

Specification for Approval

Date: 2017/08/01

Customer : 深圳臺慶

TAI-TECH P/N: PAS3012EF-681K

CUSTOMER P/N: _____

DESCRIPTION: _____

QUANTITY: _____ pcs

REMARK:		
Customer Approval Feedback		

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Telecoil-antennas Inductors

PAS3012EF-681K

ECN HISTORY LIST

REV	DATE	DESCRIPTION	APPROVED	CHECKED	DRAWN
1.0	17/08/01	新發行	楊祥忠	詹偉特	張展耀
備 註					

Telecoil-antennas Inductor

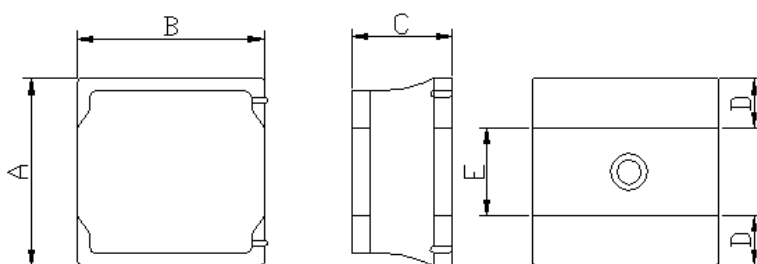
PAS3012EF-681K

1. Features

1. Hearing Aid Compatibility-/ Telecoil -antennas;
2. PAS3012F-series realizes small size and low profile. .3.0x3.0x1.2 mm.
3. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
4. Meets the T3/T4 FCC .Requirements (HAC-Act) acc. ANSI C63.19



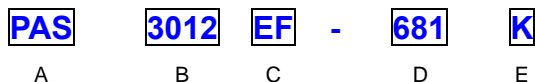
2. Dimension



Series	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
PAS3012	3.0±0.2	3.0±0.2	1.2 max.	1.0 ref.	1.0 ref.

Units: mm

3. Part Numbering



- A: Series
 B: Dimension
 C: Lead Free Material
 D: Inductance 681=680uH
 E: Inductance Tolerance K=±10%

4. Specification

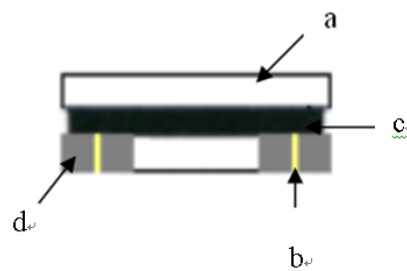
Part Number	Inductance (uH) ±10%	Test Frequency (KHz)	SRF MHz(typ)	RDC(Ω) Max.	Rated current (mA)Max.
PAS3012EF-681K	680	10	5.0	22	80

Note:

1. Test frequency : Inductor(L) : 10KHz /0.1V;
2. All test data referenced to 25℃ ambient.
3. Testing Instrument : L/Q: Agilent-4192A, Agilent-16334A ; Irms:CH3302,CH1320 ; SRF: Agilent-4291B ; RDC: Agilent-34420A
4. Rated Current (Irms) will cause the coil temperature rise approximately Δt of 20℃ .

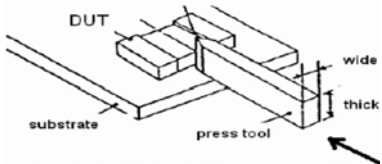
5. Material

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



6. Reliability and Test Condition

Item	Performance	Test Condition
Operating temperature	-40~+125°C (Including self - temperature rise)	
Storage temperature	-40~+125°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)	$\Delta L \leq 30\%$ typical.	Saturation DC Current (Isat) will cause L0 to drop $\Delta L(\%)$ (keep quickly).
Heat Rated Current (Irms)	Approximately $\Delta T \leq 40^\circ\text{C}$	Heat Rated Current (Irms) will cause the coil temperature rise $\Delta T(^\circ\text{C})$ without core loss. 1. Applied the allowed DC current(keep 1 min.). 2. Temperature measured by digital surface thermometer
Reliability Test		
Life Test	Appearance : No damage. Inductance : within $\pm 10\%$ of initial value Q : Shall not exceed the specification value. RDC : within $\pm 15\%$ of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DC Classification Reflow Profiles) Temperature : $125 \pm 2^\circ\text{C}$ (Inductor) Applied current : rated current Duration : 1000 \pm 12hrs Measured at room temperature after placing for 24 \pm 2 hrs
Load Humidity		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DC Classification Reflow Profiles) Humidity : 85 \pm 2%R.H. Temperature : $85^\circ\text{C} \pm 2^\circ\text{C}$ Duration : 1000hrs Min. with 100% rated current Measured at room temperature after placing for 24 \pm 2 hrs
Moisture Resistance		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DC Classification Reflow Profiles) 1. Baked at 50°C for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to $65 \pm 2^\circ\text{C}$ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs. 3. Raise temperature to $65 \pm 2^\circ\text{C}$ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs, keep at 25°C for 2 hrs then keep at -10°C for 3 hrs 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.
Thermal shock		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DC Classification Reflow Profiles) Condition for 1 cycle Step1 : $-40 \pm 2^\circ\text{C}$ 30 \pm 5min Step2 : $25 \pm 2^\circ\text{C} \leq 0.5$ min Step3 : $125 \pm 2^\circ\text{C}$ 30 \pm 5min Number of cycles : 500 Measured at room temperature after placing for 24 \pm 2 hrs
Vibration		Oscillation Frequency: 10 ~ 2K ~ 10Hz for 20 minutes Equipment : Vibration checker Total Amplitude: 1.52mm \pm 10% Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations).

Item	Performance	Test Condition															
Bending		Shall be mounted on a FR4 substrate of the following dimensions: ≥ 0.805 inch(2012mm):40x100x1.2mm < 0.805 inch(2012mm):40x100x0.8mm Bending depth: ≥ 0.805 inch(2012mm):1.2mm < 0.805 inch(2012mm):0.8mm duration of 10 sec.															
Shock	Appearance : No damage. Inductance : within $\pm 10\%$ of initial value Q : Shall not exceed the specification value. RDC : within $\pm 15\%$ 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 (V)ft/sec</th> </tr> </thead> <tbody> <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> </tbody> </table>	Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (V)ft/sec	SMD	50	11	Half-sine	11.3	Lead	50	11	Half-sine	11.3
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SMD	50	11	Half-sine	11.3													
Lead	50	11	Half-sine	11.3													
Solder ability	More than 95% of the terminal electrode should be covered with solder.	Preheat: 150°C,60sec. Solder: Sn96.5% Ag3% Cu0.5% Temperature: 245 ± 5 °C Flux for lead free: Rosin. 9.5% Dip time: 4 ± 1 sec Depth: completely cover the termination															
Resistance to Soldering Heat		Depth: completely cover the termination <table border="1"> <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							
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260 ± 5 (solder temp)	10 ± 1	25mm/s ± 6 mm/s	1														
Terminal Strength	Appearance : No damage. Inductance : within $\pm 10\%$ of initial value Q : Shall not exceed the specification value. RDC : within $\pm 15\%$ of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020Classification Reflow Profiles With the component mounted on a PCB with the device to be tested, apply a force($> 0.805:1$ kg , $\leq 0.805:0.5$ kg)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. 															

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.

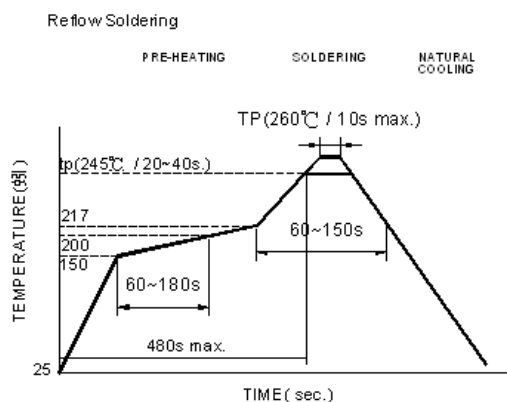
7-1.1 Solder re-flow:

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

7-1.2 Soldering Iron(Figure 2):

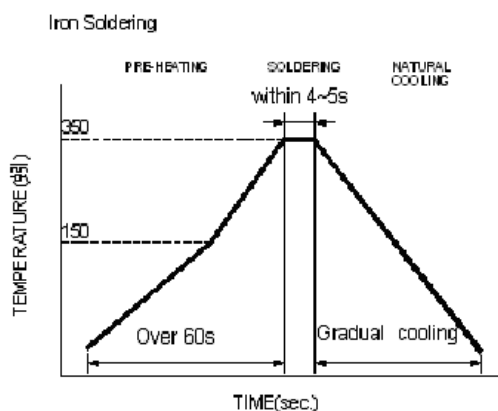
Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

- 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.

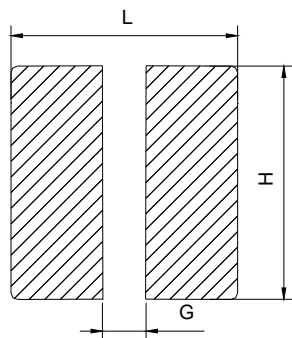
Fig.1



Iron Soldering times: 1 times max.

Fig.2

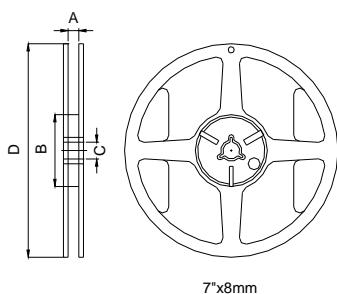
7-2. Recommended PC Board Pattern



L(mm)	G(mm)	H(mm)
3.2	1.0	3.2

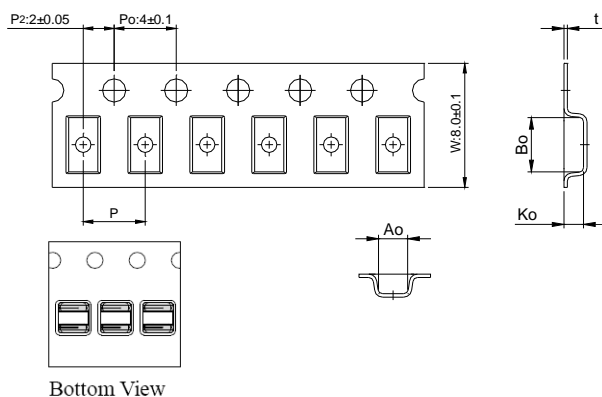
8. Packaging Information

8-1. Reel Dimension



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

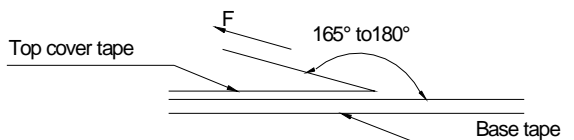


Series	Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	t(mm)
PAS	3012	3.2±0.05	3.2±0.05	1.40±0.2	4.0±0.05	0.23±0.05

8-3. Packaging Quantity

Chip size	3012
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.