# MDCA Series
SMD Power Inductor
Size 4020

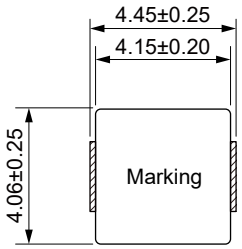
## FEATURES

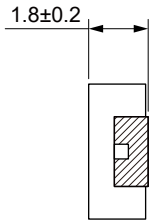
- Shielded construction.
- Capable of corresponding high frequency.
- Low loss realized with low DCR.
- High performance (Isat) realized by Carbonyl Powder.
- Ultra low buzz noise, due to composite construction.
- 100% Lead(Pb)-Free and RoHS compliant.
- AEC-Q200 qualified
- Operating temperature: -55 to +125 °C(including self-temperature rise)
- Quantity:3000pcs

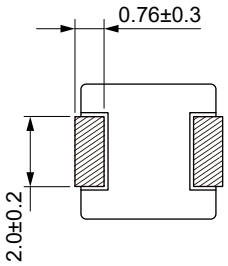
## APPLICATION

- Headlamps, tail lamps and interior lighting
- HVAC
- Doors, window lift and seat control
- Audio subsystem
- Digital instrument cluster
- In-Vehicle Infotainment and navigation

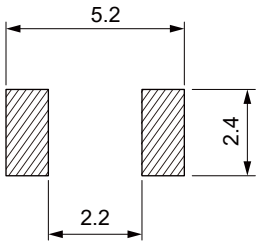
## Dimensions: [mm]




## Land Pattern: [mm]




## Electrical Properties:

| Part No | Inductance @ 100KHz/1V (µH) | Tolerance | Temperature Rise Current Typ. (A) | Saturation Current Typ. (A) | DC Resistance Typ. (mΩ) | DC Resistance Max. (mΩ) |
|---|---|---|---|---|---|---|
| MDCA4020-R10N | 0.10 | ±30% | 14.0 | 35.0 | 3.20 | 4.0 |
| MDCA4020-R22N | 0.22 | ±30% | 13.0 | 24.0 | 6.60 | 7.3 |
| MDCA4020-R33M | 0.33 | ±20% | 10.0 | 18.0 | 7.80 | 8.6 |
| MDCA4020-R47M | 0.47 | ±20% | 8.00 | 12.0 | 11.2 | 14 |
| MDCA4020-R56M | 0.56 | ±20% | 7.30 | 10.0 | 13.5 | 16 |
| MDCA4020-R68M | 0.68 | ±20% | 7.00 | 10.0 | 16.0 | 19 |
| MDCA4020-1R0M | 1.00 | ±20% | 5.00 | 8.50 | 22.0 | 27 |
| MDCA4020-1R5M | 1.50 | ±20% | 4.50 | 7.00 | 34.8 | 42 |
| MDCA4020-2R2M | 2.20 | ±20% | 4.00 | 6.00 | 51.0 | 61 |
| MDCA4020-3R3M | 3.30 | ±20% | 3.50 | 4.00 | 69.0 | 76 |
| MDCA4020-4R7M | 4.70 | ±20% | 2.60 | 3.50 | 95.0 | 105 |
| MDCA4020-5R6M | 5.60 | ±20% | 2.20 | 3.00 | 112 | 125 |
| MDCA4020-6R8M | 6.80 | ±20% | 2.10 | 2.80 | 150 | 172 |
| MDCA4020-8R2M | 8.20 | ±20% | 2.00 | 2.50 | 158 | 180 |

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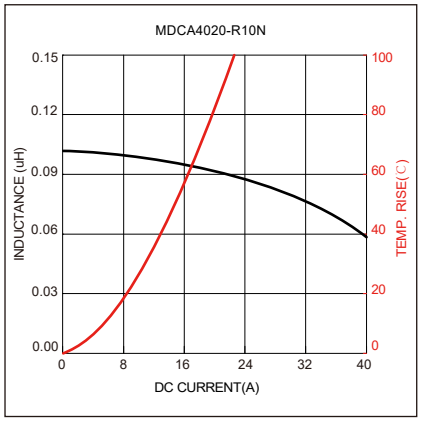
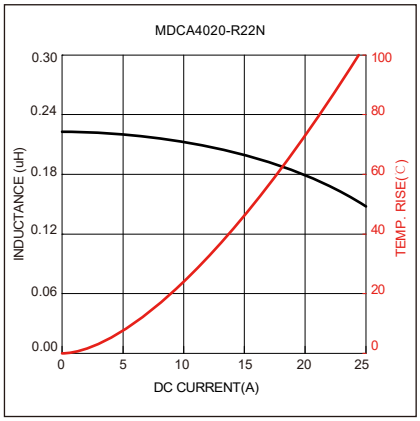
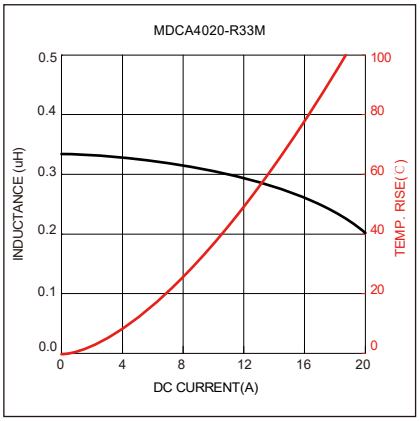
| Part No | Inductance @ 100KHz/1V (μH) | Tolerance | Temperature Rise Current Typ. (A) | Saturation Current Typ. (A) | DC Resistance Typ. (mΩ) | DC Resistance Max. (mΩ) |
|---|---|---|---|---|---|---|
| MDCA4020-100M | 10.0 | ±20% | 1.80 | 2.30 | 215 | 243 |
| MDCA4020-150M | 15.0 | ±20% | 1.50 | 1.90 | 325 | 374 |
| MDCA4020-220M | 22.0 | ±20% | 1.20 | 1.40 | 470 | 500 |

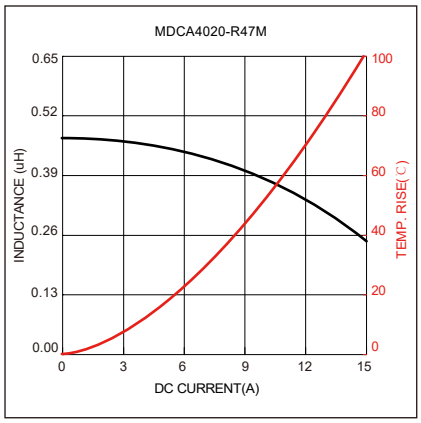
Saturation Current will cause L to drop approximately 30%
Temperature Rise Current: The actual value of DC current when the temperature rise is △T=40°C

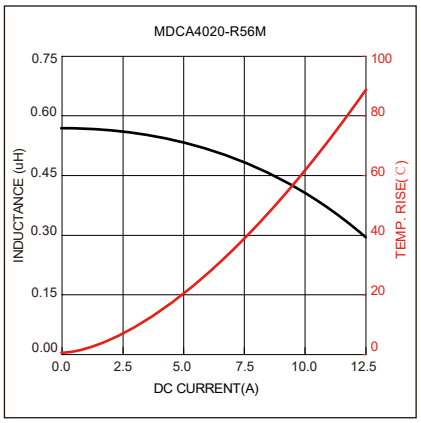
## Typical Electrical Characteristics:

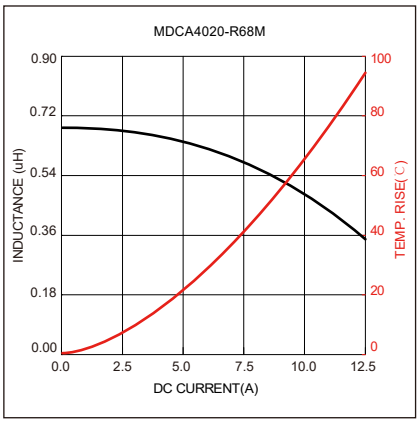


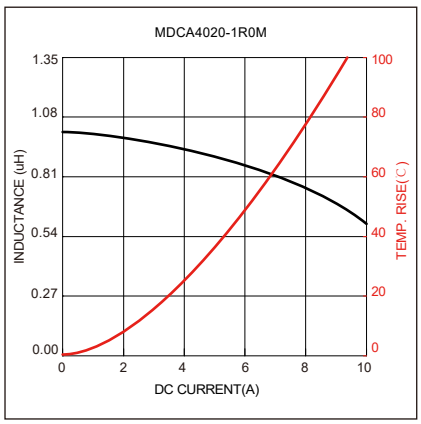



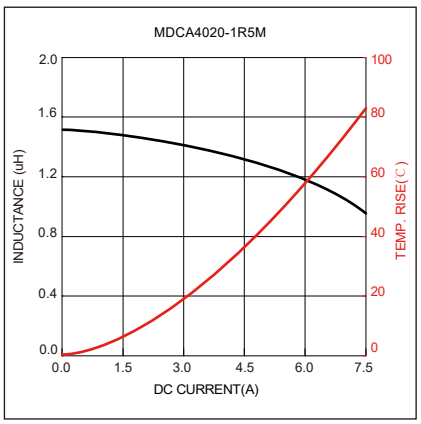



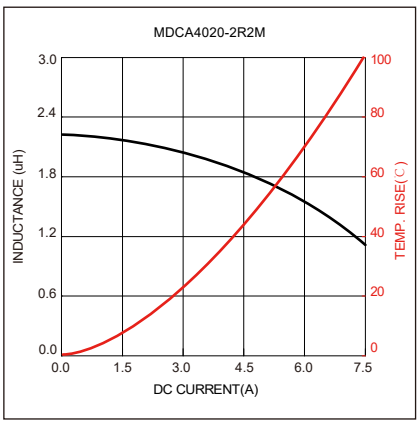



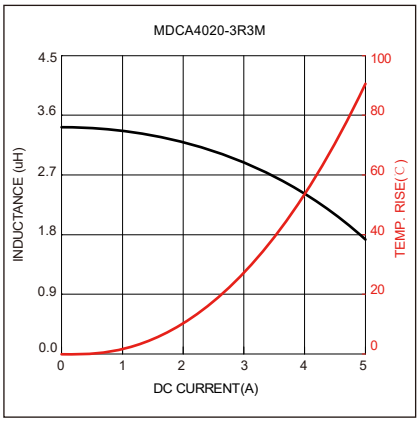



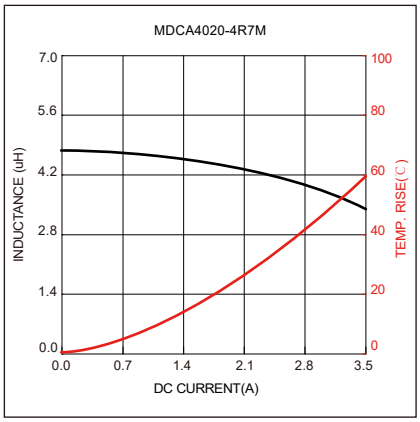



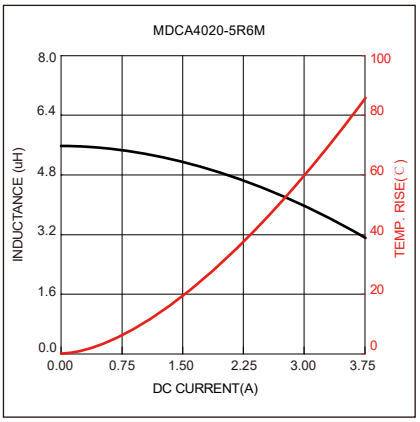



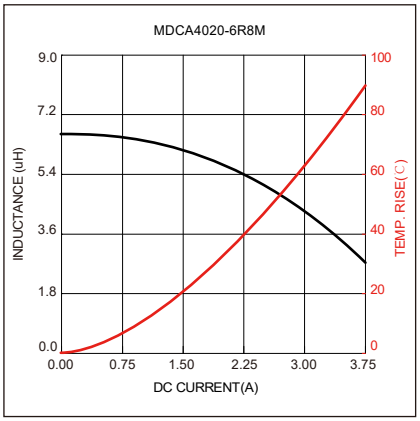



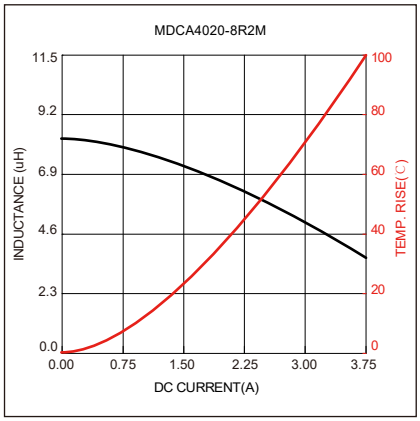



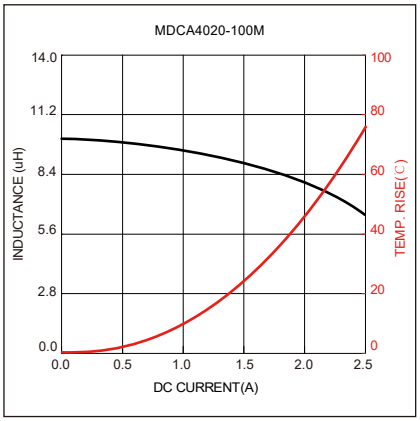


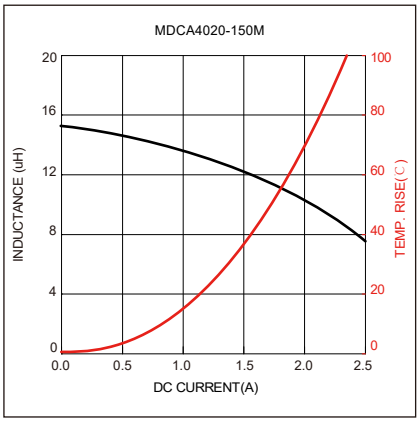



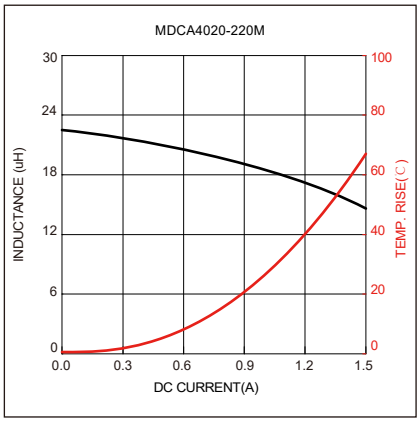

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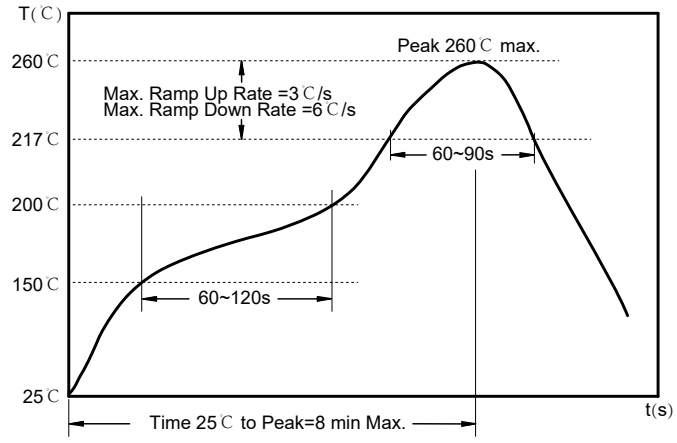
## Soldering Reflow:




Preheat condition: 150 ~200℃/ 60~120 sec.

Allowed time above 217℃: 60~90 sec.

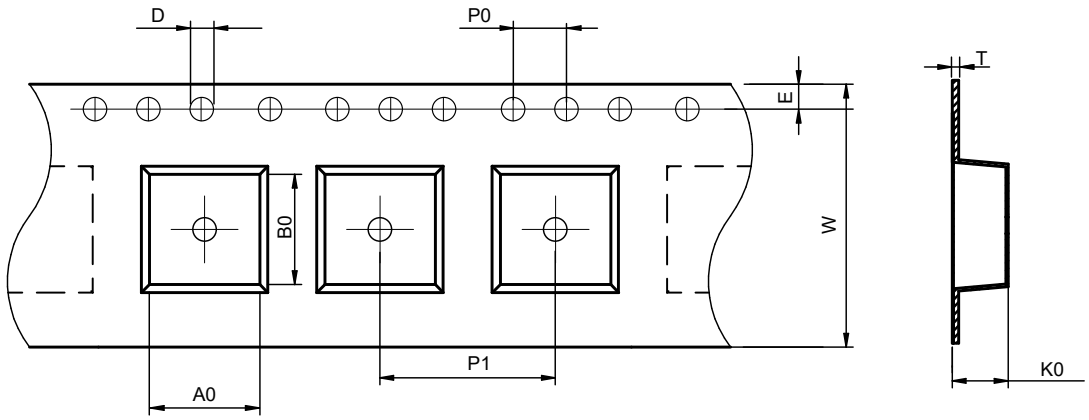
Max temperature: 260℃.

Max time at max temperature: 10 sec.

Allowed Reflow time: 2x max.

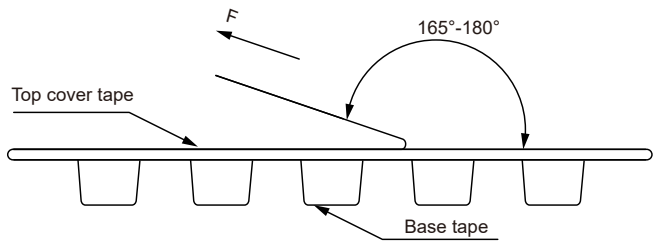
## Packaging Information:

### Tape Dimension:




| Series | A0 (mm) | B0 (mm) | D (mm) | P0 (mm) | P1 (mm) | W (mm) | K0 (mm) | E (mm) | T (mm) |
|---|---|---|---|---|---|---|---|---|---|
| MDCA4020 | 4.5±0.1 | 4.85±0.1 | 1.5±0.1 | 4.0±0.1 | 8.0±0.1 | 12±0.3 | 2.3±0.1 | 1.75±0.1 | 0.35±0.05 |

### Peel force of top cover tape:

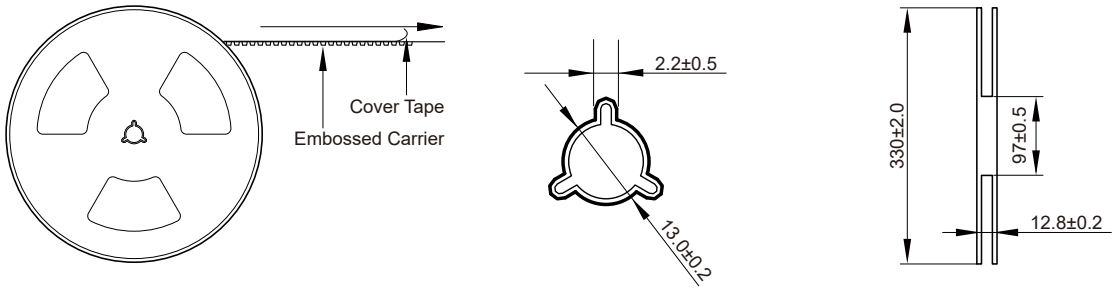



The peel force of top cover tape shall be between 0.1 to 1.3 N

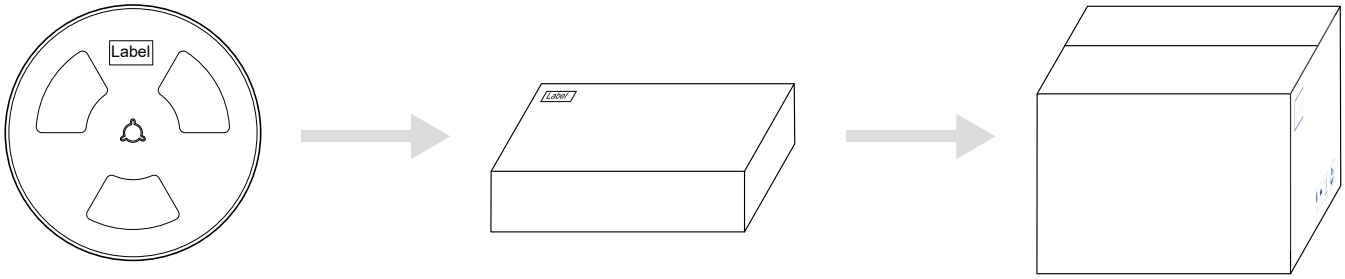
### Product Marking:

| | |
|---|---|
| Marking | K+Printing (Inductance) |

## Reel Dimension：[mm]




## Packaging Quantity:




3000 Pcs/Reel

3 Reel /Inner box( 9000 Pcs)

3 Inner box/Carton box(27K Pcs)

# Cautions and Warnings:

## Storage Conditions：

- The storage period is within 12 months after the completion of production. Be sure to follow the storage conditions (temperature: -5 to 35°C, humidity: 75% RH Max).If the storage period elapses, the soldering of the terminal electrodes may deteriorate.
- Product should not be exposed to environment with high temperature, high humidity, dust, corrosive gas and etc.
- Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
- Please always handle products carefully to prevent any damage caused by dropping down or inappropriate removing.

## Operation Instructions:

- Self heating (temperature increase) occurs when the power is turned ON, so the tolerance should be sufficient for the set thermal design.
- Before soldering, be sure to preheat components.The preheating temperature should be set so that the temperature difference between the solder temperature and chip temperature does not exceed 150°C.
- Soldering corrections after mounting should be within the range of the conditions determined in the specifications.If overheated, a short circuit, performance deterioration, or lifespan shortening may occur.
- Generally, Koher might not be familiar with either customer's specific application or actual requests as customer does.As a result customer shall be responsible for checking and confirming whether Koher product with the performance described in the product specification is suitable for using in customer's particular application or not.