

SM2511A Series



1. Features of SM2511A series:

- 7.40/7.30 x 6.80 mm foot Print, 3.00mm Max. height SMD Molded Inductor for high frequency application , Operating frequency up to 5MHz.
- Inductance range from 0.033uH to 33.00uH. 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.
- Operating Temperature Range: -55°C to 155°C .
- T & R Qty: 1000 pcs , 13" Reel and Plastic tape: 16mm wide, 12mm pocket spacing.
- RoHS and HF compliant.

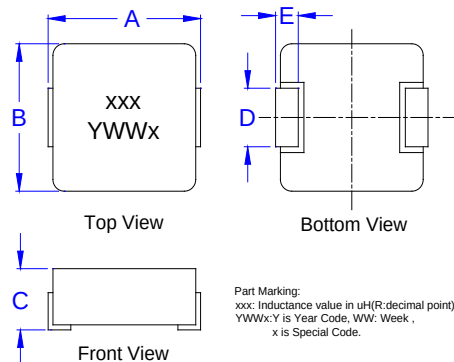


2. Electrical Characteristics of SM2511A series:

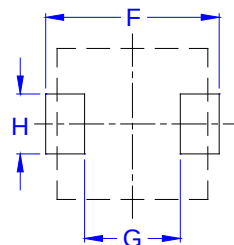
ITG Part Number	OCL ¹ (uH) ±20%	DCR (mΩ) Typ. @25°C	DCR (mΩ) Max. @25°C	Saturation Current ² Isat (A) Typ.	Heat Rating Current ³ Irms (A) Typ.	Dim. A (mm) ± 0.30
SM2511A-R033MHF	0.033	0.26 ± 10%		100.00	65.00	7.00
SM2511A-R075MHF	0.075	0.58	0.70	60.00	45.00	7.10
SM2511A-R10MHF	0.10	0.75	0.90	54.00	40.00	7.10
SM2511A-R12MHF	0.12	0.75	0.90	48.00	40.00	7.10
SM2511A-R15MHF	0.15	0.85	1.00	42.00	37.00	7.00
SM2511A-R22MHF	0.22	2.50	3.00	34.00	24.00	7.00
SM2511A-R24MHF	0.24	2.35	2.70	26.00	23.00	7.00
SM2511A-R33MHF	0.33	3.00	3.50	25.00	21.00	7.00
SM2511A-R47MHF	0.47	3.20	3.70	20.00	18.00	7.00
SM2511A-R56MHF	0.56	3.90	4.50	18.00	16.50	7.00
SM2511A-R68MHF	0.68	4.60	5.20	17.00	16.00	7.00
SM2511A-R82MHF	0.82	5.40	6.00	16.00	14.00	7.00
SM2511A-1R0MHF	1.00	6.40	7.40	15.00	12.00	7.00
SM2511A-1R5MHF	1.50	8.60	10.00	14.00	10.50	7.00
SM2511A-2R2MHF	2.20	13.50	15.00	10.00	9.50	7.00
SM2511A-3R3MHF	3.30	18.00	21.00	9.80	8.50	7.00
SM2511A-4R7MHF	4.70	28.00	33.00	6.50	6.00	7.00
SM2511A-6R8MHF	6.80	44.20	48.00	6.00	5.00	7.00
SM2511A-8R2MHF	8.20	51.20	60.00	6.00	5.00	7.00
SM2511A-100MHF	10.00	62.00	67.00	5.50	4.50	7.00
SM2511A-150MHF	15.00	104.00	115.00	4.00	3.00	7.00
SM2511A-220MHF	22.00	180.00	200.00	3.00	2.30	7.00
SM2511A-330MHF	33.00	280.00	310.00	2.50	2.00	7.00

3. Mechanical Dimensions (unit: mm):

A ± 0.30	B ± 0.20	C ± 0.20	D ± 0.30	E ± 0.30
See Table	6.60	2.80	3.00	1.60



Pad Dimension	SM2511A
F	8.40 Typ.
G	3.70 Typ.
H	3.50 Typ.

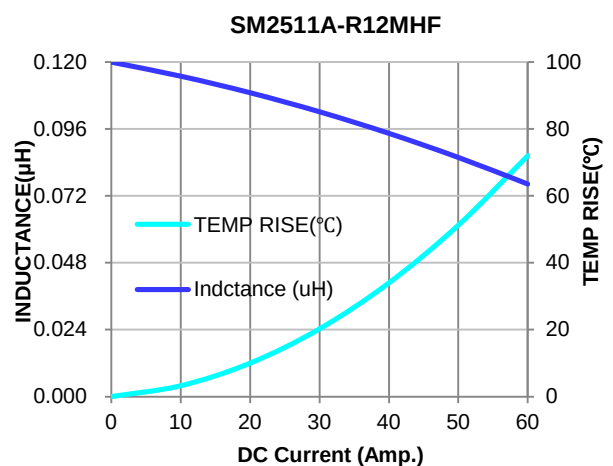
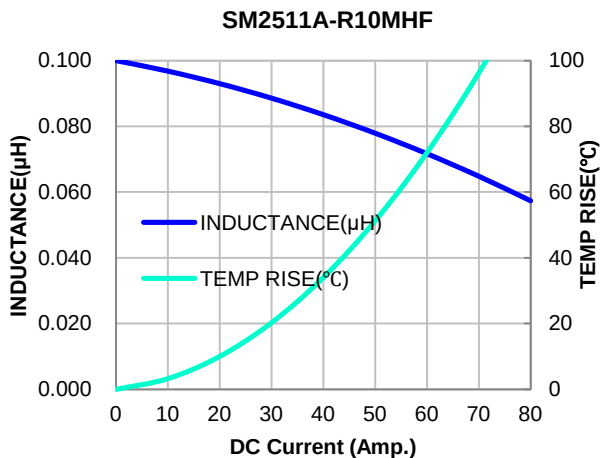
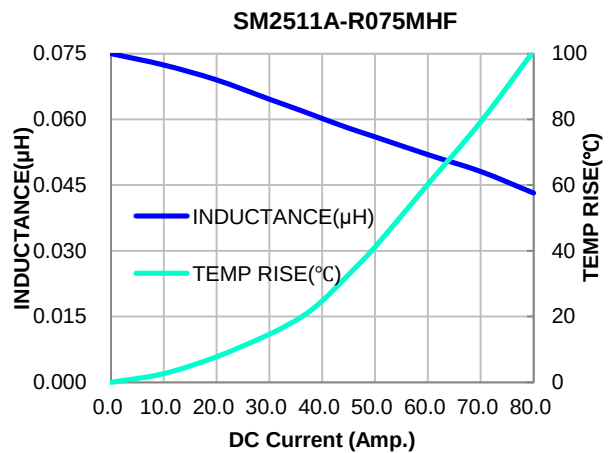
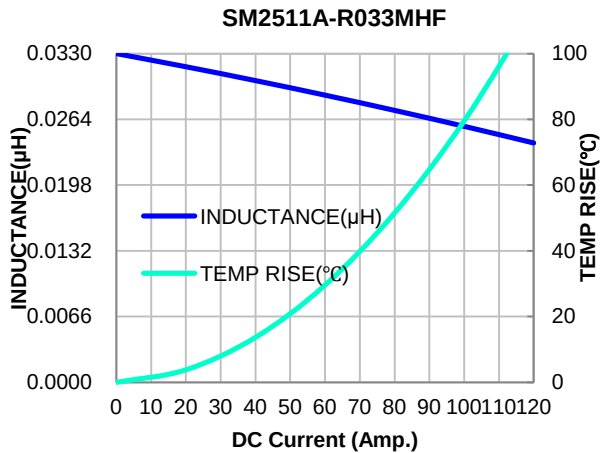


Recommend PCB Layout

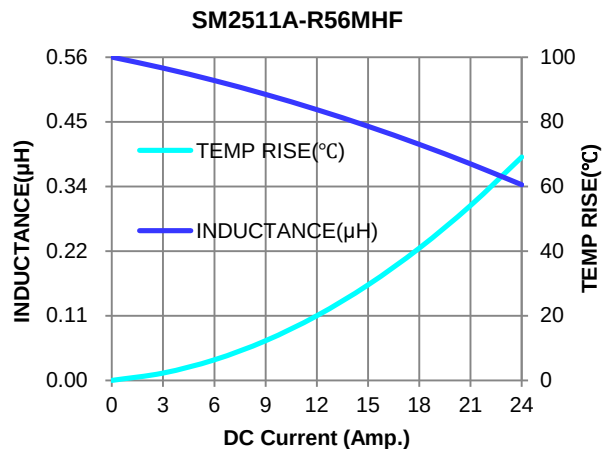
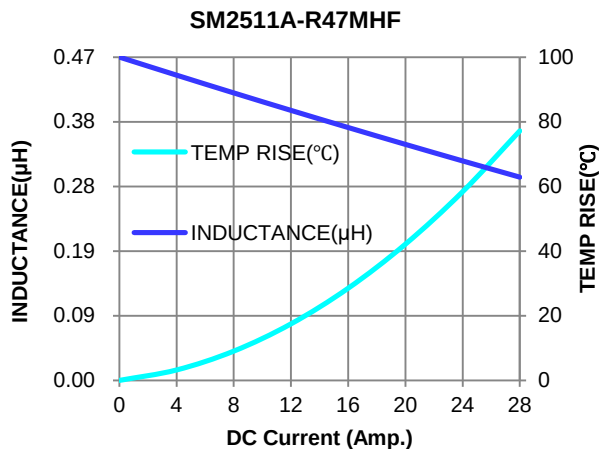
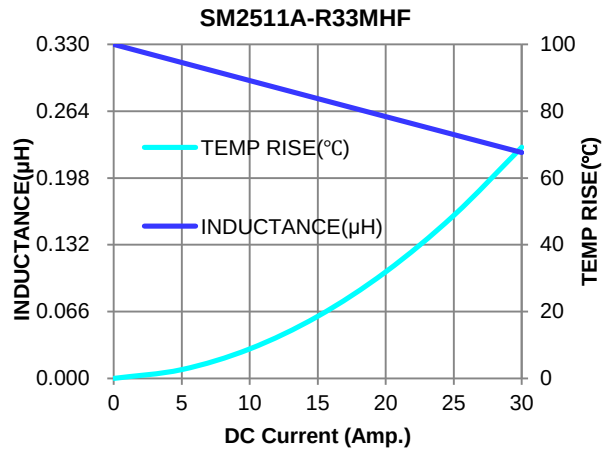
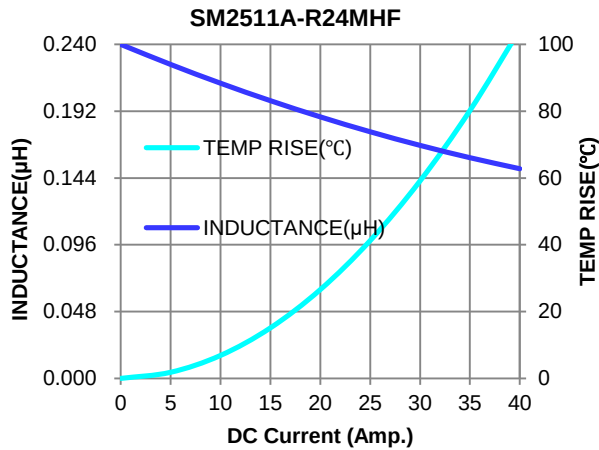
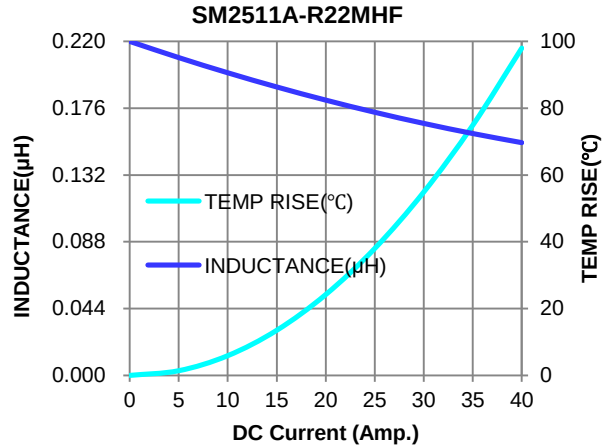
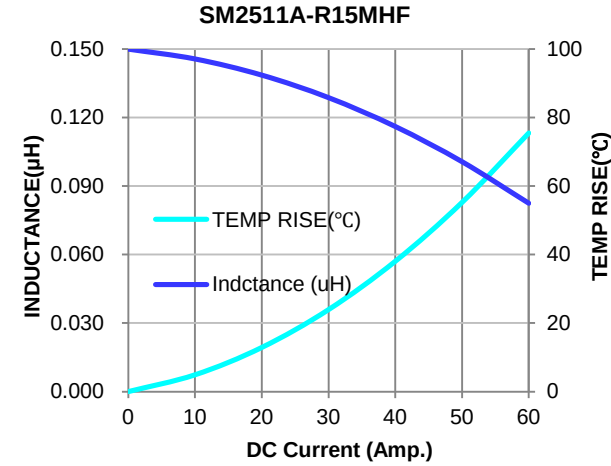
Notes:

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. 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 155° C under worst case operating conditions as verified in the end application.

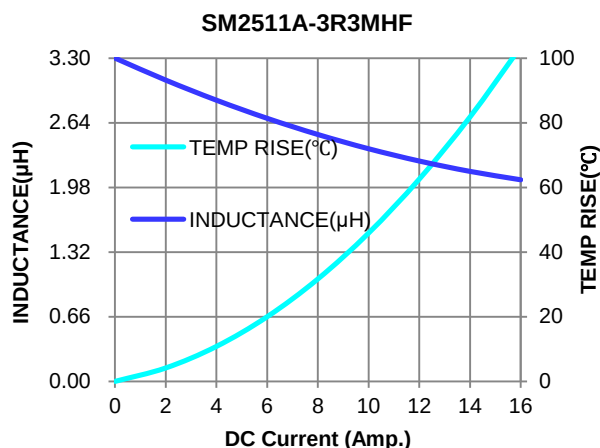
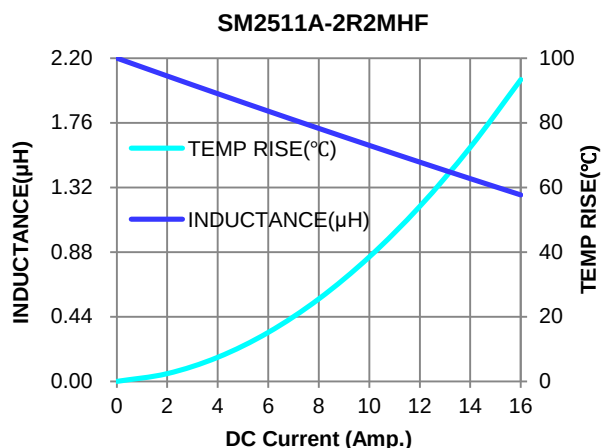
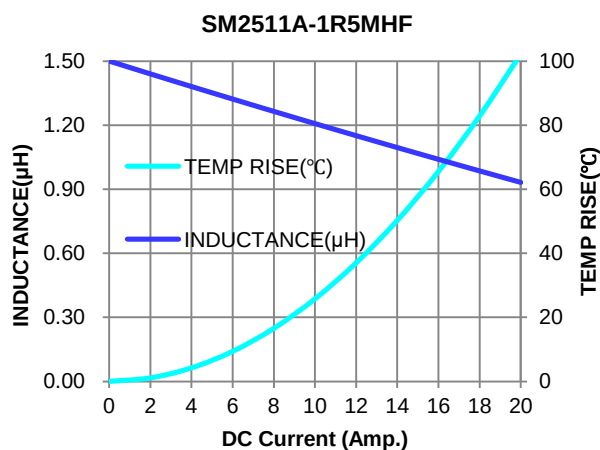
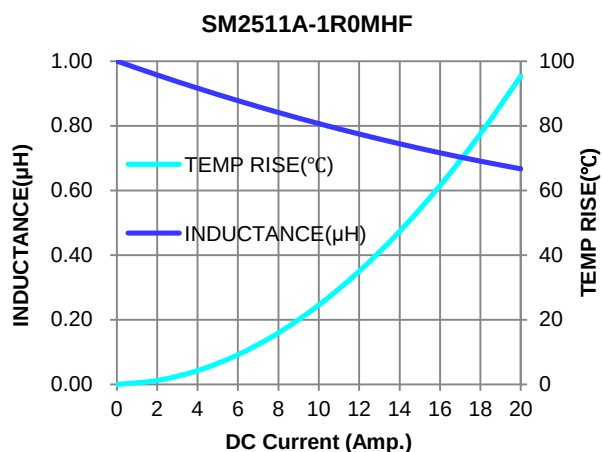
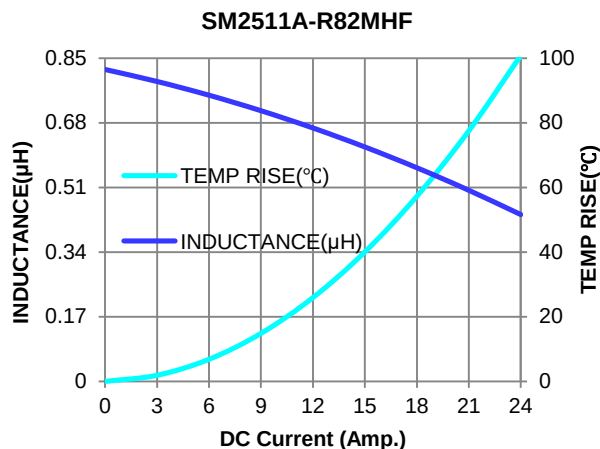
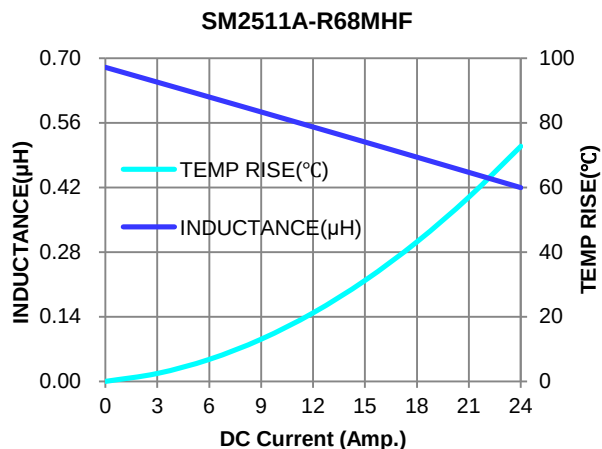
4. Inductance vs. Current vs. Temperature Rise Characteristics of SM2511A Series:



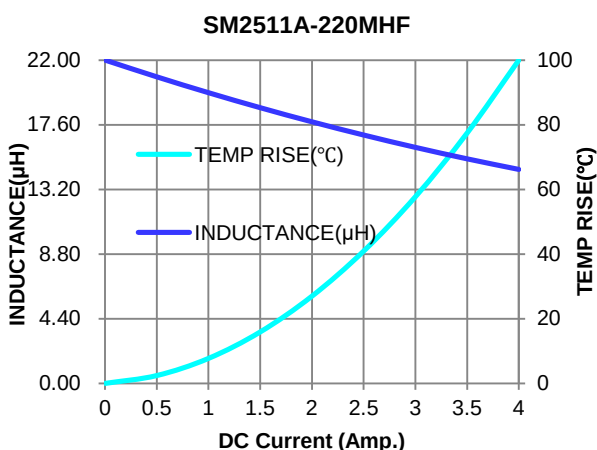
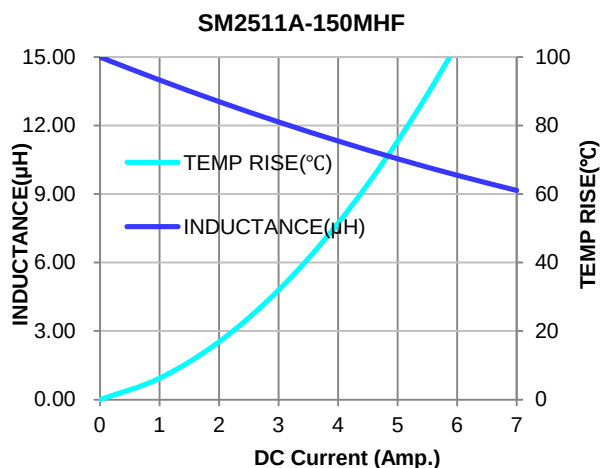
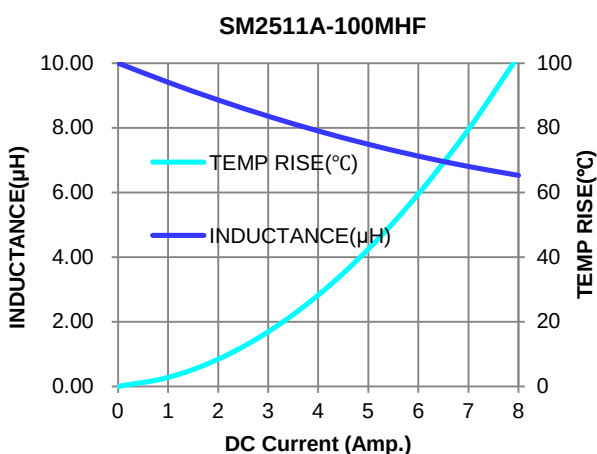
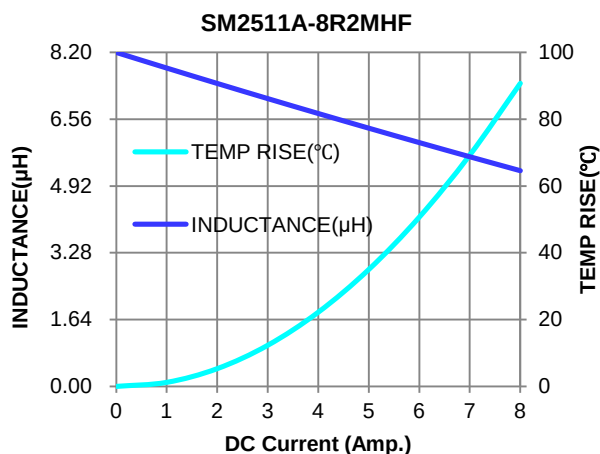
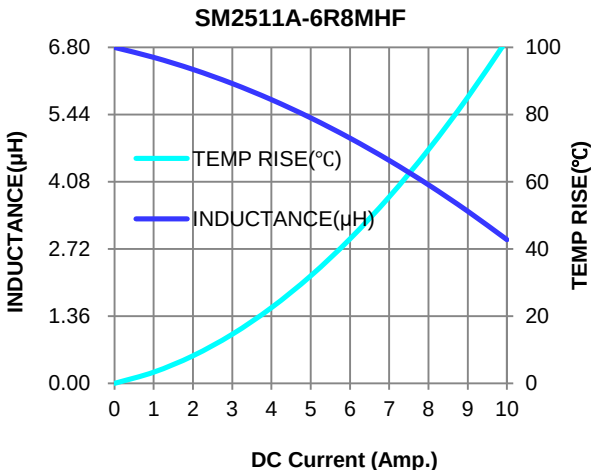
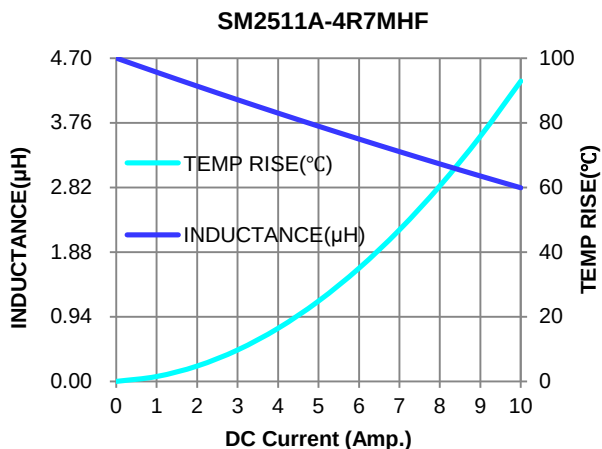
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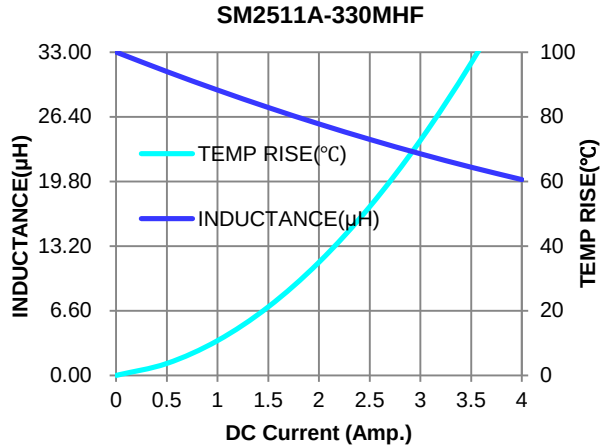
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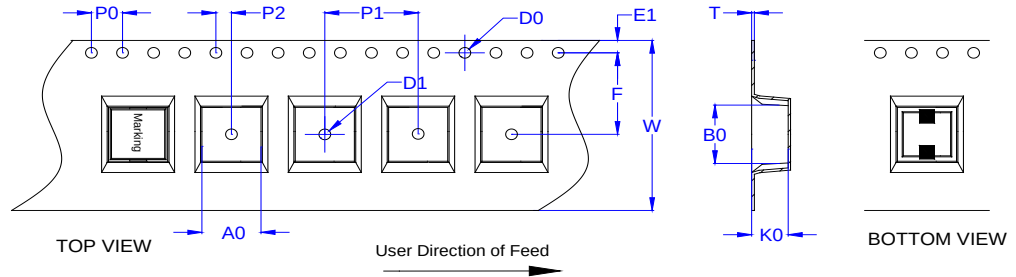


4. Inductance vs. Current vs. Temperature Rise Characteristics of SM2511A Series:



5. PACKAGE SPECIFICATION.(UNIT:mm):

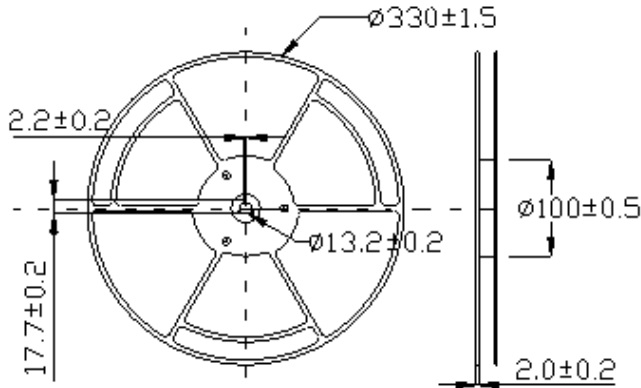
(1).ENCAPSULATION MODE:



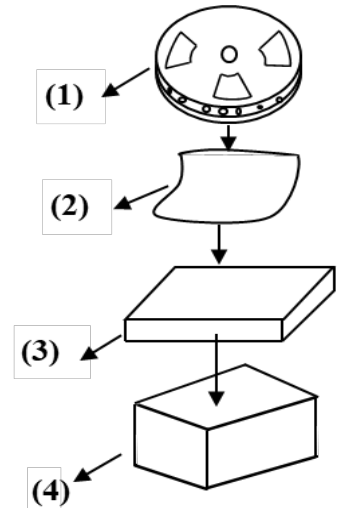
(2).DIMENSION(mm):

W	A0	B0	K0	P1	P0	P2	D0	D1	F	E1	T
16.0±0.30	7.2±0.10	7.5±0.10	3.60±0.10	12.0±0.10	4.0±0.10	2.0±0.10	1.5±0.10	1.5+0.10/-0	7.5±0.10	1.75±0.10	0.30±0.10

(3).REEL SIZE:



(4).PACKAGE MODE:



(5).PACKAGING LIST:

No.	Packing Part	Dimension (mm)	Material	Quantity
1	Reel	330	Plastic	1500PCS / Reel
2	Bag	450 X 360 X 0.075	Plastic	1Reel / Bag
3	Pizza Box	340 X 335 X 45	Paper	2Bag / Pizza Box
4	Outer Box	356 X 350 X 226	Paper	4Pizza Box / Outer Box

(6).WEIGHT: N.W: 0.74 g/pcs (APPROX), TOTAL 8.88 Kg(APPROX),G.W:TOTAL 13.88Kg (APPROX).

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

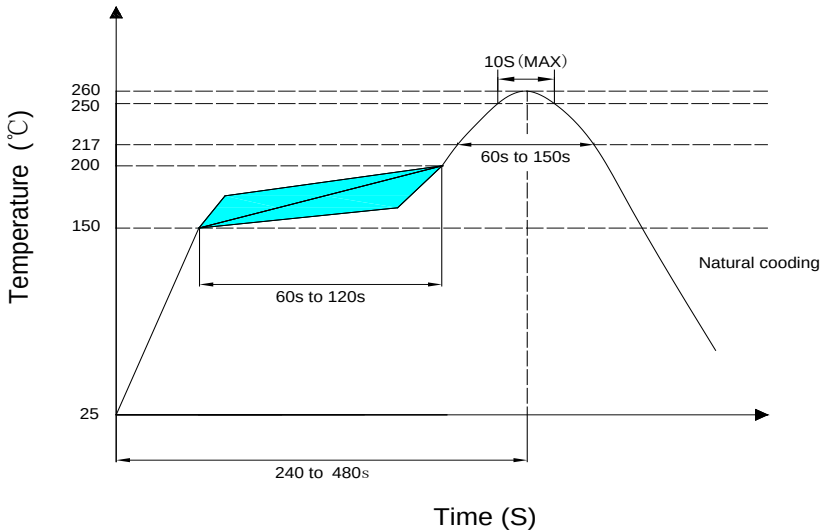
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6.RELIABILITY TEST:

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: $160 \pm 10^{\circ}\text{C}$ 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"	 The graph illustrates the recommended temperature profile for reflow soldering. The y-axis represents Temperature in degrees Celsius (°C), ranging from 25 to 260. The x-axis represents Time in seconds (S). The profile starts at 25°C, ramps up to 150°C (60s to 120s), then to 200°C (60s to 150s), peaks at 250°C (10s MAX), and finally cools down (Natural cooling). The total time is 240 to 480s.