Telecoil-antennas Inductors

PAS1225V-SERIES

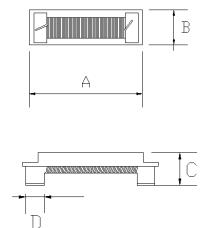
1. Features

- 1. Hearing Aid Compatibility-/Telecoil-antennas;
- 2. PAS1225V-series realizes small size and low profile. 11.6x3.8x2.5mm.
- 3. 100% Lead (Pb) & Halogen-Free and RoHS compliant.
- 4. Meets the T3/T4 FCC requirements (HAC) . ANSI C63.19
- 5. High reliability -Reliability tests comply with AEC-Q200
- 6. Operating temperature -55~+125°C (Including self temperature rise)

2. Applications

- 1. T-coil/HAC-coil for hearing and aid compatible cell phones.
- 2. Decoupling in RF and IF-circuit.
- 3. Transponder antenna.

3. Dimensions



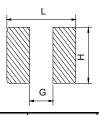
	Halogeni
	Halogen-free
Ī	



Size	A(mm)	B(mm)	C(mm)	D(mm)
PAS1225V	11.6±0.3	3.8±0.3	2.5±0.3	1.50 ref.

Unit:mm

Recommend PC Board Pattern



L(mm)	G(mm)	H(mm)
11.6	8.0	3.6

4. Part Numbering



A: Series

B: Dimension L x H
C: Category Code V=Vehicle
D: Inductance 101=100uH
E: Inductance Tolerance K=±10%, J=±5%

5. Specification

Part Number	Inductance (uH)	Test Frequency (Hz)	Q min.	RDC (Ω)max.	Rated current (mA) max.	SRF (MHz) min.
PAS1225V-101K	100±10%	0.1V/125K	20	3	300	20.0
PAS1225V-201K	200±10%	0.1V/125K	20	6	200	2.00
PAS1225V-492J	4900±5%	0.1V/125K	20	50	50	0.34
PAS1225V-722J	7200±5%	0.1V/125K	40	40	50	0.30

Telecoil-antennas Inductor

PAS6420V-SERIES

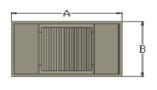
1. Features

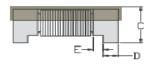
- 1. Hearing Aid Compatibility-/Telecoil-antennas;
- 2. PAS6420V-series realizes small size and low profile. 6.4x2.3x2.0 mm.
- 3. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
- 4. Meets the T3/T4 FCC requirements(HAC-Act) acc. ANSI C63.19
- 5. High reliability -Reliability tests comply with AEC-Q200
- 6. Operating temperature -55~+125 $^{\circ}$ C (Including self temperature rise)

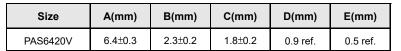
2. Applications

- 1. T-coil/HAC-coil for hearing and aid compatible cell phones.
- 2. Decoupling in RF and IF-circuit.
- 3. Transponder antenna.

3. Dimensions







Unit:mm

Recommend PC Board Pattern



L(mm)	G(mm)	H(mm)
7.0	4.6	2.0

4. Part Numbering



A: Series

B: Dimension L x H
C: Category Code V=Vehicle
D: Inductance 702=7000 uHE: Inductance Tolerance $K=\pm 10\%, J=\pm 5\%$

5. Specification

Part Number	Inductance (uH)	fLo (kHz)	SRF KHz(min)	RDC(Ω) MAX	Rated current (mA)Max.
PAS6420V-522J	5200±5%	125	520	113	30
PAS6420V-622J	6200±5%	125	488	123	30
PAS6420V-702J	7000±5%	125	420	125	20
PAS6420V-722K	7200±10%	125	450	130	15



Telecoil-antennas Inductor

PAS8027V-SERIES

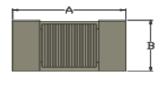
1. Features

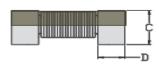
- 1. Hearing Aid Compatibility-/Telecoil-antennas;
- 2. PAS8027V-series realizes small size and low profile. 7.85x2.7x2.7 mm
- 3. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
- 4. Meets the T3 FCC requirements (HAC-Act) acc. ANSI C63.19
- 5. High reliability -Reliability tests comply with AEC-Q200
- 6. Operating temperature -55~+125°C (Including self temperature rise)

2. Applications

- 4. T-coil/HAC-coil for hearing and aid compatible cell phones.
- 5. Decoupling in RF and IF-circuit.
- 6. Transponder antenna.

3. Dimensions

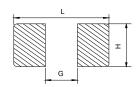






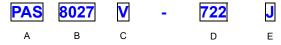
Units: mm

Recommend PC Board Pattern



L(mm)	G(mm)	H(mm)
9.5	5.2	2.9

4. Part Numbering



- A: Series
- **B**: Dimension
- C: Lead Free Code V=Vehicle
 D: Inductance 722=7.2 mH
 E: Inductance Tolerance J=±5%

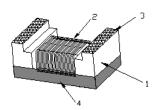
5. Specification

Part Number	Inductance (mH) ±5%	Test Frequency (Hz)	Q Typ.	RDC (Ω) max	Rated current (mA) max.
PAS8027V-452J	4.5	125K	30	80	20
PAS8027V-492J	4.9	125K	30	85	20
PAS8027V-722J	7.2	125K	35	105	20
PAS8027V-193J	18.52	125K	35	240	20





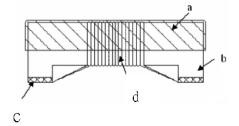
6. Material List (8027V)



NO	Items	Materials
1	Core	Ferrite
2	Wire	Copper Wire
3	Terminal	Ag/Ni/Sn
4	Adhesive	UV or Epoxy

6. Material List (1225V / 6420V)

No.	Description	Specification
a.	Upper Plate	UV Glue
b.	Core	Ferrite Core
С	Termination	Ag/Ni/Sn
d	Wire	Enameled Copper Wire



7. Reliability and Test Condition

Item	Performance	Test Condition		
Operating temperature	-55~+125℃ (Including self - temperature rise)			
Storage temperature	-55+125℃(on board)			
Electrical Performance Tes	st			
Inductance L		Agilent E4991A , Keysight E4991B ,Keysight 4980AL		
Q		Agilent-4287, Agilent-4285		
SRF	Refer to standard electrical characteristic list	Agilent E4991A , Keysight E4991B		
DC Resistance		Agilent-34420A		
Rated Current		Agilent-4338B Applied the current to coils, the inductance change shall be less than		
		20% to initial value.		
Reliability Test				
High Temperature Exposure(Storage) AEC-Q200		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Temperature: 125±2°C Duration: 1000hrs Min. Measured at room temperature after placing for 24±4 hrs.		
Temperature Cycling AEC-Q200		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles Condition for 1 cycle Step1: -55±2°C 30min Min. Step2: 125±2°C transition time 1min MAX. Step3: 125±2°C 30min Min. Step4: Low temp. Transition time 1min MAX. Number of cycles: 1000 Measured at room temperature after placing for 24±4 hrs.		
Moisture Resistance (AEC-Q200)	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	t=24 hours/cycle. Note: Steps 7a & 7b not required. Unpowered. Measurement at 24±2 hours after test conclusion. 10		
Biased Humidity (AEC-Q200)		J-STD-020E Classification Reflow Profiles) Humidity: 85±3% R.H, Temperature: 85℃±2℃ Duration: 1000hrs Min. Measured at room temperature after placing for24±4hrs		
High Temperature Operational Life (AEC-Q200)		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Temperature: 125±2℃ Duration: 1000hrs Min. with 100% rated current. Measured at room temperature after placing for24±4hrs		
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		Add aqueous wash chemical - OKEM clean or equivalent.		
Mechanical 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	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		
		3 shocks in each direction along 3 perpendicular axes. (18 shocks).		

Item	Performance	Test Condition
Vibration		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Oscillation Frequency: 10Hz ~ 2kHz ~ 10Hz for 20 minutes Equipment: Vibration checker Total Amplitude: 5g Testing Time: 12 hours(20 minutes, 12 cycles each of 3 orientations)
Resistance to Soldering Heat	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	Temperature (°C) Time(s) Temperature ramp/immersion of heat cycles 260 ±5 (solder temp) 10 ±1 25mm/s ±6 mm/s 1 Depth: completely cover the termination Continental Temperature sme 25°C to peak temperature component Temperature sme 25°C to peak temperature temperature sme 25°C to peak temperature temperature sme 25°C to peak temperature ramp down Time Temperature sme 25°C to peak temperature ramp down ramp down ramp down Time Ti
Thermal shock (AEC-Q200)		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Condition for 1 cycle Step1: -55±2°C 15±1min Step2: 125±2°C within 20Sec. Step3: 125±2°C 15±1min Number of cycles: 300 Measured at room temperature after placing for 24±4hrs.
ESD	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	Direct Contact and Air Discharge PASSIVE COMPONENT HBM ESD Discharge Waveform to a Coaxial Target Test method: AEC-Q200-002 Test mode: Contact Discharge Discharge level: 4 KV (Level: 2)
Solderability	More than 95% of the terminal electrode should be covered with solder	a. Method B, 4hrs @155°C dry heat @235°C±5°C
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.

Item	Performance	Test Condition
Board Flex	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 reflow for 3 times. (IPC/JEDEC J-STD-020E 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. Support Solder Chip Printed circuit board before testing
Terminal Strength(SMD)	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 reflow for 3 times.(IPC/JEDEC J-STD-020E 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. radius 0,5 mm DUT wide thickness shear force

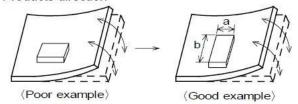
8. Soldering and Mounting

8-1. Attention regarding P.C.B. bending

The following shall be considered when designing P.C.B.'S

(1)P.C.B. shall be designed so that products are not subjected to the mechanical stress for board warpage.

<Products direction>



Products shall be located in the sideways direction (Length:a<b) to against the mechanical stress.

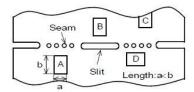
(2) Products location on P.C.B.

Products (A,B,C,D) shall be located carefully

to prevent mechanical stress when warping the board.

Products may be subjected to the mechanical

stress in the order of A>C>B \rightleftharpoons D.



Mildly activated rosin fluxes are preferred. 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.

8-2. Soldering

Mildly activated rosin fluxes are preferred. 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.

8-2.1 Soldering Reflow:

Recommended temperature profiles for lead free re-flow soldering in Figure 1. Table 1.1&1.2 (J-STD-020E)

8-2.2 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. (Figure 2.)

- $\boldsymbol{\cdot}$ Never contact the ceramic with the iron tip
- Use a 20 watt soldering iron with tip diameter of 1.0mm

- 350°C tip temperature (max)
- 1.0mm tip diameter (max)
- Limit soldering time to 4~5sec.

Fig.1 Soldering Reflow

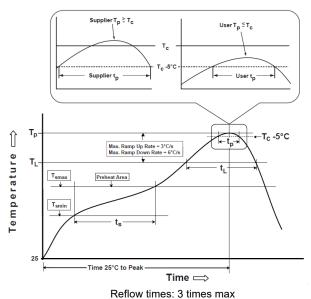
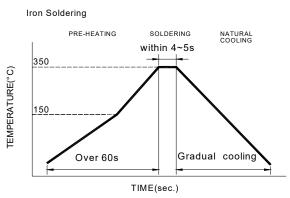


Fig.2 Iron soldering temperature profiles



Iron Soldering times: 1 times max

Table (1.1): Reflow Profiles

Profile Type:	Pb-Free Assembly
Preheat -Temperature Min(T _{smin}) -Temperature Max(T _{smax}) -Time(t _s)from(T _{smin} to T _{smax})	150°C 200°C 60-120seconds
Ramp-up rate(T_L to T_p)	3°C/second max.
$\label{eq:Liquidus} \begin{array}{c} \text{Liquidus temperature}(T_L) \\ \text{Time}(t_L) \\ \text{maintained above } T_L \end{array}$	217°C 60-150 seconds
Classification temperature(T _c)	See Table (1.2)
$\label{eq:total_final} \mbox{Time}(t_p) \mbox{ at Tc-} 5^{\circ}\mbox{\mathbb{C}} (\mbox{Tp should be equal to or less than Tc.})$	< 30 seconds
Ramp-down rate(T _p to T _L)	6°C /second max.
Time 25℃ to peak temperature	8 minutes max.

Tp: maximum peak package body temperature, **Tc**: the classification temperature.

For user (customer) **Tp** should be equal to or less than **Tc**.

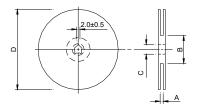
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

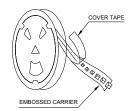
	Package	Volume mm ³	Volume mm ³	Volume mm ³
	Thickness	<350	350-2000	>2000
	<1.6mm	260°C	260°C	260°C
PB-Free Assembly	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

Reflow is referred to standard IPC/JEDEC J-STD-020E ∘

9. Packaging Information

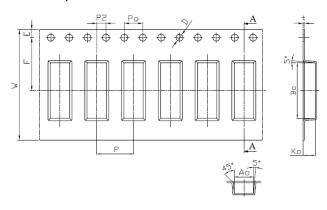
9-1 Reel Dimension





Туре	A(mm)	B(mm)	C(mm)	D(mm)
13"x24mm	24.0±0.5	100.0±2.0	13.5±0.5	330

9-2 Tape Dimension

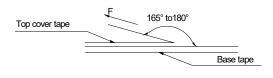


Series	W(mm)	P(mm)	E(mm)	F(mm)	P2(mm)	D(mm)	P0(mm)	Ao(mm)	Bo(mm)	Ko(mm)	t(mm)
PAS1225	24.00±0.3	8.00±0.1	1.75±0.1	11.50±0.1	2.00±0.1	1.50+0.1/-0	4.00±0.1	4.20±0.1	12.05±0.1	2.65±0.1	0.35±0.05

9-3. Packaging Quantity

Chip size	1225
Reel	1000
Reel Size	13"x24mm

9-4. Tearing Off Force



The force for tearing off cover tape is 10 to 80 grams in the arrow direction under the following conditions(referenced ANSI/EIA-481-C-2003 of 4.11 stadnard).

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

Application Notice

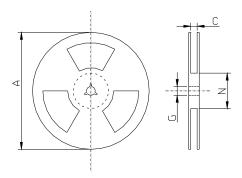
Storage Conditions(component level)

To maintain the solderability of terminal electrodes:

- 1. TAI-TECH products meet IPC/JEDEC J-STD-020E standard-MSL, level 1.
- 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.

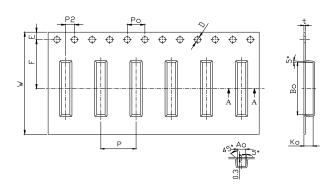
9. Packaging Information

9-1. Reel Dimension



Туре	A(mm)	C(mm)	G(mm)	N(mm)
7"x16mm	180.0±2.0	16.5±1.0	13.5±0.5	100.0±2.0

9-2. Tape Dimension / 16mm

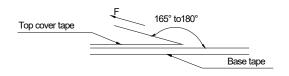


9-3. Packaging Quantity

Chip size	6420	
Reel	1000	
Reel Size	7"x16mm	

Series	Size	P(mm)	Po(mm)	P2(mm)	Bo(mm)	Ao(mm)	Ko(mm)	t(mm)
PAS	6420	8.0±0.1	4.0±0.1	2.0±0.1	6.7±0.10	2.5±0.10	2.2±0.10	0.3±0.05
Series	Size	D(mm)	E(mm)	F(mm)	W(mm)			
PAS	6420	1.5+0.1/-0	1.75±0.1	7.5±0.1	16±0.30			

9-4. Tearing Off Force



The force for tearing off cover tape is 10 to 80 grams in the arrow direction under the following conditions(referenced ANSI/EIA-481-C-2003 of 4.11 stadnard).

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

Application Notice

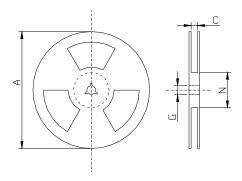
· Storage Conditions

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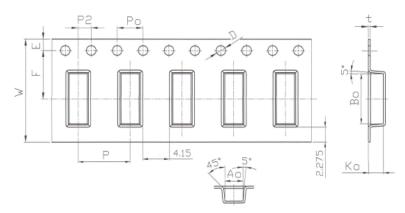
9. Packaging Information

9-1. Reel Dimension



Туре	A(mm)	C(mm)	G(mm)	N(mm)
7"x16mm	180.0±2.0	16.5±1.0	13.5±0.5	100.0±2.0

9-2. Tape Dimension / 16mm

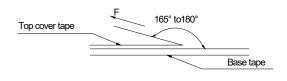


9-3. Packaging Quantity

Chip size	8027		
Reel	1000		
Reel Size	7"x16mm		

Series	Size	P(mm)	Po(mm)	P2(mm)	Bo(mm)	Ao(mm)	Ko(mm)	t(mm)
PAS	8027	8.0±0.1	4.0±0.1	2.0±0.1	7.9±0.10	2.8±0.10	2.35±0.10	0.3±0.05
Series	Size	D(mm)	E(mm)	F(mm)	W(mm)			
PAS	8027	1.5+0.1/-0	1.75±0.1	7.5±0.1	16±0.30			

9-4. Tearing Off Force



The force for tearing off cover tape is 10 to 80 grams in the arrow direction under the following conditions(referenced ANSI/EIA-481-C-2003 of 4.11 stadnard).

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

Application Notice

· Storage Conditions

To maintain the solderability of terminal electrodes:

- 1. TAI-TECH products meet IPC/JEDEC J-STD-020E standard-MSL, level 1.
- 3. Recommended products should be used within 12 months form the time of delivery.
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