



SM1606A Series



1. Features of SM1606A series:

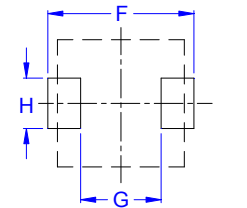
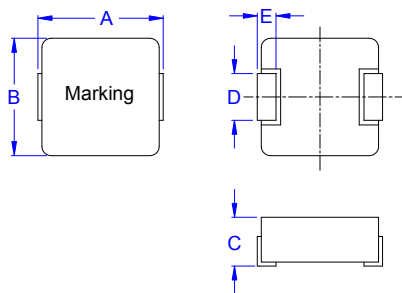
- 4.75 x 4.45mm Foot Print, 1.50mm Max. height. SMD Power Inductor for high frequency application. Operating frequency up to 5MHz.
- Inductance range from 0.22uH to 10.0uH. Custom values are welcomed.
- High saturation current characteristics by distributed gapped metal dust core.
- Ideal for portable device, Pad, E-reader and high density DC to DC Converter
- Tape & Reel Quantity: 3000 piece per 13 inches reel. RoHS and HF compliant.



2. Electrical Characteristics of SM1606A series:

ITG Part Number	Inductance ¹ (uH) ± 20%	DCR (mΩ) Typ.	DCR (mΩ) Max.	Heat Rating Current ² Irms (A) Typ.	Saturation Current ³ Isat (A) Typ.
SM1606A-R22MHF	0.22	6.20	7.50	10.00	14.00
SM1606A-R33MHF	0.33	7.00	8.50	9.50	11.00
SM1606A-R47MHF	0.47	11.30	13.70	7.50	9.00
SM1606A-R56MHF	0.56	12.00	14.50	7.00	8.30
SM1606A-R68MHF	0.68	15.80	19.00	6.50	8.00
SM1606A-1R0MHF	1.00	23.90	28.00	5.00	6.00
SM1606A-1R5MHF	1.50	48.00	58.00	4.20	4.80
SM1606A-2R2MHF	2.20	65.00	78.00	3.20	4.50
SM1606A-3R3MHF	3.30	77.00	92.00	3.00	3.20
SM1606A-4R7MHF	4.70	108.00	130.00	2.40	3.00
SM1606A-6R8MHF	6.80	172.00	206.50	2.00	2.30
SM1606A-100MHF	10.00	245.00	294.00	1.80	2.10

3. Mechanical Dimensions of SM1606A series (unit: mm):



Recommend PCB Layout

Pad Dimension	SM1606A
F	5.20 Typ.
G	2.20 Typ.
H	2.50 Typ.

Type	A	B	C	D	E
SM1606A	4.40 ± 0.35	4.20 ± 0.25	1.50 Max.	2.00 ± 0.30	0.80 ± 0.30

Notes:

1. Test conditions: 100KHz, 1.0V, 25°C ambient temperature.
2. Irms: DC current that will cause an approximate ΔT of 40°C.
3. Isat: DC current that causes inductance to drop 30% (Typ.) from OCL (Ta=25°C).
4. Operating Temperature Range: -55°C to 125°C .

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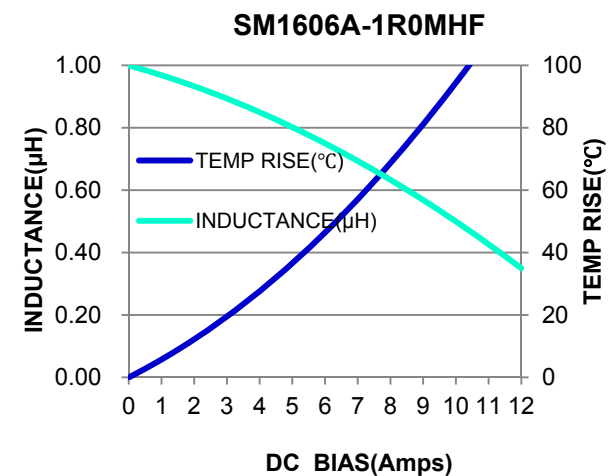
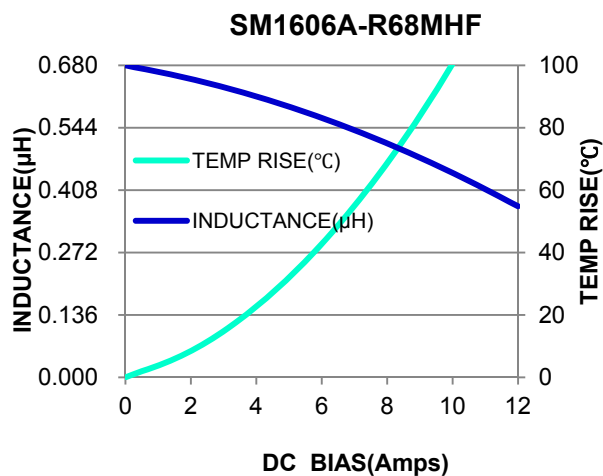
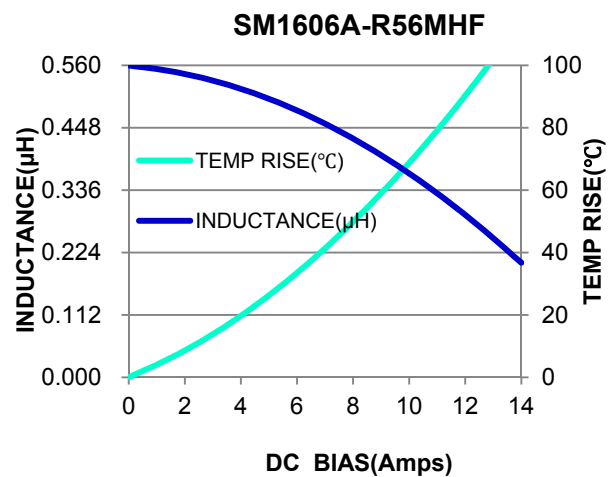
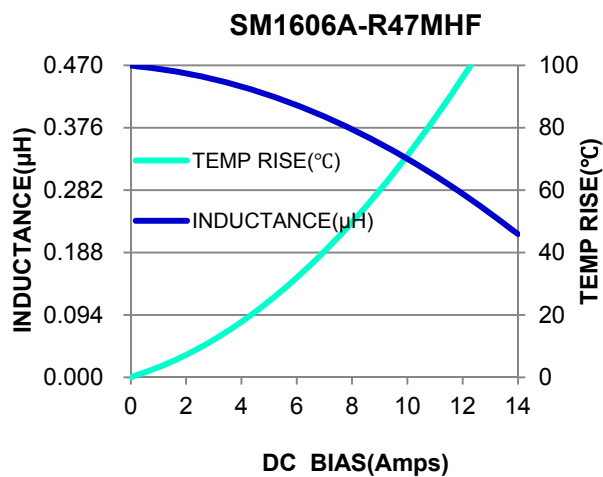
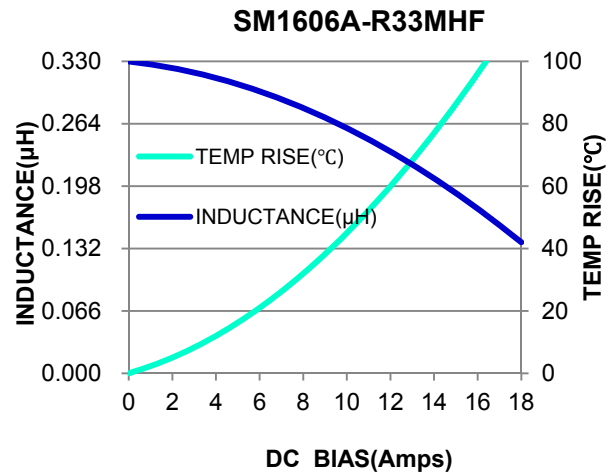
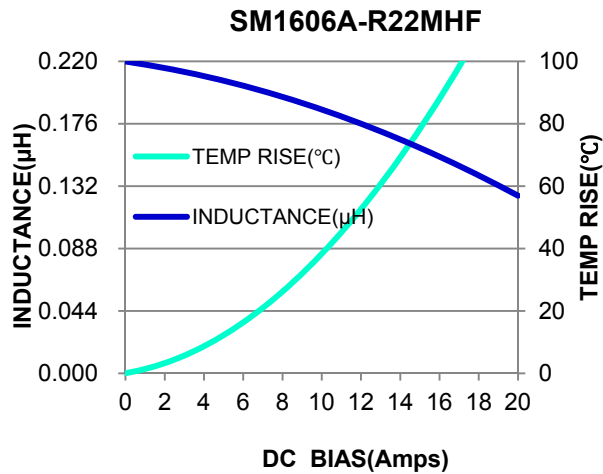
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4. Inductance vs. Current vs. Temperature Rise Characteristics of SM1606A Series



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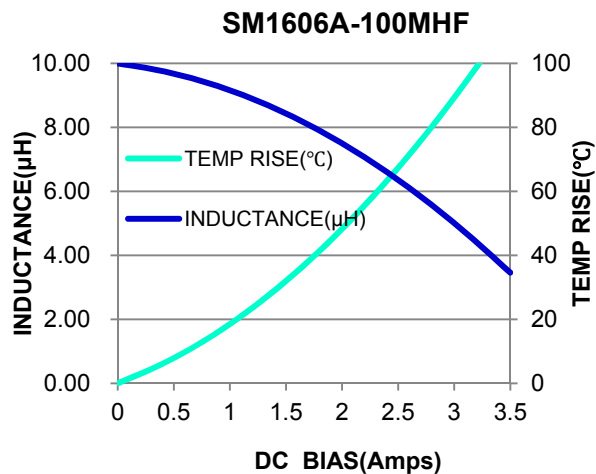
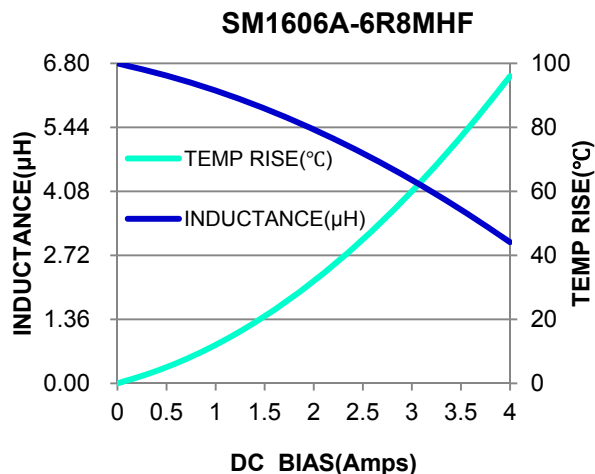
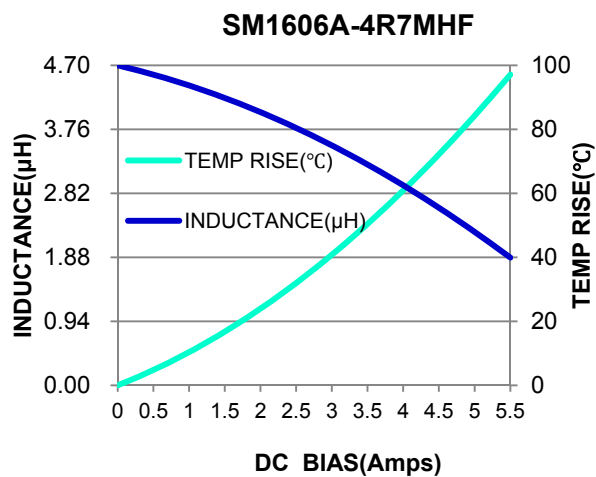
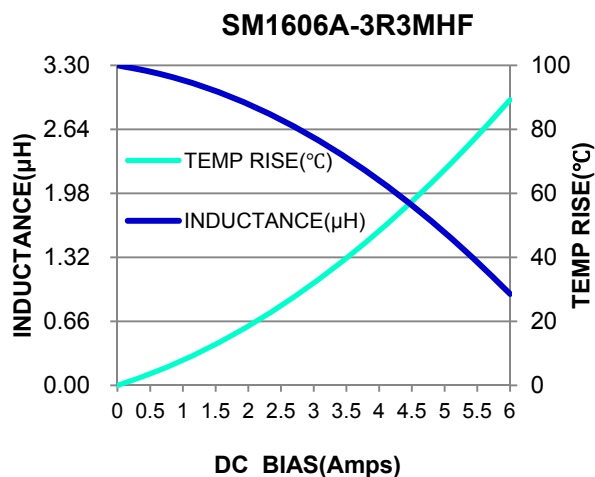
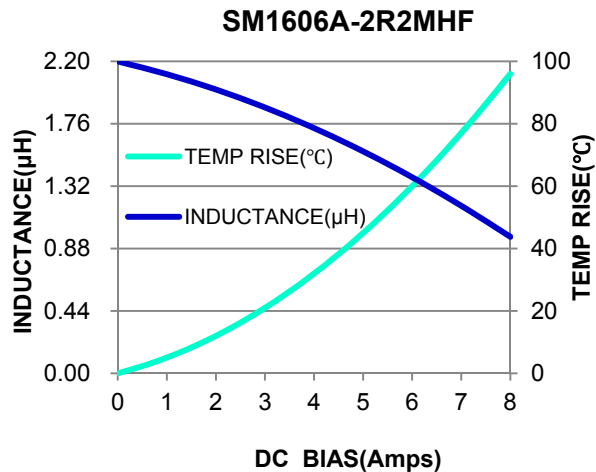
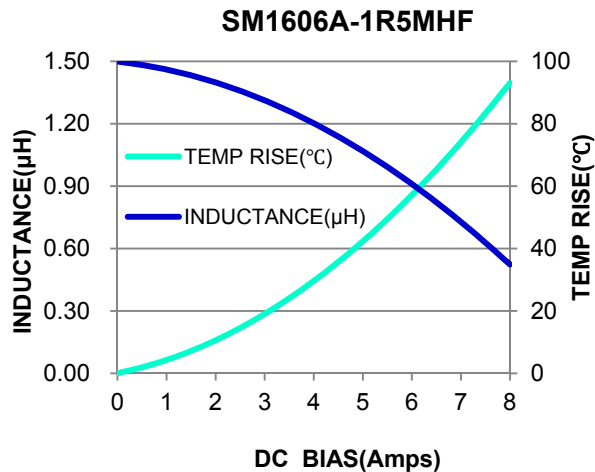
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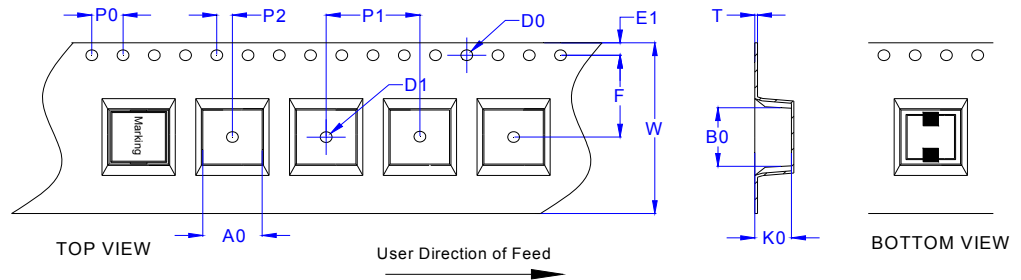


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5. PACKAGE SPECIFICATION.(UNIT:mm):

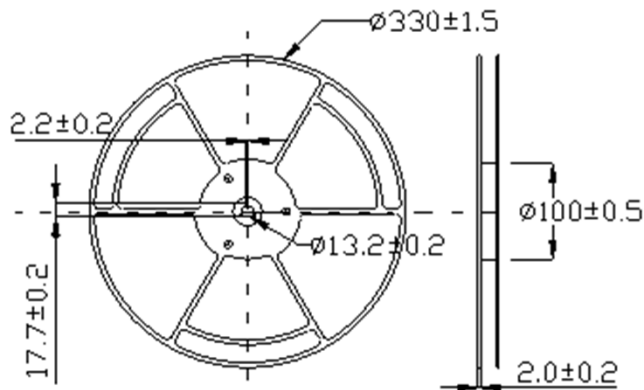
(1).ENCAPSULATION MODE:



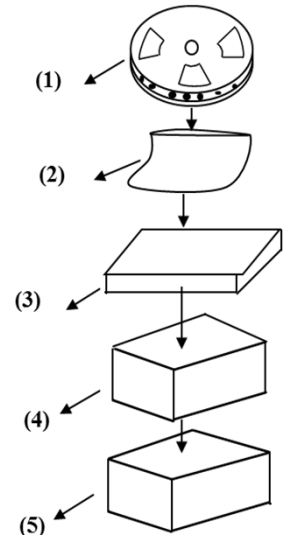
(2).DIMENSION(mm):

W	A0	B0	K0	P1	P0	P2	D0	D1	F	E1	T
12.0±0.30	4.5±0.10	4.8±0.10	1.8±0.15	8.0±0.10	4.0±0.10	2.0±0.10	1.5±0.10	1.5±0.10	5.5±0.10	1.75±0.10	0.35±0.05

(3).REEL SIZE:



(4).PACKAGE MODE:



(4).PACKAGING LIST:

No.	Packing Part	Dimension (mm)	Material	Quantity
1	Reel	330	Plastic	3000 Pcs / Reel
2	Bag	450 X 360 X 0.075	Plastic	1 Reel / Bag
3	Small Box	340 X 335 X 45	Paper	2 Bag / Small Box
4	Middle Box	356 X 350 X 226	Paper	4 Small Boxes / Middle Box
5	Outer Box	378 X 362 X 252	Paper	1 Middle Box / Outer Box

(5).WEIGHT: N.W: 0.146 g/pcs (APPROX), TOTAL 3.504 Kg(APPROX),G.W:TOTAL 8.654Kg (APPROX).

(6).Storage conditions: -40°C~85°C ,75%RH (Max.).

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6.RELIABILITY TEST:

TEST ITEMS	SPECIFICATIONS	TEST METHOD AND REMARKS
Solder ability	The electrodes shall be at least 90% covered with new solder coating	According to IEC68-2-20. 1. Soldering temperature: $245 \pm 5^{\circ}\text{C}$ 2. Solder: 99.3Sn/0.7Cu 3. Flux: Rosin 4. Immersion time: 5 ± 1 Sec
Soldering heat resistance	1. Appearance :no damage 2. Inductance change: within $\pm 10\%$ of initial value	1. Preheat temperature 150°C . 2. Preheat time: 1min 3. Solder temperature $260 \pm 5^{\circ}\text{C}$ 4. Dipping time: 10 ± 1 Sec 5. Measured at room temperature after placing for 24 hours
Vibration(OUT LAB)	1. Appearance: no damage 2. All Electrical and mechanical parameters within tolerance	According to MIL-STD-202 Method 204. 1. Frequency: 10 to 55Hz. 2. Amplitude: 1.52mm 3. Direction and time X Y and Z Direction for 2 hours each
Humidity resistance test	1. Appearance: no damage 2. All Electrical and mechanical parameters within tolerance	According to IEC68-2-1 Method Ca: 1. Temp: $40 \pm 2^{\circ}\text{C}$ 2. Humidity: 90-95% RH 3. Test time: 500 ± 2 H 4. The component should be stabilized at normal condition for 24 Hours before test
High temperature resistance test	1. Appearance: no damage 2. All Electrical and mechanical parameters within tolerance	According to IEC68-2-2. 1. Temperature: $85 \pm 3^{\circ}\text{C}$ 2. Test time: $500 + 24$ H 3. The component should be stabilized at normal condition for 24 hours before test
Low Temperature resistance test	1. Appearance: no damage 2. All Electrical and mechanical parameters within tolerance	According to IEC68-2-1 Method A(Ad). 1. Temperature: $-40 \pm 3^{\circ}\text{C}$ 2. Test time: $500 + 24$ H 3. The component should be stabilized at normal condition for 24 hours before test
Temperature cycles test	1. Appearance: no damage 2. All Electrical and mechanical parameters within tolerance	According to IEC68-2-14 Method N(Nb). 1. High-temp: $85 \pm 3^{\circ}\text{C}$ duration: 30min 2. Room -temp: $25 \pm 2^{\circ}\text{C}$ Duration 3H 3. Low-temp: $-40 \pm 3^{\circ}\text{C}$ Duration 30min 4. Room-temp: $25 \pm 2^{\circ}\text{C}$ Duration 3H 5. Number of cycle: 10 cycles 6. The component should be stabilized at normal condition for 24 hours before test

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Soldering Reflow Chart

Stage	Precaution	Recommended temperature profile
Reflow soldering	Temperature profile can be referenced after confirming of adhesion , temperature of resistance to soldering heat , component size , soldering etc. sufficient . Note: please refer to the latest IPC/JEDEC J-STD-020: "Moisture/Reflow Sensitivity Classification for Nonhermetic Solid State Surface Mount Devices"	Temperature °C 260 250 220 125 25 10S (MAX) 60s to 90s Natural cooling 150s to 210s 240s to 480s

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