



1. Features of SMX40187A series:

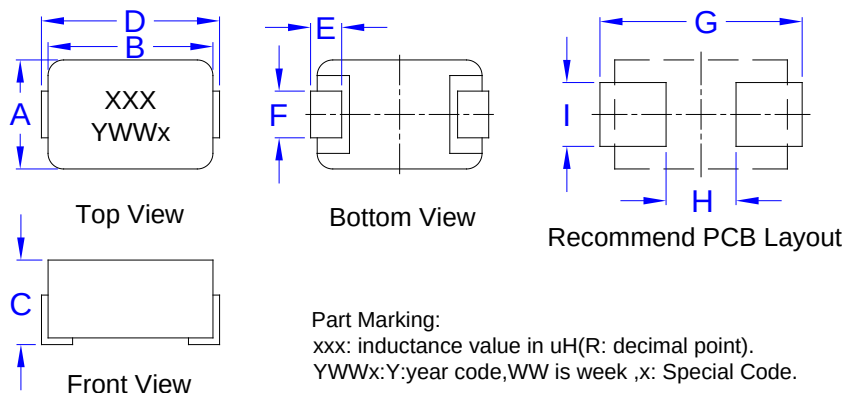
- Molded Inductor in 11.90 x 7.30mm foot print.
- High saturation current from distributed gap metal dust core.
- Low profile: 5.00mm Max. Height.
- Ideal for DC/DC converters, PDA, Notebook and Server Application.
- Operating Temperature Range: -55°C to 125°C (ambient + self-temperature rise) .
- T & R Qtys: 500 pcs , 13" Reel and Plastic tape: 24mm wide, 12mm pocket spacing.
- RoHS and HF compliant.



2. Electrical Characteristics of SMX40187A series:

ITG Part Number	Inductance ¹ (uH) ± 20%	DCR (mΩ) ± 7% or 10% @25°C	Isat ² (A) @25°C	Irms ³ (A) @25°C
SMX40187A-R15MHF	0.15	0.38 , 7%	80.00	50.00
SMX40187A-R22MHF	0.22	0.55 , 7%	70.00	45.00
SMX40187A-R30MHF	0.30	0.75 , 10%	65.00	38.00
SMX40187A-R33MHF	0.33	0.82 , 10%	58.00	36.00
SMX40187A-R47MHF	0.47	1.25 , 10%	50.00	35.00

3. Mechanical Dimensions of SMX40187A series (unit: mm):



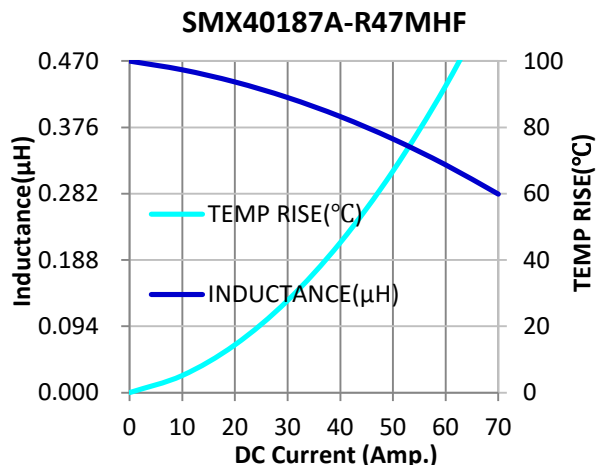
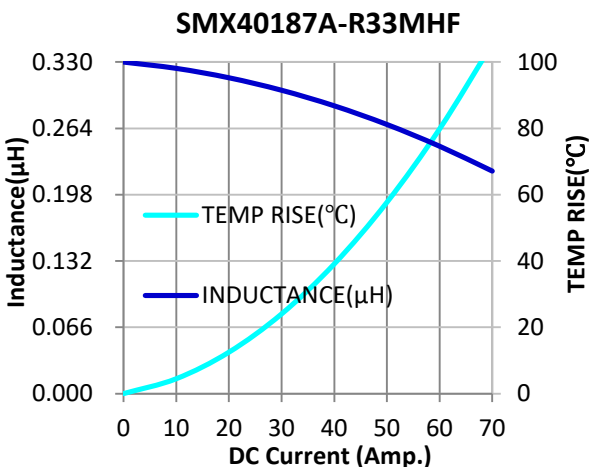
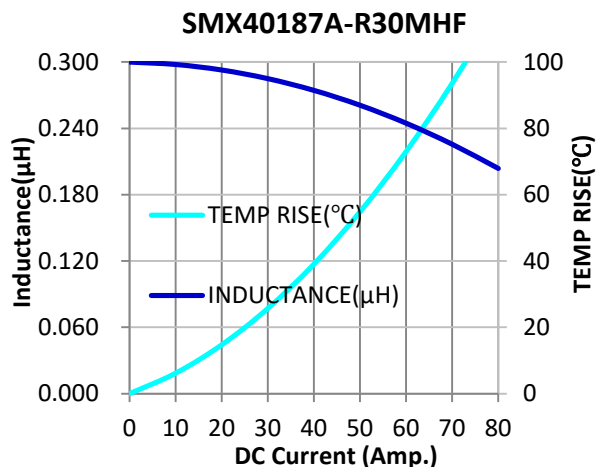
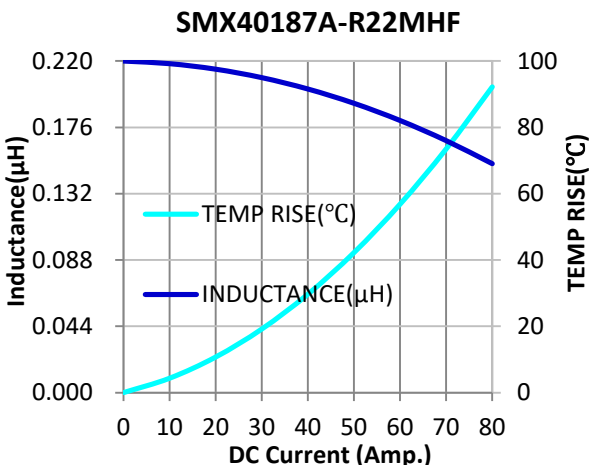
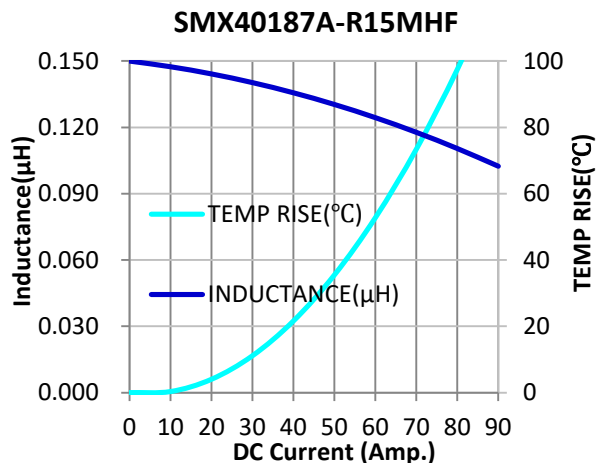
Pad Dimension	SMX40187A
G	12.00 Typ.
H	6.40 Typ.
I	3.50 Typ.

Type	A	B	C	D	E	F
SMX40187A	7.00 ± 0.30	10.50 Max.	5.00 Max.	11.90 Max.	2.00 ± 0.50	3.00 ± 0.50

Notes:

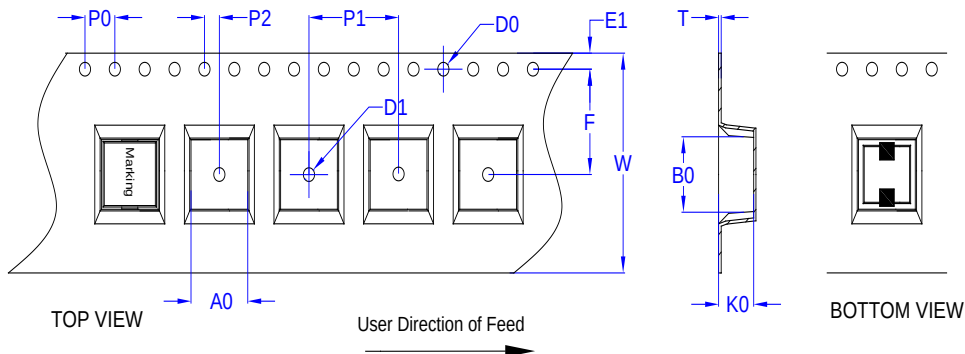
1. Test conditions: 100KHz, 1.0V, 25°C ambient temperature .
2. Isat: DC current that causes inductance to drop 30% (Typ.) from OCL (Ta=25°C).
3. I rms: DC current for an approximate temperature rise of 40°C without core loss. Derating is necessary for AC currents. PCB pad layout, trace thickness and width, air-flow and proximity of other heat generating components will affect the temperature rise. It is recommended the part temperature not exceed 125° C under worst case operating conditions as verified in the end application.

4. Inductance vs. Temperature Rise Characteristics of SMX40187A Series:



5. PACKAGE SPECIFICATION.(UNIT:mm):

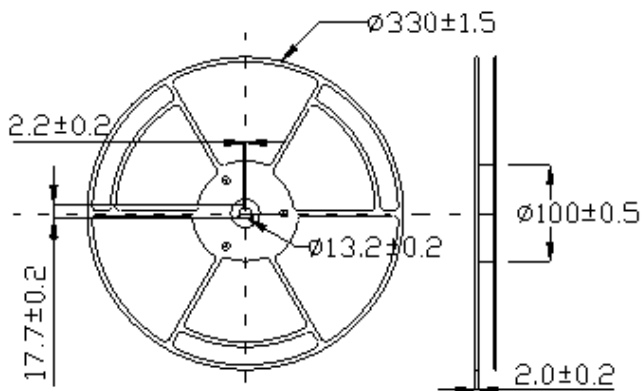
(1).ENCAPSULATION MODE:



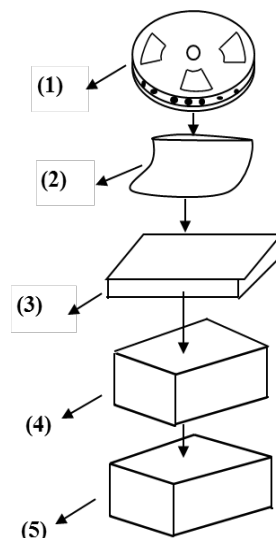
(2).DIMENSION(mm):

W	A0	B0	K0	P1	P0	P2	D0	D1	F	E1	T
24.0±0.30	7.5±0.10	12.0±0.10	5.40±0.10	12.0±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	0.50±0.10

(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

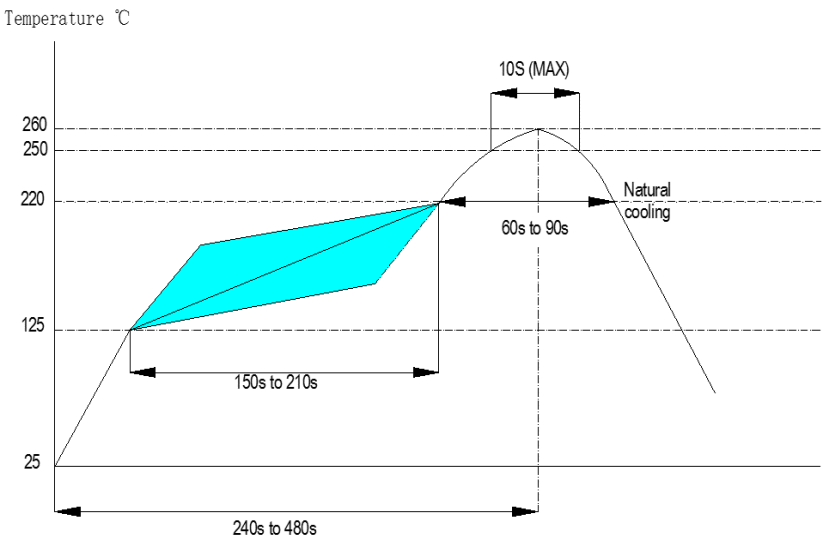
(6).WEIGHT: N.W: 2.14 g/pcs (APPROX), TOTAL 4.28 Kg(APPROX),G.W:TOTAL 8.33Kg (APPROX).

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

6.RELIABILITY TEST:

6.1 Mechanical Reliability		
Item	Specification and Requirement	Test Method and Remarks
Solderability	The surface of terminal immersed shall be minimum of 95% covered with a new coating of solder	According to J-STD-002 Method D category 3 1. Preheating: $160 \pm 10^\circ\text{C}$ 2.Solder: 99.3%Sn/0.7%Cu , Flux: Rosin 3. Retention time: $255 \pm 5^\circ\text{C}$ for 5 ± 0.5 seconds
Resistance to Soldering Heat	Inductance change: Within $\pm 10\%$ Without mechanical damage such as break	According to MIL-STD-202 Method 210 condition J 1.Solder: 99.3%Sn/0.7%Cu 2.Reflow Peak $235 \pm 5^\circ\text{C}$ (30 $\pm$ 5s)/Time above 183°C (90~120s)
Vibration	Inductance change: Within $\pm 10\%$ Without mechanical damage such as break	According to MIL-STD-202 Method 204 5g's for 20 minutes, 12 cycles each of 3 orientations. Note: Use 8"X5" PCB, .031" thick, 7 secure points on one long side and 2 secure points at corners of opposite sides. Parts mounted within 2" from any secure point. Test from 10-2000 Hz.
Shock	Inductance change: Within $\pm 10\%$ Without mechanical damage such as break	According to MIL-STD-202 Method 213 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	According to IEC68-2-14 Method N(Nb) 1. Repeat 100 cycles as follow: ($-55 \pm 2^\circ\text{C}$; 30 $\pm$ 3 min) → (Room temp., 5 min) → ($+125 \pm 2^\circ\text{C}$, 30 $\pm$ 3 min) → (Room temp., 1 min) 2. Recovery: 48 + 4 / -0 hours of recovery under the standard condition after the test.
High Temperature & Humidity	Inductance change: Within $\pm 10\%$ Without distinct damage in appearance	According to MIL-STD-202 Method 103 240 hours $85^\circ\text{C}/85\%\text{RH}$. Unpowered. Measurement at 24 ± 4 hours after test conclusion.
Low Temperature Store	Inductance change: Within $\pm 10\%$ Without distinct damage in appearance	According to IEC68-2-1 Method A(Ad) Store temperature: $-55 \pm 2^\circ\text{C}$, 1000 + 4 / -0 hours
High Temperature Store	Inductance change: Within $\pm 10\%$ Without distinct damage in appearance	According to MIL-STD-202 Method 108 Store temperature: $+125 \pm 2^\circ\text{C}$, 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