospheric conditions for 1 h before measurement. Measurement shall be made within 1h.</p>   | Change from an initial value<br>L : within±10% |
| Insulation resistance        | 100V DC shall be applied between the terminal and the core.  | 100mΩ or more.                                 |

### Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions in making measurements and test as follows;

Ambient temperature : 5°C to 35°C, Relative humidity: 45% to 85%, Air pressure: 86kPa to 106kPa

If more strict measurement is required, measurement shall be made within following limits;

Ambient temperature : 20±2°C, Relative humidity: 65±5%, Air pressure: 86kPa to 106kPa

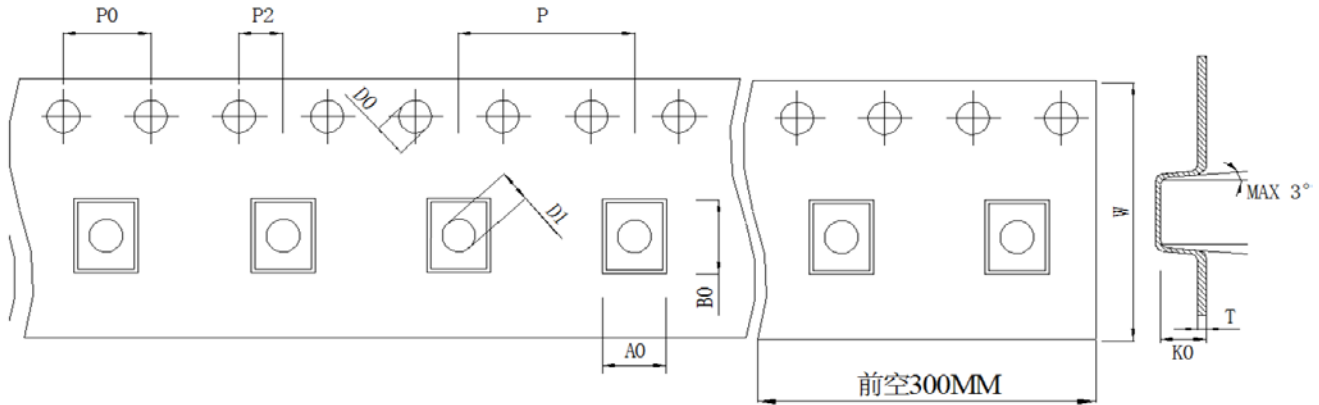
### Prohibited Substances

We confirm that our products and our production process accord with "rule of RoHS". All materials used in this product are registered material under the law concerning the examination and Regulation of Manufacture of Chemical Substances.

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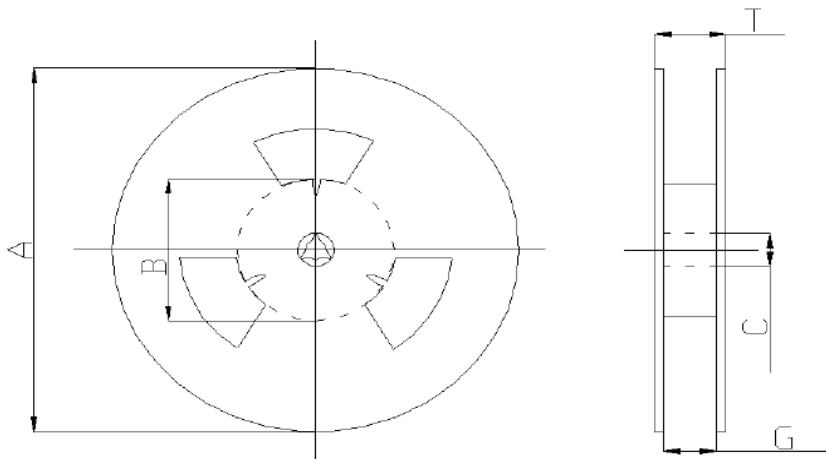
### 1. Packing Specifications

#### 1. Taping Dimension(m/m)



| Part No.   | W          | A0         | B0         | K0        | P          | P0        | P2        | T           |
|------------|------------|------------|------------|-----------|------------|-----------|-----------|-------------|
| PCM070603S | 16.0 ± 0.3 | 6.2 ± 0.1  | 7.3 ± 0.1  | 4.1 ± 0.1 | 12.0 ± 0.1 | 4.0 ± 0.1 | 2.0 ± 0.1 | 0.35 ± 0.05 |
| PCM090704S | 24.0 ± 0.3 | 8.0 ± 0.1  | 10.0 ± 0.1 | 5.0 ± 0.1 | 16.0 ± 0.1 | 4.0 ± 0.1 | 2.0 ± 0.1 | 0.40 ± 0.05 |
| PCM121106S | 24.0 ± 0.3 | 14.0 ± 0.1 | 14.0 ± 0.1 | 6.6 ± 0.1 | 16.0 ± 0.1 | 4.0 ± 0.1 | 2.0 ± 0.1 | 0.40 ± 0.05 |
| PCM151360S | 24.0 ± 0.3 | 15.0 ± 0.1 | 16.0 ± 0.1 | 6.6 ± 0.1 | 16.0 ± 0.1 | 4.0 ± 0.1 | 2.0 ± 0.1 | 0.40 ± 0.05 |

#### 2. Reel Dimension(m/m)



| Part No.   | Reel Packing | A   | B   | C  | G    | T    |
|------------|--------------|-----|-----|----|------|------|
| PCM070603S | 1500         | 330 | 100 | 13 | 16.5 | 21.1 |
| PCM090704S | 700          | 330 | 100 | 13 | 24.5 | 29.1 |
| PCM121106S | 500          | 330 | 100 | 13 | 24.5 | 29.1 |
| PCM151360S | 450          | 330 | 100 | 13 | 24.5 | 29.1 |