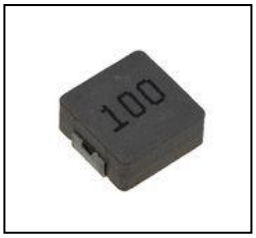
HIGH CURRENT INDUCTORS

MODEL NO : SMI-060030 SERIES



Features :

∗ Compact unibody construction.
∗ Solid structure with lower loss, low profile, high power, low DCR.
∗ Frequency range up to 5MHZ.
∗ 125℃maximum total temperature operation.
∗ More efficient noise suppression.
∗ Custom designs available.
∗ Compliant with RoHS and REACH.

Application :

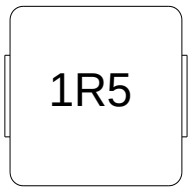
∗ DC/DC converter in power regulation system.
● Notebook computers. ● Desktop PC. ● Battery power systems.
● VGA card. ● Severs. ● Routers. ● Data networking and storage systems.
● Smart phone POL modules.

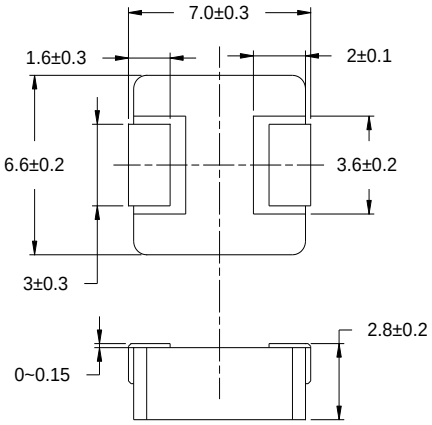
Electrical Specification :

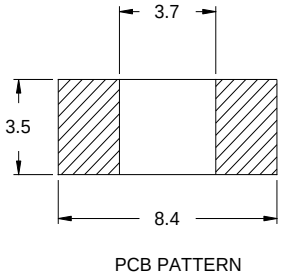
MODEL NO	INDUCTANCE ±20% (uH)	DCR (mΩ)		TEMPERATURE RISE CURRENT (ADC) Typical (NOTE2)	SATURATION CURRENT (ADC) Typical (NOTE 3)
		TYP	MAX		
SMI-060030-R22	0.22	2.5	3.0	24.0	34.0
SMI-060030-R24	0.24	2.6	3.1	23.0	26.0
SMI-060030-R33	0.33	3.0	3.5	21.0	25.0
SMI-060030-R47	0.47	3.5	4.1	18.0	20.0
SMI-060030-R56	0.56	3.9	4.5	16.5	18.0
SMI-060030-R68	0.68	4.8	5.3	16.0	17.0
SMI-060030-R82	0.82	5.4	6.0	14.0	16.0
SMI-060030-1R0	1.0	6.7	7.4	12.0	15.0
SMI-060030-1R5	1.5	10.6	12.1	12.0	14.0
SMI-060030-2R2	2.2	13.5	15.0	9.5	10.0
SMI-060030-3R3	3.3	18.0	22.0	8.5	9.5
SMI-060030-4R7	4.7	28.0	33.0	6.0	6.5
SMI-060030-6R8	6.8	42.5	48.0	5.0	6.0
SMI-060030-8R2	8.2	54.0	60.0	5.0	6.0
SMI-060030-100	10.0	62.0	67.0	4.5	5.5
SMI-060030-150	15.0	104.0	115.0	3.0	4.5
SMI-060030-220	22.0	180.0	200.0	2.3	3.0
SMI-060030-330	33.0	280.0	310.0	2.0	2.5

NOTE (1): Test frequency: 100 KHZ ,1.0Vrms.
NOTE (2): ΔT=40℃ approximately under the temperature rise current.
NOTE (3): The saturation current indicates the value of DC current is approximately 30% lower than its initial value of inductance.
NOTE (4): Operating temperature range: -40℃~+125℃.
NOTE (5): Storage temperature range: -40℃~+125℃.
NOTE (6): The part temperature (ambient + temp rise) should not exceed 125 °C under worst case operating conditions. Circuit design, component placement, PWB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.
NOTE (7): Storage time :The recommended storage time of Inductor is maximum 12 months, and don't suggest to use the parts over 12 months.

Physical Dimension : (unit :mm)



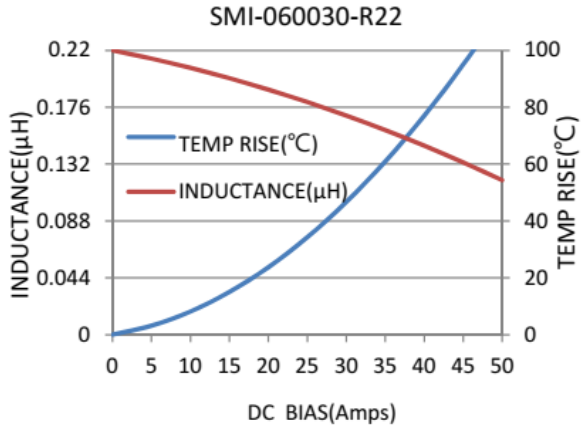


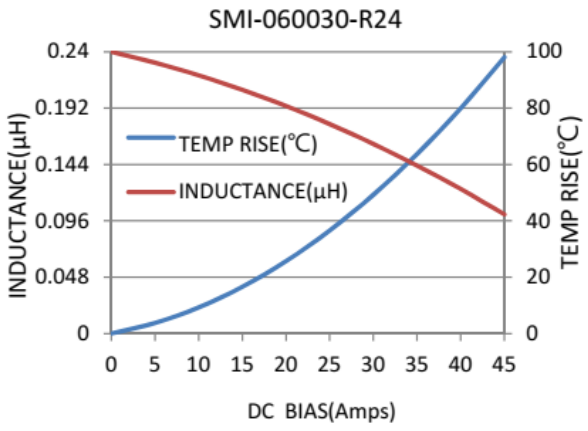


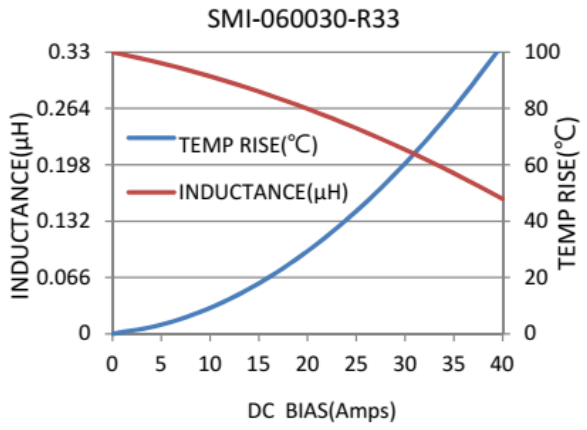
PCB PATTERN

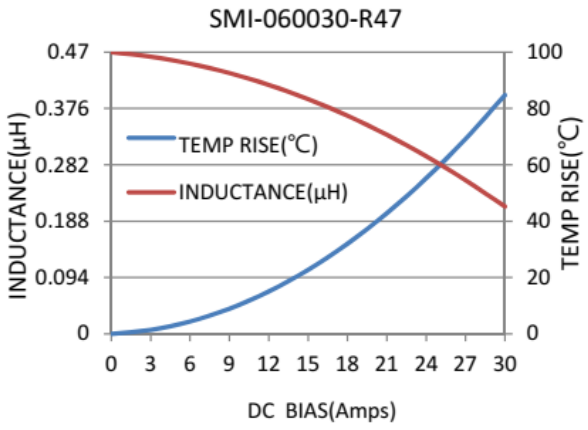
Performance Graphs:

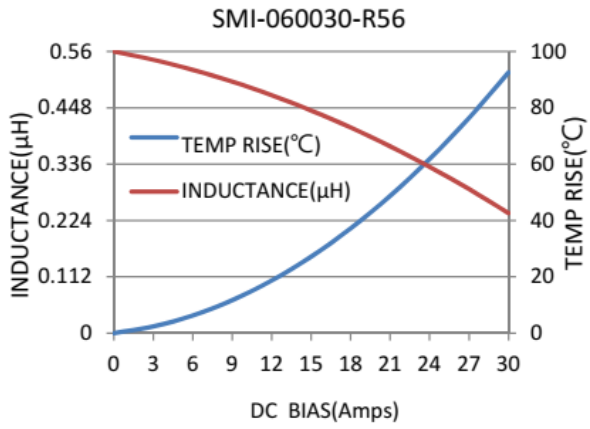
Test Equipments	Test Condition
Wayne kerr 3260B/G LCR Meter Wayne kerr 3265B Bias Current Source	Temperature: 26 ± 3℃ Humidity: < 70% RH Frequency: 100 KHz, 1.0V

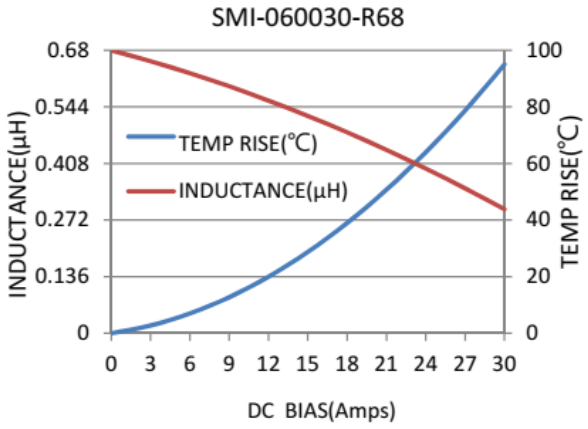


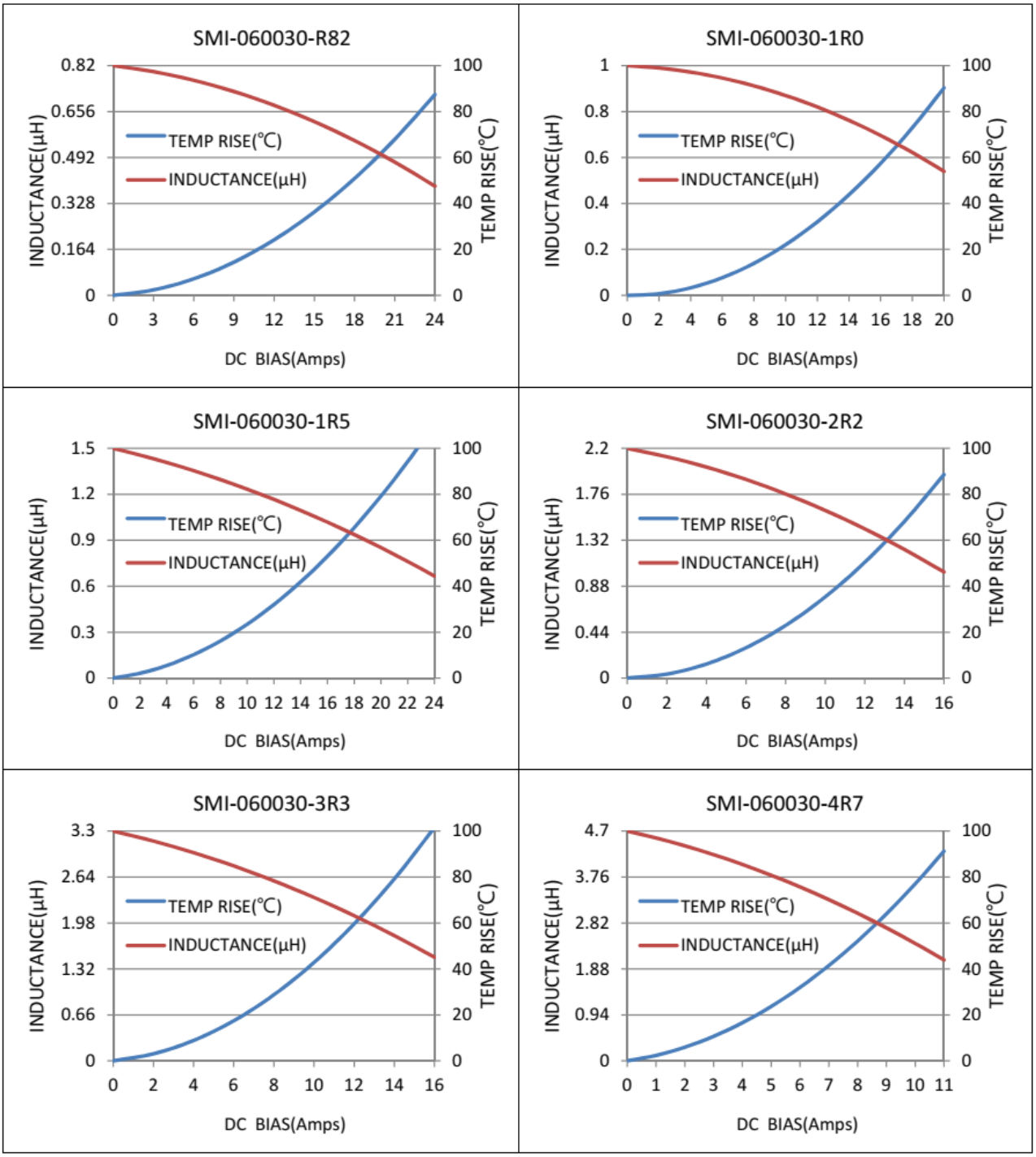


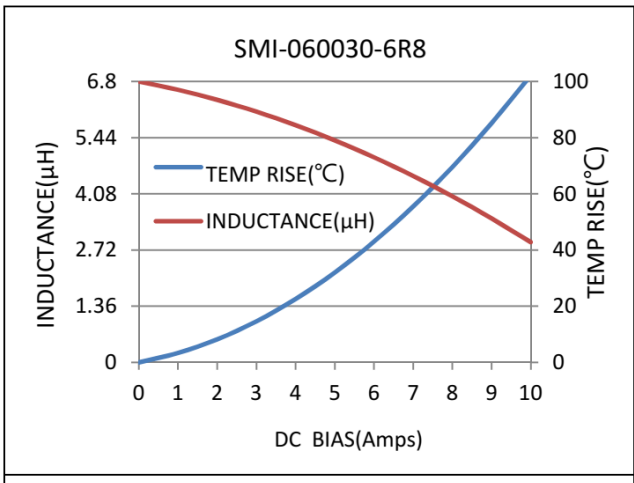


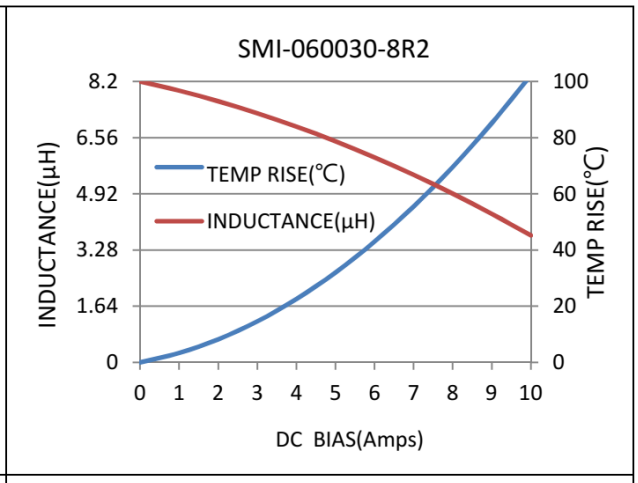


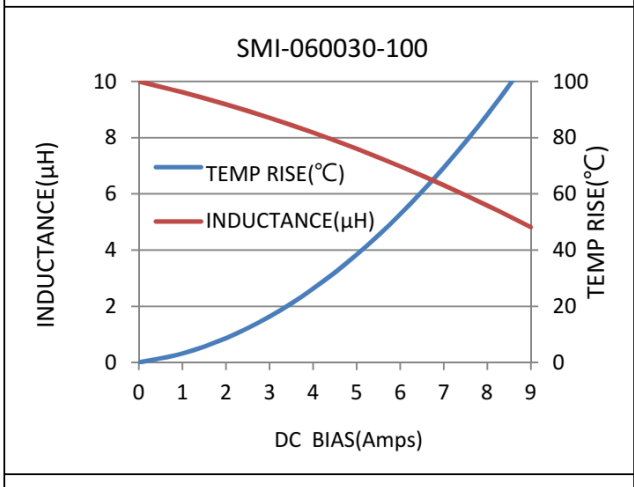


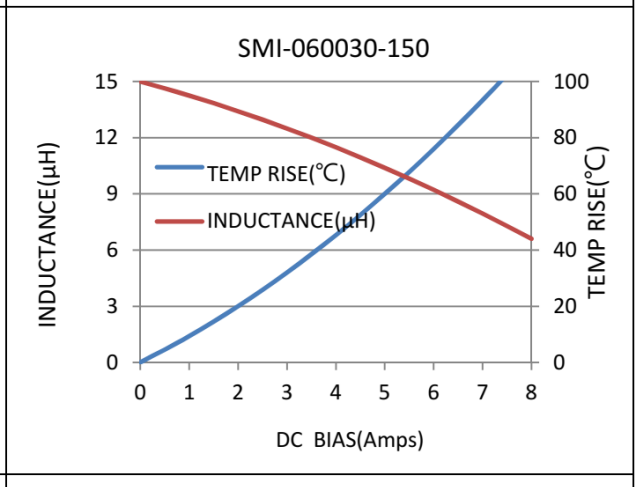


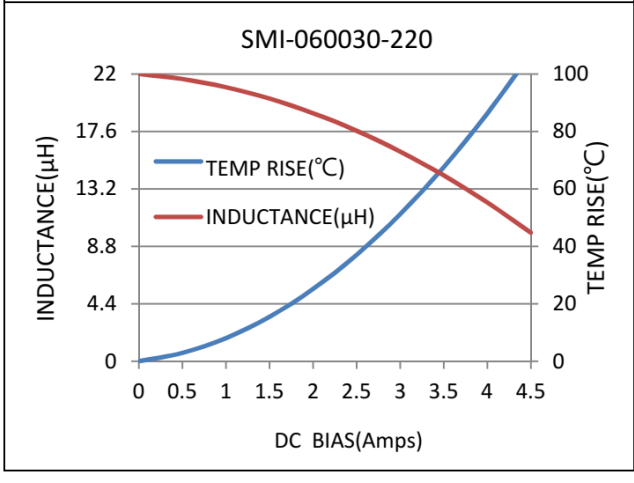

SMI-060030-R82
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
SMI-060030-1R0
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
SMI-060030-1R5
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
SMI-060030-2R2
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
SMI-060030-3R3
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
SMI-060030-4R7
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)

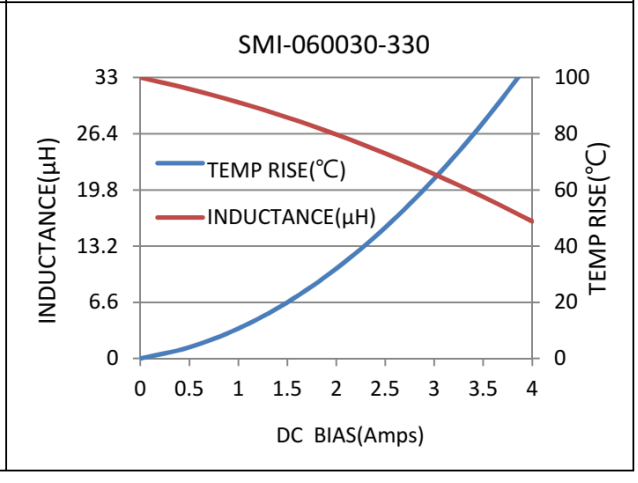

SMI-060030-6R8
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
6.8
5.44
4.08
2.72
1.36
0
100
80
60
40
20
0
0 1 2 3 4 5 6 7 8 9 10


SMI-060030-8R2
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
8.2
6.56
4.92
3.28
1.64
0
100
80
60
40
20
0
0 1 2 3 4 5 6 7 8 9 10


SMI-060030-100
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
10
8
6
4
2
0
100
80
60
40
20
0
0 1 2 3 4 5 6 7 8 9


SMI-060030-150
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
15
12
9
6
3
0
100
80
60
40
20
0
0 1 2 3 4 5 6 7 8


SMI-060030-220
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
22
17.6
13.2
8.8
4.4
0
100
80
60
40
20
0
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5


SMI-060030-330
INDUCTANCE(μH)
TEMP RISE(℃)
TEMP RISE(℃)
INDUCTANCE(μH)
DC BIAS(Amps)
33
26.4
19.8
13.2
6.6
0
100
80
60
40
20
0
0 0.5 1 1.5 2 2.5 3 3.5 4

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 ℃ 2.Retention time: 245 ± 5 ℃ for 2 ± 0.5 secs
Vibration	Inductance change: Within ± 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 ±10% Without mechanical damage such as break	1.Peak value: 100 G 2.Duration of pulse: 11ms 3. 3times in each positive and negative direction of 3 mutual perpendicular directions
Endurance Reliability		
Item	Specification and Requirement	Test Method
Thermal Shock	Inductance change: Within ± 10% Without distinct damage in appearance	1.Repeat 100 cycles as follow: (-40 ± 2 ℃; 30 ± 3 min) →(Room temp., 5 min) → (+125 ± 2 ℃, 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 ± 10% Without distinct damage in appearance	1.Environment condition: 85 ± 2 ℃ Applied Current: Rated current 2.Duration: 1000 + 4 / -0 hours
Humidity Resistance	Inductance change: Within ± 10% Without distinct damage in appearance	1.Environment condition: 60 ± 2 ℃ Humidity: 90–95% Applied Current: Rated current 2.Duration: 1000 + 4 / -0 hours
Low Temperature Store	Inductance change: Within ± 10% Without distinct damage in appearance	Store temperature: -40 ± 2 ℃,1000 + 4 / -0 hours
High Temperature Store	Inductance change: Within ± 10% Without distinct damage in appearance	Store temperature: +125 ± 2 ℃,1000 + 4 / -0 hours

PACKAGING SPEC

1. REEL SIZE & UNITS PER REEL :13”,1500PCS.
2. TAPE WIDTH:16mm.
3. REEL WIDTH:22.4mm.
4. COMPONENT PITCH:12mm.