# SMD Power Inductors (Lead Free)

## *PDC3015C SERIES*

**1. PART NO. EXPRESSION :**

P D C 3 0 1 5 C - 1 R 6 Y F

(a) (b) (c) (d) (e)(f)

(a) Series code

(b) Dimension code

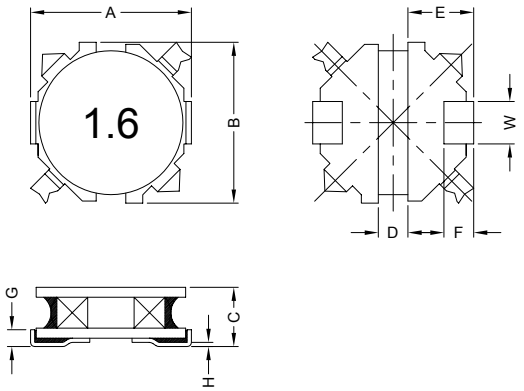
(c) Type code

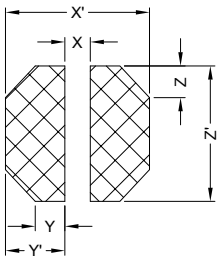
(d) Inductance code : 1R6 = 1.6uH

(e) Tolerance code : M = ±20%, Y = ±30%

(f) F : Lead Free

**2. CONFIGURATION & DIMENSIONS :**

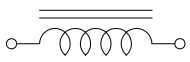


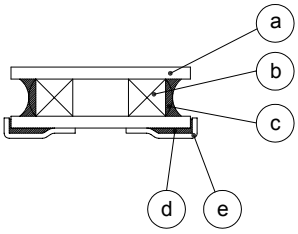

PCB Pattern

| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| 3.00±0.2 | 3.00±0.2 | 1.50 Max. | 0.80 Max. | 1.10 Max. | 0.40 Typ. | 0.30 Typ. | 0.10 Typ. |
| W | X' | X | Y' | Y | Z' | Z | |
| 1.0 Typ. | 3.40±0.1 | 0.60±0.1 | 1.40±0.1 | 0.70±0.1 | 3.20±0.1 | 0.75±0.1 | |

**3. SCHEMATIC :**



**4. MATERIALS :**




(a) Core : Ferrite Core

(b) Wire : Enamelled Copper Wire

(c) Adhesive : Epoxy

(d) Adhesive : Epoxy

(e) Clip : Tin Clip

Pb

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*18.04.2008*

SUPERWORLD ELECTRONICS (S) PTE LTD

**5. GENERAL SPECIFICATION :**

a) Test Frequency : 100KHz/0.3Vdc

b) Ambient Temp. : 25°C

c) Idc(A) : Will cause $L_0$ to drop by 30% and coil temp. rise $\Delta T \leqq 45°C$

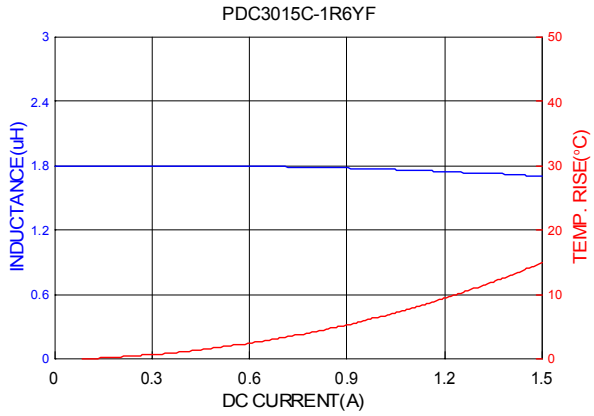
d) Operating temp. : -40°C to +105°C ( include self-temp. rise )

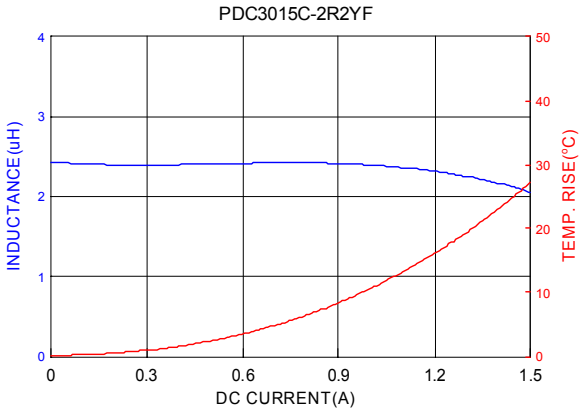
e) Storage temp. : -40°C to +85°C

**6. ELECTRICAL CHARACTERISTICS :**

| Part No. | Inductance ( μH ) | Test Frequency ( Hz ) | DCR ( Ω ) ±20% | IDC ( A ) Max. |
|---|---|---|---|---|
| PDC3015C-1R6YF | 1.6 ±30% | 0.3V/100K | 0.065 | 1.50 |
| PDC3015C-2R2YF | 2.2 ±30% | 0.3V/100K | 0.082 | 1.30 |
| PDC3015C-3R3YF | 3.3 ±30% | 0.3V/100K | 0.110 | 1.00 |
| PDC3015C-4R7YF | 4.7 ±30% | 0.3V/100K | 0.160 | 0.86 |
| PDC3015C-6R8YF | 6.8 ±30% | 0.3V/100K | 0.220 | 0.80 |
| PDC3015C-100MF | 10 ±20% | 0.3V/100K | 0.280 | 0.70 |
| PDC3015C-220MF | 22 ±20% | 0.3V/100K | 0.800 | 0.46 |

**6. ELECTRICAL CHARACTERISTICS :**

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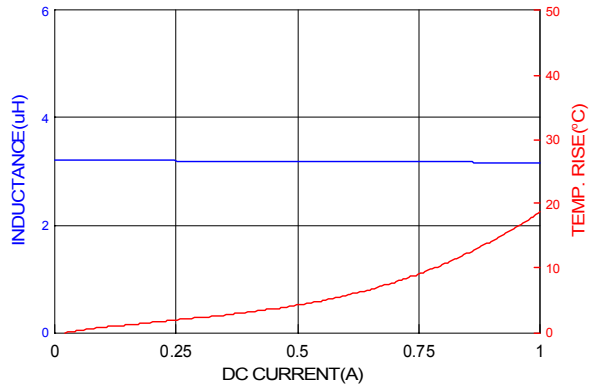
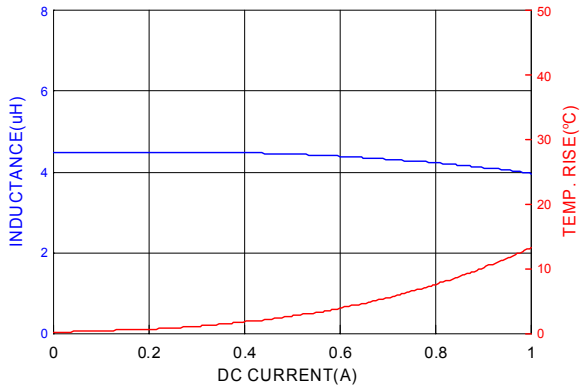
**7. CHARACTERISTICS CURVES :**

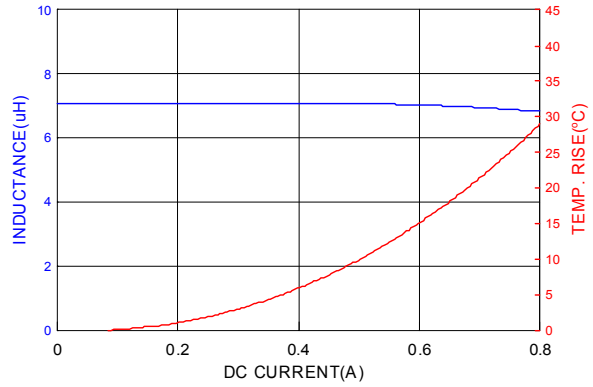
PDC3015C-3R3YF



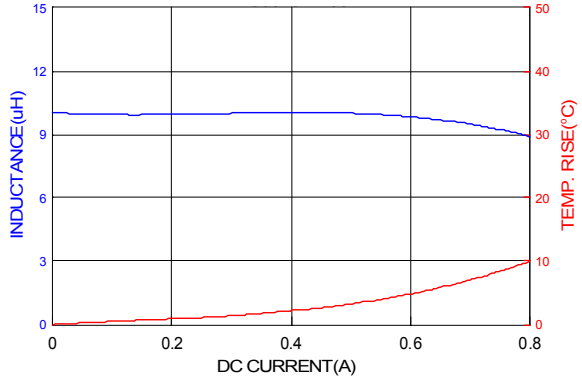

PDC3015C-4R7YF



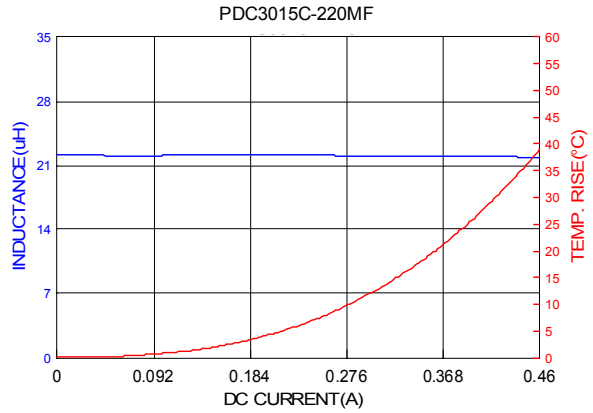

PDC3015C-6R8YF




PDC3015C-100MF




PDC3015C-220MF

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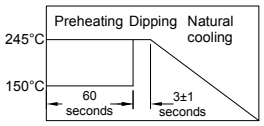
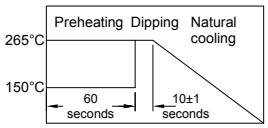
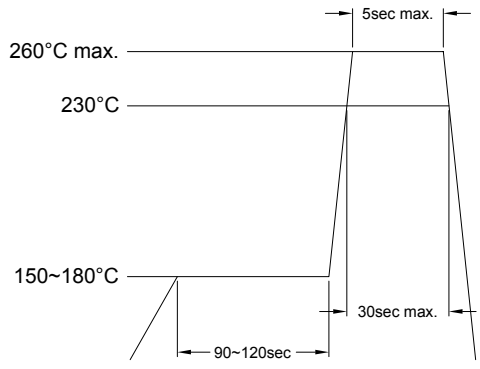
**8. ELECTRICAL CHARACTERISTICS :**

| ITEM | PERFORMANCE | TEST CONDITION |
|---|---|---|
| Mechanical Performance Test | | |
| Solderability Test | More than 90% of the terminal electrode should be covered with solder. | Preheat : 150°C, 60sec.<br>Solder : DD930C<br>Solder Temperature : 245±5°C<br>Flux for lead free : rosin<br>Dip Time : 3±1sec.<br> |
| Solder Heat Resistance | 1. Appearance : No significant abnormality<br>2. Inductance change : Within ±10% | Preheat : 150°C, 60sec.<br>Solder : DD930C<br>Solder Temperature : 265±5°C<br>Dip Time : 10±1sec.<br> |
| Reliability Test | | |
| Thermal Shock | 1. Appearance : No damage<br>2. Inductance change : Within ±10% of initial value<br>Measured : 50 times | Conditions of 1 cycle.<br>Step / Temperature (°C) / Times (min.)<br>1 / -40±2 / 30±3<br>2 / Room temp. / 15<br>3 / +105±2 / 30±3<br>4 / Room temp. / 15<br>Total : 50 cycles |
| Humidity Resistance | 1. Appearance : No damage<br>2. Inductance change : Within ±10% of initial value | Temperature : 40±2°C<br>Humidity : 90% to 95%<br>Applied Current : Rated Current<br>Time : 500 hours |
| High Temperature Resistance Test | 1. Appearance : No damage<br>2. Inductance change : Within ±15% of initial value | Temperature : 105±2°C<br>Time : 500 hrs<br>Applied Current : Rated Current |

REFLOW SOLDERING CONDITION




Reflow times : 2 times max.

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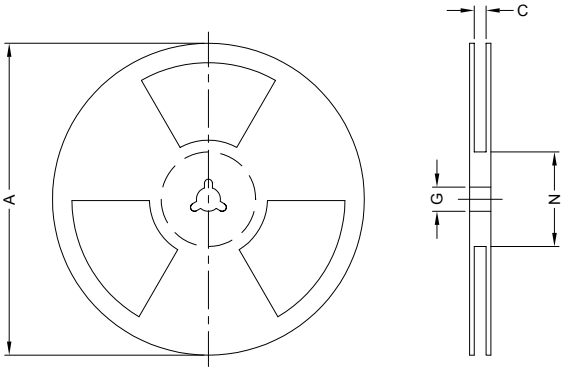
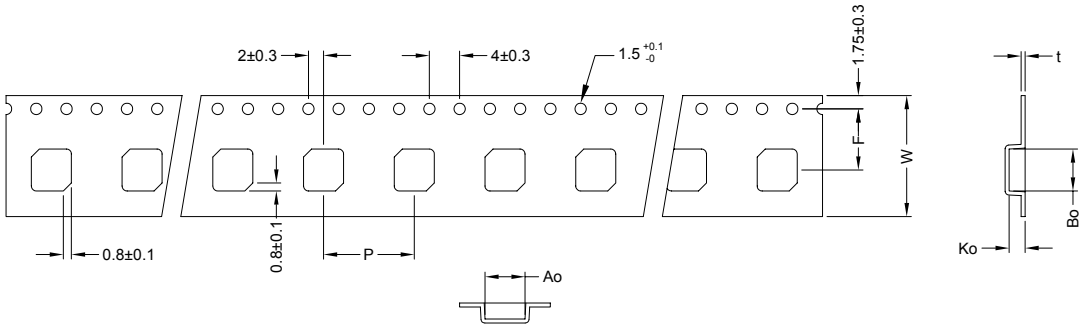
## 9. PACKAGING INFORMATION :

### 9-1. Reel Dimension

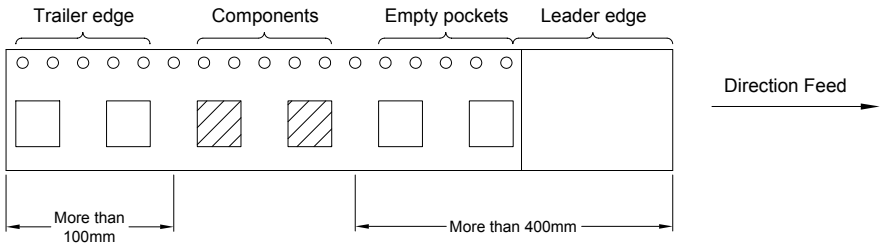



| Type | A(mm) | C(mm) | G(mm) | N(mm) |
|---|---|---|---|---|
| 13" x 12mm | 330 | 12.5±0.5 | 13.0±0.5 | 100±1.0 |

### 9-2 Tape Dimension / 12mm




| Series | Ao(mm) | Bo(mm) | Ko(mm) | P(mm) | W(mm) | F(mm) | t(mm) |
|---|---|---|---|---|---|---|---|
| PDC3015C | 3.5±0.1 | 3.5±0.1 | 1.7±0.1 | 8.0±0.3 | 12±0.3 | 5.5±0.3 | 0.4±0.1 |




### 9-3. Packaging Quantity

| Size | PDC3015C |
|---|---|
| Chip / Reel | 3000 |
| Inner Box | 12000 |
| Carton | 48000 |

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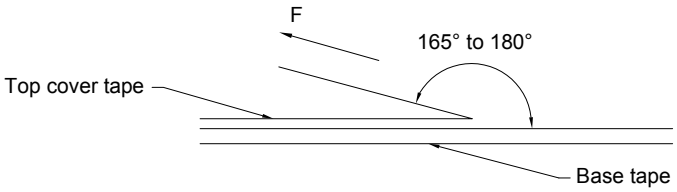
**9-4. Tearing Off Force**




The force for tearing off cover tape is 10 to 125 grams in the arrow direction under the following conditions.

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

## Application Notice

1. Storage Conditions :
   To maintain the solderabililty of terminal electrodes :
   a) Temperature and humidity conditions : Less than 40°C and 70% RH.
   b) Recommended products should be used within 6 months from the time of delivery.
   c) The packaging material should be kept where no chlorine or sulfur exists in the air.

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

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