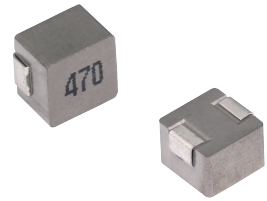


## MCMB-1770 Series

### 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

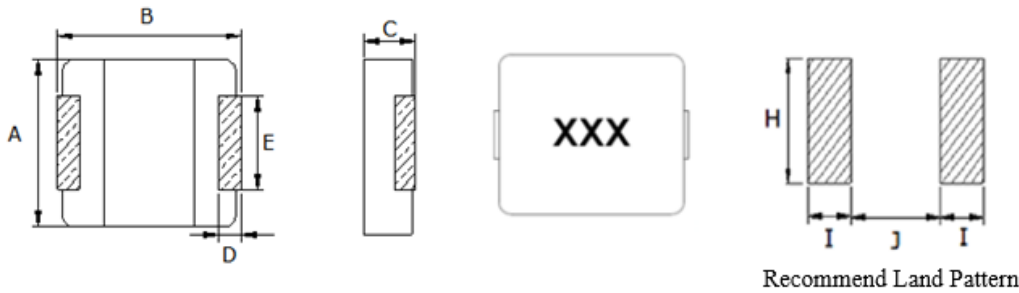
#### Explanation of Part Number

MCMB -1770 -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-1770	17.15Max	17.15±0.35	7.0Max.	2.5±0.5	12.0±0.3	3.5	11.2	12.8

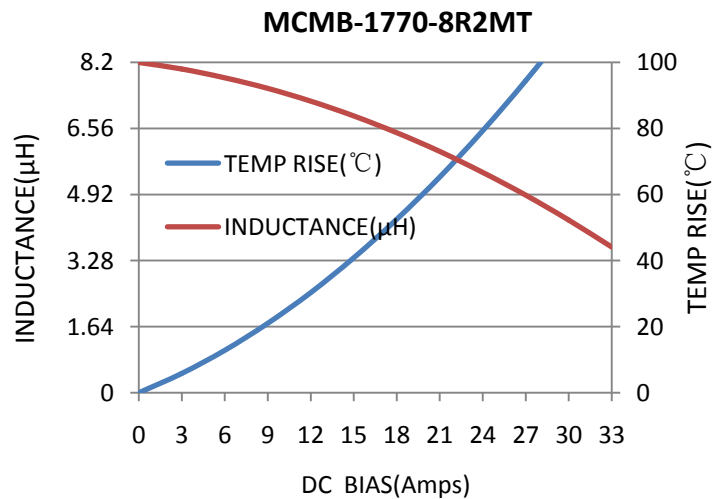
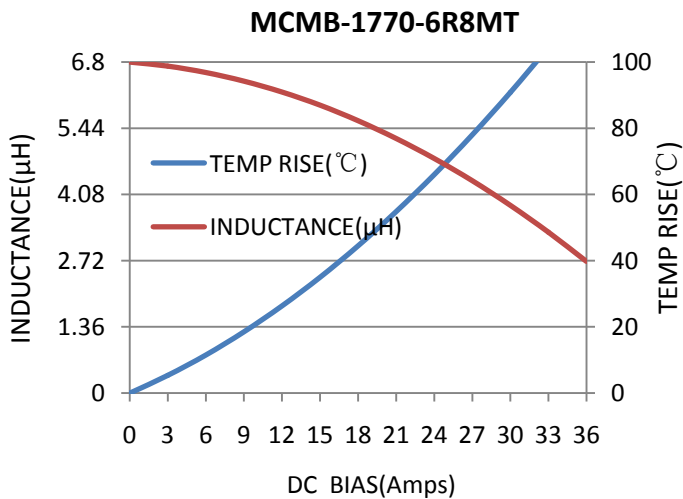
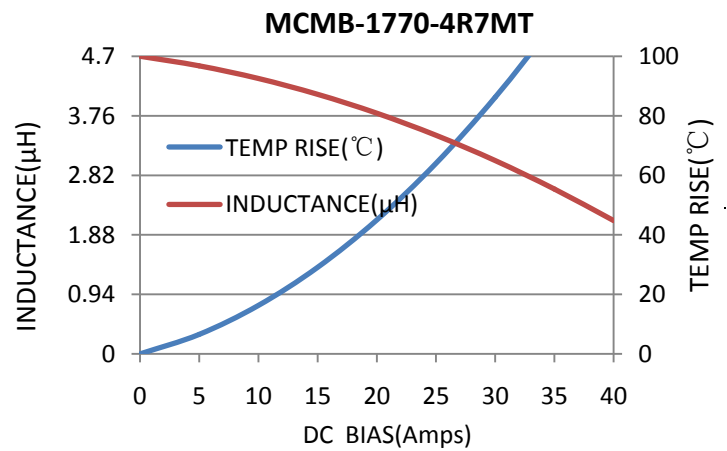
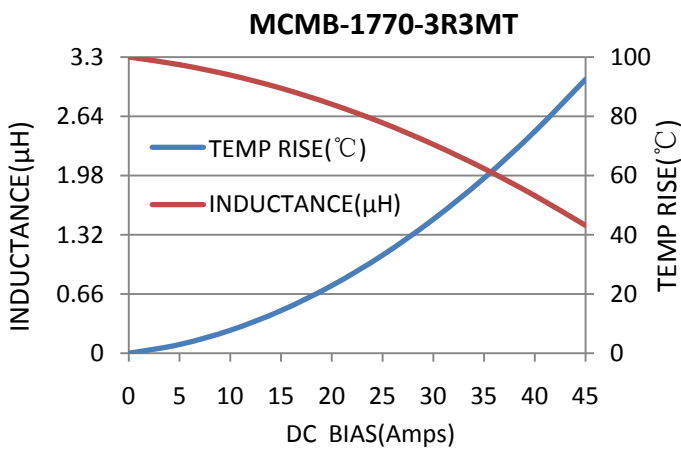
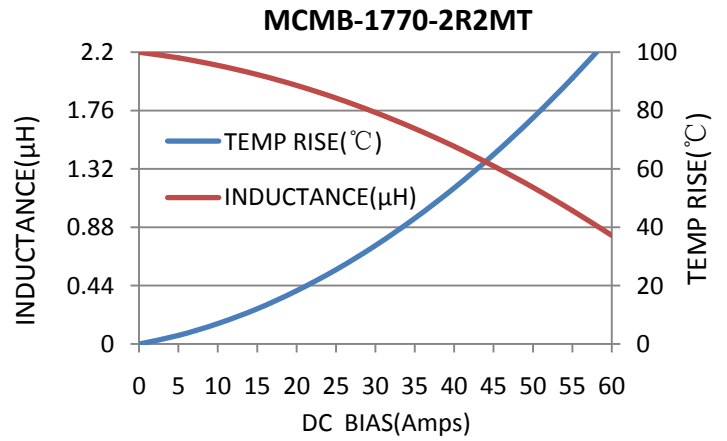
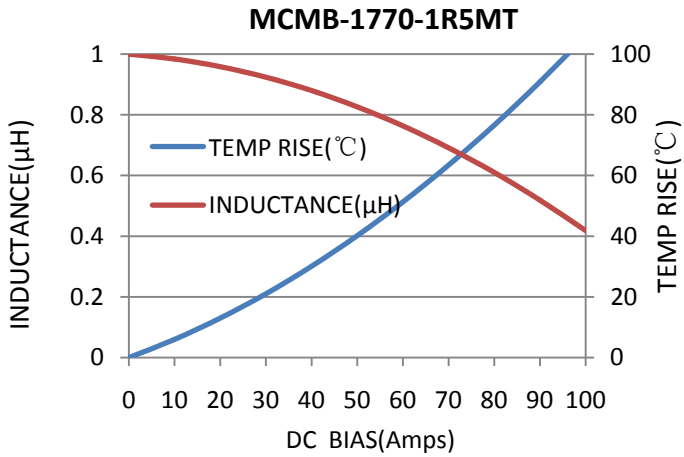
## Electrical Properties:

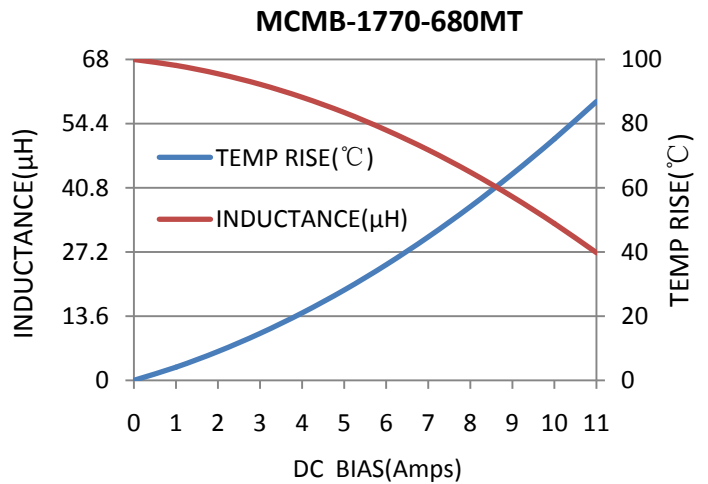
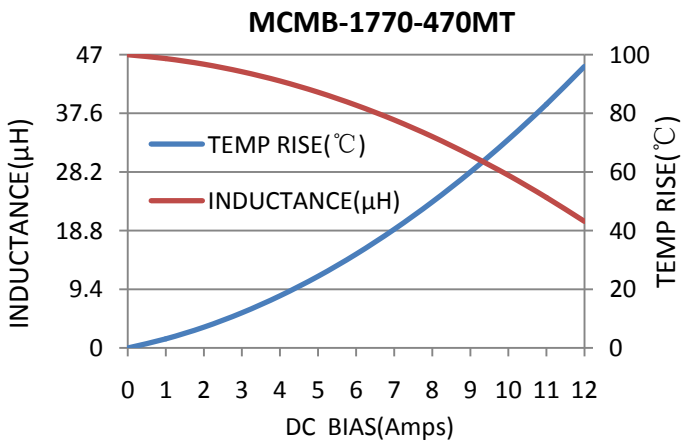
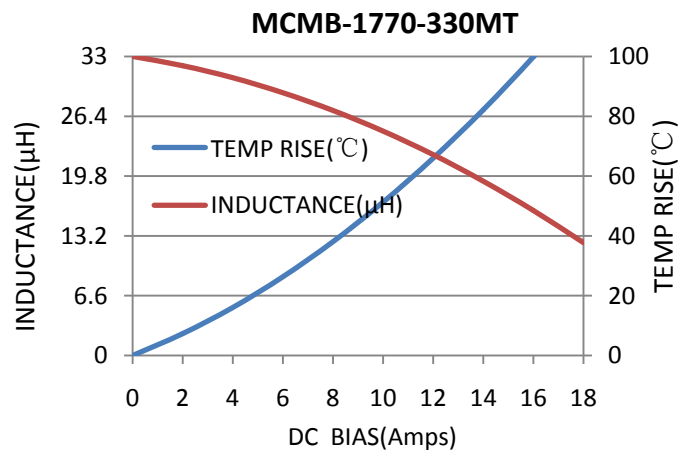
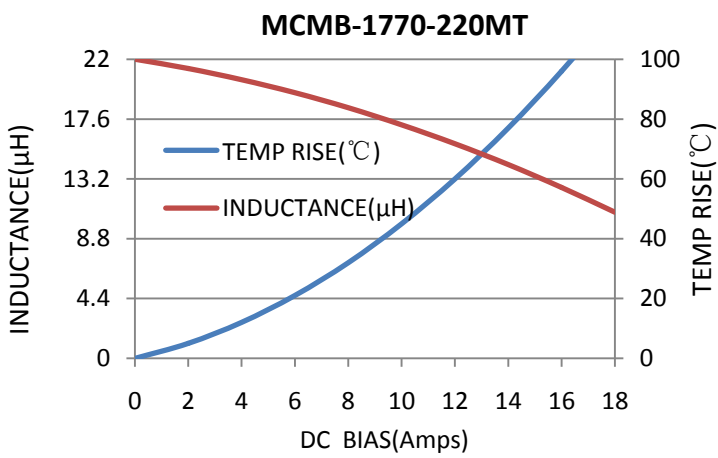
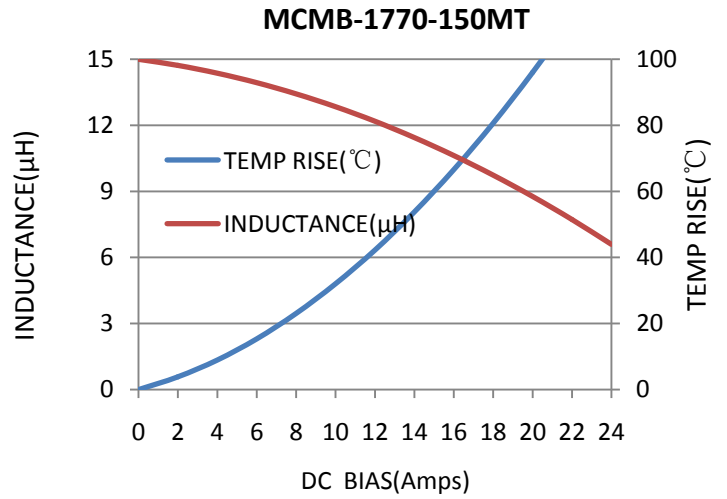
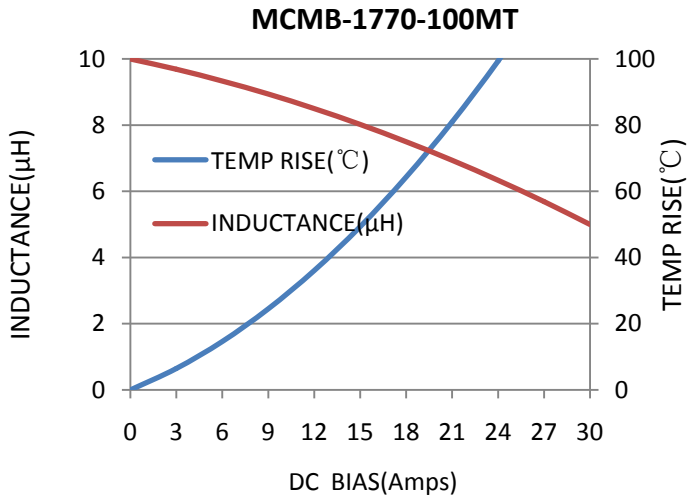
Part Number	Inductance	DC Resistance	Saturation Current		Heat Rating Current	
	@100KHz, 1V	Max.	Max.	Typ.	Max.	Typ.
Units	μH	mΩ	A		A	
Symbol	L	DCR	Isat		Irms	
MCMB-1770-1R5MT	1.5±20%	2.1	-	40.0	-	33.0
MCMB-1770-2R2MT	2.2±20%	2.5	-	34.0	-	29.0
MCMB-1770-3R3MT	3.3±20%	3.95	-	30.0	-	24.0
MCMB-1770-4R7MT	4.7±20%	4.75	-	24.0	-	21.0
MCMB-1770-6R8MT	6.8±20%	7.5	-	22.0	-	17.0
MCMB-1770-8R2MT	8.2±20%	8.7	-	20.0	-	13.0
MCMB-1770-100MT	10±20%	9.9	-	19.0	-	12.0
MCMB-1770-150MT	15±20%	17	-	14.5	-	11.0
MCMB-1770-220MT	22±20%	23	-	11.5	-	8.50
MCMB-1770-330MT	33±20%	37	-	10.0	-	8.00
MCMB-1770-470MT	47±20%	47	-	7.50	-	6.00
MCMB-1770-680MT	68±20%	85	-	6.50	-	5.20
MCMB-1770-101MT	100±20%	130	-	5.00	-	3.70

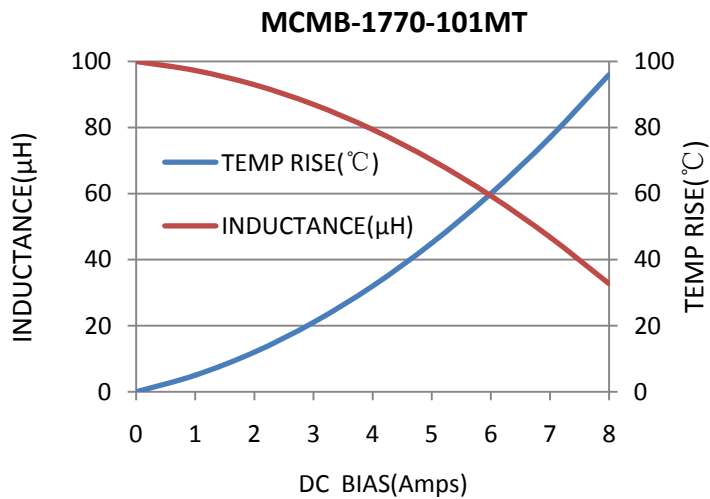
## Notes

1. All test data is referenced to 20 °C ambient
2. I<sub>rms</sub>(A):DC current (A) that will cause an approximate ΔT of 40 °C(reference ambient temperature is 20°C)
3. I<sub>sat</sub>(A):DC current (A) that will cause L<sub>0</sub> to drop approximately 30 %
4. The part temperature (ambient + temp rise) should not exceed 125 °C under worst case operating conditions. Circuit design, component placement, PWB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.
5. Absolute maximum voltage 30V

## TYPICAL ELECTRICAL CHARACTERISTICS





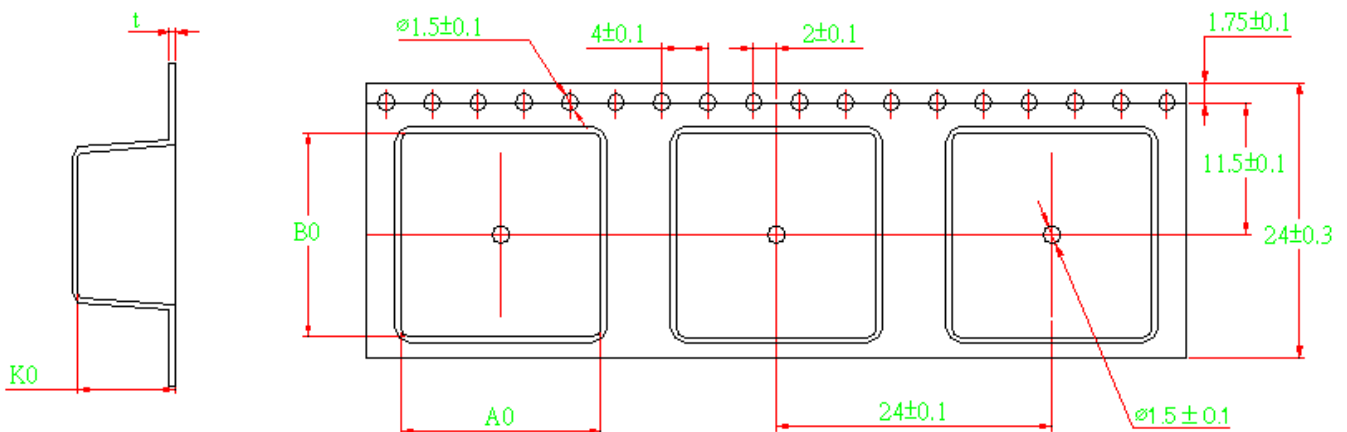


## Reliability and Test Condition

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: 1. Preheating: $160 \pm 10$ °C 2. Retention time: $245 \pm 5$ °C for $2 \pm 0.5$ seconds
Vibration	Inductance change: Within $\pm 10\%$ Without mechanical damage such as break	1. Vibration frequency: (10 Hz to 55 Hz to 10Hz) in 60 seconds as a period 2. Vibration time: Period cycled for 2 hours in each of 3 mutual perpendicular directions. 3. Amplitude: 1.5 mm max.
Shock	Inductance change: Within $\pm 10\%$ Without mechanical damage such as break	1. Peak value: 100 G 2. Duration of pulse: 11ms 3. 3 times in each positive and negative direction of 3 mutual perpendicular directions

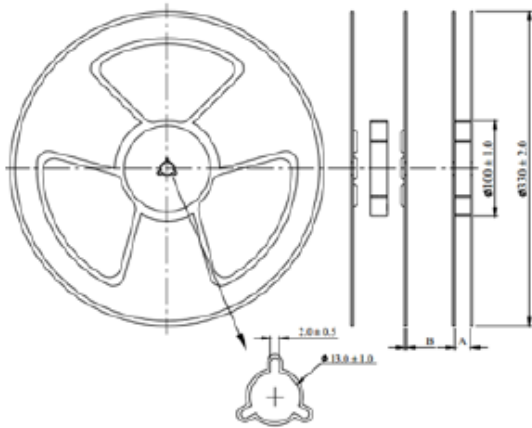
Endurance Reliability		
Item	Specification and Requirement	Test Method
Thermal Shock	Inductance change: Within $\pm 10\%$ Without distinct damage in appearance	<ol style="list-style-type: none"> <li>Repeat 100 cycles as follow:  <math>(-55 \pm 2 \text{ }^\circ\text{C}; 30 \pm 3 \text{ min})</math>  <math>\rightarrow</math>(Room temp., 5 min)  <math>\rightarrow (+125 \pm 2 \text{ }^\circ\text{C}, 30 \pm 3 \text{ min})</math>  <math>\rightarrow</math> (Room temp., 5 min)</li> <li>Recovery: <math>48 + 4 / -0</math> hours of recovery under the standard condition after the test.</li> </ol>
High Temperature Resistance	Inductance change: Within $\pm 10\%$ Without distinct damage in appearance	<ol style="list-style-type: none"> <li>Environment condition: <math>85 \pm 2 \text{ }^\circ\text{C}</math> Applied Current: Rated current</li> <li>Duration: <math>1000 + 4 / -0</math> hours</li> </ol>
Humidity Resistance	Inductance change: Within $\pm 10\%$ Without distinct damage in appearance	<ol style="list-style-type: none"> <li>Environment condition: <math>60 \pm 2 \text{ }^\circ\text{C}</math> Humidity: 90–95% Applied Current: Rated current</li> <li>Duration: <math>1000 + 4 / -0</math> hours</li> </ol>
Low Temperature Store	Inductance change: Within $\pm 10\%$ Without distinct damage in appearance	Store temperature: $-55 \pm 2 \text{ }^\circ\text{C}, 1000 + 4 / -0$ hours
High Temperature Store	Inductance change: Within $\pm 10\%$ Without distinct damage in appearance	Store temperature: $+125 \pm 2 \text{ }^\circ\text{C}, 1000 + 4 / -0$ hours

### Tape Packaging Dimensions



A0	B0	K0	t
$17.45 \pm 0.10$	$17.8 \pm 0.10$	$7.3 \pm 0.1$	$0.5 \pm 0.05$

## Reel Dimensions



Unit.	A.	B.
mm.	24.5 ± 0.2	2.0 ± 0.2

Packaging Quantity: 200PCS/Reel

## Recommended Soldering Technologies

### (1) Re-flowing Profile

Preheat condition: 150 ~200°C/60~180sec.

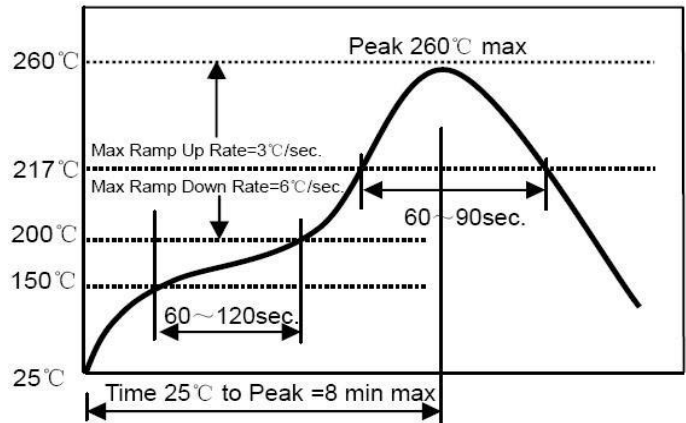
Allowed time above 217°C: 80~120sec.

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 time: 3sec. Max.

Solder paste: Sn/3.0Ag/0.5Cu

Max.1 times for iron soldering

