MOLDING TYPE DIP INDUCTORS

SDM119N SERIES

1. PART NO. EXPRESSION :

S D M 1 1 9 N - R 2 5 M F

(a) (b) (c) (d)(e)

(a) Series code

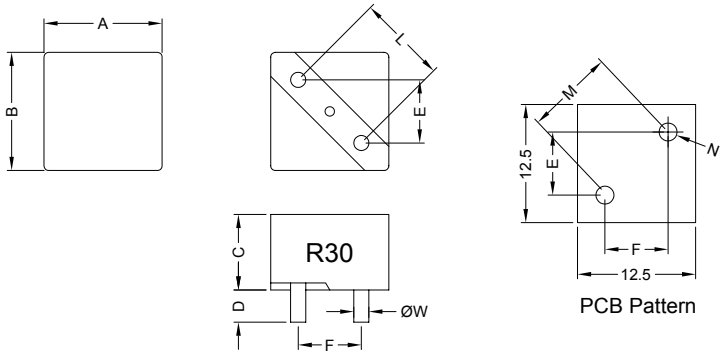
(b) Dimension code

(c) Inductance code : R25 = 0.25uH

(d) Tolerance code : M = ±20%

(e) F : Lead Free

2. CONFIGURATION & DIMENSIONS :

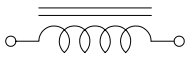


PCB Pattern

Unit:m/m

Part No.	A	B	C	D	E	F	W	L	M	N
R25/R36/R47 R50/R56/R68	11.5±0.5	11.5±0.5	10.5 Max.	3.4±0.5	5.7±0.5	6.3±0.5	1.5±0.1	8.5±0.5	8.5±0.5	1.8±0.1
R30	11.5±0.5	11.5±0.5	10.5 Max.	3.4±0.5	7.3±0.5	6.0±0.5	1.3±0.1	9.4±0.5	9.4±0.5	1.6±0.1
1R2	11.5±0.5	11.5±0.5	10.5 Max.	3.4±0.5	6.6±0.5	6.6±0.5	1.5±0.1	9.3±0.5	9.3±0.5	1.8±0.1
2R0	11.5±0.5	11.5±0.5	10.5 Max.	3.4±0.5	6.6±0.5	6.6±0.5	1.0±0.1	9.3±0.5	9.3±0.5	1.2±0.1
2R5	11.5±0.5	11.5±0.5	10.5 Max.	3.4±0.5	6.5±0.5	6.9±0.5	0.9±0.1	9.5±0.5	9.5±0.5	1.1±0.1
3R0	11.5±0.5	11.5±0.5	10.5 Max.	3.4±0.5	6.4±0.5	6.3±0.5	1.1±0.1	9.0±0.5	9.0±0.5	1.2±0.1

3. SCHEMATIC :



4. MATERIALS :

(a) Core : M-Iron Core

(b) Wire : Enamelled Copper Wire

(c) Adhesive : Epoxy

5. FEATURES :

a) Shielded construction

b) Frequency up to 1MHz

RoHS Compliant

NOTE : Specifications subject to change without notice. Please check our website for latest information.

6. GENERAL SPECIFICATION :

a) Test Frequency : 100KHz/1.0Vdc

b) Operating temp. : -25°C to +125°C

c) Ambient temp. : 25°C

d) Irms (A) : Will cause an approximately temp. rise ≦ 40°C typ.

e) Isat (A) : Will cause Lo to drop approximately 20% typ.

f) Part temperature (ambient + temp. rise) : Should not exceed 125°C under worst case operating conditions.

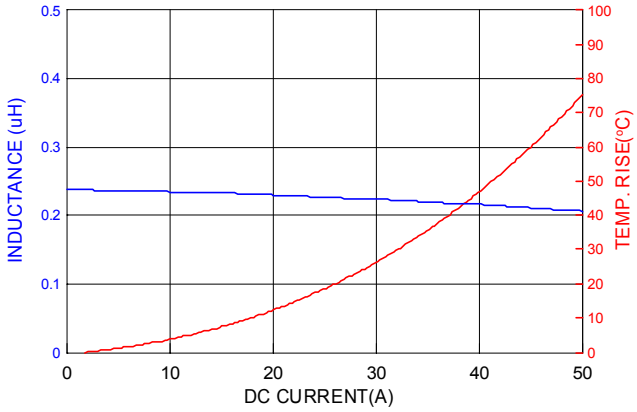
7. ELECTRICAL CHARACTERISTICS :

Part No.	Inductance Lo (uH) ±20% @ 0Adc	Q Min.	Irms (A) Typ.	Isat (A) Max.	DCR (mΩ) Max.
SDM119N-R25MF	0.25	20	38	42	0.5
SDM119N-R30MF	0.30	15	42	45	0.8±10%
SDM119N-R36MF	0.36	20	40	50	0.6
SDM119N-R50MF	0.50	20	35	40	0.8
SDM119N-R56MF	0.56	15	32	40	0.8
SDM119N-R68MF	0.68	20	32	38	1.0
SDM119N-1R1MF	1.1	15	20	30	1.5
SDM119N-1R2MF	1.2	10	35	35	1.05±8%
SDM119N-2R0MF	2.0	15	21	30	3.7
SDM119N-2R5MF	2.5	20	15	28	4.5
SDM119N-3R0MF	3.0	15	20	25	4.0

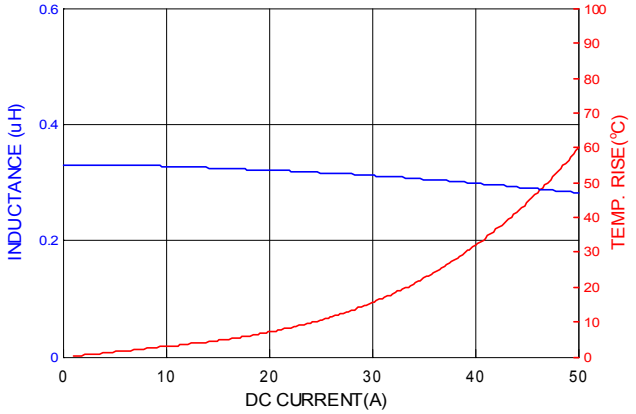
8. CHARACTERISTICS CURVES :

DC Current vs. Inductance & Temperature Rise

SDM119N-R25MF



SDM119N-R30MF



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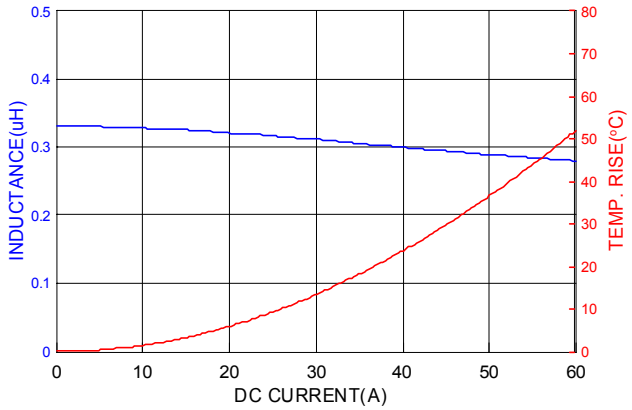
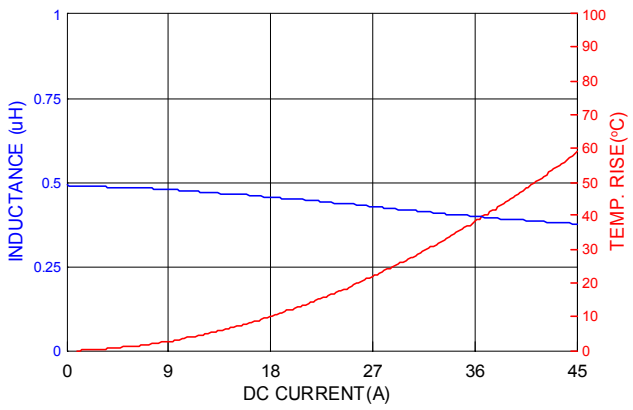
8. CHARACTERISTICS CURVES :

DC Current vs. Inductance & Temperature Rise

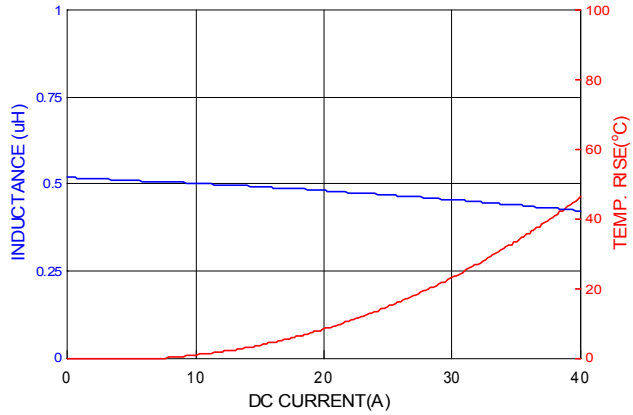
SDM119N-R36MF



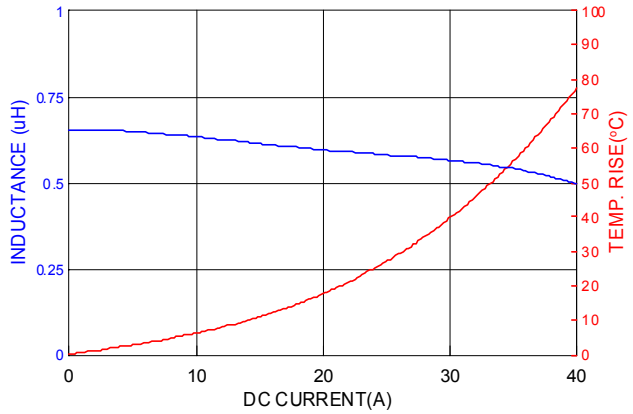
SDM119N-R50MF



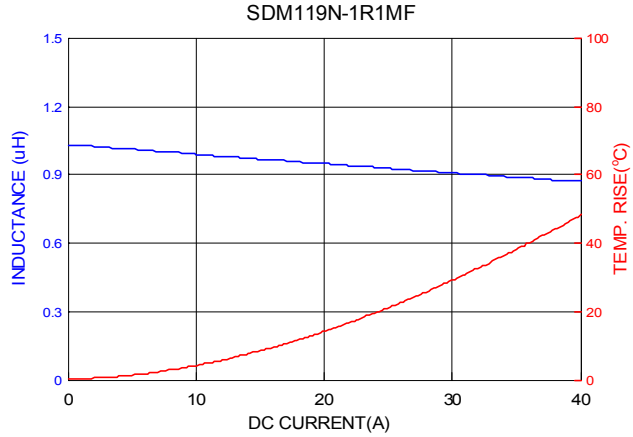
SDM119N-R56MF



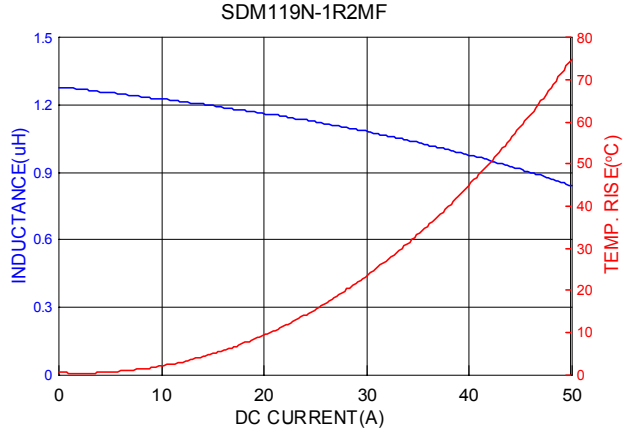
SDM119N-R68MF



SDM119N-1R1MF



SDM119N-1R2MF



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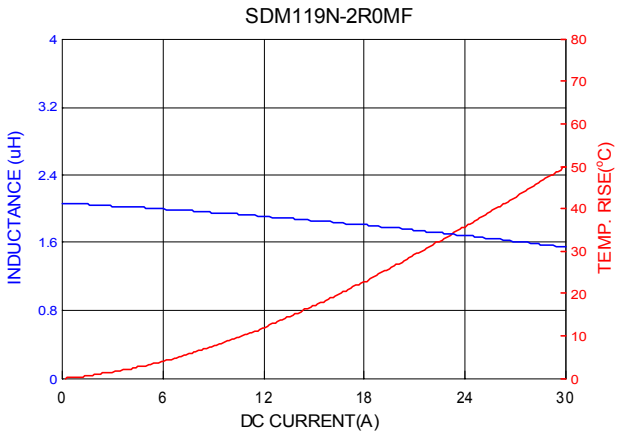
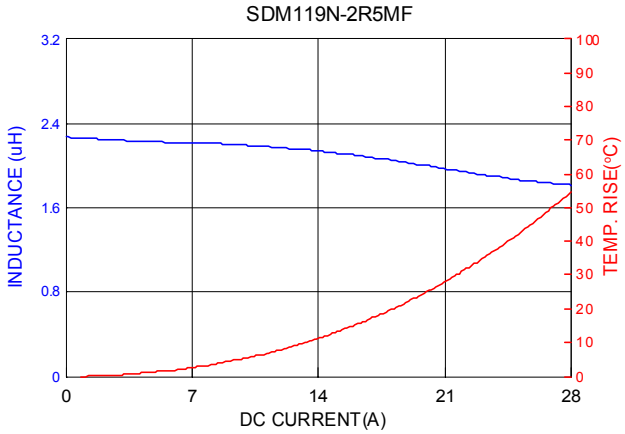
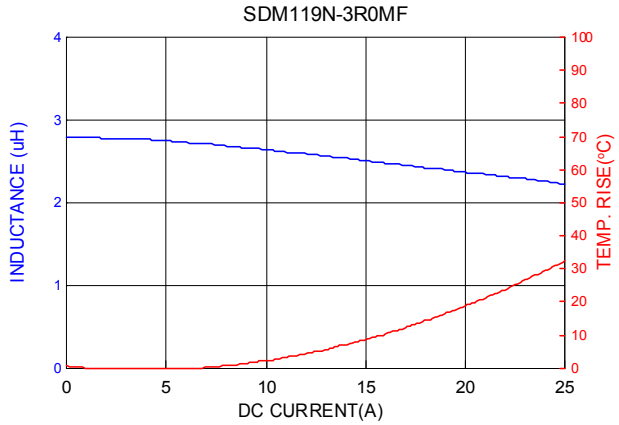
8. CHARACTERISTICS CURVES :

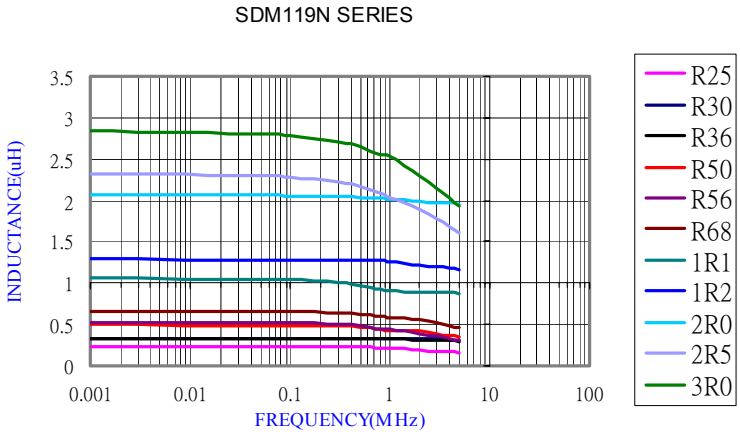
DC Current vs. Inductance & Temperature Rise







Inductance vs. Frequency



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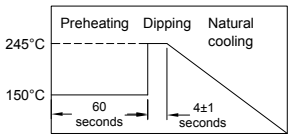
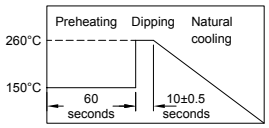
9. RELIABILITY AND TEST CONDITION :

ITEM	PERFORMANCE	TEST CONDITION
Electrical Characteristics Test		
Inductance	Refer to standard electrical characteristics list	HP-4192A, HP4284A, CH1320
DCR		Agilent 33420A
Heat Rated Current (Irms)		Irms(A) will cause an temp rise ≦ 40°C typ.
Saturation Current (Isat)		Isat(A) will cause Lo to drop approximately 25%
Mechanical Performance Test		
Solderability Test	More than 90% of the terminal electrode should be covered with solder.	 After fluxing, component shall be dipped in a melted solder bath at 245±5°C for 5 seconds
Solder Heat Resistance	1. Appearance : No significant abnormality 2. Inductance change : Within ±3%	Preheat : 150°C, 60sec. Solder : Sn99.95-Cu0.05 Solder Temperature : 260±5°C Flux : rosin Dip Time : 10±0.5sec. 
Reliability Test		
High Temperature Life Test	1. Appearance : No damage 2. Inductance : Within ±3% of initial value. No disconnection or short circuit.	Temperature : 85±5°C Time : 500±12 hours Recovery: 4 to 24hrs of recovery under the standard condition after the removal from test chamber
Low Temperature Life Test		Temperature : -40±5°C Time : 500±12 hours Recovery: 4 to 24hrs of recovery under the standard condition after the removal from test chamber
Thermal Shock		Conditions of 1 cycle. Step / Temperature (°C) / Times (min.) 1 / -25±3 / 30±3 2 / Room Temperature / Within 3 3 / 85±3 / 30±3 4 / Room Temperature / Within 3 Total : 5 cycles Recovery: 4 to 24hrs of recovery under the standard condition after the removal from test chamber
Humidity Resistance	1. Appearance : No damage 2. Inductance : Within ±5% of initial value. No disconnection or short circuit.	Temperature : 40±5°C Humidity : 90% to 95% Applied Current : Rated Curent Time : 500±12 hours Recovery: 4 to 24hrs of recovery under the standard condition after the removal from test chamber

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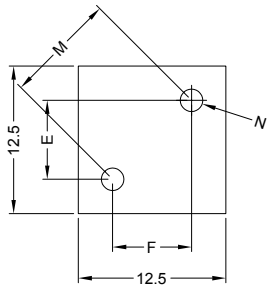
10. SOLDERIND AND MOUNTING :

10-1. Recommended PC Board Pattern



Unit:m/m

Part No.	E	F	M	N
R25/R36/R47 R50/R56/R68	5.7±0.5	6.3±0.5	8.5±0.5	1.8±0.1
R30	7.3±0.5	6.0±0.5	9.4±0.5	1.6±0.1
1R2	6.6±0.5	6.6±0.5	9.3±0.5	1.8±0.1
2R0	6.6±0.5	6.6±0.5	9.3±0.5	1.2±0.1
2R5	6.5±0.5	6.9±0.5	9.5±0.5	1.1±0.1
3R0	6.4±0.5	6.3±0.5	9.0±0.5	1.2±0.1

10-2. Soldering

Mildly activated rosin fluxes are preferred. The minimum amount of solder can lead to damage from the stresses caused by the difference in coefficients of expansion between solder, chip and substrate. Our terminations are suitable for all wave and re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

10-2.1 Solder Re-flow :

Recommended temperature profiles for re-flow soldering in Figure 1.

10-2.2 Soldering Iron (Figure 2) :

Products attachment with soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

Note :

a) Preheat circuit and products to 150°C.
b) 280°C tip temperature (max)
c) Never contact the ceramic with the iron tip
d) 1.0mm tip diameter (max)
e) Use a 20 watt soldering iron with tip diameter of 1.0mm
f) Limit soldering time to 3 secs.

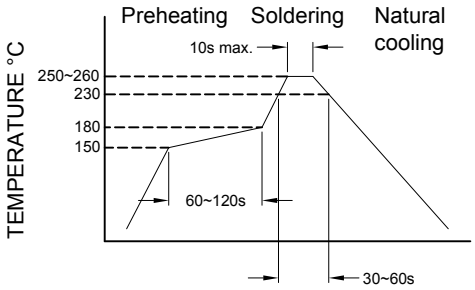


Figure 1. Re-flow Soldering

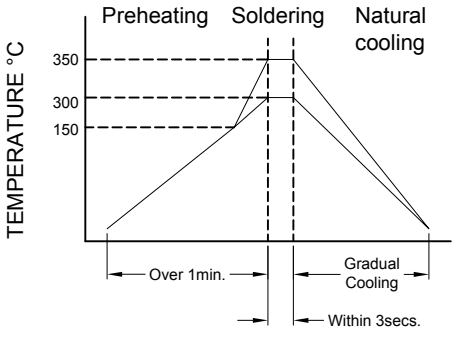


Figure 2. Iron Soldering

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11. PACKING AND QUANTITY :

Size	SDM119N
Styrofoam	100
Inner Box	1000
Carton	2000

Application Notice

1. Storage Conditions :
   To maintain the solderabililty of terminal electrodes :
   a) Temperature and humidity conditions : Less than 30°C and 70% RH.
   b) Recommended products should be used within 6 months from the time of delivery.
   c) The packaging material should be kept where no chlorine or sulfur exists in the air.

2. Transportation :
   a) Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
   b) The use of tweezers or vacuum pick up is strongly recommended for individual components.
   c) Bulk handling should ensure that abrasion and mechanical shock are minimized.

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