

Specification for Approval

Date: 2019/03/21

Customer : 深圳台慶

TAI-TECH P/N: UHP252012BV-SERIES

CUSTOMER P/N: _____

DESCRIPTION: _____

QUANTITY: _____ pcs

REMARK:		
Customer Approval Feedback		

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Power Inductor

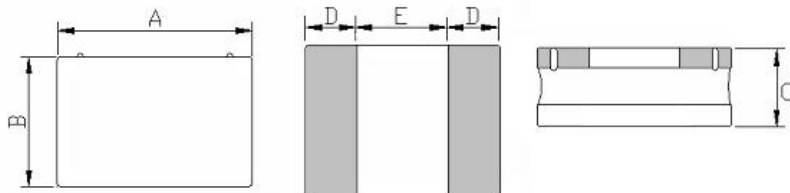
UHP252012BV-SERIES

1. Features

1. This specification applies Low Profile Power Inductors.
2. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
3. High reliability -Reliability tests comply with AEC-Q200
4. Operating temperature: -55~+125°C (Including self - temperature rise)

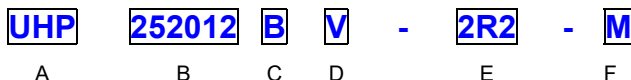


2. Dimension



Series	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
UHP252012BV	2.5 -0.1/+0.2	2.0 -0.1/+0.2	1.2 max.	0.85 ref.	0.80 ref.

3. Part Numbering



- A: Series
- B: Dimension
- C: Lead Free
- D: Cate gory Code V=Vehicle
- E: Inductance 2R2=2.2uH
- F: Inductance Tolerance M=±20%

4. Specification

TAI-TECH Part Number	Inductance (uH)	Tolerance (%)	Test Frequency (Hz)	DCR (Ω) ±20%	I sat (A) typ.	I sat (A) Max.	I rms (A) typ	I rms (A) Max.
UHP252012BV-R47Y	0.47	±30%	0.1V/1M	0.028	4.00	3.60	3.70	3.35
UHP252012BV-R68M	0.68	±20%	0.1V/1M	0.036	3.00	2.70	3.30	3.00
UHP252012BV-1R0Y	1.0	±30%	0.1V/1M	0.049	2.70	2.45	2.60	2.30
UHP252012BV-1R5Y	1.5	±30%	0.1V/1M	0.063	2.30	2.05	2.20	1.95
UHP252012BV-2R2M	2.2	±20%	0.1V/1M	0.080	2.15	1.95	1.85	1.65
UHP252012BV-3R3M	3.3	±20%	0.1V/1M	0.120	1.70	1.50	1.45	1.30
UHP252012BV-4R7M	4.7	±20%	0.1V/1M	0.176	1.50	1.35	1.20	1.05
UHP252012BV-6R8M	6.8	±20%	0.1V/1M	0.250	1.15	1.00	1.00	0.90
UHP252012BV-100M	10	±20%	0.1V/1M	0.410	0.85	0.75	0.75	0.65
UHP252012BV-150M	15	±20%	0.1V/1M	0.540	0.63	0.56	0.60	0.54
UHP252012BV-220M	22	±20%	0.1V/1M	0.850	0.56	0.50	0.50	0.45

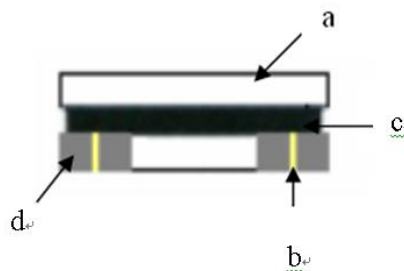
Note:

Isat: Saturation Current (Isat) will cause L0 to drop approximately 30%

Irms: Heat Rated Current (Irms) will cause the coil temperature rise approximately Δ40°C

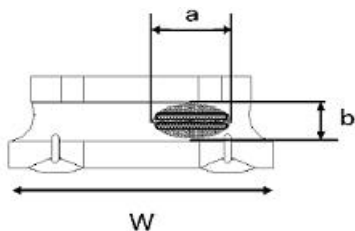
5. Material List

No.	Description	Specification
a.	Core	Ferrite Core
b.	Wire	Enameled Copper Wire
c.	Glue	Epoxy with magnetic powder
d.	Terminal	Ag/Ni/Sn



Void appearance tolerance Limit

Size of voids occurring to coating resin is specified below.

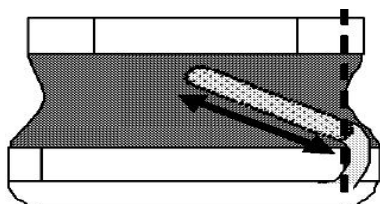


Appearance of exposed wire tolerance limit :

1. Width direction (dimension a): Acceptable when $a \leq w/2$
Nonconforming when $a > w/2$
2. Length direction (dimension b): Dimension b is not specified.
3. The total area of exposed wire occurring to each sides is not greater than 50% of coating resin area, and is acceptable.

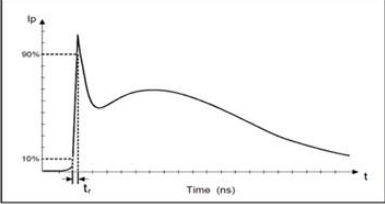
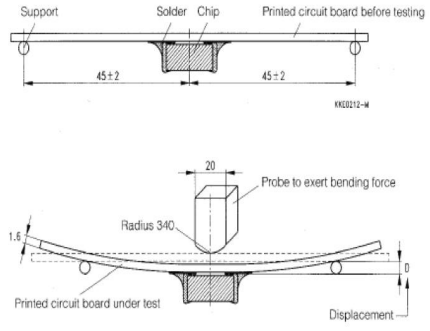
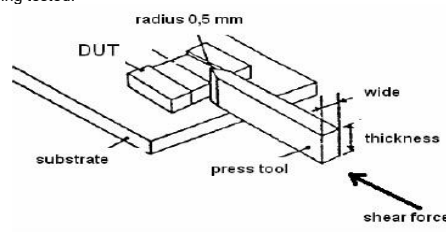
External appearance criterion for exposed wire

Exposed end of the winding wire at the secondary side should be 2mm and below.



6. Reliability and Test Condition

Item	Performance	Test Condition															
Operating temperature	-55~+155°C (Including self - temperature rise)																
Storage temperature and Humidity range	1. -10~+40°C,50~60%RH (Product with taping) 2. -55~+155°C (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 ΔL30%	Saturation DC Current (Isat) will cause L0 to drop ΔL(%)															
Heat Rated Current (Irms)	Approximately ΔT40°C	Heat Rated Current (Irms) will cause the coil temperature rise ΔT(°C). 1.Applied the allowed DC current 2.Temperature measured by digital surface thermometer															
Reliability Test																	
High Temperature Exposure(Storage) AEC-Q200	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	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles Temperature: 155±2°C(Inductor) Duration : 1000hrs Min. Measured at room temperature after placing for 24±2 hrs															
Temperature Cycling AEC-Q200		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles Condition for 1 cycle Step1: -55±2°C 30min Min.(Inductor) Step2: 155±2°C transition time 1min MAX. Step3: 155±2°C 30min Min. Step4: Low temp. transition time 1min MAX. Number of cycles: 1000 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 °C for 25hrs, measured at room temperature after placing for 4 hrs. 2.Raise temperature to 65±2°C 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25 °C in 2.5hrs. 3.Raise temperature to 65±2°C 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25 °C in 2.5hrs,keep at 25 °C for 2hrs then keep at -10°C for 3hrs 4.Keep at 25°C 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.															
Biased Humidity (AEC-Q200)		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles Humidity : 85±3 % R.H, Temperature: 85 °C±2 °C Duration : 1000hrs Min Measured at room temperature after placing for24±2hrs															
High Temperature Operational Life (AEC-Q200)		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles Temperature: 155±2°C(Inductor) Duration : 1000hrs Min. with 100% rated current. Measured at room temperature after placing for24±2hrs															
External Visual		Appearance: No damage.	Inspect device construction, marking and workmanship. Electrical Test not required.														
Physical Dimension	According to the product specification size measurement	According to the product specification size measurement															
Resistance to Solvents	Appearance: No damage.	Add aqueous wash chemical - OKEM clean or equivalent.															
Mechanical Shock	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	<table border="1"> <thead> <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> </thead> <tbody> <tr> <td>SMD</td> <td>100</td> <td>6</td> <td>Half-sine</td> <td>12.3</td> </tr> <tr> <td>Lead</td> <td>100</td> <td>6</td> <td>Half-sine</td> <td>12.3</td> </tr> </tbody> </table> shocks in each direction along 3 perpendicular axes.	Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)ft/sec	SMD	100	6	Half-sine	12.3	Lead	100	6	Half-sine	12.3
Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)ft/sec													
SMD	100	6	Half-sine	12.3													
Lead	100	6	Half-sine	12.3													

Item	Performance	Test Condition								
Vibration		IPC/JEDEC J-STD-020D Classification Reflow Profiles Oscillation Frequency: 10~2K~10Hz for 20 minute Equipment: Vibration checker Total Amplitude: 1.52mm±10% Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations).								
Resistance to Soldering Heat	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	Test condition : <table border="1" data-bbox="975 412 1430 510"> <thead> <tr> <th>Temperature(°C)</th> <th>Time(s)</th> <th>Temperature ramp/immersion and emersion rate</th> <th>Number of heat cycles</th> </tr> </thead> <tbody> <tr> <td>260±5(solder temp)</td> <td>10±1</td> <td>25mm/s ±6 mm/s</td> <td>1</td> </tr> </tbody> </table>	Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles	260±5(solder temp)	10±1	25mm/s ±6 mm/s	1
Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles							
260±5(solder temp)	10±1	25mm/s ±6 mm/s	1							
Thermal shock (AEC-Q200)		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles Condition for 1 cycle Step1: -55±2°C 15±1min(Inductor) Step2: 155±2°C within 20Sec. Step3: 155±2°C 15±1min Number of cycles: 300 Measured at room tempraturc after placing fo24±2hrs								
ESD	Appearance: No damage.									
Solderability	More than 95% of the terminal electrode should be covered with solder.	a. Method B, 4 hrs @155°C dry heat @235°C±5°C b. Method B @ 215°C±5°C category 3.(8hours ± 15 min) c. Method D category 3. (8hours ± 15 min)@ 260°C±°C Preheat: 150°C,60sec. Solder: Sn96.5% Ag3% Cu0. 5% Temperature: 245±5°C . Flux for lead free: Rosin. 9.5%. Dip time: 4±1sec. Depth: completely cover the termination								
Electrical Characterization	Refer Specification for Approval	Summary to show Min, Max, Mean and Standard deviation .								
Flammability	Electrical Test not required.	V-0 or V-1 are acceptable.								
Board Flex	Appearance: No damage	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles Place the 100mm X 40mm board into a fixture similar to the one shown in below Figure with the component facing down. The apparatus shall consist of mechanical means to apply a force which will bend the board (D) x = 2 mm minimum. The duration of the applied forces shall be 60 (+ 5) sec. The force is to be applied only once to the board. 								
Terminal Strength(SMD)	Appearance: No damage	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles With the component mounted on a PCB with the device to be tested, apply a 17.7 N (1.8 Kg) force 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. 								

Note : When there are questions concerning measurement result : measurement shall be made after 48 ± 2 hours of recovery under the standard condition.

7. Soldering and Mounting

7-1. Soldering

Mildly activated rosin fluxes are preferred. TAI-TECH terminations are suitable for all wave and re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

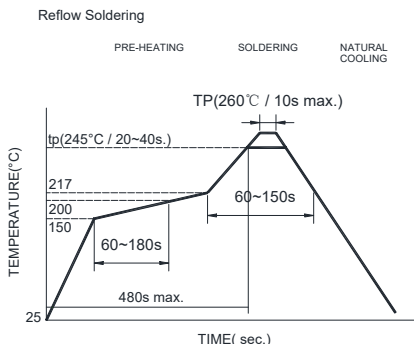
7-1.1 Solder re-flow:

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

7-1.2 Soldering Iron(Figure 2):

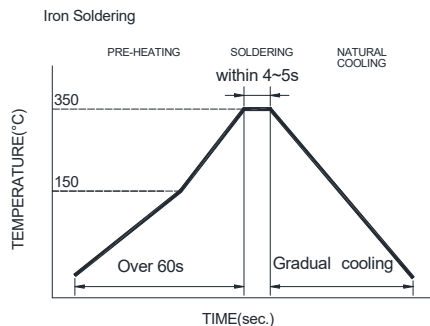
Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

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



Reflow times: 3 times max.

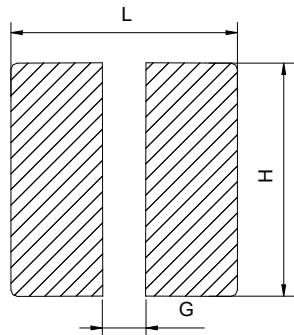
Fig.1



Iron Soldering times: 1 times max.

Fig.2

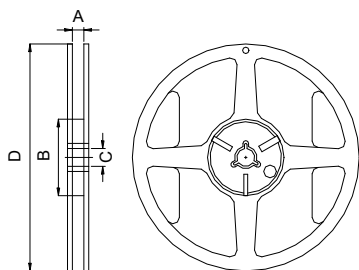
7-2. Recommended PC Board Pattern



L(mm)	G(mm)	H(mm)
2.6	0.8	2.1

8. Packaging Information

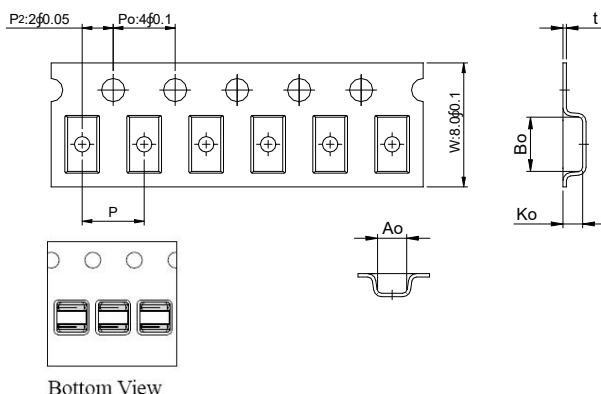
8-1. Reel Dimension



7"x8mm

Type	A(mm)	B(mm)	C(mm)	D(mm)
7"x8mm	8.4±1.0	50 min.	13±0.8	178±2

8-2. Tape Dimension / 8mm

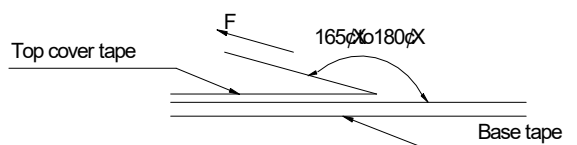


Series	Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	t(mm)
UHP	252012	3.10±0.1	2.45±0.1	1.40±0.1	4.0±0.1	0.23±

8-3. Packaging Quantity

Chip size	252012
Chip / Reel	2000

8-4. Tearing Off Force



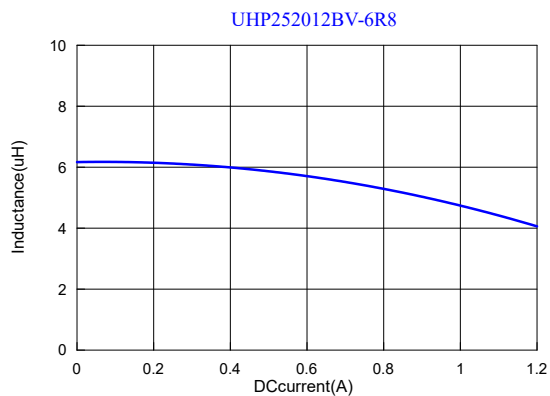
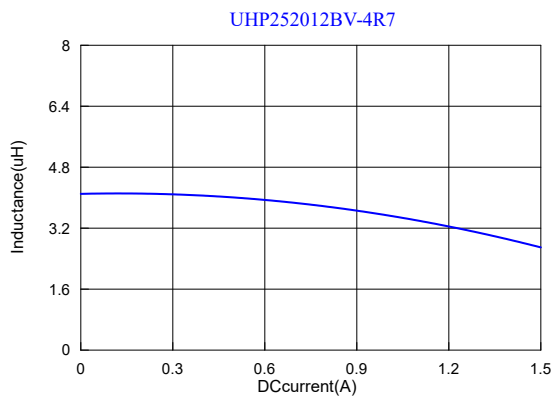
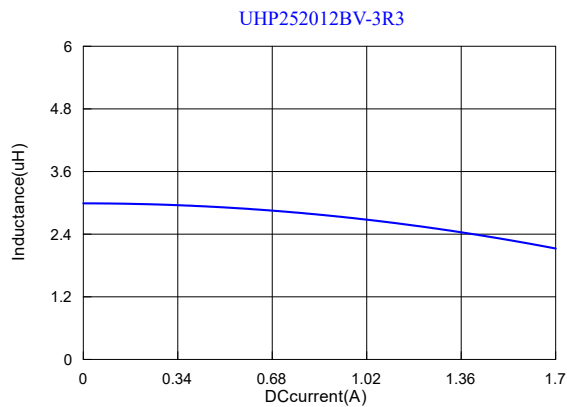
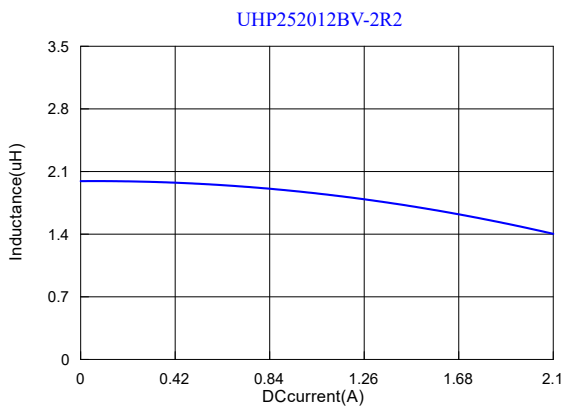
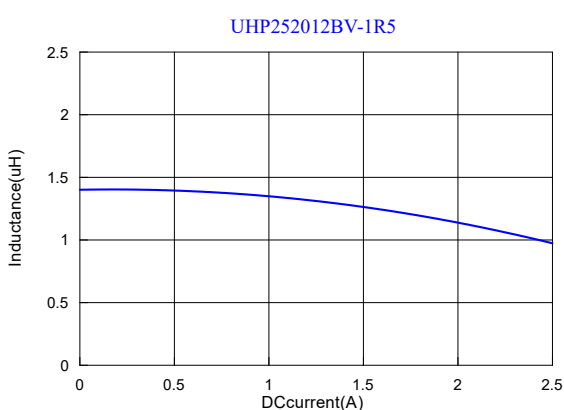
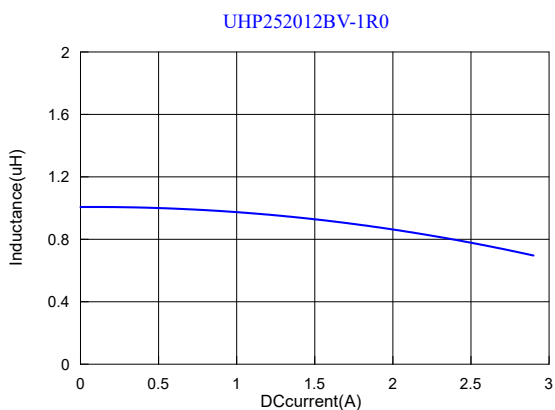
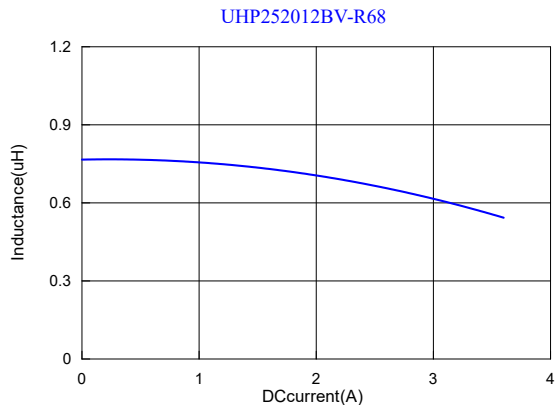
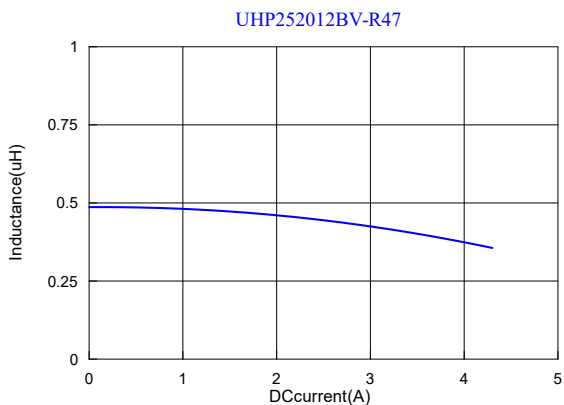
The force for tearing off cover tape is 15 to 80 grams in the arrow direction under the following conditions.

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

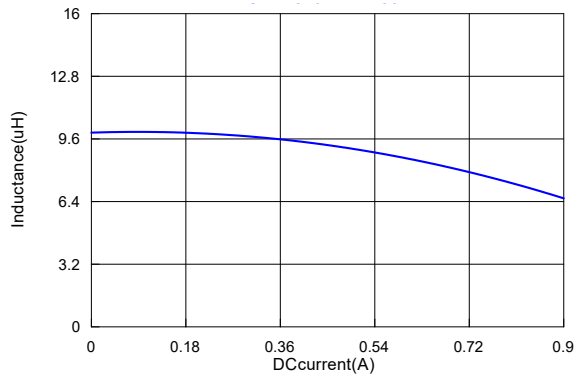
Application Notice

- 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°C 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.

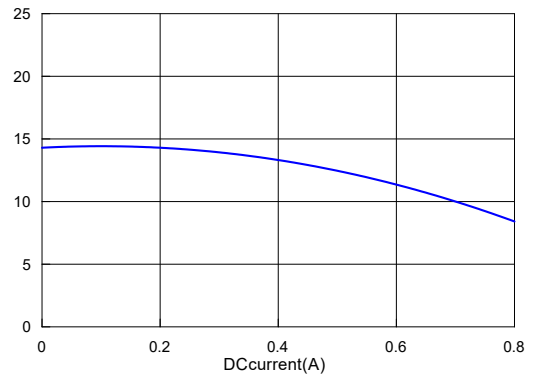
9. Typical Performance Curves



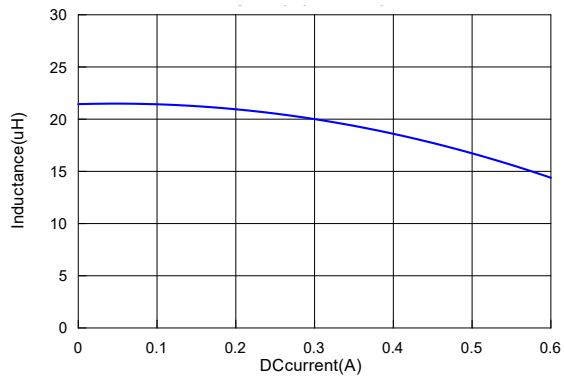
UHP252012BV-100



UHP252012BV-150



UHP252012BV-220



单击下面可查看定价，库存，交付和生命周期等信息

[>>TAI-TECH\(台庆\)](#)