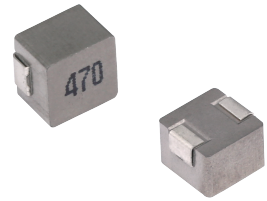


## MCMB-1030 Series

### High Current Molded Power Inductors

#### FEATURES

- Powder iron core material
- Magnetically shielded, low EMI
- High current carrying capacity, Low core losses
- Frequency range up to 3MHz
- Operate temperature range ....  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$  (Including self temp. rise)
- RoHS compliant



#### APPLICATIONS

- Voltage Regulator Module (VRM)
- Multi-phase regulators
- Point-of-load modules
- Smart phone POL modules
- SSD modules
- Notebook regulators
- Battery power systems
- Graphics cards
- Data networking and storage systems

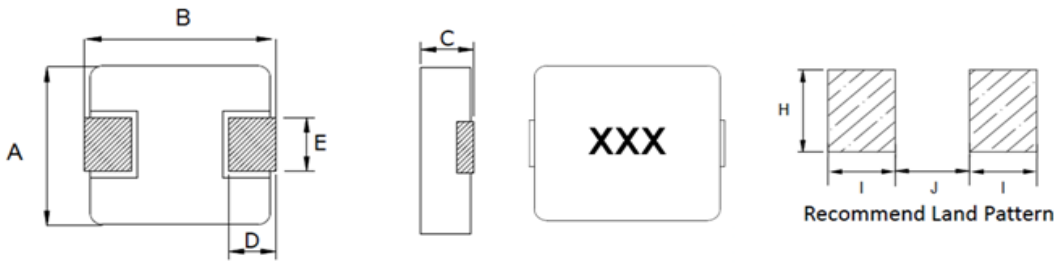
#### Explanation of Part Number

MCMB -1030 -1R0 M T

1 2 3 4 5

- ◆ 1:Product Series:Metal Alloy Molding Power Inductor
- ◆ 2:Dimensions:
- ◆ 3: Initial inductance value: 1R0 = 1.0uH
- ◆ 4:Tolerance of Inductance:M:±20%
- ◆ 5:Packing:Tape Carrier Package

## Dimensions: [mm]



| Series    | A        | B       | C       | D       | E       | I Typ. | J Typ. | H Typ. |
|-----------|----------|---------|---------|---------|---------|--------|--------|--------|
| MCMB-1030 | 10.0±0.3 | 11.5Max | 2.8±0.2 | 2.0±0.5 | 3.0±0.3 | 4.1    | 5.4    | 4.1    |

## Electrical Properties:

| Part Number     | Inductance  | DC Resistance | Saturation Current |      | Heat Rating Current |      |
|-----------------|-------------|---------------|--------------------|------|---------------------|------|
|                 | @100KHz, 1V | Max.          | Max.               | Typ. | Max.                | Typ. |
| Units           | μH          | mΩ            | A                  |      | A                   |      |
| Symbol          | L           | DCR           | Isat               |      | Irms                |      |
| MCMB-1030-R22MT | 0.22±20%    | 1.2           | 44.24              | 50.0 | 29.2                | 33.0 |
| MCMB-1030-R33MT | 0.33±20%    | 1.6           | 28.3               | 32.0 | 20.35               | 23.0 |
| MCMB-1030-R36MT | 0.36±20%    | 1.6           | 24.8               | 28.0 | 20.35               | 23.0 |
| MCMB-1030-R47MT | 0.47±20%    | 2.5           | 23.0               | 26.0 | 19.47               | 22.0 |
| MCMB-1030-R82MT | 0.82±20%    | 3.7           | 20.35              | 23.0 | 15.93               | 18.0 |
| MCMB-1030-1R0MT | 1.0±20%     | 6             | 18.58              | 21.0 | 13.27               | 15.0 |
| MCMB-1030-1R5MT | 1.5±20%     | 7.5           | 17.69              | 20.0 | 11.5                | 13.0 |
| MCMB-1030-2R2MT | 2.2±20%     | 9             | 12.38              | 14.0 | 9.73                | 11.0 |
| MCMB-1030-3R3MT | 3.3±20%     | 16            | 10.61              | 12.0 | 7.96                | 9.00 |
| MCMB-1030-4R7MT | 4.7±20%     | 22.5          | 8.84               | 10.0 | 6.19                | 7.00 |
| MCMB-1030-8R2MT | 8.2±20%     | 45            | 6.20               | 7.00 | 4.42                | 5.00 |
| MCMB-1030-100MT | 10±20%      | 55            | 5.75               | 6.50 | 3.98                | 4.50 |
| MCMB-1030-330MT | 33±20%      | 160           | 3.53               | 4.00 | 2.30                | 2.60 |

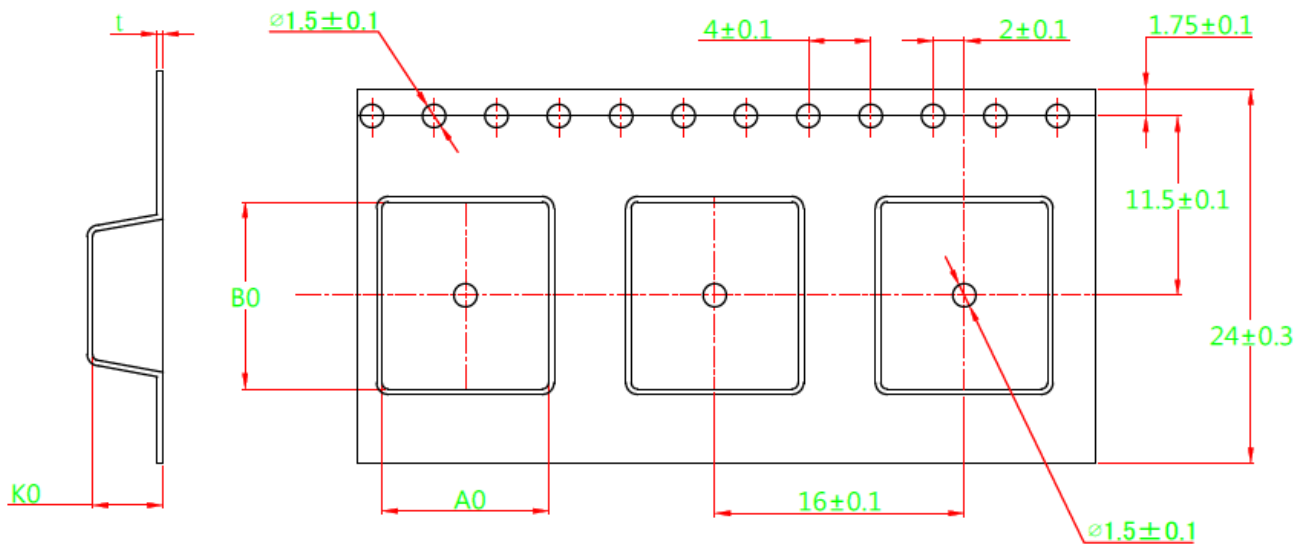
## Notes

- ※1: All test data is referenced to 20°C ambient;
- ※2: Rated current: Isat or Irms, whichever is smaller;
- ※3: Isat(Typ): DC current at which the inductance drops approximate 30% from its value without current;
- ※4: Isat(Max): DC current at which the inductance drops approximate 20% from its value without current;
- ※5: Irms(Typ): DC current that causes the temperature rise ( $\Delta T = 40^\circ\text{C}$ ) from 20°C ambient.
- ※6: Irms(Max): DC current that causes the temperature rise ( $\Delta T = 20^\circ\text{C}$ ) from 20°C ambient.
- ※7: Absolute maximum voltage 30VDC

## Reliability and Test Condition

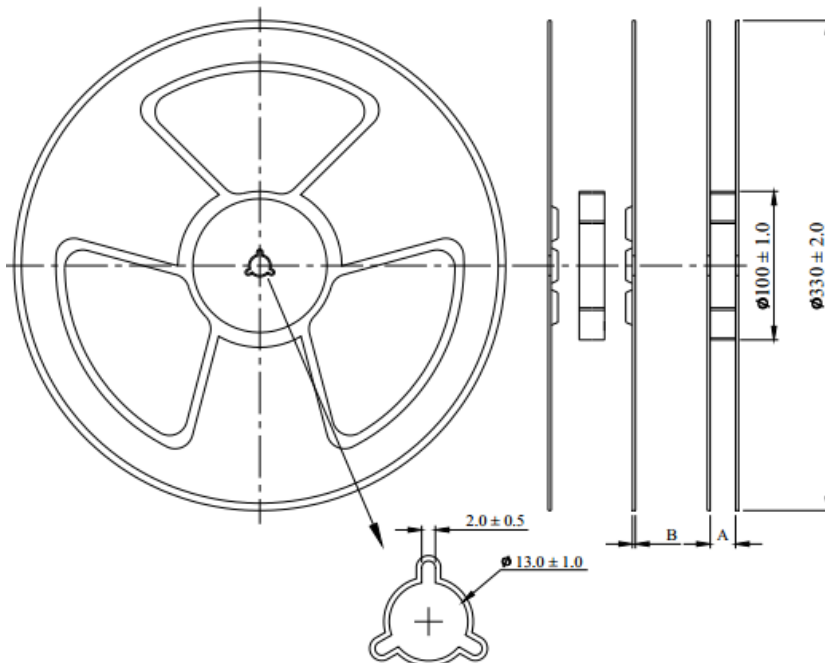
| Mechanical Reliability      |                                                                                               |                                                                                                                                                                                                                                                            |
|-----------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Item                        | Specification and Requirement                                                                 | Test Method                                                                                                                                                                                                                                                |
| Solderability               | The surface of terminal immersed shall be minimum of 95% covered with a new coating of solder | Solder heat proof:<br>1. Preheating: $160 \pm 10$ °C<br>2. Retention time: $245 \pm 5$ °C for $2 \pm 0.5$ seconds                                                                                                                                          |
| Vibration                   | Inductance change: Within $\pm 10\%$<br>Without mechanical damage such as break               | 1. Vibration frequency:<br>(10 Hz to 55 Hz to 10Hz) in 60 seconds as a period<br>2. Vibration time:<br>Period cycled for 2 hours in each of 3 mutual perpendicular directions.<br>3. Amplitude: 1.5 mm max.                                                |
| Shock                       | Inductance change: Within $\pm 10\%$ Without mechanical damage such as break                  | 1. Peak value: 100 G<br>2. Duration of pulse: 11ms<br>3. 3 times in each positive and negative direction of 3 mutual perpendicular directions                                                                                                              |
| Endurance Reliability       |                                                                                               |                                                                                                                                                                                                                                                            |
| Item                        | Specification and Requirement                                                                 | Test Method                                                                                                                                                                                                                                                |
| Thermal Shock               | Inductance change: Within $\pm 10\%$<br>Without distinct damage in appearance                 | 1. Repeat 100 cycles as follow:<br>( $-55 \pm 2$ °C; $30 \pm 3$ min)<br>→(Room temp., 5 min)<br>→ ( $+125 \pm 2$ °C, $30 \pm 3$ min)<br>→ (Room temp., 5 min)<br>2. Recovery: $48 + 4 / -0$ hours of recovery under the standard condition after the test. |
| High Temperature Resistance | Inductance change: Within $\pm 10\%$<br>Without distinct damage in appearance                 | 1. Environment condition: $85 \pm 2$ °C<br>Applied Current: Rated current<br>2. Duration: $1000 + 4 / -0$ hours                                                                                                                                            |
| Humidity Resistance         | Inductance change: Within $\pm 10\%$<br>Without distinct damage in appearance                 | 1. Environment condition: $60 \pm 2$ °C<br>Humidity: 90–95%<br>Applied Current: Rated current<br>2. Duration: $1000 + 4 / -0$ hours                                                                                                                        |
| Low Temperature Store       | Inductance change: Within $\pm 10\%$<br>Without distinct damage in appearance                 | Store temperature:<br>$-55 \pm 2$ °C, $1000 + 4 / -0$ hours                                                                                                                                                                                                |
| High Temperature Store      | Inductance change: Within $\pm 10\%$<br>Without distinct damage in appearance                 | Store temperature:<br>$+125 \pm 2$ °C, $1000 + 4 / -0$ hours                                                                                                                                                                                               |

## Tape Packaging Dimensions



| A0          | B0          | K0        | t            |
|-------------|-------------|-----------|--------------|
| 10.7 ± 0.10 | 12.0 ± 0.10 | 4.5 ± 0.1 | 0.35 ± 0.025 |

## Reel Dimensions



|    | A          | B         |
|----|------------|-----------|
| mm | 24.5 ± 0.2 | 2.0 ± 0.2 |

Packaging Quantity: 1000PCS/Reel

## Recommended Soldering Technologies

### (1) Re-flowing Profile

Preheat condition: 150 ~200°C/60~120sec.

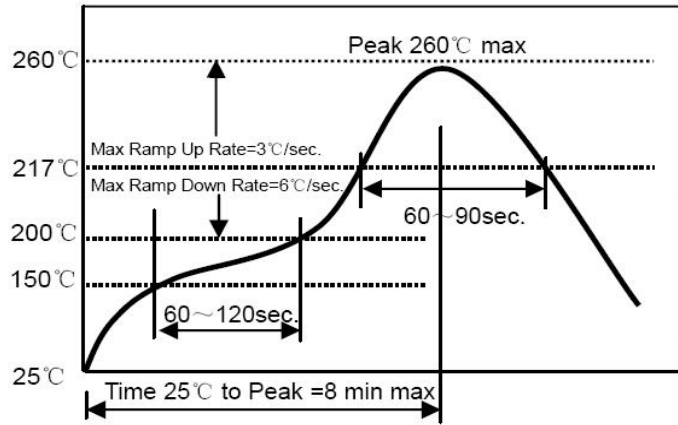
Allowed time above 217°C: 60~90sec.

Max temp: 260°C

Max time at max temp: 10 sec.

Solder paste: Sn/3.0Ag/0.5Cu

Allowed Reflow time: 2x max



### (2) Iron Soldering Profile

Iron soldering power: Max. 30W

Pre-heating: 150°C/60sec.

Soldering Tip temperature: 350°C Max.

Soldering time: 3sec. Max.

Solder paste: Sn/3.0Ag/0.5Cu

Max.1 times for iron soldering

