Form No: XXXXX-7-0000-PBM02-190900XXX

Specification for Approval

Date: 2019/09/06

Customer : _____

TAI-TECH P/N: HPC6045NF-Series

CUSTOMER P/N:

DESCRIPTION:

QUANTITY: pcs

REMARK:

Customer Approval Feedback		

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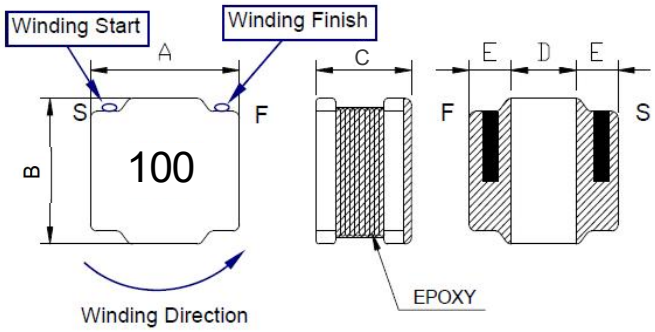
SMD Power Inductor

HPC6045NF-Series

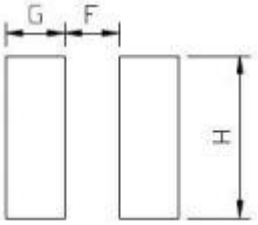
1. Features

1. This specification applies Low Profile Power Inductors.
2. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
3. Operating temperature :-40~+125℃ (Including self - temperature rise)

2. Dimension



Recommended Land pattern



Series	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)	G(mm)	H(mm)
HPC6045NF	6.0±0.3	6.0±0.3	4.7Max	2.6±0.3	1.7±0.3	2.4	1.8	5.7

3. Part Numbering

HPC	6045	NF	-	100	M
A	B	C		D	E

A: Series
B: Dimension — A/B*C
C: Type
D: Inductance — 2R2=2.20uH, 100= 10uH, 101= 100uH, 102= 1000uH
E: Inductance Tolerance — M=±20%,Y= ±30%

marking Color: Black,

4. Specification

Part Number	Inductance L0 (uH) @ 0 A	Tolerance	DCR(Ω) ±30%.	Isat(A) Max	Irms(A) Max	SRF(MHz) min
HPC6045NF-R82Y	0.82	±30%	0.008	10.35	5.90	140
HPC6045NF-1R0Y	1.00	±30%	0.011	9.85	5.14	100
HPC6045NF-1R2Y	1.20	±30%	0.010	8.35	5.40	100
HPC6045NF-1R5Y	1.50	±30%	0.012	8.80	4.95	65
HPC6045NF-1R8Y	1.80	±30%	0.012	7.60	4.95	74
HPC6045NF-2R2Y	2.20	±30%	0.014	6.75	4.60	52
HPC6045NF-3R3Y	3.30	±30%	0.024	5.90	3.70	32
HPC6045NF-4R7M	4.70	±20%	0.031	4.97	3.30	24
HPC6045NF-5R6M	5.60	±20%	0.034	4.15	3.15	23
HPC6045NF-6R8M	6.80	±20%	0.035	3.90	3.00	20
HPC6045NF-8R2M	8.20	±20%	0.043	3.90	2.60	21
HPC6045NF-100M	10.0	±20%	0.048	3.20	2.45	15
HPC6045NF-120M	12.0	±20%	0.058	2.80	2.20	13
HPC6045NF-150M	15.0	±20%	0.068	2.50	2.05	12
HPC6045NF-180M	18.0	±20%	0.081	2.20	1.85	10
HPC6045NF-220M	22.0	±20%	0.089	2.05	1.80	10
HPC6045NF-270M	27.0	±20%	0.102	1.90	1.65	9.2
HPC6045NF-330M	33.0	±20%	0.137	1.65	1.45	7.8
HPC6045NF-390M	39.0	±20%	0.180	1.50	1.25	7.8
HPC6045NF-470M	47.0	±20%	0.200	1.40	1.20	6.4
HPC6045NF-510M	51.0	±20%	0.207	1.35	1.15	6.4
HPC6045NF-560M	56.0	±20%	0.221	1.30	1.10	6.4
HPC6045NF-620M	62.0	±20%	0.235	1.25	1.10	6.4
HPC6045NF-680M	68.0	±20%	0.289	1.20	1.00	6.4
HPC6045NF-750M	75.0	±20%	0.305	1.15	0.95	5.0
HPC6045NF-820M	82.0	±20%	0.341	1.05	0.90	4.9
HPC6045NF-910M	91.0	±20%	0.359	1.00	0.85	4.9
HPC6045NF-101M	100	±20%	0.433	0.95	0.80	4.2
HPC6045NF-121M	120	±20%	0.484	0.85	0.77	4.2
HPC6045NF-151M	150	±20%	0.580	0.80	0.70	4.2
HPC6045NF-221M	220	±20%	0.834	0.70	0.59	3.5
HPC6045NF-331M	330	±20%	1.270	0.57	0.57	2.8
HPC6045NF-471M	470	±20%	1.800	0.50	0.42	2
HPC6045NF-681M	680	±20%	2.500	0.42	0.33	1.7
HPC6045NF-102M	1000	±20%	4.500	0.30	0.30	1.4
HPC6045NF-152M	1500	±20%	6.500	0.24	0.21	0.8

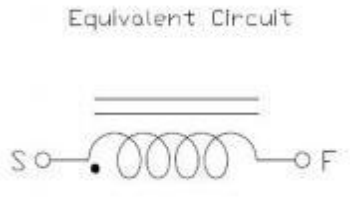
Note:

1.All test data referenced to 25℃ ambient , Ls:100KHz/1V.

2Isat: DC current at which the inductance drops approximate 30% from its value without current;

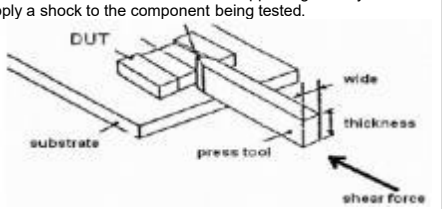
3.Irms: DC current that causes the temperature rise (ΔT =40。C) from 25。C ambient.

5. Schematic Diagram



6. Reliability and Test Condition

Item	Performance	Test Condition
Operating temperature	-40~+125℃ (Including self - temperature rise)	
Storage temperature	1. -10~+40℃,50~60%RH (Product with taping) 2. -40~+125℃(on board)	
Electrical Performance Test		
Inductance	Refer to standard electrical characteristics list.	HP4284A,CH11025,CH3302,CH1320,CH1320S LCR Meter.
DCR		CH16502,Agilent33420A Micro-Ohm Meter.
Saturation Current (Isat)	Approximately △L30%.	Saturation DC Current (Isat) will cause L0 to drop △L(%)
Heat Rated Current (Irms)	Approximately △T40℃	Heat Rated Current (Irms) will cause the coil temperature rise △T(℃) 1.Applied the allowed DC current 2.Temperature measured by digital surface thermometer
Reliability Test		
Life Test	Appearance：No damage. Inductance：within±10% of initial value Q：Shall not exceed the specification value. RDC：within ±15% of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles) Temperature： 125±2℃(Inductor) Applied current：rated current Duration：1000±12hrs Measured at room temperature after placing for 24±2 hrs
Load Humidity		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles Humidity：85±2％R.H, Temperature：85℃±2℃ Duration：1000hrs Min. with 100% rated current Measured at room temperature after placing for 24±2 hrs
Moisture Resistance		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles 1. Baked at50℃ for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to 65±2℃ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25℃ in 2.5hrs. 3. Raise temperature to 65±2℃ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25℃ in 2.5hrs,keep at 25℃ for 2 hrs then keep at -10℃ for 3 hrs 4. Keep at 25 ℃ 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at room temperature after placing for 1~2 hrs.
Thermal shock		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles Condition for 1 cycle Step1：-40±2℃ 30±5min Step2：25±2℃ ≦0.5min Step3：125±2℃ 30±5min Number of cycles： 500 Measured at room temperature after placing for 24±2 hrs
Vibration		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDECJ-STD-020DClassification Reflow Profiles) Oscillation Frequency: 10Hz～2KHz～10Hz for 20 minutes Equipment： Vibration checker Total Amplitude: 10g Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations)。

<table>
<tr><th>Item</th><th>Performance</th><th>Test Condition</th></tr>
<tr><td>Bending</td><td rowspan="2">Appearance：No damage.
Impedance：within±15% of initial value
Inductance：within±10% of initial value
Q：Shall not exceed the specification value.
RDC：within ±15% of initial value and shall not exceed the specification value</td><td>Shall be mounted on a FR4 substrate of the following dimensions: >=0805 inch(2012mm):40x100x1.2mm
<0805 inch(2012mm):40x100x0.8mm
Bending depth: >=0805 inch(2012mm):1.2mm
<0805 inch(2012mm):0.8mm
duration of 10 sec.</td></tr>
<tr><td>Shock</td><td>
<table>
<tr><th>Type</th><th>Peak value (g's)</th><th>Normal duration (D) (ms)</th><th>Wave form</th><th>Velocity change (Vi)ft/sec</th></tr>
<tr><td>SMD</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr>
<tr><td>Lead</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr>
</table>
</td></tr>
<tr><td>Solder ability</td><td>More than 95% of the terminal electrode should be covered with solder。</td><td>Preheat: 150℃,60sec.。
Solder: Sn96.5% Ag3% Cu0.5%
Temperature: 245±5℃。
Flux for lead free: Rosin. 9.5%。
Dip time: 4±1sec。
Depth: completely cover the termination</td></tr>
<tr><td>Resistance to Soldering Heat</td><td rowspan="2">Appearance：No damage.
Impedance：within±15% of initial value
Inductance：within±10% of initial value
Q：Shall not exceed the specification value.
RDC：within ±15% of initial value and shall not exceed the specification value e</td><td>Depth: completely cover the termination
<table>
<tr><th>Temperature(°C)</th><th>Time(s)</th><th>Temperature ramp/immersion and emersion rate</th><th>Number of heat cycles</th></tr>
<tr><td>260 ±5 (solder temp)</td><td>10 ±1</td><td>25mm/s ±6 mm/s</td><td>1</td></tr>
</table>
</td></tr>
<tr><td>Terminal Strength</td><td>Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles
With the component mounted on a PCB with the device to be tested, apply a force(>0805:1kg , <=0805:0.5kg)to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested.
 
</td></tr>
</table>

7. Soldering and Mounting

(1) Soldering

Mildly activated rosin fluxes are preferred. The minimum amount of solder can lead to damage from the stresses caused by the difference in coefficients of expansion between solder, chip and substrate. TAI-TECH terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

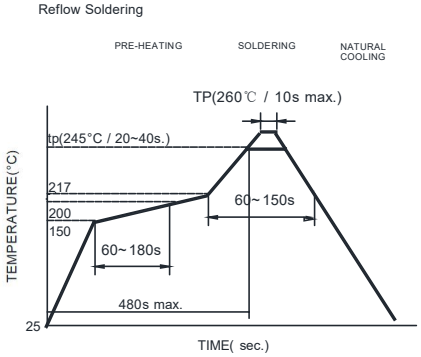
(2) Solder re-flow:

Recommended temperature profiles for re-flow soldering in Figure 1.

(3) Soldering Iron:

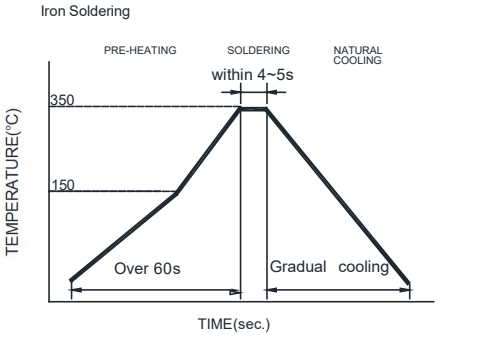
Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

. Preheat circuit and products to 150℃
. 355℃ tip temperature (max)
. Never contact the ceramic with the iron tip
. 1.0mm tip diameter (max)
. Use a 20 watt soldering iron with tip diameter of 1.0mm
. Limit soldering time to 4~5sec.



Reflow times: 3 times max.

Fig.1

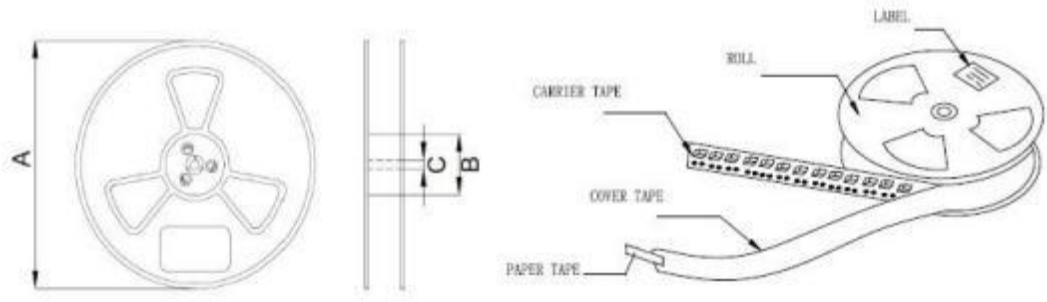


Iron Soldering times: 1 times max.

Fig.2

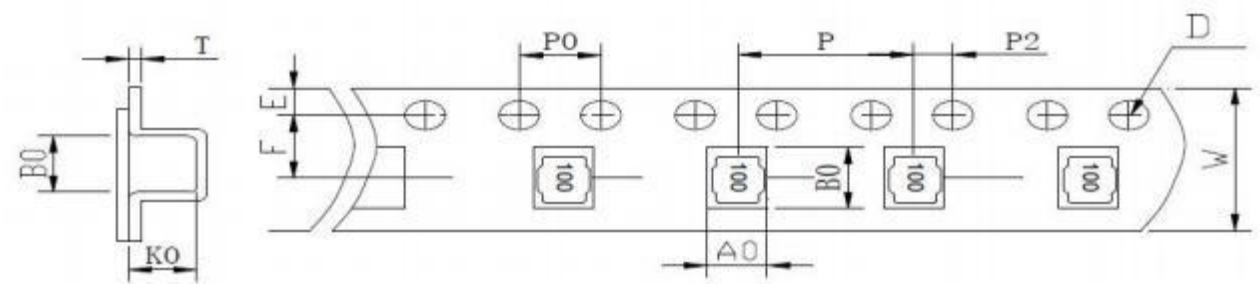
8. Packaging Information

(1) Reel Dimension



Type	A(mm)	B(mm)	C(mm)
HPC6045	330	100	13

(2) Tape Dimension

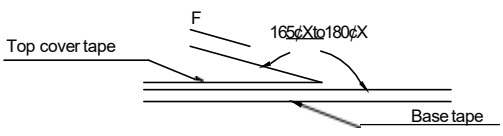


Series	Size	W(mm)	Ao(mm)	Bo(mm)	Ko(mm)	D(mm)	P (mm)
HPC	6045	16	6.4	6.4	4.8	1.5	8.0

(3) Packaging Quantity

HPC	6045
PCS/Reel	1000

(4) Tearing Off Force



The force for tearing off cover tape is 10 to 130 grams in the arrow direction under the following conditions(referenced ANSI/EIA-481-D-2008 of 4.11 standard).

Room Temp. (℃)	Room Humidity (%)	Room atm (hPa)	Tearing Speed mm/min
5~35	45~85	860~1060	300

Application Notice

. Storage Conditions (component level)
To maintain the solderability of terminal electrodes:
1. TAI-TECH products meet IPC/JEDEC J-STD-020D standard-MSL, level 1.
2. Temperature and humidity conditions: Less than 40℃ and 60% RH.
3. Recommended products should be used within 12 months form the time of delivery.
4. The packaging material should be kept where no chlorine or sulfur exists in the air.

. Transportation
1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
2. The use of tweezers or vacuum pick up is strongly recommended for individual components.
3. Bulk handling should ensure that abrasion and mechanical shock are minimized.

单击下面可查看定价，库存，交付和生命周期等信息

>>TAI-TECH(台庆)