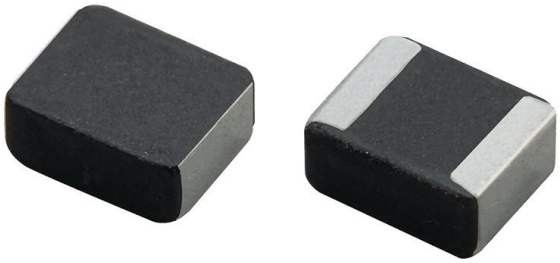
Mini Molding Power Inductors

1. FEATURES



- High saturation current realized by material properties and structure design.
- Low DC resistance to achieve high conversion efficiency and lower temperature rising.
- Magnetically shielded structure to accomplish high resolution in EMC protection.

2. APPLICATIONS

- Smart phone, PAD
- DC/DC converter
- Thin-type power supply module

3. Product Identification

MCP252010S-R33M

a b c d

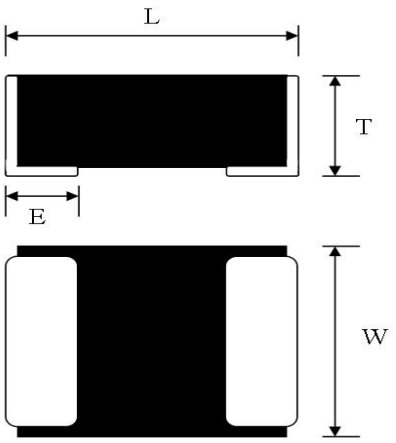
a：Series name

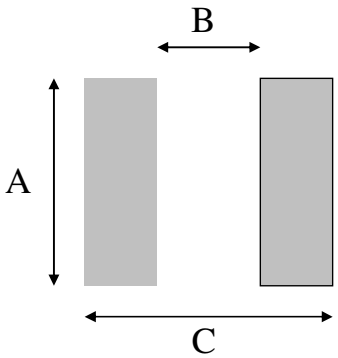
b：Product dimensions（a xbx c）

c：Inductance Value(1R0:1.0uH; 100: 10uH; 101:100uH)

d：Inductance Tolerance (K:10% ; M:20% ; N:30%)

4. SHAPES AND DIMENSIONS





※All products are printed No Marking

Dimensions (unit:mm)

TYPE(型号)	L	W	T Max	E	A	B	C
MCP201610P&S	2.0±0.2	1.6±0.2	1.0	0.5±0.3	1.60	0.90	2.0
MCP252010S	2.5±0.2	2.0±0.2	1.0	0.6±0.3	2.0	1.2	2.80
MCP252012P	2.5±0.2	2.0±0.2	1.2	0.6±0.3	2.0	1.2	2.80

5. Electrical characteristics

MCP201610P Series

Aillen Part Number	Li [μH] Initial inductance	R_{DC} [mΩ] DC Resistance		Isat [A] Saturation Current		Irms [A] Heat Rating Current	
		Typical	Maximum	Typical	Maximum	Typical	Maximum
MCP201610P-R24M	0.24	17	21	5.6	5.05	5.0	4.50
MCP201610P-R33M	0.33	24	29	5	4.50	4.1	3.69
MCP201610P-R47M	0.47	33	40	4.4	4.00	3.5	3.15
MCP201610P-R68M	0.68	41	49	3.7	3.33	3.4	3.06
MCP201610P-1R0M	1.0	60	69	2.9	2.61	2.6	2.26
MCP201610P-1R5M	1.5	114	129	2.5	2.25	2.0	1.81
MCP201610P-2R2M	2.2	135	150	1.9	1.71	1.7	1.50

MCP201610S Series

Aillen Part Number	Li [μH] Initial inductance	RDC [mΩ] DC Resistance		Isat [A] Saturation Current		Irms [A] Heat Rating Current	
		Typical	Maximum	Typical	Maximum	Typical	Maximum
MCP201610S-R47M	0.47	23	30	6.1	5.3	4.5	4.05
MCP201610S-1R0M	1	48	60	3.9	3.3	3.2	3.0
MCP201610S-1R5M	1.5	86	99	3.4	3.1	2.4	2.2
MCP201610S-2R2M	2.2	117	140	2.6	2.45	2.2	2.0

Aillen®

MCP252010S Series

Aillen Part Number	Li [µH] Initial inductance	RDC [mΩ] DC Resistance		Isat [A] Saturation Current		Irms [A] Heat Rating Current	
		Typical	Maximum	Typical	Maximum	Typical	Maximum
MCP252010S-R33M	0.33	17	22	7.8	7.0	5.6	4.8
MCP252010S-R47M	0.47	23	29	6.6	6.0	5.2	4.4
MCP252010S-1R0M	1	41	52	4.4	4.0	3.4	3.1
MCP252010S-1R5M	1.5	67	77	3.8	3.5	2.6	2.3
MCP252010S-2R2M	2.2	88	110	3.3	3.0	2.4	2.1

MCP252012P Series

Aillen Part Number	Li [µH] Initial inductance	R_{DC} [mΩ] DC Resistance		Isat [A] Saturation Current		Irms [A] Heat Rating	
		Typical	Maximum	Typical	Maximum	Typical	Maximum
MCP252012P-R47M	0.47	21	25	5.3	4.77	4.5	4.05
MCP252012P-R68M	0.68	29	35	4.1	3.69	3.7	3.33
MCP252012P-1R0M	1.0	41	49	3.4	3.06	3.4	3.06
MCP252012P-1R5M	1.5	64	77	3.2	2.88	2.5	2.25
MCP252012P-2R2M	2.2	88	104	3	2.70	2.1	1.89
MCP252012P-4R7M	4.7	196	235	1.9	1.58	1.55	1.40

Note 1: Customized design is available, please contact us.

Note 2: All test referenced to 26℃ ambient

Note 3: Inductance tolerance +/- 20%

Note 4: Inductance is measured with Agilent® LCR meter 4285A. Test frequency at 1MHz.

Note 5: DC resistance is measured with HIOKI® micro-ohm meter RM3542-01.

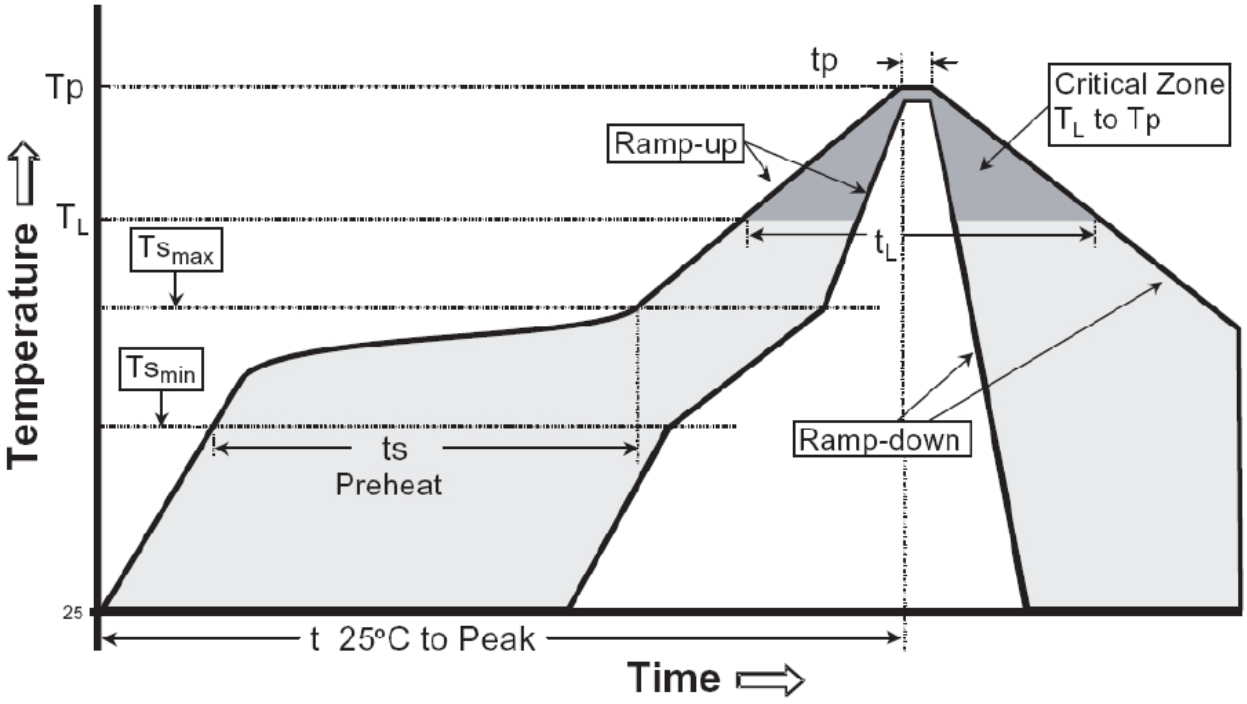
Note 6: Isat means that DC current will cause a 30% inductance reduction form initial value.

Note 7: Irms means that DC current will cause coil temp. rising to 40℃ whichever is smaller.

6. Reliability and Test Condition

Test item	Test condition	Criteria
Resistance to Solder Heat	1. Solder temperature : 260 ± 5℃ 2. Flux : Rosin 3. DIP time : 10 ± 1 sec	1. More than 95 % of terminal electrode should be covered with new solder 2. No mechanical damage 3. Inductance value should be within ± 20 % of the initial value
Adhesive Test	1. Reflow temperature : 245℃ It shall be Soldered on the substrate applying direction parallel to the substrate 2. Apply force(F) : 5 N 3. Test time : 10 sec	1. No mechanical damage 2. Soldering the products on PCB after the pulling test force > 5 N
Temperature Cycle	1. Temperature:-50 ~ 125℃ For 30 minutes each 2. Cycle: 500 cycles 3. Measurement: At ambient temperature 24 hours after test completion	1. No mechanical damage 2. Inductance should be within ±20% of the initial value
Dry Heat Test	1. Temperature: 85 ± 2℃ 2. Testing time: 500 hrs 3. Applied current: Full rated current 4. Measurement: At ambient temperature 24 hours after test completion	1. No mechanical damage 2. Inductance should be within ± 20% of the initial value
Humidity Test	1. Temperature: 60 ± 2℃ 2. Humidity: 90-95 % RH 3. Applied current: Full rated current 4. Testing time: 500 hrs 5. Measurement: At ambient temperature 24 hours after test completion	1. No mechanical damage 2. Inductance should be within ±20% of the initial value

7. Recommendable reflow soldering



Reference IPC-020c-5-1

Profile Feature	Pb free Assembly
Average Ramp Rate (Ts max to Tp)	3 ℃/second max
Preheat - Temperature Min (Ts_{min}) - Temperature Min (Ts_{max}) - Time(ts_{min} to ts_{min})	 150℃ 200℃ 60-180 seconds
Time maintained above: - Temperature (TL) - Time (tL)	 217℃ 60-150 seconds
Peak Temperature (T_p)	260℃ +0/-5 ℃
Time within 5 ℃ of actual Peak Temperature (T_p)	20-40 seconds
Ramp-Down Rate	6 ℃/second max.
Time 25℃ to Peak Temperature	8 minutes max