



SMHC4020 Series



Halogen Free

1. Features of SMHC4020 series:

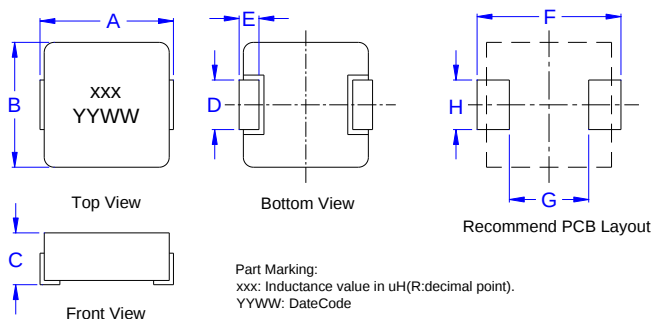
- 5mm Max. Height Molding Inductor for High Frequency Application
- Inductance Range: 0.36uH to 2.80uH. Custom Values Welcomed
- High Current Capability up to 40.0 Amp for Output Chokes Application
- Ideal for Servers, Workstation Notebooks, VGA cards, and High Density Boards
- Low DC Resistance and Compact Size for High Power Application
- Tape & Reel Quantity: 500 piece per 13 inches reel. RoHS and HF compliant.



2. Electrical Characteristics of SMHC4020 series:

ITG Part Number	OCL (uH) ±20%	DCR (mΩ) ±10%	Irms (A) @25° C	L@Irms (uH) Typ.	Isat (A) @25° C	L@Isat (uH) Typ.
SMHC4020-R36MHF	0.36	0.75	32.00	0.295	32.00	0.294
SMHC4020-R47MHF	0.47	1.04	29.00	0.420	32.00	0.407
SMHC4020-R68MHF	0.68	1.70	27.00	0.530	30.00	0.513
SMHC4020-R72MHF	0.72	1.55	28.00	0.600	35.00	0.524
SMHC4020-1R0MHF	1.00	2.30	25.00	0.875	40.00	0.757
SMHC4020-1R5MHF	1.50	2.70	23.00	1.200	30.00	1.076
SMHC4020-2R2MHF	2.20	4.20	17.00	1.625	20.00	1.530
SMHC4020-2R8MHF	2.80	6.00	12.00	2.310	18.00	2.029

3. Mechanical Dimensions of SMHC4020 series (unit: mm):



Pad Dimension	SMHC4020
F	13.00 Typ.
G	6.00 Typ.
H	4.00 Typ.

Type	A	B	C	D	E
SMHC4020	11.50 Max.	10.00 ± 0.50	5.00 Max.	3.00 ± 0.50	2.50 ± 0.50

Notes:

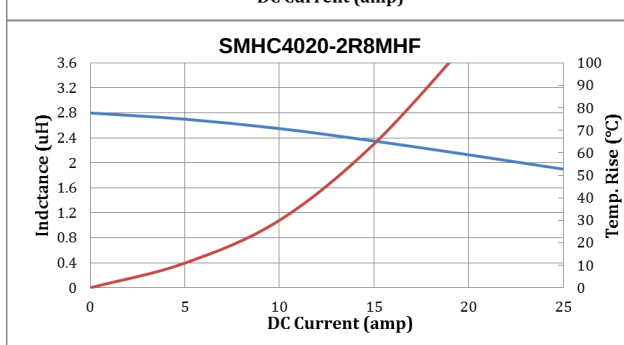
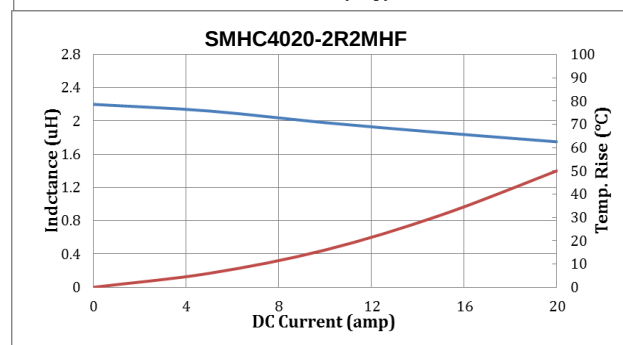
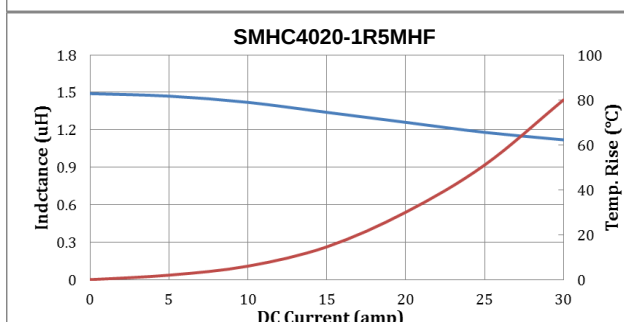
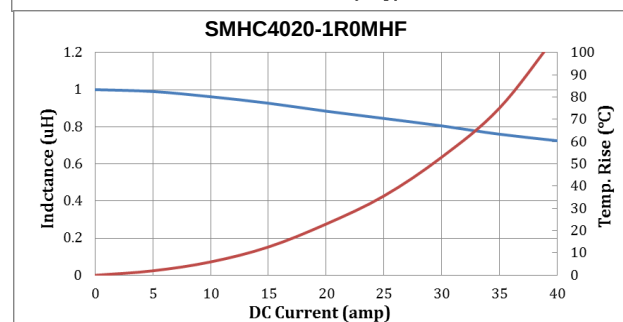
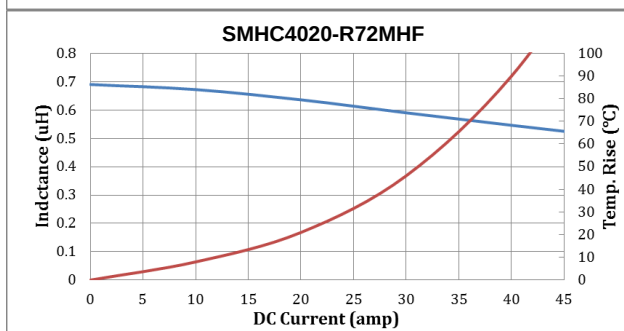
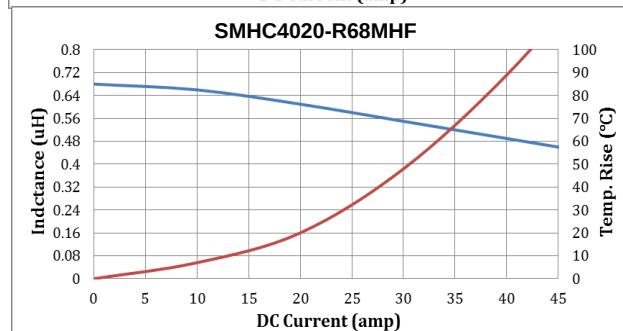
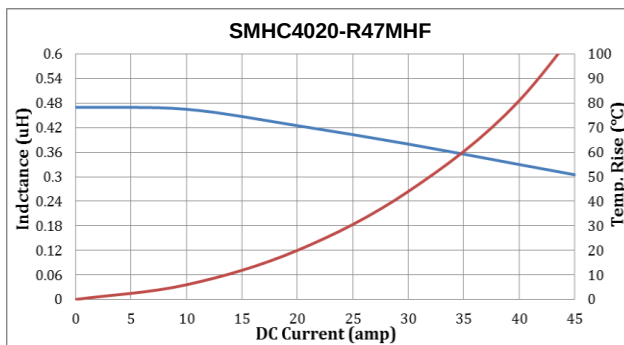
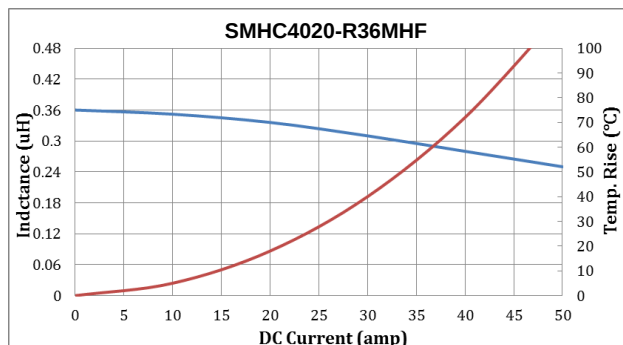
1. Isat1: DC current that causes inductance to drop 30%(Typ.) from OCL (Ta=25°C).
2. I rms: DC current for an approximate temperature rise of 40°C without core loss. Derating is necessary for AC currents. PCB pad layout, trace thickness and width, air-flow and proximity of other heat generating components will affect the temperature rise. It is recommended the part temperature not exceed 130° C under worst case operating conditions as verified in the end application.
3. Test conditions: 100KHz, 1.0V, 25°C ambient temperature .
4. Operating Temperature Range: -55°C to 130°C .

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 ● sales@ITG-Electronics.com ● www.ITG-Electronics.com Revision C.1 : April 23, 2018

*Due to continuous product improvement, all specifications are subject to change without prior notice. Kindly contact an ITG field application engineer or a sales representative prior to purchase.

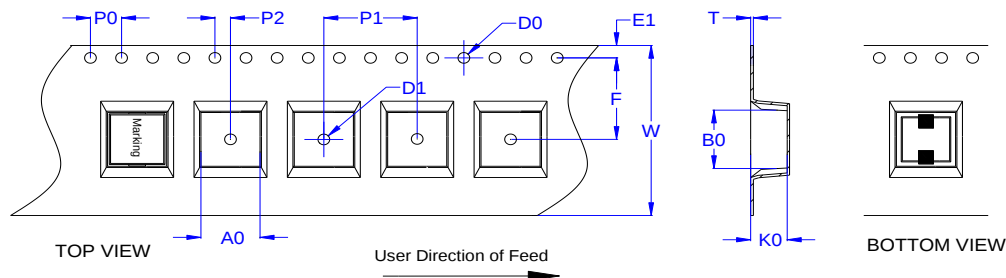
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4. Inductance vs. Current vs. Temperature Rise Characteristics of SMHC4020 Series :



5. PACKAGE SPECIFICATION.(UNIT:mm):

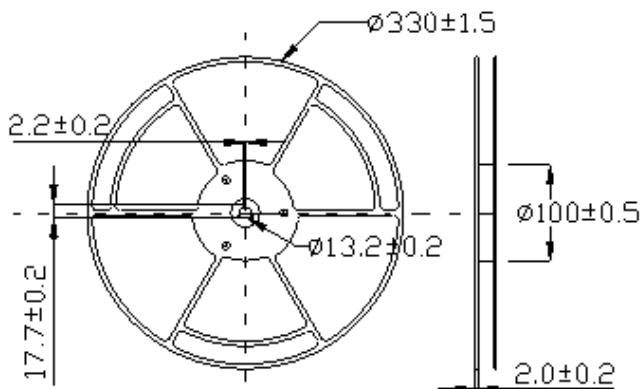
(1).ENCAPSULATION MODE:



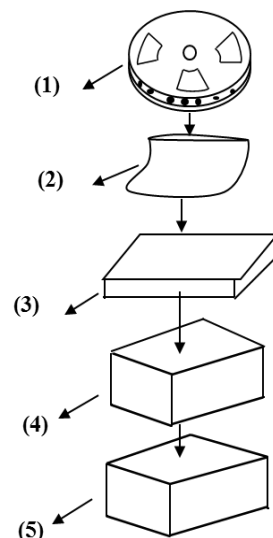
(2).DIMENSION(mm):

W	A0	B0	K0	P1	P0	P2	D0	D1	F	E1	T
24.0±0.30	11.0±0.10	12.0±0.10	5.50±0.10	16.0±0.10	4.0±0.10	2.0±0.10	1.5±0.10	1.5+0.10/-0	11.5±0.10	1.75±0.10	0.40±0.05

(3).REEL SIZE:



(4).PACKAGE MODE:



(5).PACKAGING LIST:

No.	Packing Part	Dimension (mm)	Material	Quantity
1	Reel	330	Plastic	500Pcs / Reel
2	Bag	450 X 360 X 0.075	Plastic	1Reel / Bag
3	Small Box	340 X 335 X 45	Paper	1Bag / Small Box
4	Middle Box	356 X 350 X 226	Paper	4Small Boxes / Middle Box
5	Outer Box	378 X 362 X 252	Paper	1Middle Box / Outer Box

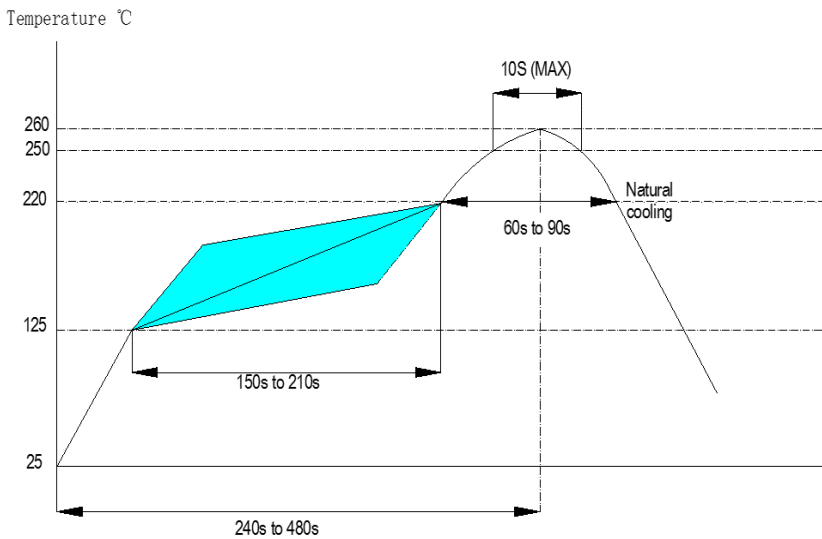
(6).WEIGHT: N.W: 2.90 g/pcs (APPROX), TOTAL 5.80 Kg(APPROX),G.W:TOTAL 11.10Kg (APPROX).

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

6.RELIABILITY TEST:

6.1 Mechanical Reliability		
Item	Specification and Requirement	Test Method
Solderability	The surface of terminal immersed shall be minimum of 95% covered with a new coating of solder	Solder heat proof: 1. Preheating: 160 ± 10 °C 2. Retention time: 245 ± 5 °C for 2 ± 0.5 seconds
Vibration	Inductance change: Within $\pm 10\%$ Without mechanical damage such as break	1. Vibration frequency: (10 Hz to 55 Hz to 10Hz) in 60 seconds as a period 2. Vibration time: Period cycled for 2 hours in each of 3 mutual perpendicular directions. 3. Amplitude: 1.5 mm max.
Shock	Inductance change: Within $\pm 10\%$ Without mechanical damage such as break	1. Peak value: 100 G 2. Duration of pulse: 11ms 3. 3 times in each positive and negative direction of 3 mutual perpendicular directions.
6.2 Endurance Reliability		
Thermal Shock	Inductance change: Within $\pm 10\%$ Without distinct damage in appearance	1. Repeat 100 cycles as follow: (-55 ± 2 °C; 30 ± 3 min) → (Room temp., 5 min) → ($+125 \pm 2$ °C, 30 ± 3 min) → (Room temp., 5 min) 2. Recovery: 48 ± 4 / -0 hours of recovery under the standard condition after the test.
High Temperature Resistance	Inductance change: Within $\pm 10\%$ Without distinct damage in appearance	1. Environment condition: 85 ± 2 °C Applied Current: Rated current 2. Duration: 1000 ± 4 / -0 hours
Humidity Resistance	Inductance change: Within $\pm 10\%$ Without distinct damage in appearance	1. Environment condition: 60 ± 2 °C Humidity: 90–95% Applied Current: Rated current 2. Duration: 1000 ± 4 / -0 hours
Low Temperature Store	Inductance change: Within $\pm 10\%$ Without distinct damage in appearance	Store temperature: -55 ± 2 °C, 1000 ± 4 / -0 hours
High Temperature Store	Inductance change: Within $\pm 10\%$ Without distinct damage in appearance	Store temperature: $+125 \pm 2$ °C, 1000 ± 4 / -0 hours

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