

# SQ4126 Series



## 1. Features of SQ4126 Series:

- Ferrite based SMD inductor with lower core loss.
- Inductance range: 0.42uH to 10.0 uH , custom values are welcomed.
- High current output chokes up to 45.0 Amp with approx. 20% roll off.
- Low profile 6.65 mm Max. height.
- 8.10 x 10.30 mm Foot Print.
- Ideal for Buck Converter, VRM & High Density Board Design.
- Operating frequency of up to 1.0MHz.
- Operating temperature range of -55° C to + 130° C. RoHS & HF compliant.
- T & R Qty's: 700pcs, 13" Reel.

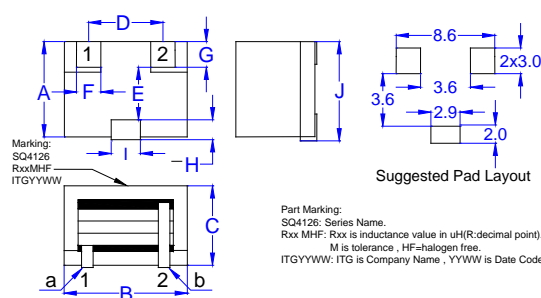


## 2. Electrical Characteristics of SQ4126 Series:

ITG Part Number	OCL <sup>1</sup> (uH) ±20%	DCR <sup>3</sup> (mΩ) Typical	DCR <sup>3</sup> (mΩ) Max.	Isat1 <sup>4</sup> (A) @25°C	Isat2 <sup>4</sup> (A) @125°C	Irms <sup>5</sup> (A) @25°C
SQ4126-R42MHF	0.42	1.200	1.390	45.00	36.00	26.00
SQ4126-R56MHF	0.56	1.200	1.390	36.00	28.00	26.00
SQ4126-R68MHF	0.68	1.200	1.390	29.00	23.00	26.00
SQ4126-1R0MHF	1.00	2.200	2.800	26.00	21.00	16.00
SQ4126-1R5MHF	1.50	3.900	4.399	22.00	17.00	13.00
SQ4126-2R2MHF	2.20	6.350	6.731	18.00	14.00	11.00
SQ4126-3R3MHF	3.30	7.500	7.950	14.50	11.00	10.00
SQ4126-4R7MHF	4.70	8.600	9.169	12.00	8.90	9.40
SQ4126-5R6MHF	5.60	8.600	9.169	9.40	7.50	9.40
SQ4126-6R8MHF	6.80	8.600	9.169	7.80	6.10	9.40
SQ4126-100MHF	10.00	8.600	9.169	5.30	4.20	9.40

## 3. Mechanical Dimension of SQ4126 Series:

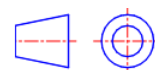
A	B	C	D	E	F	G	H	I	J
Max.	Max.	Max.	Nom.	Nom.	Ref.	Nom.	Nom.	Nom.	Max.
8.10	10.30	6.65	6.00	4.20	1.80	2.30	1.30	2.40	8.20



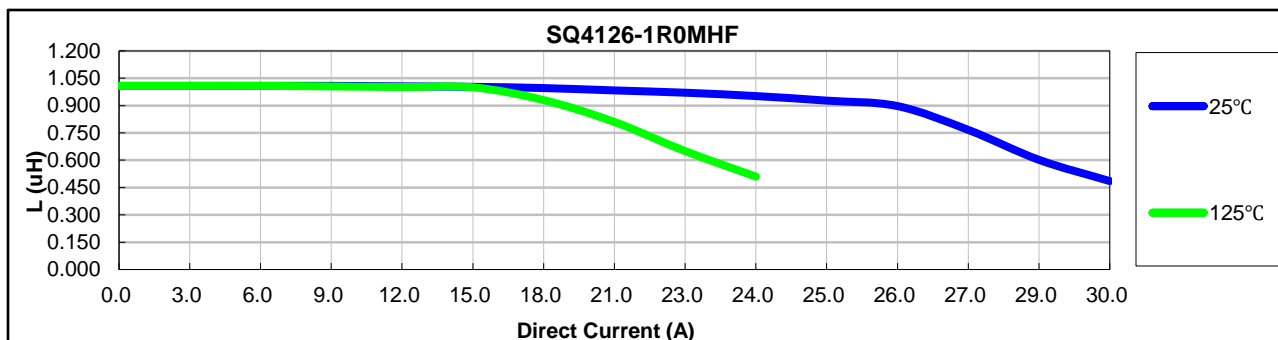
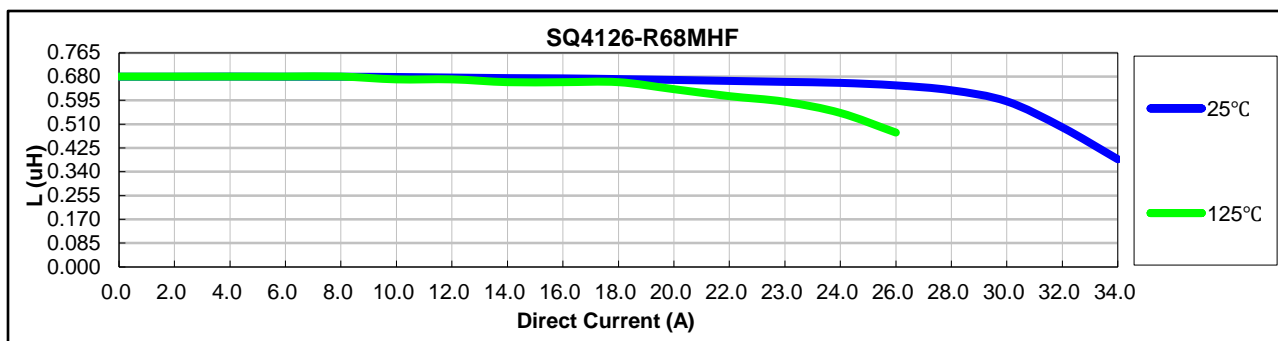
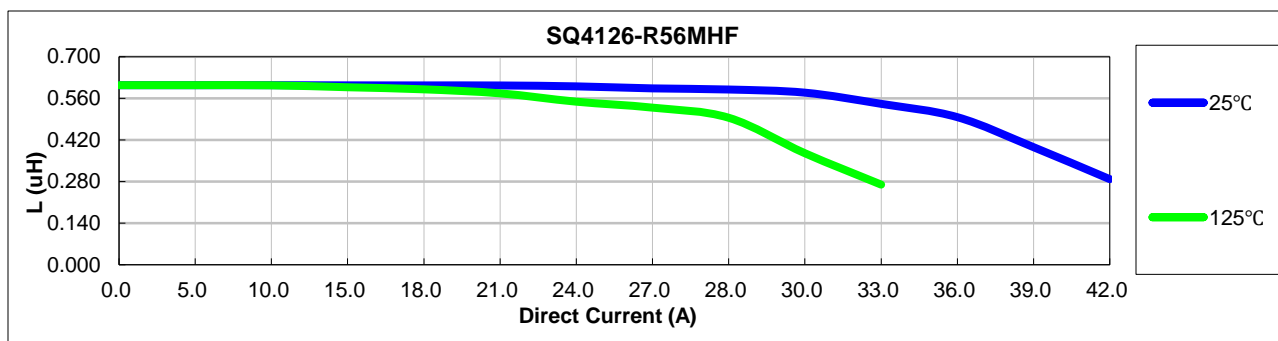
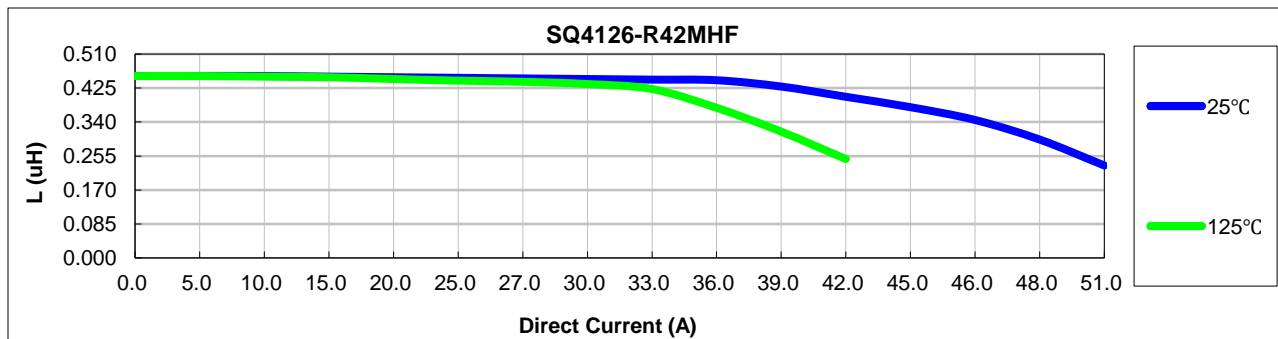
### Notes:

1. Open Circuit Inductance (OCL) test condition: 100KHz , 0.1Vrms,0Adc at 25°C.
2. L @ Isat and L @ Irms Test condition: 100KHz , 0.1Vrms (Ta=25°C).
3. The nominal DCR is measured from point "a" to point "b", as shown above on the mechanical drawing (Ta=25°C).
4. Isat1 , Isat2 : DC current that will cause inductance to drop approximately by 20%.
5. 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.
6. It is recommended the part temperature not exceed 130° C under worst case operating conditions as verified in the end application.

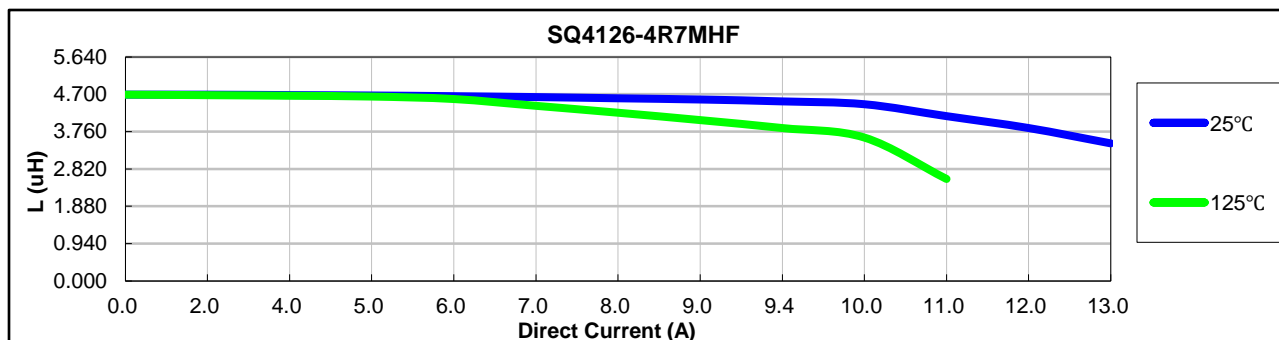
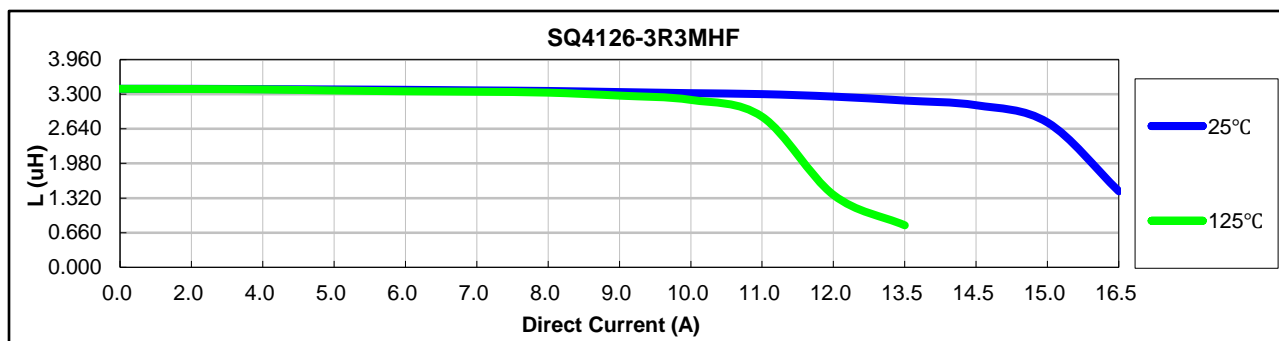
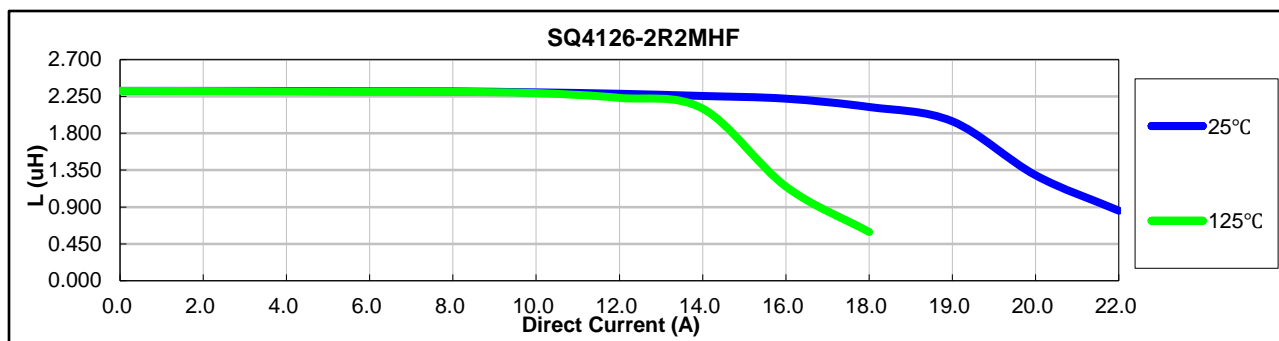
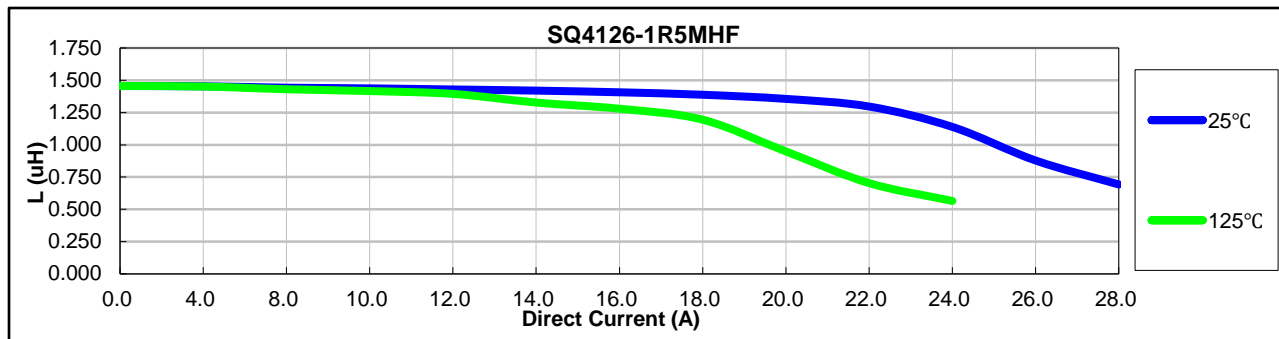
First Angle Projection:



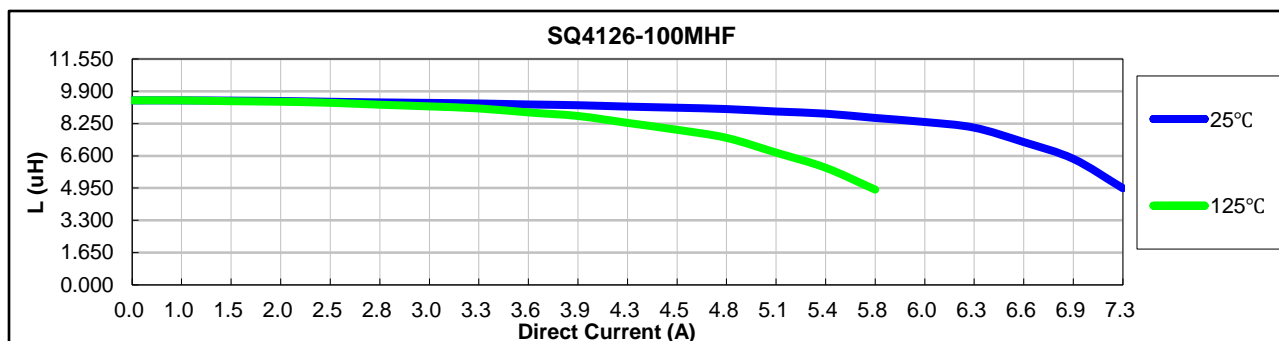
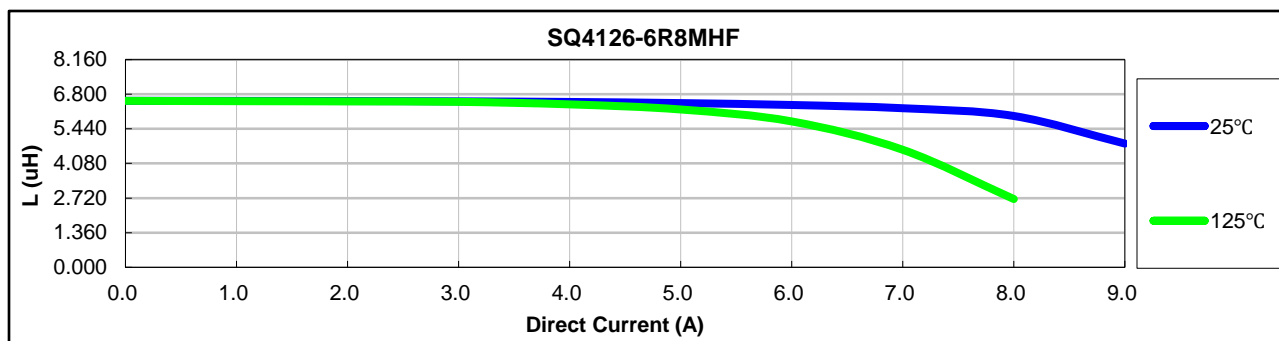
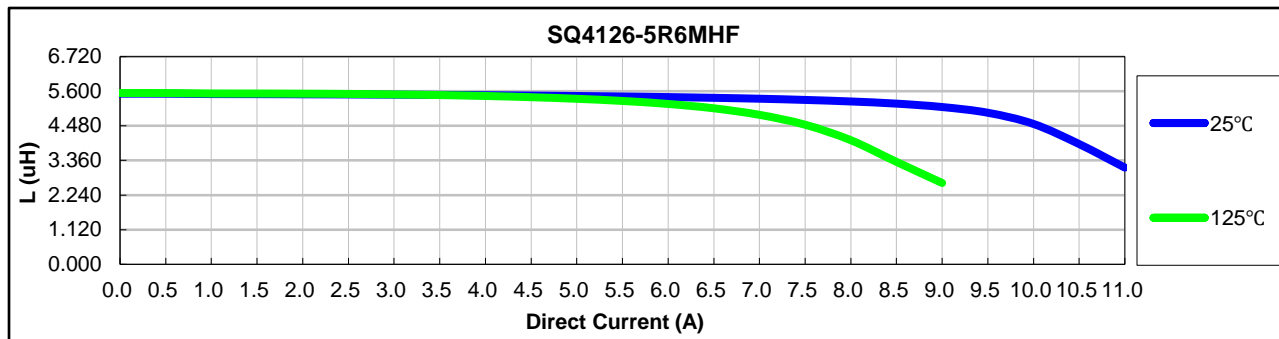
## 4. Inductance Characteristics of SQ4126 Series (Inductance vs Current):



## 4. Inductance Characteristics of SQ4126 Series (Inductance vs Current):



## 4. Inductance Characteristics of SQ4126 Series (Inductance vs Current):

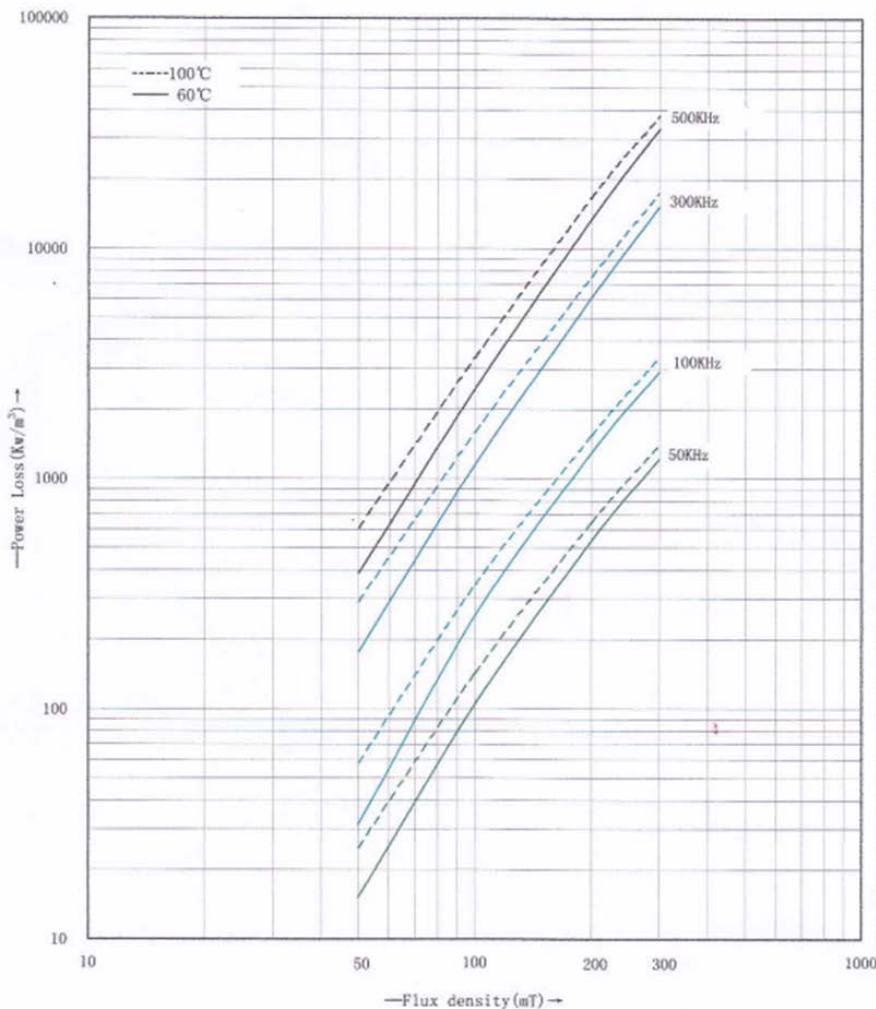


# SQ4126 Series



## 5. Core Loss:

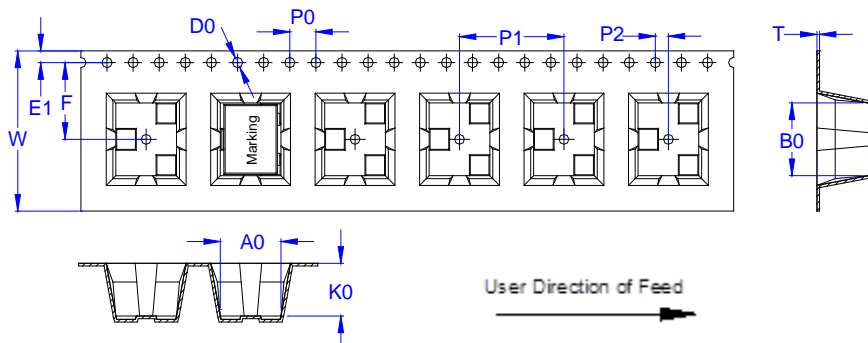
Power Loss vs. Flux density



Condition	Temp.	mT	KW/m <sup>3</sup>
50KHz	60°C	50	15
		100	105
		200	536
		300	1217
	100°C	50	25
		100	142
		200	643
		300	1399
100KHz	60°C	50	31
		100	253
		200	1292
		300	2926
	100°C	50	58
		100	344
		200	1532
		300	3386
300KHz	60°C	50	176
		100	1146
		200	6101
		300	15200
	100°C	50	291
		100	1582
		200	7535
		300	17392
500KHz	60°C	50	386
		100	2453
		200	13473
		300	33124
	100°C	50	610
		100	3361
		200	16725
		300	37678

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

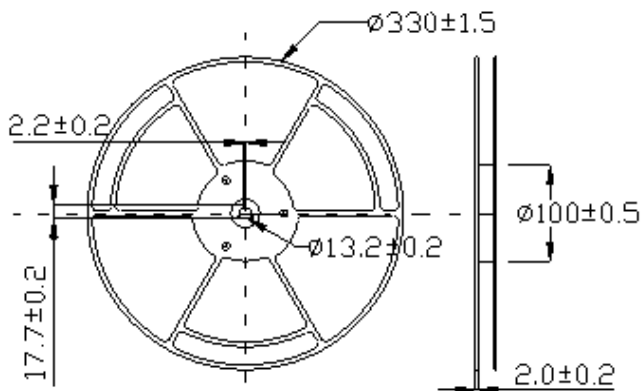
### (1).ENCAPSULATION MODE:



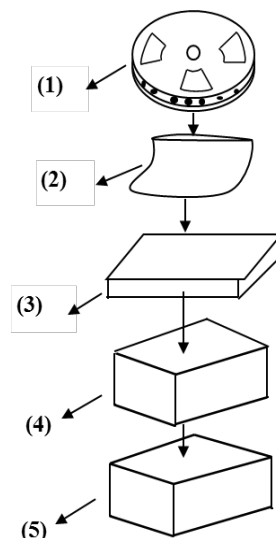
### (2).DIMENSION(mm):

A0	B0	K0	P0	P1	P2	E1	F	D0	D1	W	T
8.60±0.10	10.60±0.10	7.00±0.10	4.00±0.10	12.00±0.10	2.00±0.10	1.75±0.10	11.50±0.10	1.50+0.10-0	1.50MIN	24.00+0.30/-0.00	0.40±0.05

### (3).REEL SIZE:



### (4).PACKAGE MODE:



### (5).PACKAGING LIST:

No.	Packing Part	Dimension (mm)	Material	Quantity
1	Reel	330	Plastic	700Pcs/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	356X350X226	Paper	4Small Boxes/Middle Box
5	Outer Box	378X362X252	Paper	1Middle Box/Outer Box

### (6).WEIGHT: N.W:2.00g/pcs TOTAL5.60Kg(APPROX),G.W:TOTAL11.20Kg(APPROX).

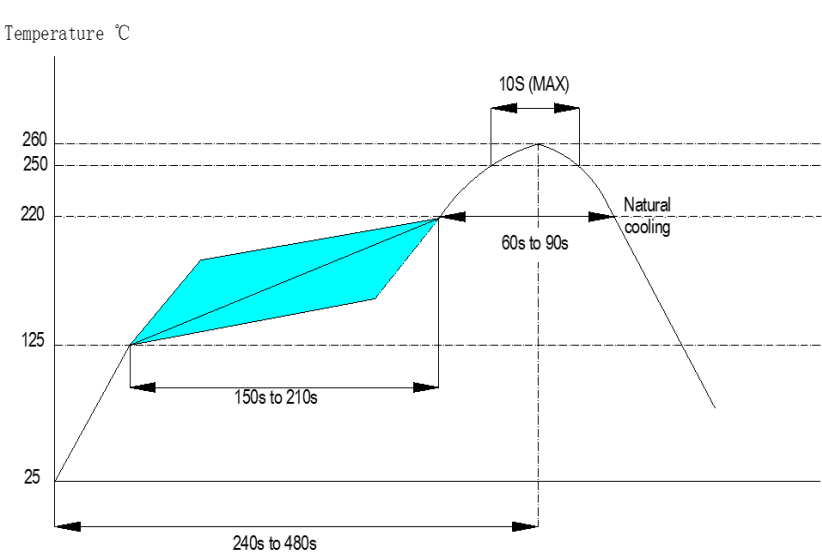
### (7).Storage conditions: -40°C~85°C ,75%RH (Max.).

## 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: $5 \pm 1\text{Sec}$
Soldering heat resistance	1. Appearance :no damage 2. Inductance change: within $\pm 10\%$ of initial value	1. Preheat temperature $150^{\circ}\text{C}$ . 2. Preheat time: 1min 3. Solder temperature $260 \pm 5^{\circ}\text{C}$ 4. Dipping time: $10 \pm 1\text{Sec}$ 5. Measured at room temperature after placing for 24hours
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 IEC68-2-3 Method Ca: 1. Temp: $40 \pm 2^{\circ}\text{C}$ 2. Humidity: 90%-95%RH 3. Test time: $500 \pm 2\text{H}$ 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. 1. Temperature: $85 \pm 3^{\circ}\text{C}$ 2. Test time: $500+24\text{H}$ 3. The component should be stabilized at normal condition for 24hours 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: $500+24\text{H}$ 3. The component should be stabilized at normal condition for 24hours 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: $85 \pm 3$ duration: 30min 2. room -temp: $25 \pm 2^{\circ}\text{C}$ Duration 3H 3. Low-temp: $-40 \pm 3$ Duration 30min 4. room-temp: $25 \pm 2^{\circ}\text{C}$ Duration 3H 5. Number of cycle: 10cycles 6. The component should be stabilized at normal condition for 24hours before test



## 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>260 250 220 125 25</p> <p>10s (MAX)</p> <p>60s to 90s</p> <p>Natural cooling</p> <p>150s to 210s</p> <p>240s to 480s</p>