



Wire Wound Chip Inductors

HCI0805FT Series



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INTRODUCTION

Product : HCI Miniature SMD Inductor For Power Line

Size : 0805

The HCI series are low profile inductor used in notebook, PC, cellular phone backlight, inverter and etc. The devices are designed smallest possible sizes and highest performance.

FEATURES

- Operating temperature -40 to +85°C for ferrite series.
- Excellent solderability and resistance to soldering heat.
- Suitable for reflow soldering.
- High reliability and easy surface mount assembly.
- Wide range of inductance values are available for flexible needs.

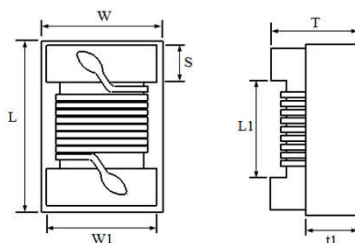
PART NUMBER

HCI 0805 F T 1R0 K - □□

1 2 3 taping 4 5 6

1 Product Type

2 Chip Dimension



Size (inch) mm	Length (L) (inch) mm	Width (W) (inch) mm	Thickness (T) (inch) mm	Terminal (S) (inch) mm	L1 (Ref.) mm	W1 (Ref.) mm	(t1) (Ref.) mm
HCI0805 2012	(0.09 max.) (2.30 max.)	(0.06 max.) (1.50 max.)	(0.047 max.) (1.20 max.)	(0.020 ± 0.004) 0.50 ± 0.10	1.20	1.20	0.60

3 Material Type F : Ferrite

4 Inductance Value 1R0 = 1.0uH 100 = 10uH

5 Tolerance K = ±10% M = ±20%

6 Internal Code

1 Scope

This specification applies to miniature wire wound inductors for power line.

2 Construction

*Configuration & Dimension : Please refer to the attached figures and tables.

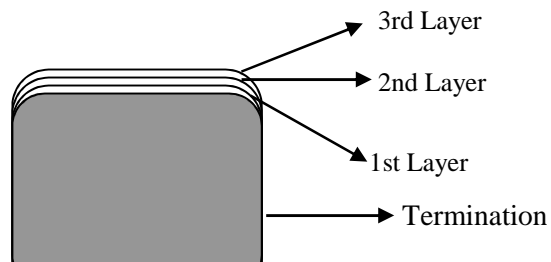
*Terminals : Consist of Ag alloy followed by Nickel, then Sn plating for easier soldering

3 Operating Temperature Range

Operating Temperature Range is the scope of ambient temperature at which the inductor can be operated continuously at rated current.

*Temp. Range : Ferrite material : $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$

4 Ingredient of terminals electrode



Ferrite Type :

1st Layer : Ag

2nd Layer : Nickel (Ni)

3rd Layer : Tin (Sn)

5 Characteristics

Standard Atmospheric Conditions

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests are as follows:

Ambient Temperature : $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$

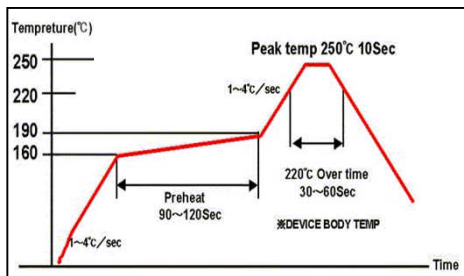
Relative Humidity : 60% to 70%

Air Pressure : 86Kpa to 106Kpa

Temperature Profile

1 Reflow Temperature Profile

(Temperature of the mounted parts surface on the printed circuit board)



Recommended Peak Temperature : 250°C Max

250°C up /within 10secs

Max. Reflow temperature : 260°C

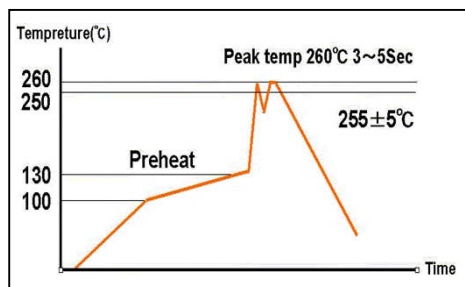
Gradient of temperature rise : av 1-4°C/sec

Preheat : 160-190°C/within 90-120secs

220°C up /within 30-60secs

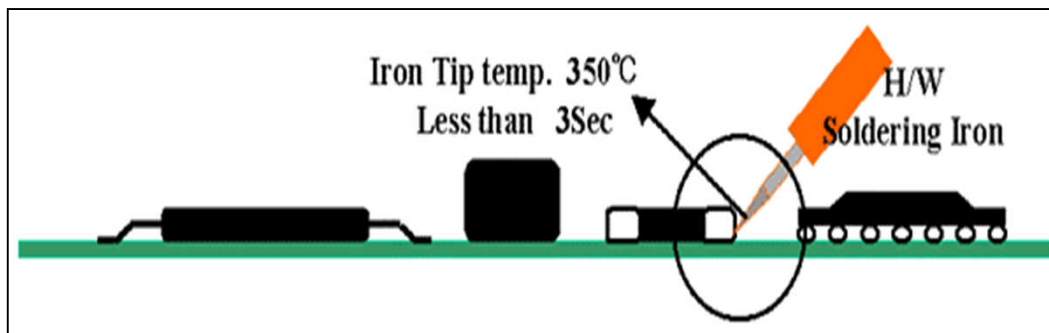
Composition of solder Sn-3Ag-0.5Cu

2 Dip Temperature

Solder bathtub temperature : 260°C max
within 5secs.Preheating temperature : 100~130°C
deposit solder temperature.

Composition of solder Sn-3Ag-0.5Cu

3 Soldering iron tip temperature : 350°C max / within 3 seconds.



HCI0805FT Series

Part No.	Inductance ¹ (uH)	Tolerance	Q ² Min	S.R.F. ³ Min (MHz)	RDC ⁴ Max (Ω)	Isat ⁵ Max (mA)	IDC ⁶ Max (mA)	Marking
HCI0805FT R47 □-□□	0.47 @ 100KHz	K, M	10 @ 1MHz	720	0.15	1600	1100	R47
HCI0805FT R56 □-□□	0.56 @ 100KHz	K, M	10 @ 1MHz	680	0.17	1450	1050	R56
HCI0805FT R68 □-□□	0.68 @ 100KHz	K, M	10 @ 1MHz	600	0.19	1300	1000	R68
HCI0805FT R82 □-□□	0.82 @ 100KHz	K, M	10 @ 1MHz	550	0.20	1250	950	R82
HCI0805FT 1R0 □-□□	1.0 @ 100KHz	K, M	10 @ 1MHz	500	0.30	1000	900	1R0
HCI0805FT 1R2 □-□□	1.2 @ 100KHz	K, M	10 @ 1MHz	350	0.27	1150	900	1R2
HCI0805FT 1R5 □-□□	1.5 @ 100KHz	K, M	10 @ 1MHz	230	0.35	850	700	1R5
HCI0805FT 1R8 □-□□	1.8 @ 100KHz	K, M	10 @ 1MHz	180	0.40	750	650	1R8
HCI0805FT 2R2 □-□□	2.2 @ 100KHz	K, M	10 @ 1MHz	140	0.45	700	580	2R2
HCI0805FT 2R7 □-□□	2.7 @ 100KHz	K, M	10 @ 1MHz	120	0.60	650	550	2R7
HCI0805FT 3R3 □-□□	3.3 @ 100KHz	K, M	10 @ 1MHz	90	0.70	600	430	3R3
HCI0805FT 3R9 □-□□	3.9 @ 100KHz	K, M	10 @ 1MHz	80	0.75	550	420	3R9
HCI0805FT 4R7 □-□□	4.7 @ 100KHz	K, M	10 @ 1MHz	70	0.80	500	400	4R7
HCI0805FT 5R6 □-□□	5.6 @ 100KHz	K, M	10 @ 1MHz	60	1.05	450	380	5R6
HCI0805FT 6R8 □-□□	6.8 @ 100KHz	K, M	10 @ 1MHz	50	1.15	420	370	6R8
HCI0805FT 8R2 □-□□	8.2 @ 100MHz	K, M	10 @ 1MHz	45	1.25	400	360	8R2
HCI0805FT 10 □-□□	10 @ 100KHz	K, M	10 @ 1MHz	40	1.50	370	330	100
HCI0805FT 120 □-□□	12 @ 100KHz	K, M	10 @ 1MHz	35	1.80	320	320	120
HCI0805FT 150 □-□□	15 @ 100KHz	K, M	10 @ 1MHz	22	1.90	300	300	150
HCI0805FT 180 □-□□	18 @ 100KHz	K, M	10 @ 1MHz	20	2.30	280	280	180
HCI0805FT 220 □-□□	22 @ 100KHz	K, M	10 @ 1MHz	18	2.50	250	250	220
HCI0805FT 270 □-□□	27 @ 100KHz	K, M	10 @ 1MHz	16	3.40	230	230	270
HCI0805FT 330 □-□□	33 @ 100KHz	K, M	10 @ 1MHz	15	3.80	210	210	330
HCI0805FT 390 □-□□	39 @ 100KHz	K, M	10 @ 1MHz	12	4.30	180	180	390
HCI0805FT 470 □-□□	47 @ 100KHz	K, M	10 @ 1MHz	10	4.70	150	150	470

1. Inductance is measured in HP-4284A/4285A RF LCR meter with SMD-A fixture.
2. Q is measured in HP-4284A/4285A RF LCR meter with SMD-A fixture.
3. SRF is measured in ENA E5071B network analyzer or equivalent.

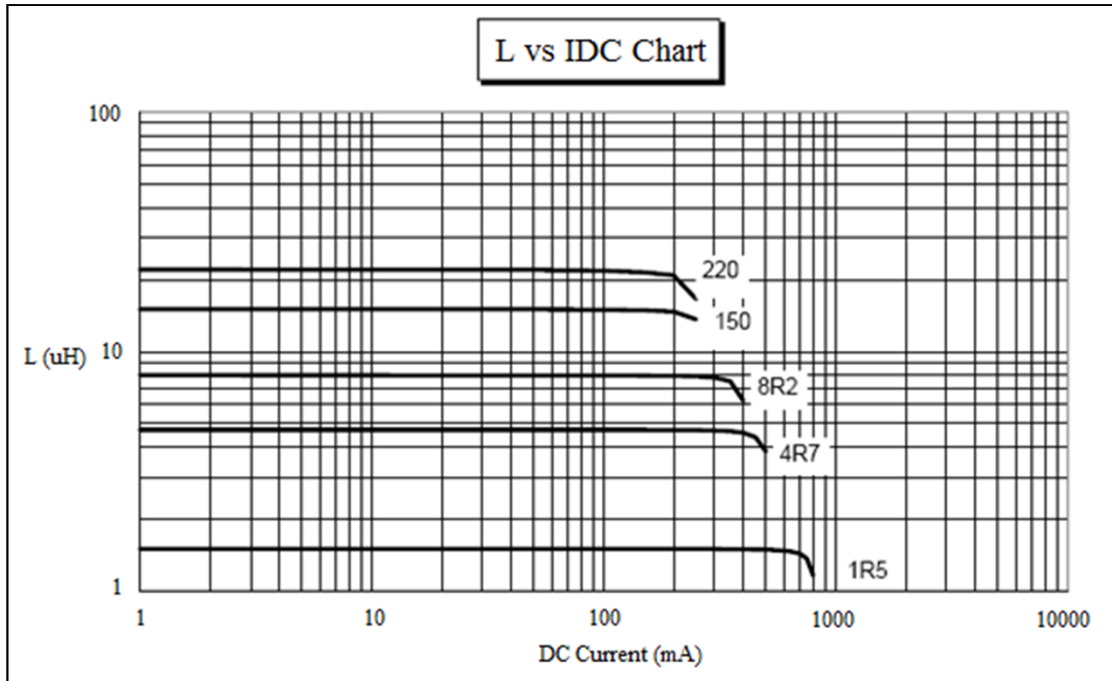
4. RDC is measured in HP-4338B milliohmeter or equivalent.

5. Inductance drop 10% from the initial value.

6. For 25°C rise.

Remarks :

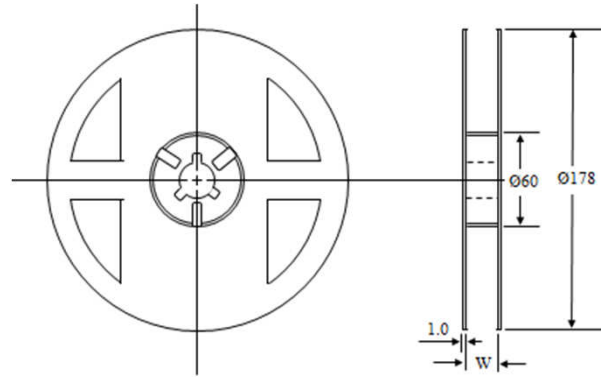
Unit weight = 0.0084g (for ref.)



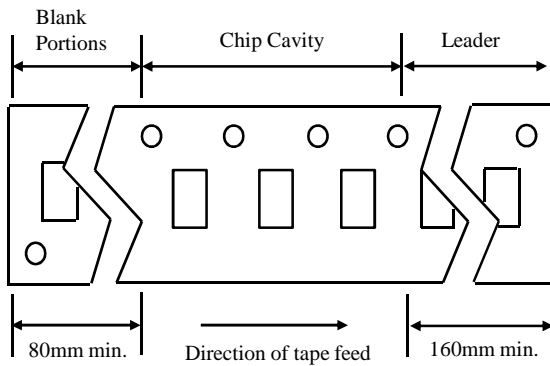
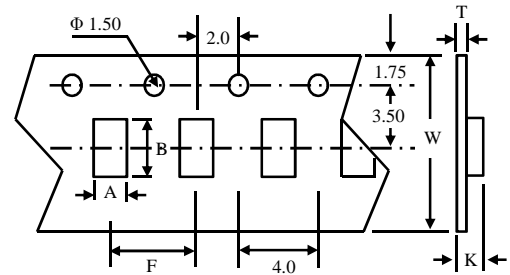
HCI0805FT Series

ITEM		CONDITION	SPECIFICATION
Electrical Characteristics	Inductance and Tolerance	Measuring Frequency : As shown in Product Table	Within Specified Tolerance
	Quality Factor	Measuring Temperature : +25°C	
	Insulation Resistance	Measured at 100V DC between inductor terminals and center of case.	1000 mega ohms minimum
	Dielectric Withstanding Voltage	Measured at 500V AC between inductor terminals and center of case for a maximum of 1 minute.	No damage occurs when the test voltage is applied.
	Temperature Coefficient of Inductance (TCL)	Over -40°C to +85°C at frequency specified in Product Table.	+25 to 500 ppm/°C $TCL = \frac{L1 - L2}{L1(T1 - T2)} \times 10^6$ (ppm /°C)
Mechanical Characteristics	Component Adhesion (Push Test)	The component shall be reflow soldered onto a P.C. Board (240°C ± 5°C for 20 seconds). Then a dynamometer force gauge shall be applied to any side of the component.	Minimum 1Kg
	Drop Test	The inductor shall be dropped two times on the concrete floor or the vinyl tile from 1M naturally.	Change In Inductance: No more than 5%
	Thermal Shock Test	Each cycle shall consist of 30 minutes at -40°C followed by 30 minutes at +85°C with a 5 minutes transition time between temperature extremes. Test duration is 10 cycles.	Change In Q: No more than 10% Change In Appearance: Without distinct damage
Endurance Characteristics	Solderability	Dip pads in flux and dip in solder pot containing lead free solder at 240°C ± 5°C for 5 seconds.	A minimum of 80% of the metalized area must be covered with solder.
	Resistance to Soldering Heat	Dip the components into flux and dip into solder pot containing lead free solder at 260°C ± 5°C for 5 ± 2 seconds.	Change In Inductance: No more than 5% Change In Q: No more than 10%
	Vibration (Random)	Inductors shall be randomly vibrated at amplitude of 1.5mm and frequency of 10-55Hz : 0.04G/Hz for a minimum of 15 minutes per axis for each of the three axes.	Change In Appearance: Without distinct damage
	Cold Temperature Storage	Inductors shall be stored at temperature of -40°C ± 2°C for 1000hrs (+48 -0 hrs.) Then inductors shall be subjected to standard atmospheric conditions for 1 hour. After that, measurement shall be made.	
	High Temperature Storage	Inductors shall be stored at temperature of 85°C ± 2°C for 1000hrs (+48 -0 hrs.) Then inductors shall be subjected to standard atmospheric conditions for 1 hour. After that, measurement shall be made.	
	Moisture Resistance	Inductors shall be stored in the chamber at 45°C at 90-95 R.H. for 1000 hours. Then inductors are to be tested after 2 hours at room temperature.	Inductors shall not have a shorted or open winding.
	High Temperature with Loaded	Inductors shall be stored in the chamber at +85°C for 1000 hours with rated current applied. Inductors shall be tested at the beginning of test at 500 hours and 1000 hours. Then inductors are to be tested after 1 hour at room temperature.	

Type	Pcs/Reel
HCI0805	2,000

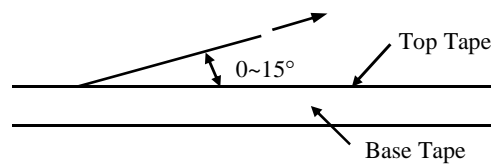


Type	Chip Cavity		Insert Pitch	Tape Thickness		
	A	B	F	K	T	W
HCI0805	1.50	2.35	4.00	1.45	0.28	8.00



Top Tape Strength

The top tape requires a peel-off force of 0.2 to 0.7N in the direction of the arrow as illustrated below.



Dimensions (unit : m/m)

Type	A	B	C
HCI0805	2.60	0.75	1.40

Recommended Pattern

