

⊕ Features

High current and Low DCR.
Low profile for machine placement.
Prevent EMI effect via precise impedance.

Handles high transient current spikes without saturation.
Ultra low buzz noise, due to composite construction.

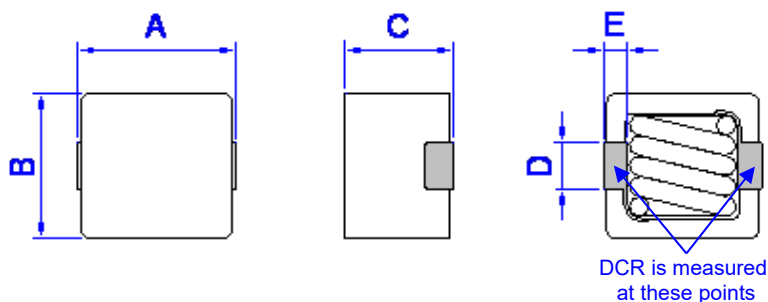
⊕ Product Identification :



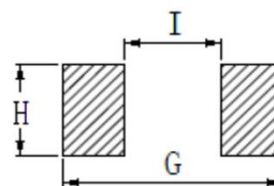
Series name	Dimensions(WxLxH)		Internal code
SAR	0807	7.9*8.4*7mm	NS = Ni-Zn Type
	1009	10*10.9*9.3mm	MS = Mn-Zn Type
	1210	11.4*12.1*9.5mm	:

Inductance		Tolerance	
R13	13 nH	J	5%
R22	22 nH	K	10%
R68	68 nH	M	20%
1R0	1 μH	N	30%
100	10 μH		

⊕ Shapes And Dimensions



⊕ Recommended PCB Pattern



Part No.	Dimensions(mm)								
	A	B	C	D	E	G	H	I	
SAR1210MS-4R7M	12.10 ±0.3	11.40 ±0.3	9.50 ±0.5	3.50 ±0.2	2.00 ±0.2	12.80 Ref	5.40 Ref	7.00 Ref	

⊕ Electrical Characteristics :

Part No.	Inductance (μH)	I _{rms} (A)	I _{sat} (A)	DCR (mΩ)	DCR (mΩ)	Test Frequency
SAR1210MS-4R7M	4.7 ± 20%	15.0 Max.	17.0 Max.	7.25 Typ.	7.9 Max.	100KHz / 1V

※I_{sat} : DC Saturation Current that will cause initial inductance to drop approximately 30 % max.

※I_{rms} : DC Current that will cause an approximate ΔT of 40°C.

※All test data is referenced to 25°C ambient.

※Test Instrument : L (CH3302), RDC (TH2511), I_{sat} & I_{rms} (WK3260+WK3265B)

⊕ Equivalent Circuit Schematic :



⊕ Material List :

No.	Location	Material
1	Core	Mn-Zn Type
2	Wire	Grade1 P180
3	Solder	Sn99.3 Cu0.7
4	-	-
5	-	-

1. Operating temperature -40°C ~ +125°C

2. Storage conditions -40°C ~ +125°C

TEST DATA FOR PREPRODUCTION SAMPLES

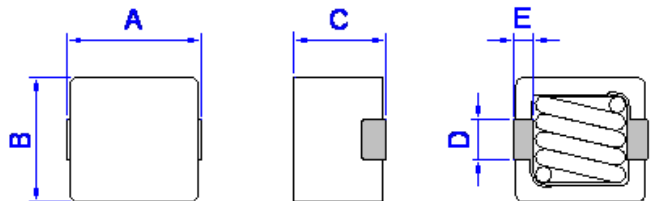
Customer		Test Date	2019/8/14	
RSiM Part No.	SAR1210MS-4R7M	Sample Quantity	5	PCS
Lot No		Test Temp	25°C	Test Humidity 62%

MEAS Item	L (0A) (μH)	L (17A) (μH)	下降率	DCR (mΩ)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)		
SPEC	4.7	L(0A)*70%	30%	7.90	12.10	11.40	9.50			-	-
Upper	5.64	-	-	7.90	12.40	11.70	10.00	-	-	-	-
Lower	3.76	-	-	-	11.80	11.10	9.00	-	-	-	-
Tolerance	20%	Typ	Typ	Max	0.30	0.30	0.50				
Test Freq.	100KHz / 1V									-	-
1	4.58	3.450	24.67%	7.25	12.15	11.40	9.56				
2	4.65	3.560	23.44%	7.26	12.12	11.42	9.63				
3	4.68	3.570	23.72%	7.24	12.13	11.43	9.54				
4	4.70	3.650	22.34%	7.25	12.16	11.45	9.53				
5	4.66	3.580	23.18%	7.25	12.14	11.44	9.52				
6											
7											
8											
9											
10											
Average	4.65	3.56	23.47%	7.250	12.14	11.43	9.56				
Max	4.70	3.65	24.67%	7.260	12.16	11.45	9.63			0.00	0.00
Min	4.58	3.45	22.34%	7.240	12.12	11.40	9.52			0.00	0.00
Range	0.12	0.20	2.33%	0.020	0.04	0.05	0.11			0.00	0.00
StDevP	0.04	0.06	0.76%	0.006	0.01	0.02	0.04			#####	#####

Test Instrument

LCR CH3302
DCR TH2511
R.Current WK3260+WK3265B

Configuration



Coil Spec :

Drawn by

davy

Checked by

amanda

Approved by

Vincent

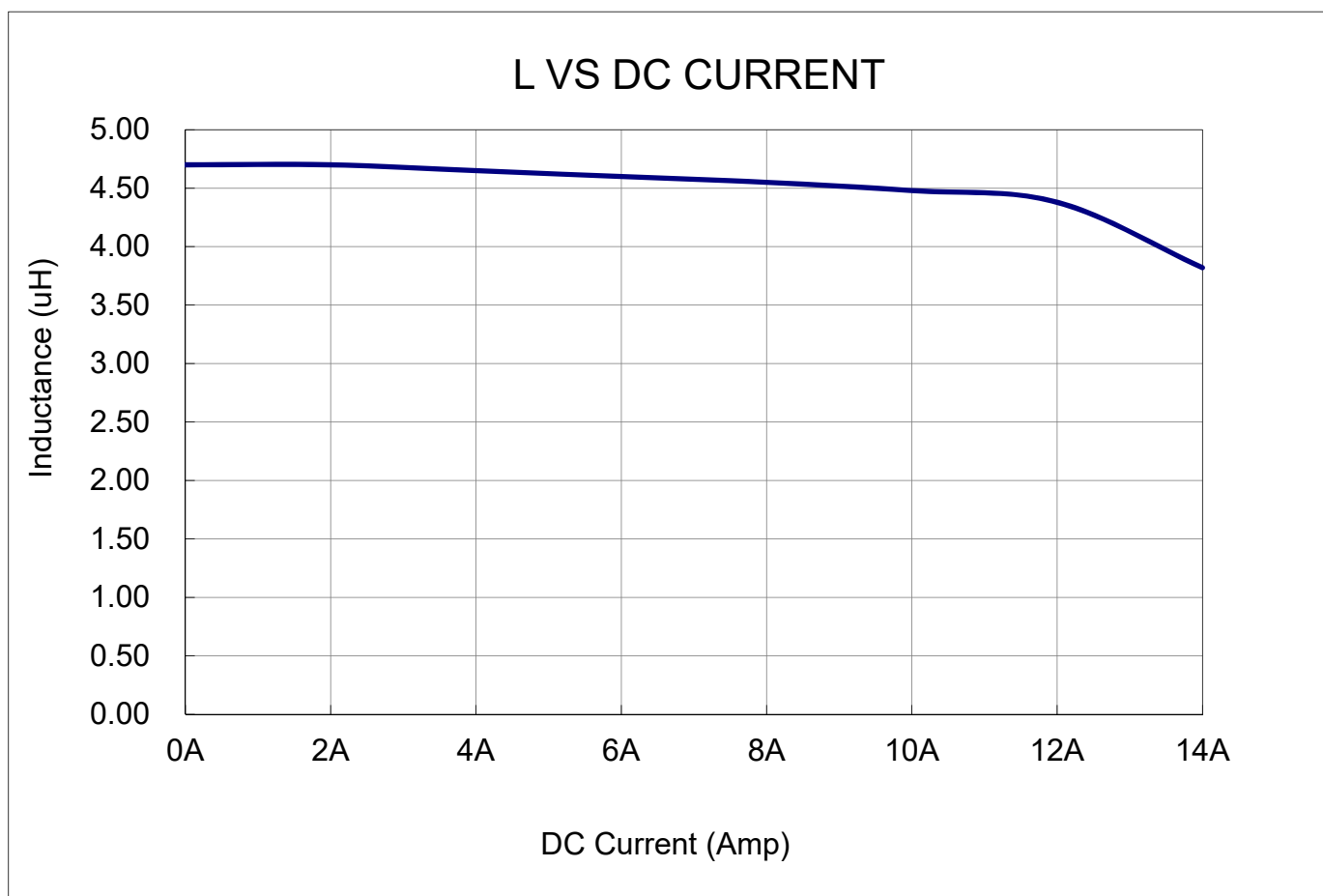
⊕ Test Condition

Part No.	SAR1210MS-4R7M	Test Instruments	Zentech-3305 / Zentech502BC
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⊕ Test Curve

Isat (A)	0A	2A	4A	6A	8A	10A	12A	14A	16A	18A	
L (uH)	4.700	4.700	4.650	4.600	4.550	4.480	4.380	3.820	3.400	2.900	

INDUCTANCE VS CURRENT@100KHZ/1.0V



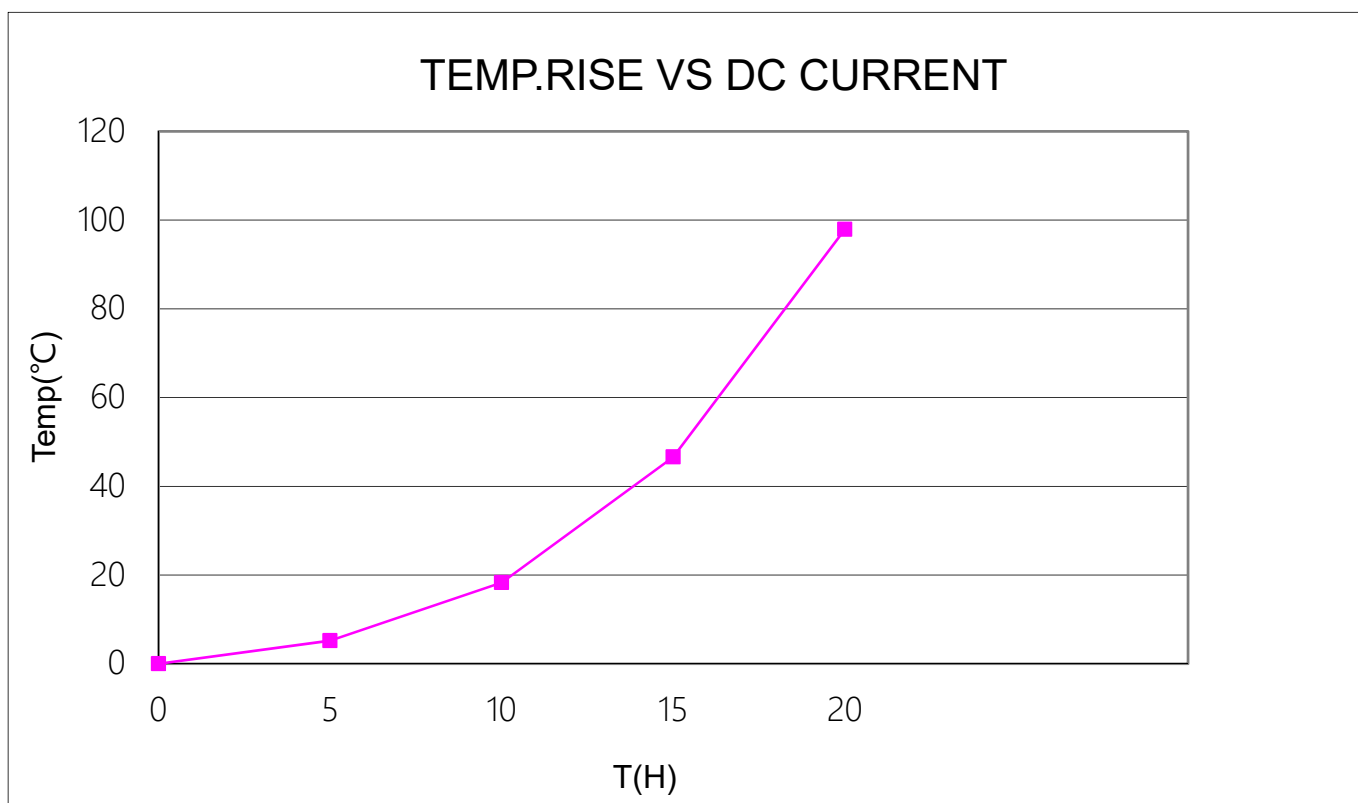
⊕ Remark

⊕ Test Condition

Part No.	SAR1210MS-4R7M	Test Instruments	Zentech-3305 / Zentech502BC
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⊕ Test Curve

IDC (A)	0	5	10	15	20						
ΔT (°C)	0	5.2	18.3	46.6	97.9						



⊕ Remark

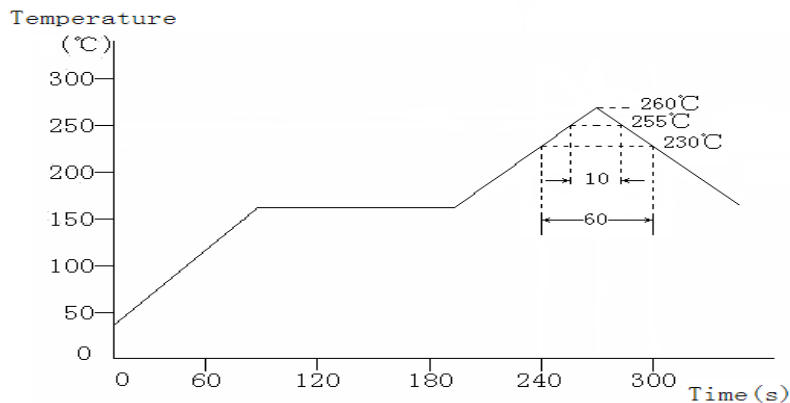
⊕ Mechanical Reliability

項目 Item	Conditions	Specification
Solderability	Solder heat proof: Preheating: 180 ±10°C 90 seconds Soldering: 255 ±5°C for 3 ±1 sec	The surface of terminal/pin tested shall be covered with new solder by 95%
Shock	Drop down with 981m/s ² (100G) shock Attitude upon a rubber block method shock testing machine, 3 tests.	Inductance change within ± 5% Without mechanical damage
Vibration	Vibration frequency: 10Hz to 55Hz to 10Hz 60, seconds cycle Vibration time: 2 hours	Inductance change within ± 5% Without mechanical damage

⊕ Endurance Reliability

項目 Item	Conditions	Specification
Thermal Shock	-40°C, (30 mins) -> room temp. (5 mins) -> 125°C, (30 mins) -> room temp. (5 mins) 100 cycles	Inductance change within ± 5% Without mechanical damage
Heat Resistance	Apply IDC current @ 85°C ambient Duration: 1000 hrs	Inductance change within ± 5% Without mechanical damage
Humidity Resistance	Apply IDC current @ 60°C ambient Humidity: 90~95% Duration: 1000 hrs	Inductance change within ± 5% Without mechanical damage
Low Temp. Storing	Storing Temp. -40 ±2 °C for total 1,000 +4/-0 hours	Inductance change within ± 5% Without mechanical damage
High Temp. Storing	Storing Temp. 125 ±2 °C for total 1,000 +4/-0 hours	Inductance change within ± 5% Without mechanical damage

⊕ Reflow Soldering Heat Endurance

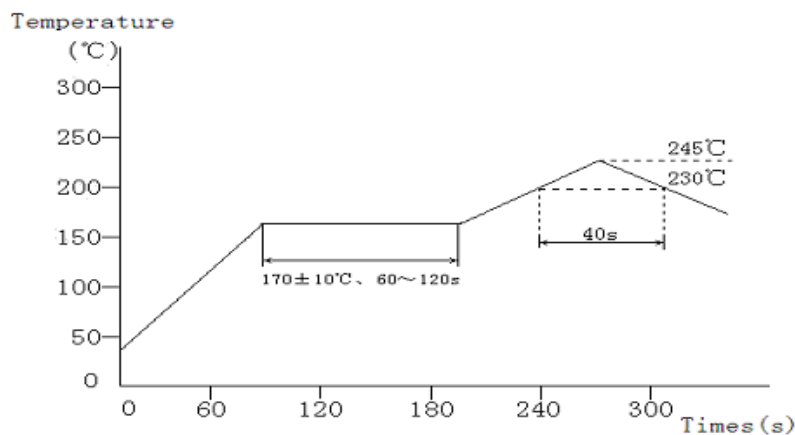


No mechanical and electrical defects are found after testing based on the above profile and keeping under the conditions of room temperature and humidity for 2 hours.

Twice reflow test is acceptable with the test interval remaining 1 hour under the normal conditions.

The reflow test profile may vary with the testing instruments.

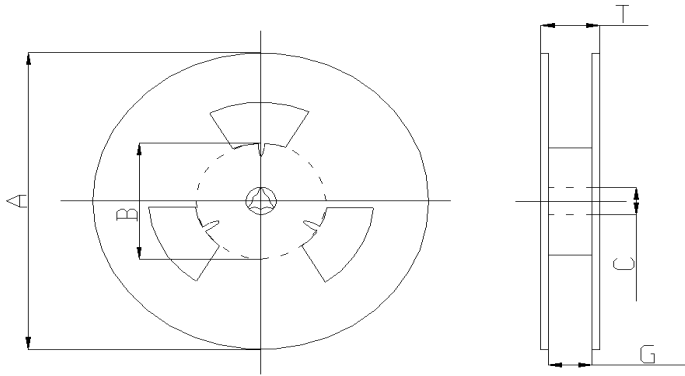
⊕ Recommended Reflow Conditions



The recommended reflow profile is based on the testing instruments used. Solder ability will depend on the testing equipments, reflow conditions, testing method, etc. So it is necessary to make a confirmation of them when the reflow conditions are set up.

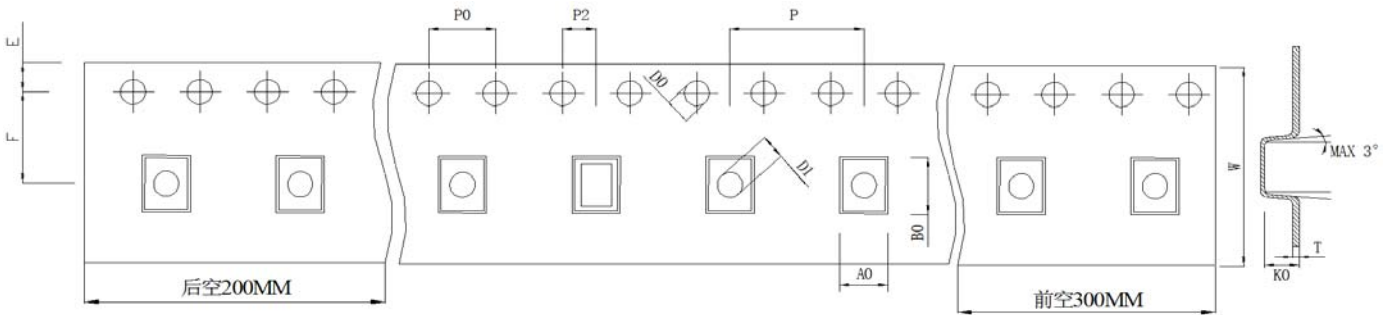
However halogen lamp shall be used, side heat will be beyond range of resistance heat, so we can't recommend it.

⊕ Reel Dimension(m/m)



Item	A(mm)	B(mm)	C(mm)	G(mm)	T(mm)
13"x24	330±1	100±1	13±1	24±1	28.5±2

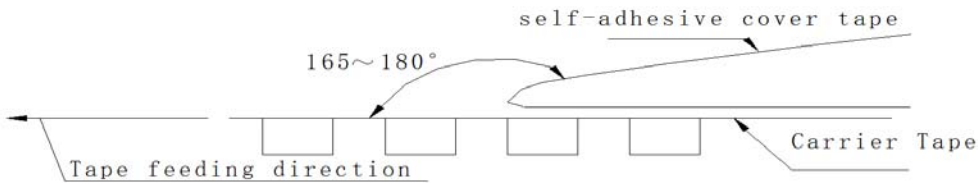
⊕ Taping Dimension(m/m)



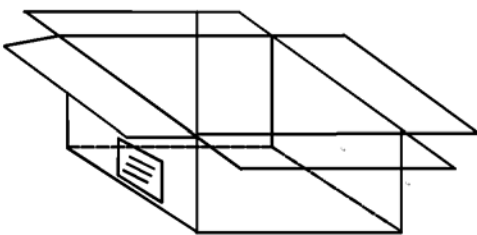
Item	W	A0	B0	K0	E	F	P	P0
24mm	24.0±0.5	11.8±0.1	12.5±0.1	10.5±0.15	1.75±0.1	5.5±0.1	20.0±0.1	4.0±0.1
	P2	D0	D1	T				
	2.0±0.1	1.5±0.1	1.5±0.3	0.4±0.05				

⊕ Tape Peel off Strength

The force to tear off cover tape: 10~130g.f



⊕ Packaging Carton



Reel Packing Unit	Inner Box Packing Unit	Carton Packing Unit
300 PCS / Reel	900 PCS / Box	2700 PCS / Box

