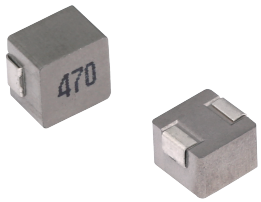
MetalLions

MCMB-1050 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℃～＋125℃(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

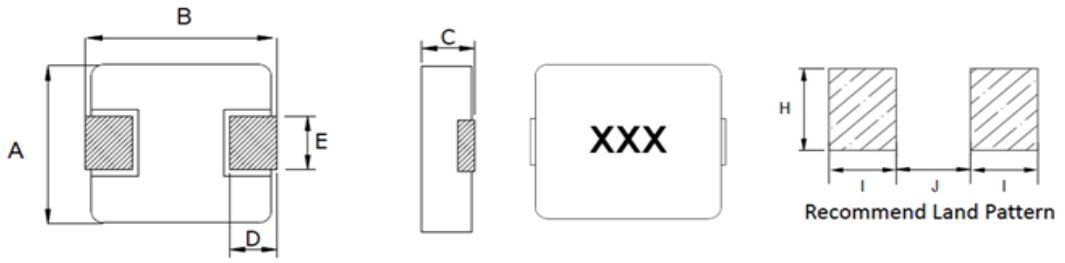
Explanation of Part Number

MCMB -1050 -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-1050	10.0±0.3	11.5Max	4.8±0.2	2.0±0.5	3.0±0.5	4.1	5.4	4.1

Electrical Properties:

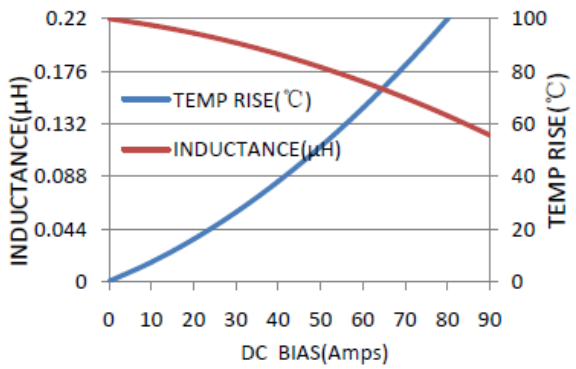
Part Number	Inductance	DC Resistance	Saturation Current		Heat Rating Current	
	@100KHz,1V	Max.	Max.	Typ.	Max.	Typ.
Units	μH	mΩ	A		A	
Symbol	L	DCR	Isat		Irms	
MCMB-1050-R22MT	0.22±20%	0.8	57.5	65.0	32.5	37.0
MCMB-1050-R68MT	0.68±20%	1.95	34.0	37.0	21.0	23.0
MCMB-1050-1R0MT	1.0±20%	3	28.0	30.0	20.3	23.0
MCMB-1050-1R5MT	1.5±20%	3.8	22.0	25.0	18.5	21.0
MCMB-1050-2R2MT	2.2±20%	6	16.8	19.0	13.2	15.0
MCMB-1050-3R3MT	3.3±20%	10	14.0	16.0	11.5	13.0
MCMB-1050-4R7MT	4.7±20%	14	13.2	15.0	9.70	11.0
MCMB-1050-5R6MT	5.6±20%	17	12.3	14.0	8.50	9.50
MCMB-1050-6R8MT	6.8±20%	18.5	12.3	14.0	8.00	9.00
MCMB-1050-100MT	10±20%	28	8.80	10.0	7.00	8.00
MCMB-1050-150MT	15±20%	42	6.50	7.50	5.70	6.50
MCMB-1050-220MT	22±20%	50	5.30	6.00	5.00	5.50
MCMB-1050-330MT	33±20%	86	4.60	5.20	4.20	4.80
MCMB-1050-470MT	47±20%	127	4.00	4.50	3.20	3.70
MCMB-1050-680MT	68±20%	185	2.80	3.20	2.40	2.70
MCMB-1050-820MT	82±20%	280	3.00	3.50	1.70	2.00
MCMB-1050-101MT	100±20%	290	2.50	2.80	1.80	2.10

Notes

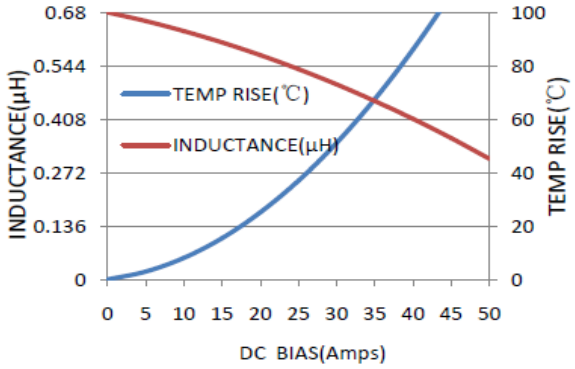
※1: All test data is referenced to 20°C ambient;
※2: Rated current: Isat or Irms, whichever is smaller;
※3: Isat(Typ): DC current at which the inductance drops approximate 30% from its value without current;
※4: Isat(Max): DC current at which the inductance drops approximate 20% from its value without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

Typical Performance Curve:

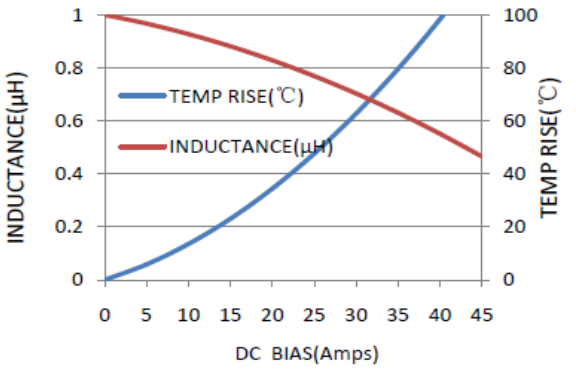
MCMB-1050-R22MT



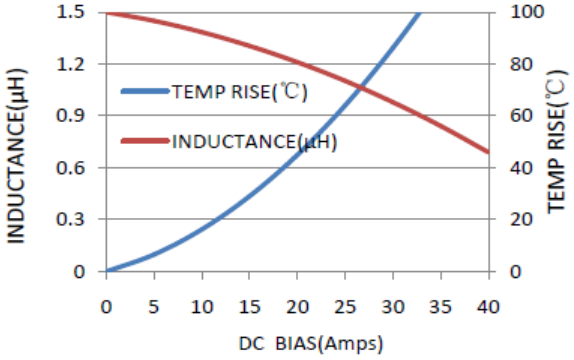
MCMB-1050-R68MT



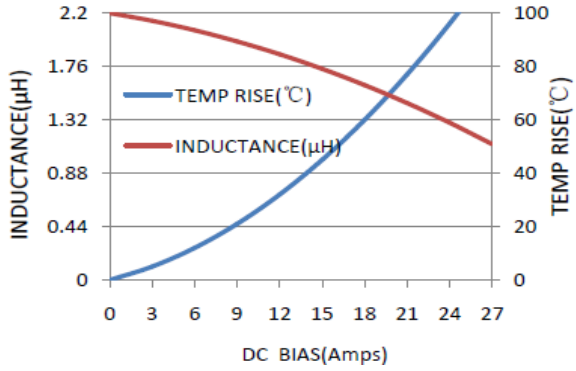
MCMB-1050-1R0MT



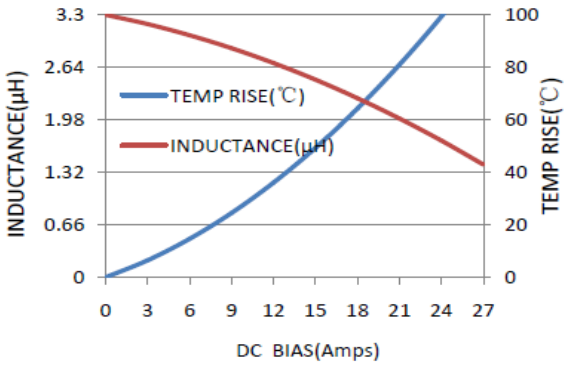
MCMB-1050-1R5MT



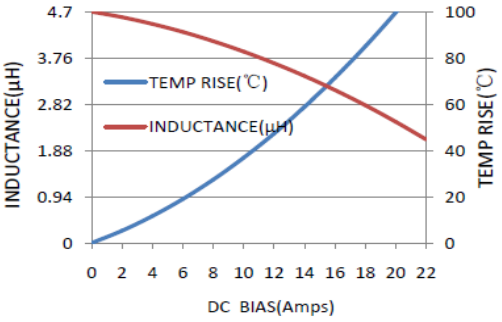
MCMB-1050-2R2MT



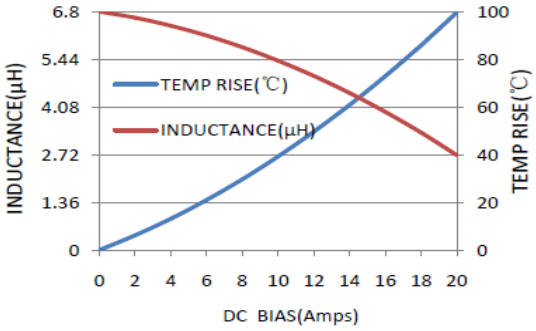
MCMB-1050-3R3MT



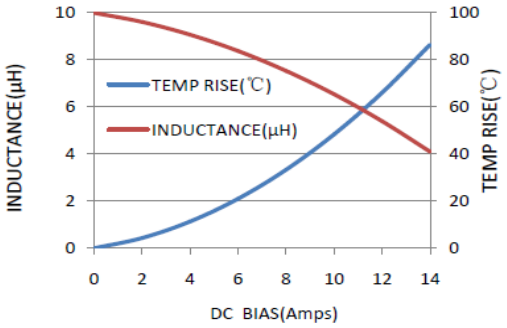
MCMB-1050-4R7MT



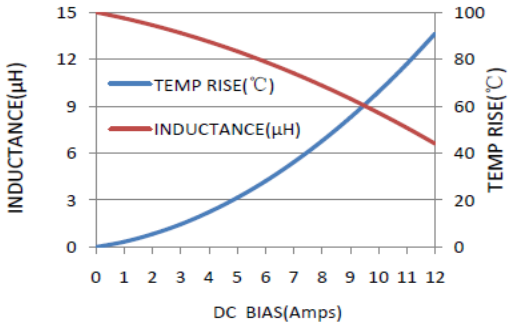
MCMB-1050-6R8MT



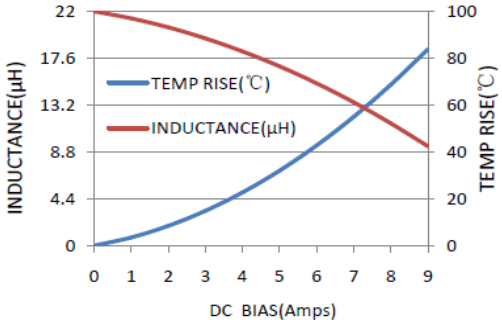
MCMB-1050-100MT



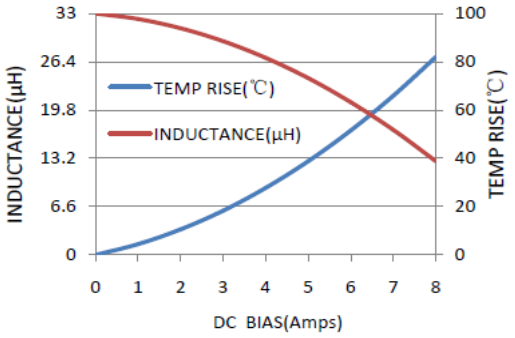
MCMB-1050-150MT



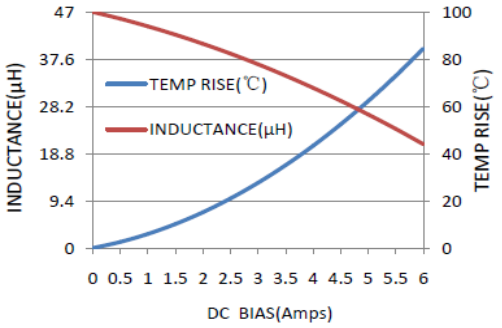
MCMB-1050-220MT



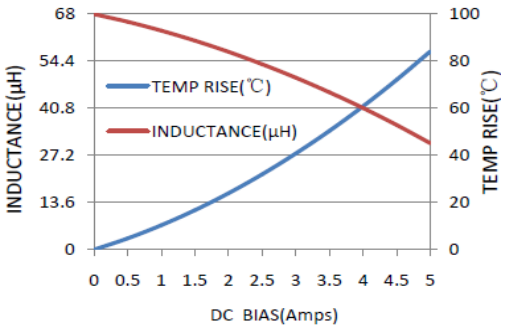
MCMB-1050-330MT



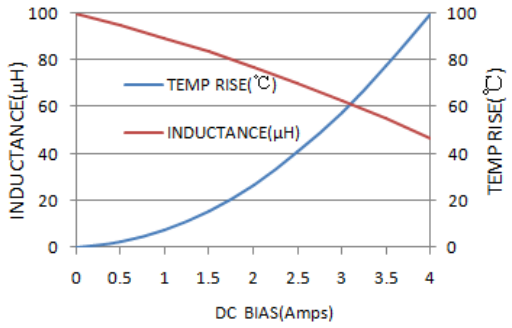
MCMB-1050-470MT



MCMB-1050-680MT



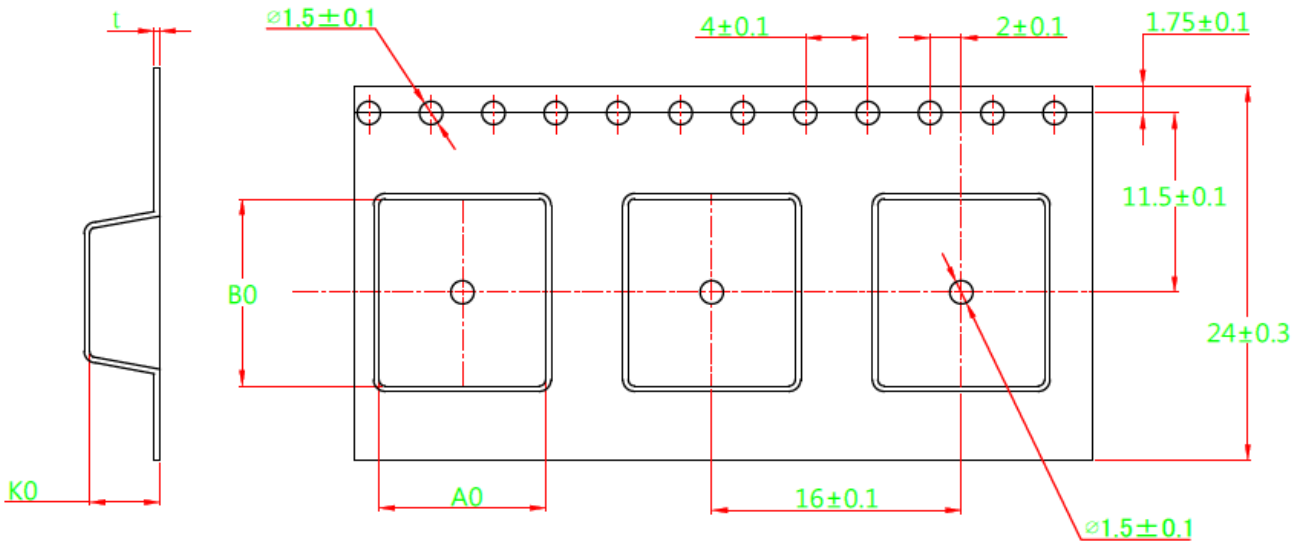
MCMB-1050-101MT



Reliability and Test Condition

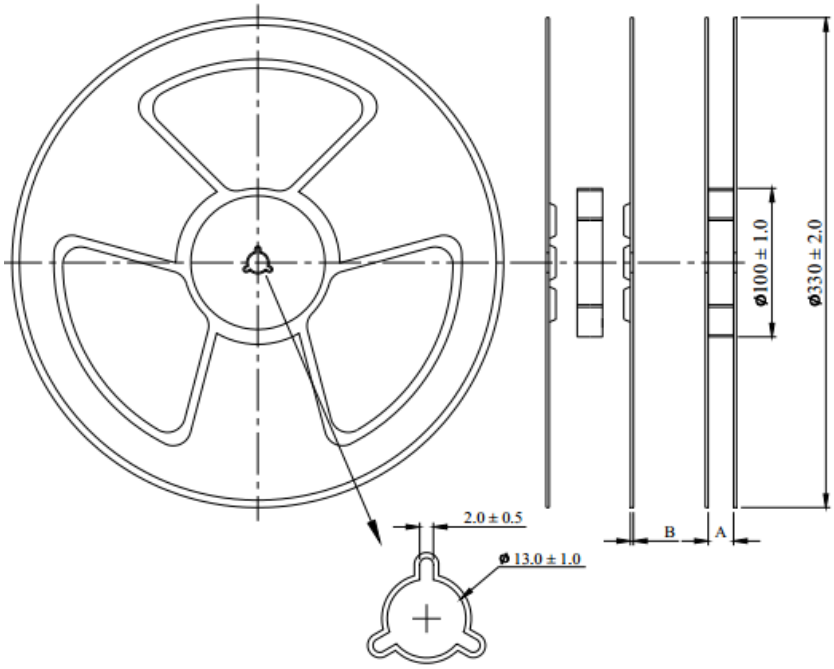
Mechanical Reliability		
Item	Specification and Requirement	Test Method
Solderability	The surface of terminal immersed shall be minimum of 95% covered with a new coating of solder	Solder heat proof: 1. Preheating: 160 ± 10 ℃ 2. Retention time: 245 ± 5 ℃ for 2 ± 0.5 seconds
Vibration	Inductance change: Within ± 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 ±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 ± 10% Without distinct damage in appearance	1. Repeat 100 cycles as follow: (-55 ± 2 ℃; 30 ± 3 min) →(Room temp., 5 min) → (+125 ± 2 ℃, 30 ± 3 min) → (Room temp., 5 min) 2. Recovery: 48 + 4 / -0 hours of recovery under the standard condition after the test.
High Temperature Resistance	Inductance change: Within ± 10% Without distinct damage in appearance	1. Environment condition: 85 ± 2 ℃ Applied Current: Rated current 2. Duration: 1000 + 4 / -0 hours
Humidity Resistance	Inductance change: Within ± 10% Without distinct damage in appearance	1. Environment condition: 60 ± 2 ℃ Humidity: 90–95% Applied Current: Rated current 2. Duration: 1000 + 4 / -0 hours
Low Temperature Store	Inductance change: Within ± 10% Without distinct damage in appearance	Store temperature: -55 ± 2 ℃,1000 + 4 / -0 hours
High Temperature Store	Inductance change: Within ± 10% Without distinct damage in appearance	Store temperature: +125 ± 2 ℃,1000 + 4 / -0 hours

Tape Packaging Dimensions



A0	B0	K0	t
10.7 ± 0.10	12.0 ± 0.10	5.2 ±0.1	0.35 ± 0.025

Reel Dimensions



	A	B
mm	24.5 ± 0.2	2.0 ± 0.2

Packaging Quantity:800PCS/Reel

Recommended Soldering Technologies

(1) Re-flowing Profile

Preheat condition： 150 ~200℃/60~180sec.

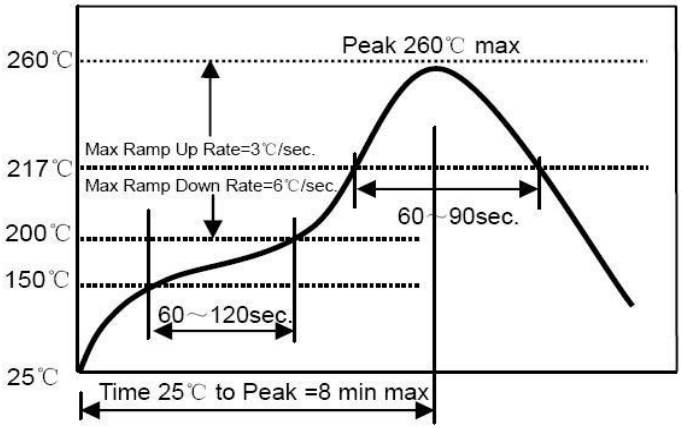
Allowed time above 217℃： 80~120sec.

Max temp：260℃

Max time at max temp： 10 sec.

Solder paste： Sn/3.0Ag/0.5Cu

Allowed Reflow time： 2x max

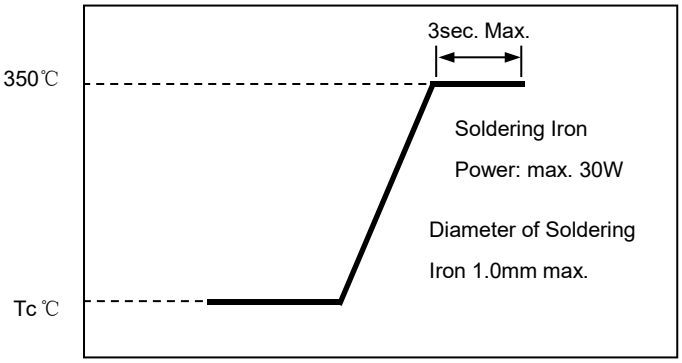


(2) Iron Soldering Profile

Iron soldering power：Max.

30W Pre-heating：150℃/60sec.

Soldering time： 3sec. Max.

Solder paste：Sn/3.0Ag/0.5Cu

Max.1 times for iron soldering