



# SM5018 Series



Halogen Free

## 1. Features of SM5018 series:

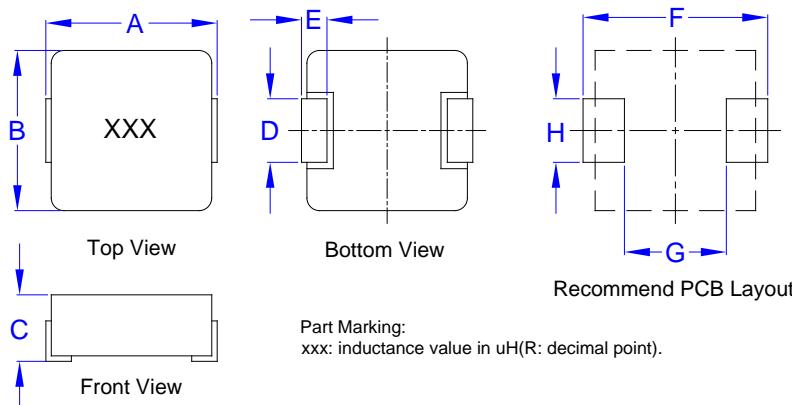
- 13.70 x 12.90mm Foot Print , 5.00mm Max. height SMD Power Inductor for high frequency application. Operating frequency up to 5MHz.
- Inductance range from 0.47uH to 1.00 uH. Custom values are welcomed.
- High saturation current from distributed gap metal dust core.
- Ideal for DC/DC converters, PDA, Notebook and Server Application.
- Operating Temperature Range: -55°C to 150°C .
- T & R Qtys: 250 pcs , 13" Reel and Plastic tape: 24mm wide, 16mm pocket spacing.
- RoHS and HF Compliant.



## 2. Electrical Characteristics of SM5018 series:

ITG Part Number	Inductance <sup>1</sup> (uH) ± 20%	DCR (mΩ) Typ. @25°C	DCR (mΩ) Max. @25°C	Isat <sup>2</sup> (A) @25°C	Irms <sup>3</sup> (A) @25°C
SM5018-R47MHF	0.47	1.10	1.30	65.00	38.00
SM5018-R68MHF	0.68	1.40	1.70	54.00	34.00
SM5018-R82MHF	0.82	1.90	2.30	53.00	31.00
SM5018-1R0MHF	1.00	2.10	2.50	50.00	29.00

## 3. Mechanical Dimensions of SM5018 series (unit: mm):



Pad Dimension	SM5018
F	13.90
G	7.87
H	4.95

Type	A	B	C	D	E
SM5018	13.20±0.50	12.90 Max.	5.00 Max.	3.50±0.50	2.30 ± 0.30

### Notes:

1. Test conditions: 100KHz, 1V, 25°C ambient temperature .
  2. Isat: DC current that causes inductance to drop 20%(Typ.) from OCL (Ta=25°C).
  3. Irms: 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 150° C under worst case operating conditions as verified in the end application.

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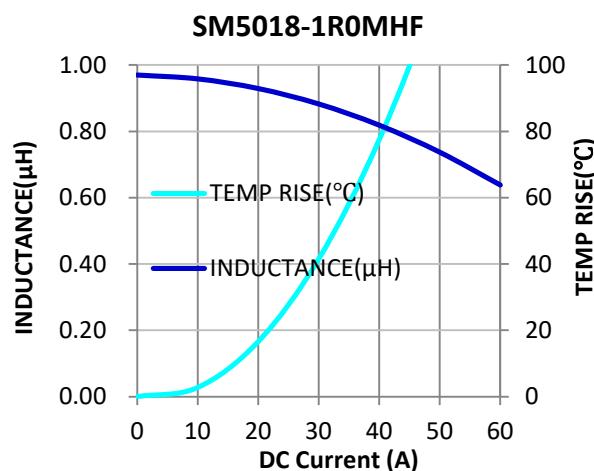
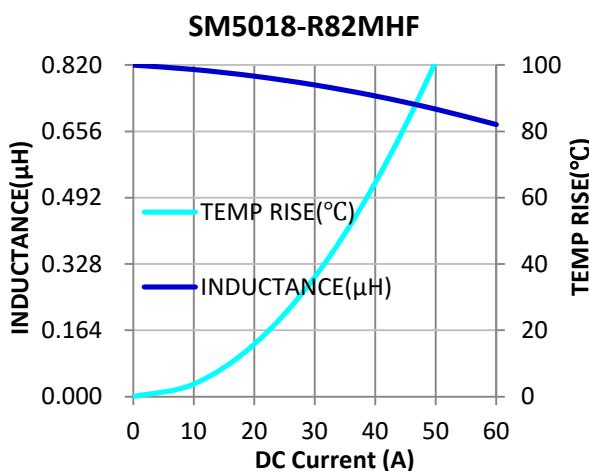
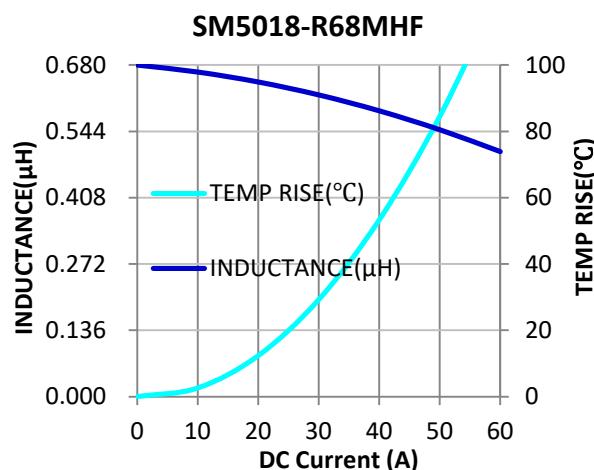
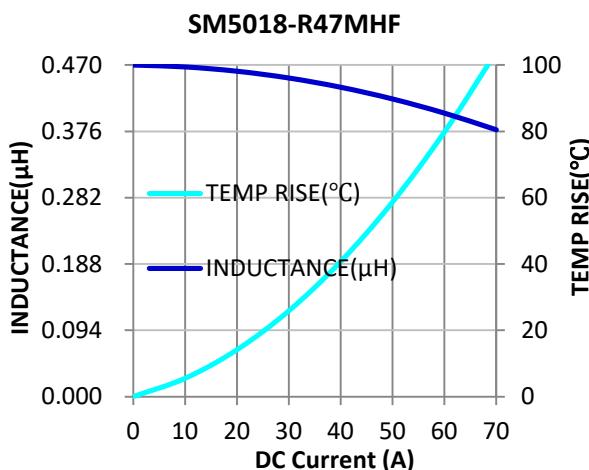
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## 4. Inductance vs. Current vs. Temperature Rise Characteristics of SM5018 Series :



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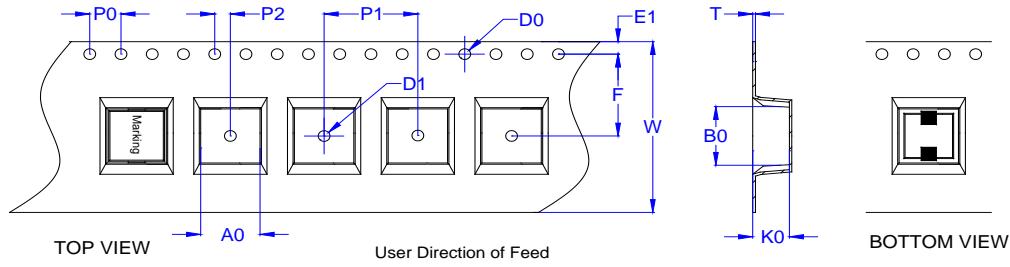


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## 5. PACKAGE SPECIFICATION.(UNIT:mm):

### (1).ENCAPSULATION MODE:

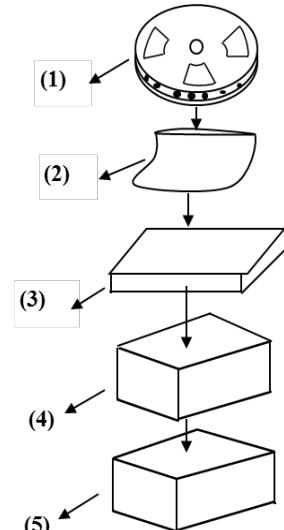
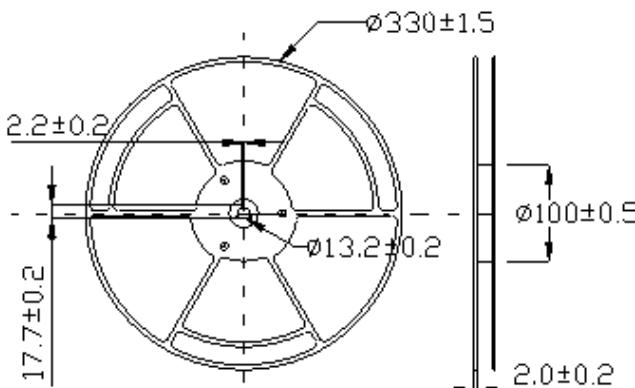


### (2).DIMENSION(mm):

W	A0	B0	K0	P1	P0	P2	D0	D1	F	E1	T
24.0±0.30	13.4±0.10	14.4±0.10	5.40±0.15	16.0±0.10	4.0±0.10	2.0±0.10	1.5±0.10	1.5±0.10	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	250PCS / Reel
2	Bag	450 X 360 X 0.075	Plastic	1Reel / Bag
3	Pizza Box	340 X 335 X 45	Paper	1Bag / Pizza Box
4	Outer Box	356 X 350 X 226	Paper	4Pizza Box / Outer Box

(6).WEIGHT: N.W: 4.65 g/pc (APPROX), TOTAL 4.65 Kg(APPROX),G.W:TOTAL 7.15Kg (APPROX).

(7).Storage conditions: 20°C~35°C ,75%RH (Max.).

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## 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: $160 \pm 10$ °C 2. Solder: 99.3%Sn/0.7%Cu, Flux: Rosin 3. Retention time: $255 \pm 5$ °C for $5 \pm 0.5$ 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 $235 \pm 5$ °C ( $30 \pm 5$ s)/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: ( $-55 \pm 2$ °C; $30 \pm 3$ min) → (Room temp., 5 min) → ( $+125 \pm 2$ °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°C/85%RH. Unpowered. Measurement at $24 \pm 4$ 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: $-55 \pm 2$ °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: $+125 \pm 2$ °C, $1000 + 4$ / -0 hours

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## Soldering Reflow Chart

Stage	Precaution	Recommended temperature profile
Reflow soldering	<p>Temperature profile can be referenced after confirming of adhesion , temperature of resistance to soldering heat , component size , soldering etc. sufficient .</p> <p><b>Note:</b> Please refer to the latest IPC/JEDEC J-STD-020: "Moisture/Reflow Sensitivity Classification for Nonhermetic Solid State Surface Mount Devices"</p>	<p>Temperature (°C)</p> <p>Time (S)</p> <p>260 250 217 200 150 25</p> <p>10S (MAX)</p> <p>60s to 150s</p> <p>60s to 120s</p> <p>240 to 480s</p> <p>Natural cooling</p>

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