



AHC10C Series



1. Features of AHC10C Series:

- Ferrite based SMD inductor with lower core loss.
- Inductance range: 100 nH to 330 nH , custom values are welcomed.
- High current output chokes up to 115.0 Amp with approx. 20% roll off.
- Low profile 10.0mm Max. height.
- Foot Print 10.0 x 7.0 mm .
- Perfect for high density designs with limited board space.
- Operating frequency of up to 5.0MHz.
- Operating temperature range of -55° C to + 130° C. RoHS & HF compliance.
- T & R Qty's: 400pcs, 13" Reel



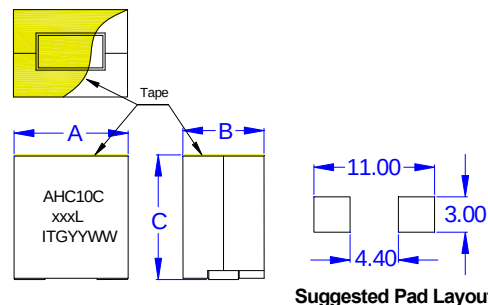
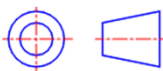
2. Electrical Characteristics of AHC10C Series:

ITG Part Number	OCL ¹ (nH) ± 15%	L @ Isat1 ² (nH) Min.	DCR ³ (mΩ) ± 10%	Isat1 ⁴ (A) @25°C	Isat2 ⁴ (A) @75°C	Isat3 ⁴ (A) @100°C	Irms ⁵ (A) @25°C
AHC10C-100L	100.00	70.00	0.185	115.00	105.00	100.00	62.00
AHC10C-120L	120.00	84.00	0.185	95.00	88.00	82.00	62.00
AHC10C-150L	150.00	105.00	0.185	80.00	78.00	75.00	62.00
AHC10C-180L	180.00	126.00	0.185	70.00	64.00	60.00	62.00
AHC10C-220L	220.00	154.00	0.185	56.00	52.00	45.00	62.00
AHC10C-270L	270.00	189.00	0.185	46.00	42.00	40.00	62.00
AHC10C-330L	330.00	231.00	0.185	43.00	38.00	35.00	62.00

3. Mechanical Dimension of AHC10C Series:

A	B	C	D	E	F
Max.	Max.	Max.	± 0.30	Ref.	± 0.20
10.00	7.00	10.00	2.70	4.60	2.40

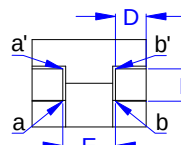
Third Angle Projection:



Suggested Pad Layout

Notes:

- Open Circuit Inductance (OCL) test condition: 500KHz, 0.25Vrms, 0A_{dc} at 25°C.
- L @ Isat and L @ Irms Test condition: 500KHz, 0.25Vrms (Ta=25°C).
- The nominal DCR is measured from point "a" and "a'" to point "b" and "b'", as shown above on the mechanical drawing (Ta=25°C).
- Isat1 , Isat2 & Isat3 : DC current that will cause inductance to drop approximately by 20%.
- 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 130° C under worst case operating conditions as verified in the end application.



Part Marking:
AHC10C: AHC10 is Series Name, C is Special Code.
xxxL: xxx is inductance value in nH, L is inductance tolerance.
ITGYWW: ITG is Company Name , YYYW is Date Code.

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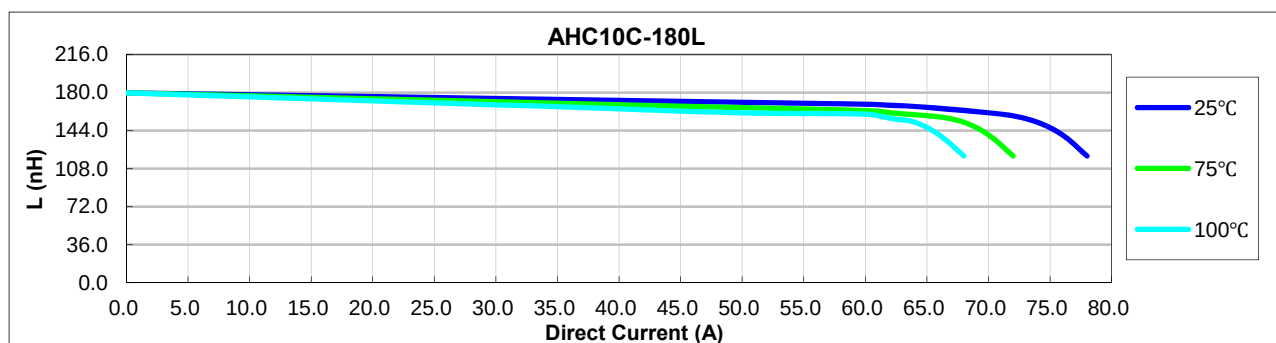
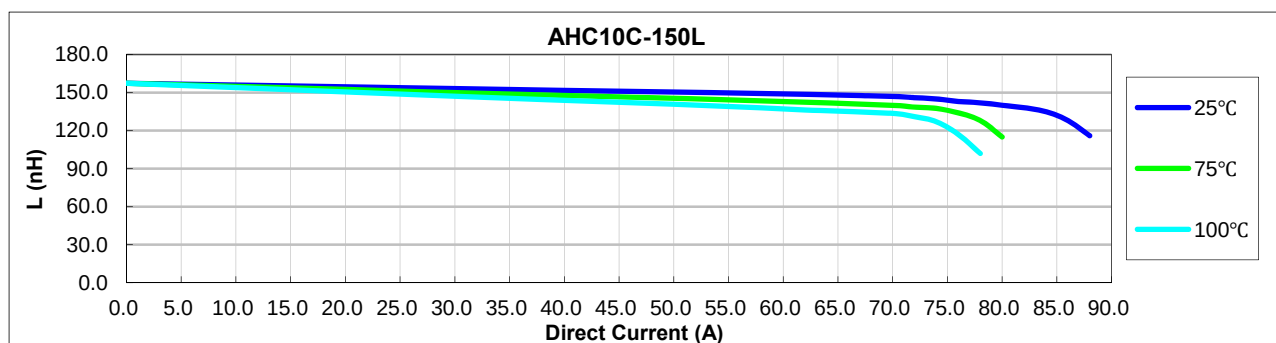
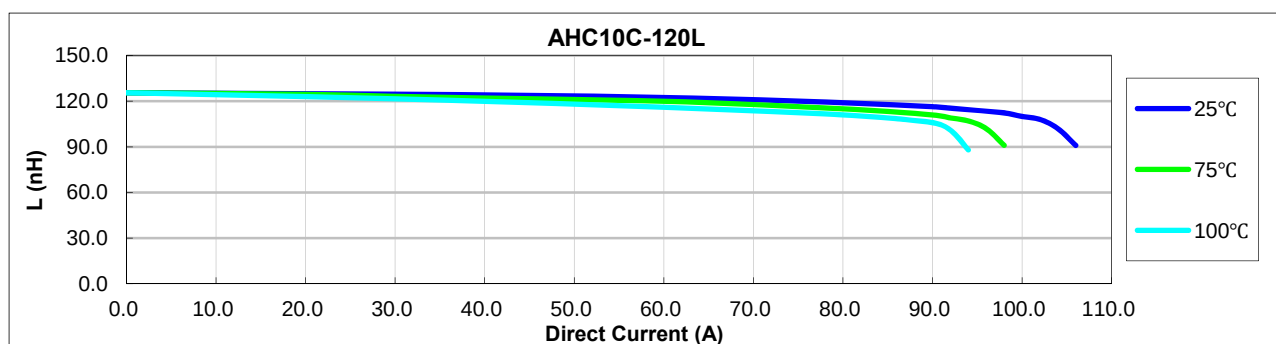
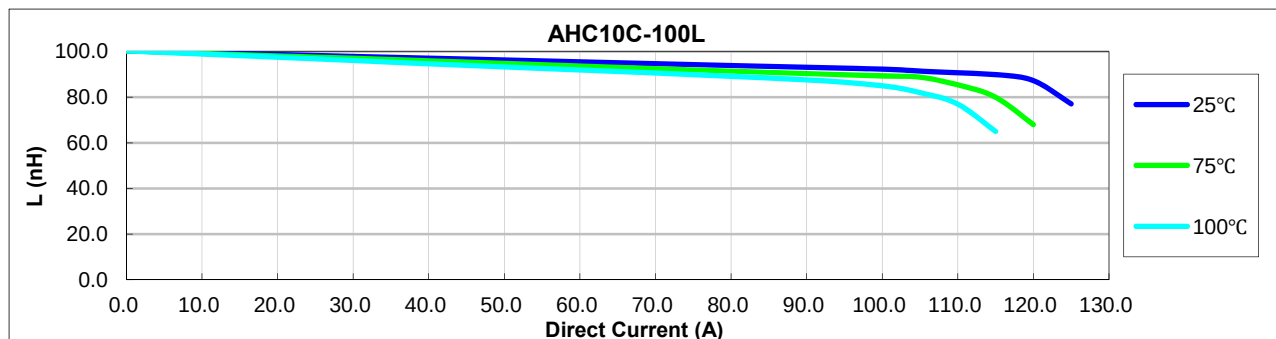
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4. Inductance Characteristics of AHC10C Series (Inductance vs Current):



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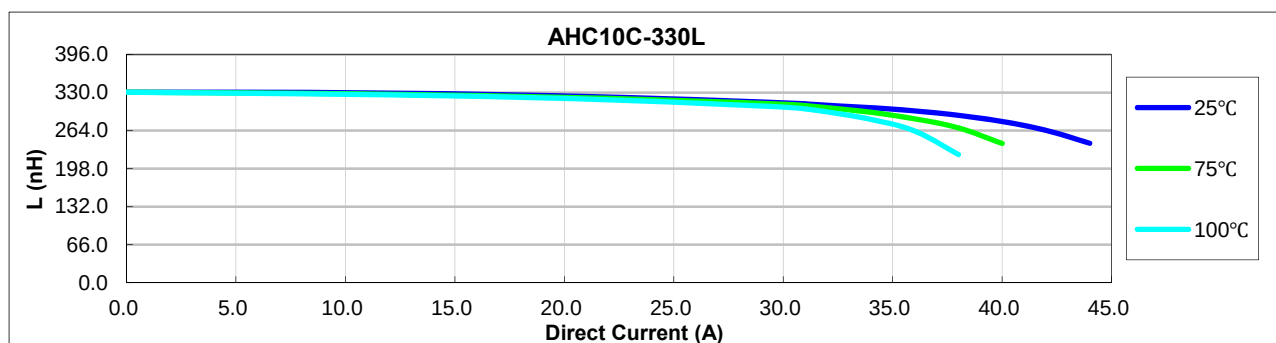
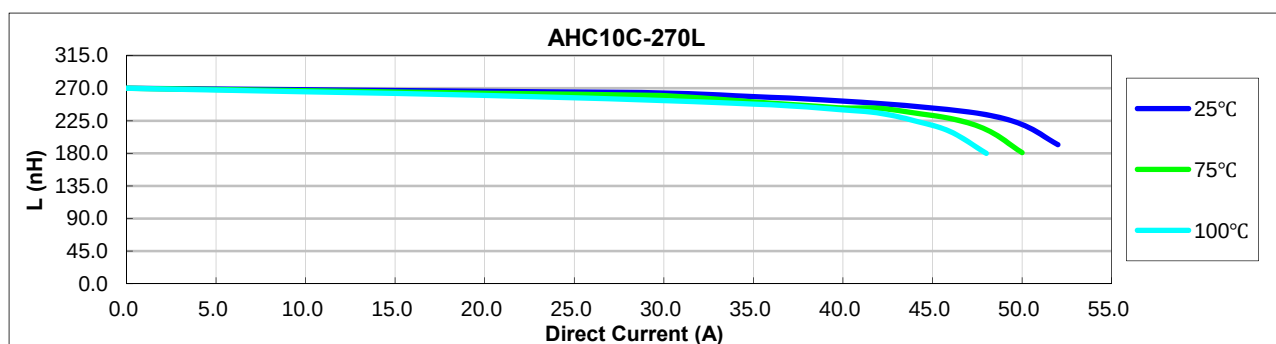
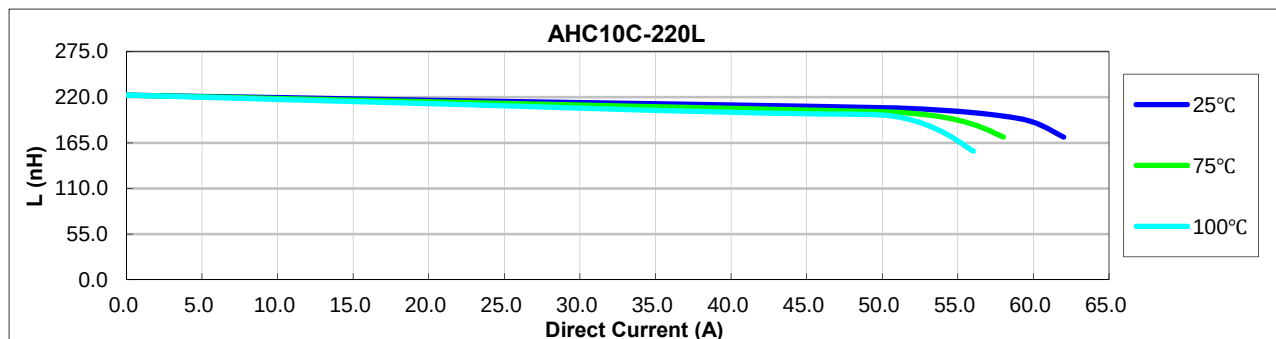
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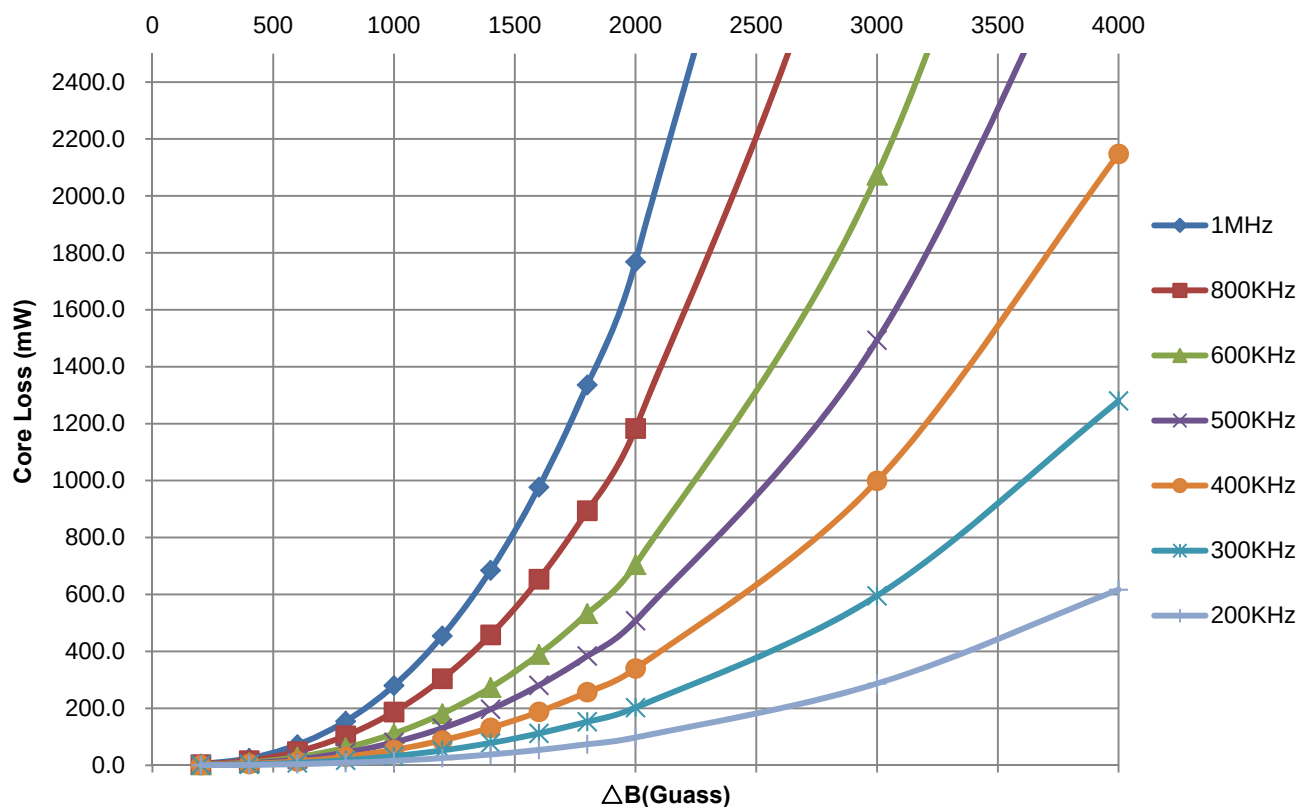


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5. Core Loss:

AHC10C Series Core Loss



Where $\Delta B = 0.274 \cdot L(nH) \cdot \Delta I$

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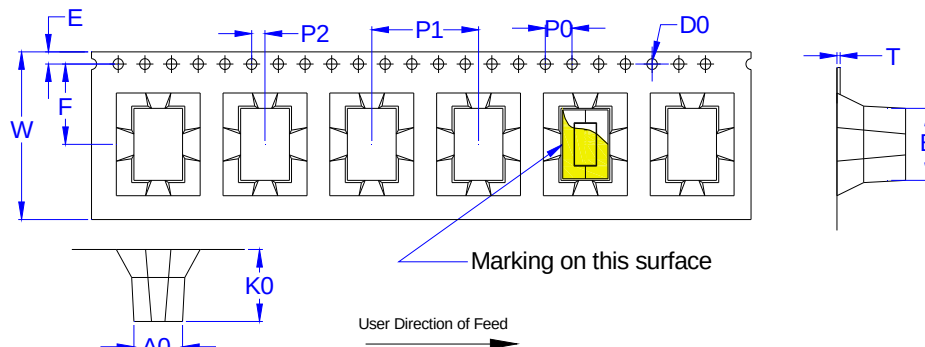


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6. PACKAGE SPECIFICATION.(UNIT:mm):

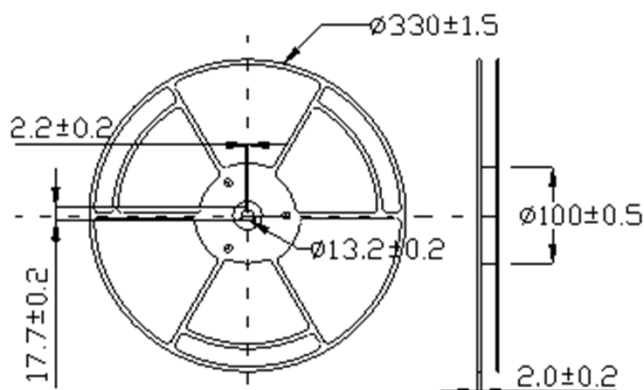
(1).ENCAPSOLATION MODE:



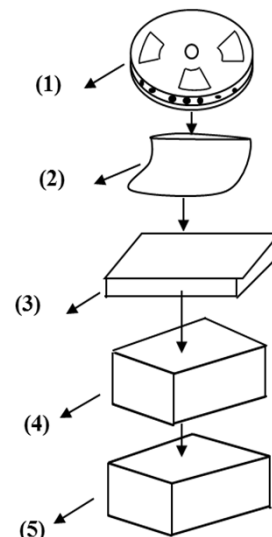
(2).DIMENSION(mm):

W	A0	B0	K0	P1	P0	P2	D0	F	E	T
24.0+0.3/-0.1	7.20±0.1	10.3±0.10	10.5±0.10	16.0±0.10	4.00±0.10	2.00±0.10	1.50+0.10/-0	11.5±0.10	1.75±0.10	0.50±0.05

(3).REEL SIZE:



(4).PACKAGE MODE:



(5).PACKAGING LIST:

No.	Packing Part	Dimension (mm)	Material	Quantity
1	Reel	330	Plastic	400Pcs/Reel
2	Bag	450x360x0.075	Plastic	1Reel/Bag
3	Small Box	340X335X45	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: 3.15 g/pcs (APPROX), TOTAL 5.04 Kg(APPROX),G.W:TOTAL 8.04Kg (APPROX).

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

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7.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°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 IEC68-2-1 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 ± 3 duration: 30min 2. room -temp: $25 \pm 2^{\circ}\text{C}$ Duration 3H 3. Low-temp: -40 ± 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

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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

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