High Current, Power Inductors

MPCA-0420-XXX-M Power Choke

Description

- Halogen Free
- 125°C maximum total temperature operation
- 4.75 x 4.45 x 2.0mm maximum surface mount package
- Powder iron core material
- Magnetically shielded, low EMI
- High current carrying capacity, Low core losses
- Frequency range up to 5MHz
- 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

Environmental Data

•Storage temperature range: -55℃ to +125 ℃

•Operating temperature range: -55℃ to +125℃ (ambient plus self-temperature rise)

•Solder reflow temperature: J-STD-020D compliant

Description		
MPCA-0420-1R0-M	1.0μH	±20 %
Model	Inductance Value	Inductance Tolerance

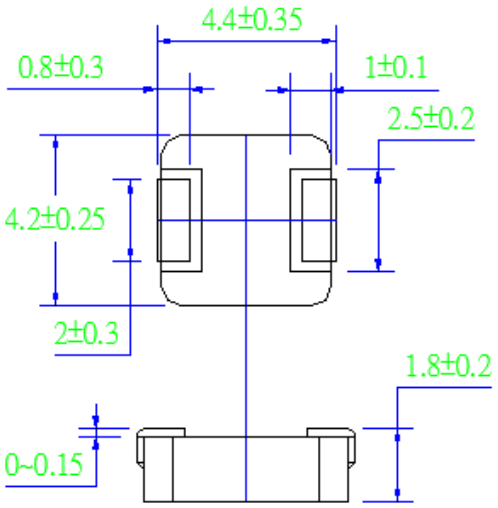
Global Part Number			
M P C A	0 4 2 0	1 R 0	M
Product Series	Dimensions	Inductance	Value Tol.

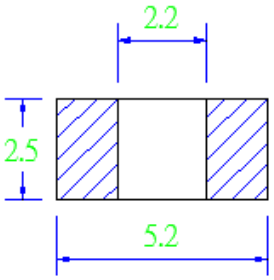
Part No.	Inductance	DC Resistance		Heating Rating Current	Saturation Current
	L0 (μH)	DCR (mΩ)		Idc (A)	Isat (A)
	±20 %, 100 kHz, 1V	TYP.	MAX.	TYP.	TYP.
MPCA-0420-R10-M	0.10	3.5	4.0	13.0	22.0
MPCA-0420-R22-M	0.22	6.0	6.6	9.5	12.5
MPCA-0420-R33-M	0.33	9.0	11.0	**10.0**	12.0
MPCA-0420-R47-M	0.47	12.5	14.0	7.5	9.5
MPCA-0420-R56-M	0.56	14.0	16.0	7.0	10.0
MPCA-0420-R68-M	0.68	16.0	18.0	7.0	9.0
MPCA-0420-1R0-M	1.0	24.0	27.0	6.0	7.0
MPCA-0420-1R2-M	1.2	24.0	27.0	6.0	7.0
MPCA-0420-1R5-M	1.5	38.0	46.0	5.0	6.0
MPCA-0420-2R2-M	2.2	52.0	58.0	4.5	5.0
MPCA-0420-3R3-M	3.3	74.0	87.0	3.3	4.0
MPCA-0420-4R7-M	4.7	92.0	105.0	2.8	3.0
MPCA-0420-6R8-M	6.8	160.0	175.0	2.4	2.5
MPCA-0420-100-M	10.0	256.0	282.0	1.6	2.2
MPCA-0420-220-M	22.0	330.0	363.0	1.2	1.65

Notes

1. All test data is referenced to 25 ℃ ambient
2. Operating temperature range - 55 ℃ to + 125 ℃
3. Idc(A):DC current (A) that will cause an approximate ΔT of 40 ℃(reference ambient temperature is 25℃)
4. Isat(A):DC current (A) that will cause L0 to drop approximately30 %
5. The part temperature (ambient + temp rise) should not exceed 125 ℃ 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.

•Dimensions-mm





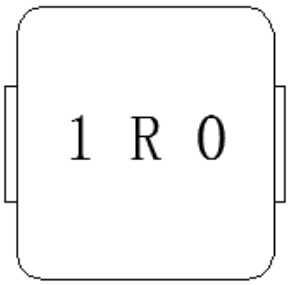
Recommend Land Pattern Dimensions

•Marking

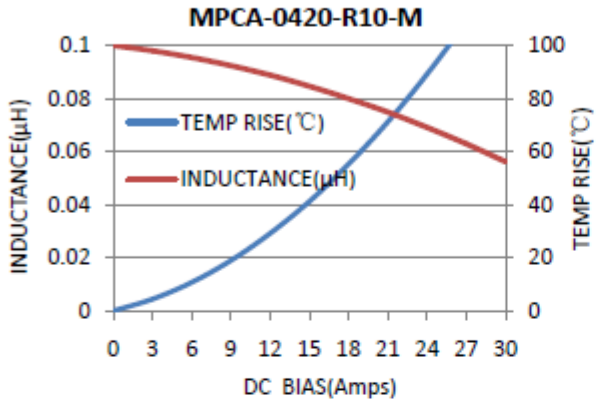
The inductor is marked with a 3-digit code

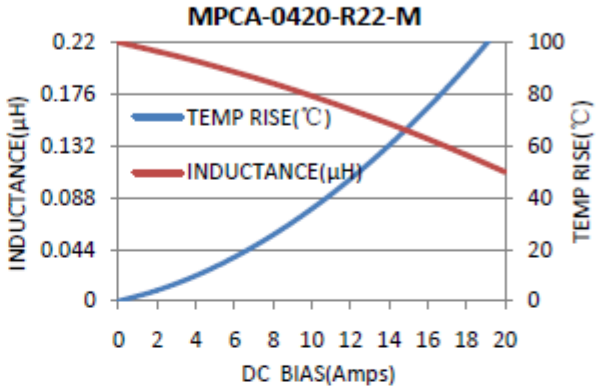
Example - -1.0→1R0

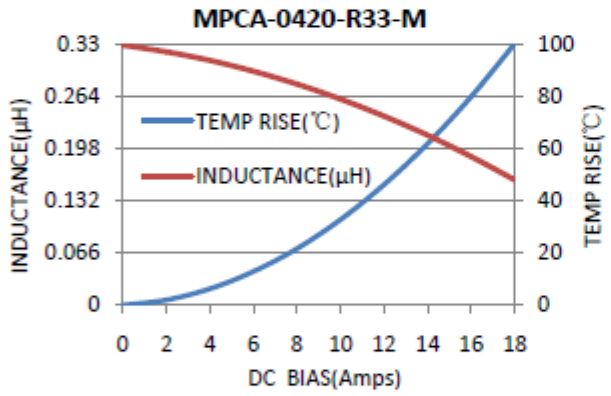
Note：Using Ink for marking

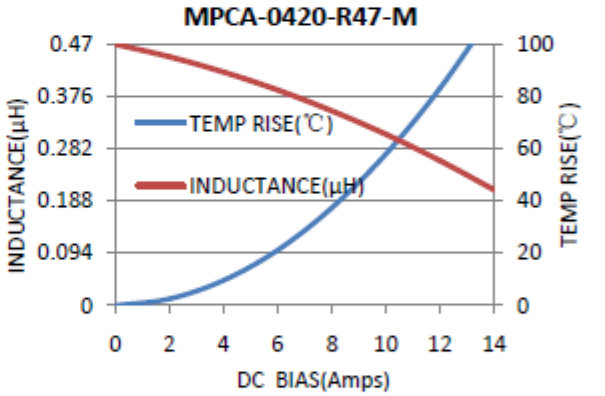


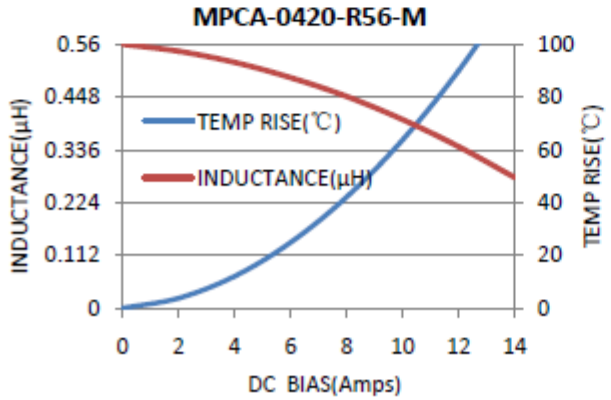
Performance Graphs	
Test Instruments	Test Condition
Wayne kerr 3260B/G LCR Meter Wayne kerr 3265B Bias Current Source	Temperature: 26 ± 3℃ Humidity: < 70% RH Frequency: 100 KHz, 1.0V

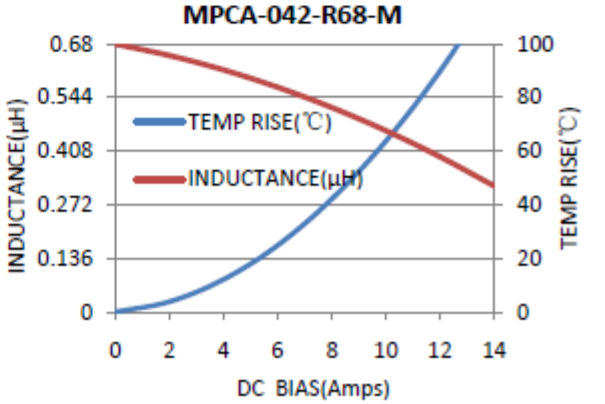


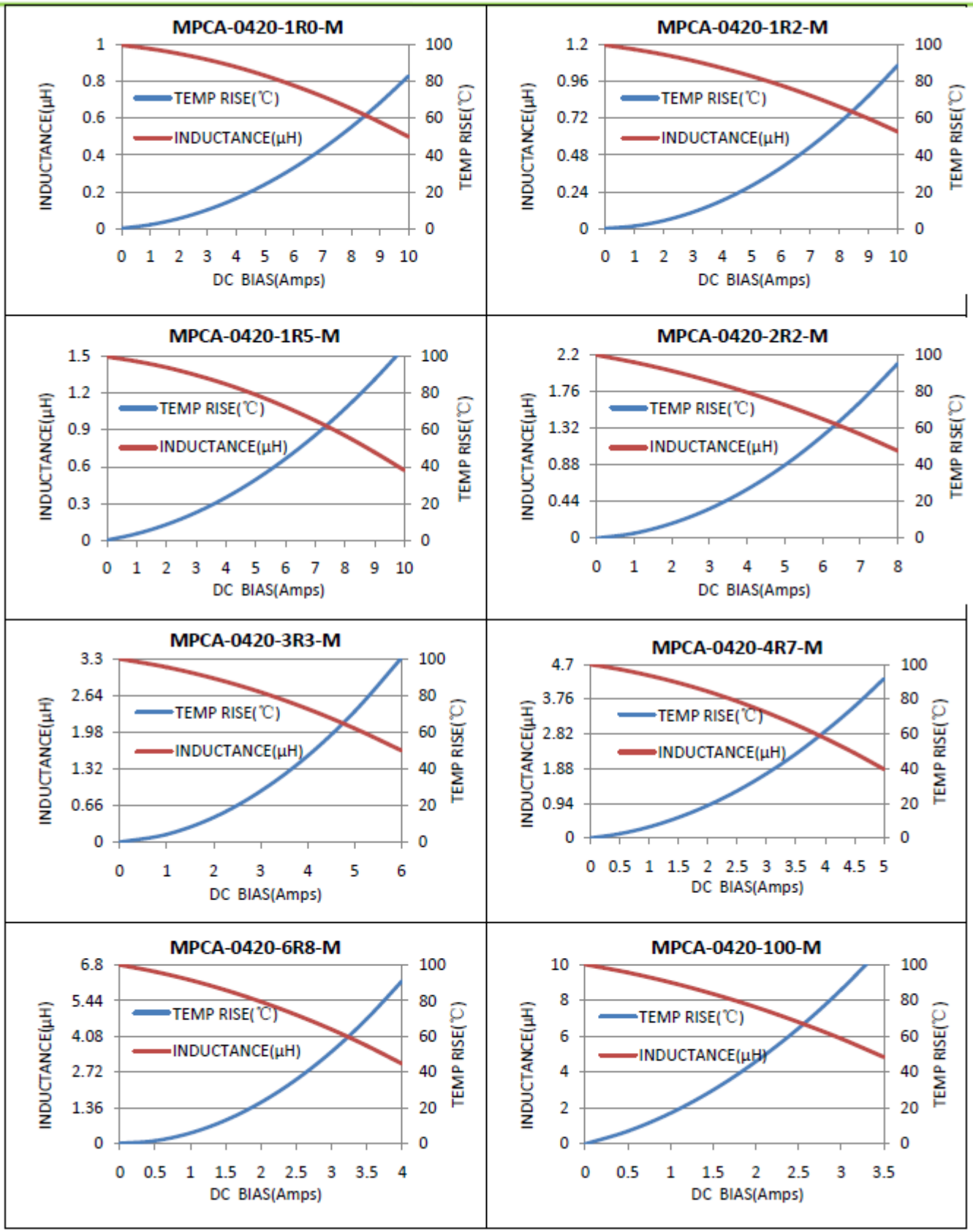


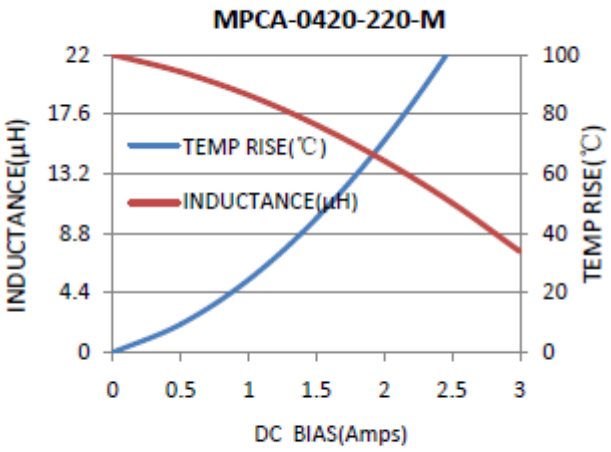









MPCA-0420-1R0-M
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
MPCA-0420-1R2-M
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
MPCA-0420-1R5-M
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
MPCA-0420-2R2-M
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
MPCA-0420-3R3-M
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
MPCA-0420-4R7-M
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
MPCA-0420-6R8-M
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
MPCA-0420-100-M
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)


MPCA-0420-220-M
22
17.6
13.2
8.8
4.4
0
100
80
60
40
20
0
TEMP RISE(℃)
INDUCTANCE(μH)
0
0.5
1
1.5
2
2.5
3
DC BIAS(Amps)