

AT7020 Series 【Preliminary】

Multilayer Chip Antenna

Features

- ❖ Monolithic SMD with small, low-profile and light-weight type.
- ❖ Wide bandwidth

Applications

- ❖ 2.4GHz WLAN, Home RF, Bluetooth Modules, etc.



Specifications

Part Number	Frequency Range (MHz)	Peak Gain (dBi typ.)	Average Gain (dBi typ.)	VSWR	Impedance
AT7020-E3R0HBA_	2400~2500	0dBi (XZ-V)	-2dBi (XZ-V)	2 max.	50 Ω

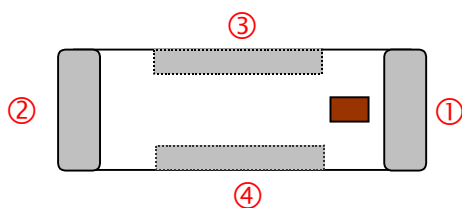
Q'ty/Reel (pcs) : 1,000 pcs
 Operating Temperature Range : -40 ~ +85 °C
 Storage Temperature Range : -40 ~ +85 °C
 Power Capacity : 3W max.

Part Number

AT **7020** - **E** **3R0** **HBA** **□**
 ① ② ③ ④ ⑤ ⑥

① Type	AT : Antenna	② Dimensions (L x W)	7.0x 2.0 mm
③ Material Code	E	④ Frequency Range	3R0=3000MHz
⑤ Specification Code	HBA	⑥ Packaging	T: Tape & Reel B: Bulk

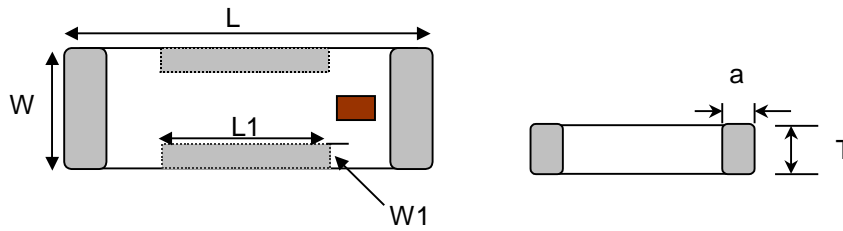
Terminal Configuration



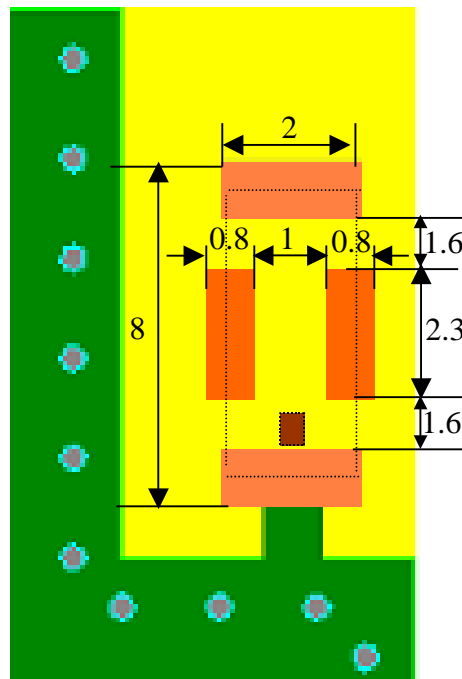
No.	Terminal Name	No.	Terminal Name
①	Feeding Point	③	NC
②	NC	④	NC

Dimensions and Recommended PC Board Pattern

Unit : mm



Mark	L	W	L1	W1	T	a
Dimensions	7.0±0.2	2.0±0.2	2.3±0.2	0.5±0.2	2.0+ 0.1/-0.2	0.5±0.3

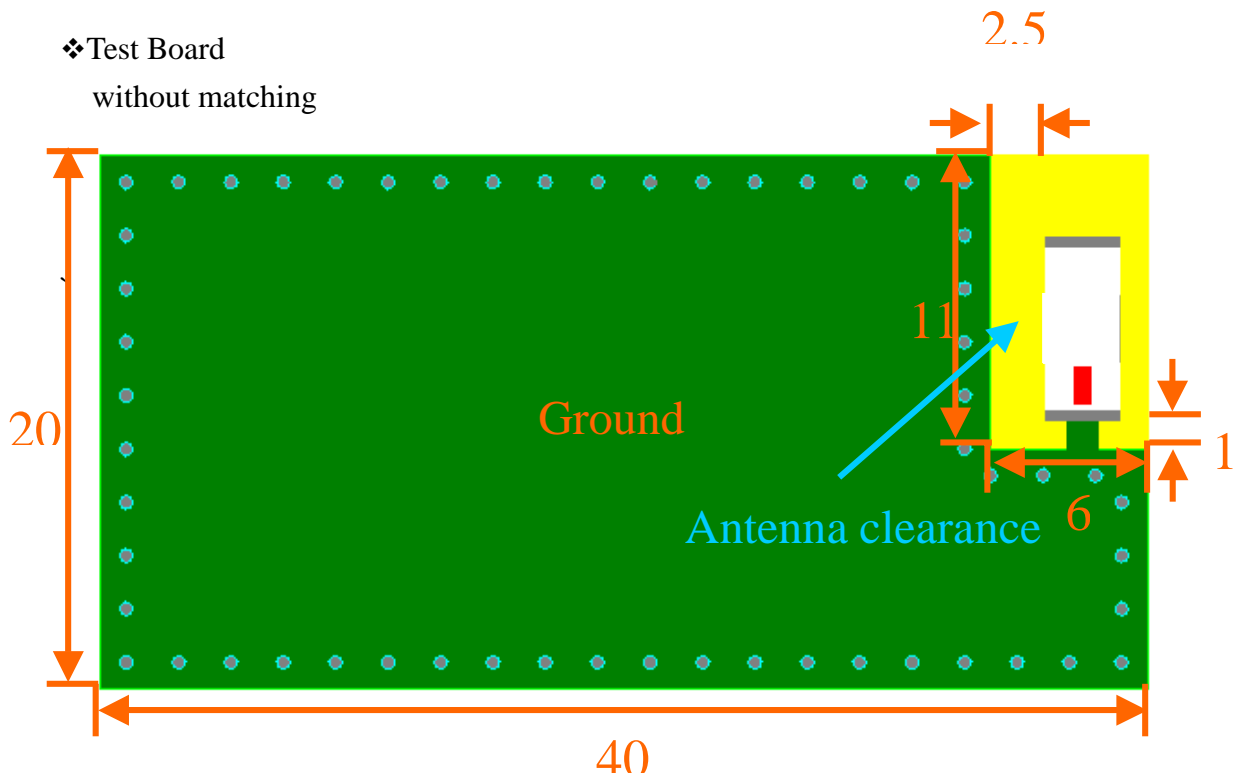


(Matching circuit and component values will be different, depending on PCB layout)

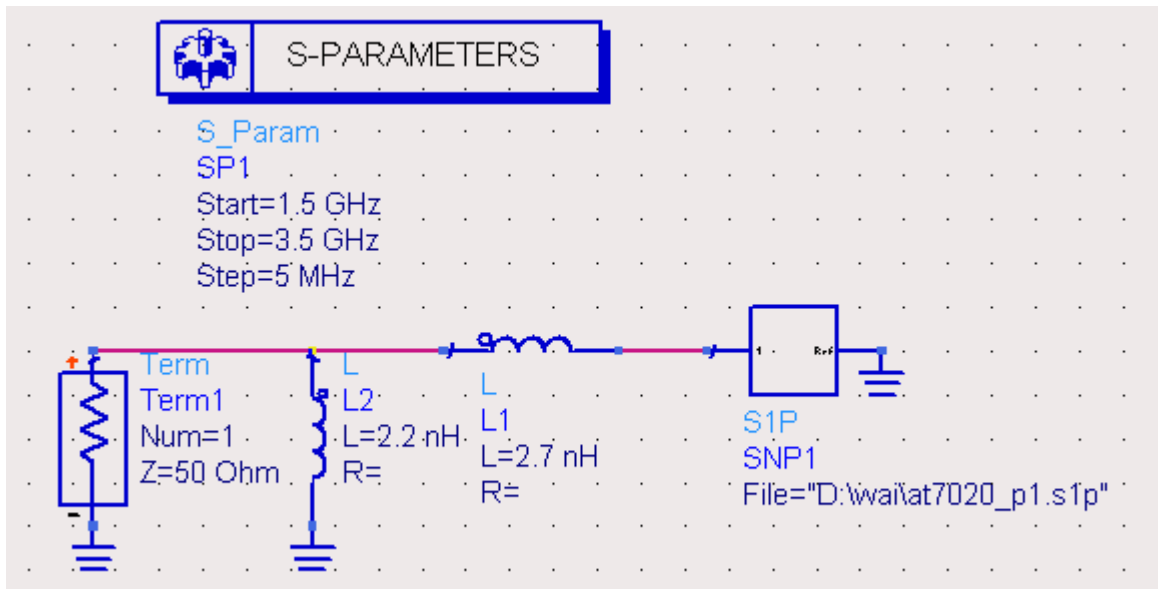
*Line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

Typical Electrical Characteristics (T=25°C)

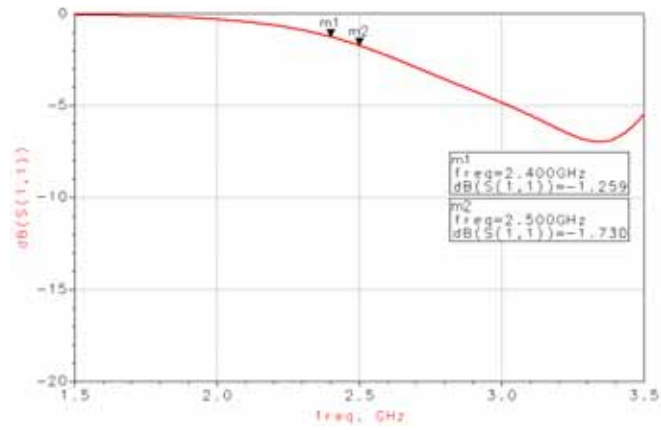
❖ Test Board
without matching



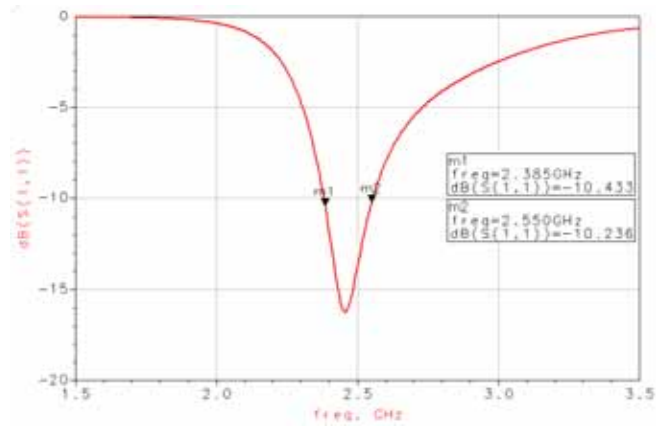
with matching circuits



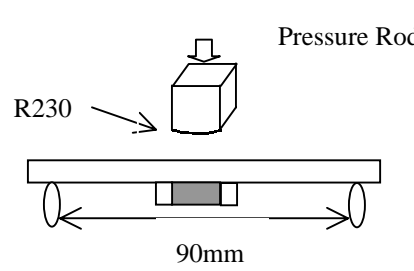
❖ Return Loss
without matching



with matching

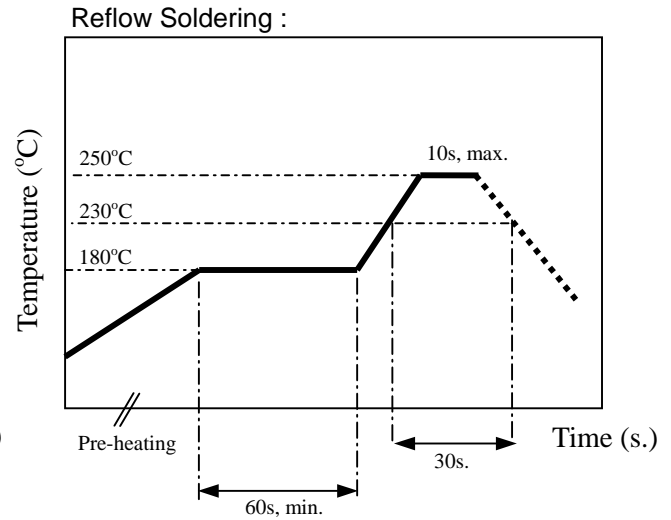
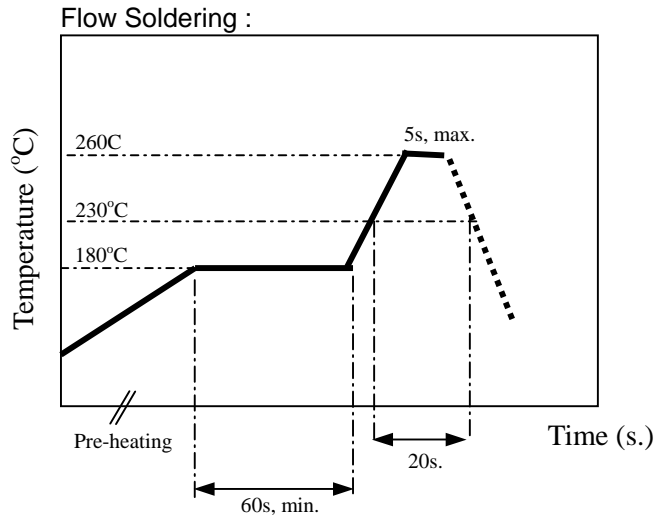


Mechanical & Environmental Characteristics

	Requirements	Procedure
Solderability	<ol style="list-style-type: none"> No apparent damage More than 75% of the terminal electrode shall be covered with new solder 	<ol style="list-style-type: none"> Preheat: $120 \pm 5^\circ\text{C}$ Solder: $230 \pm 5^\circ\text{C}$ for 5 ± 1 sec
Thermal shock (Temperature Cycle)	<ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification after test 	<ol style="list-style-type: none"> One cycle/ step 1: $85 \pm 5^\circ\text{C}$ for 20sec step 2: $-40 \pm 3^\circ\text{C}$ for 20sec Cycle time: 30min No. of cycles: 100 Recovery: 1-2hrs
Heat Resistance	<ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification after test 	<ol style="list-style-type: none"> Temperature: $85 \pm 2^\circ\text{C}$ Duration: 24 ± 2hrs Recovery: 1-2hrs
Low Temperature Resistance	<ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification after test 	<ol style="list-style-type: none"> Temperature: $-40 \pm 5^\circ\text{C}$ Duration: 24 ± 2hrs Recovery: 1-2hrs
Humidity Resistance	<ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification after test 	<ol style="list-style-type: none"> Temperature: $85 \pm 2^\circ\text{C}$ Humidity: 80% ~ 85% RH Duration: 1000 ± 48hrs Recovery: 1-2hrs
Soldering strength (Push strength)	<ol style="list-style-type: none"> 9.8N minimum 	<ol style="list-style-type: none"> Solder specimen onto test jig. Apply push force at 0.5mm/s until electrode pads are peeled off or ceramic are broken. Pushing force is applied to longitude direction
Deflection (Bending)	<ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification 	<ol style="list-style-type: none"> Solder specimen onto test jig (FR4, 0.8mm) using the recommend soldering profile. Apply a bending force of 2mm deflection 
Drop Shock	<ol style="list-style-type: none"> No apparent damage 	<ol style="list-style-type: none"> Dropped onto hard wood from height of 50 cm for 3 times ; each x,y and z direction except terminal direction

Typical Soldering Profile

❖ Typical Soldering Profile for Lead-free Process



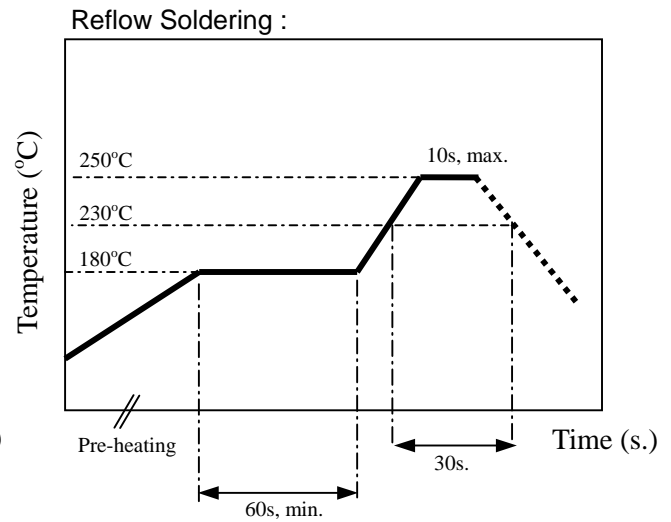
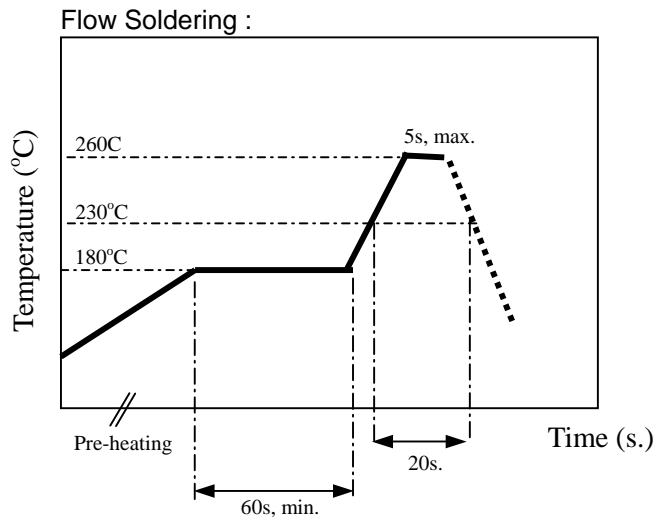
The sample must be pre-heated before soldering .The temperature difference between preheating and soldering must be within 150 .

Notes

❖The contents of this data sheet are subject to change without notice. Please confirm the specifications and delivery conditions when placing your order.

Soldering Conditions

❖ Typical Soldering Profile for Lead-free Process

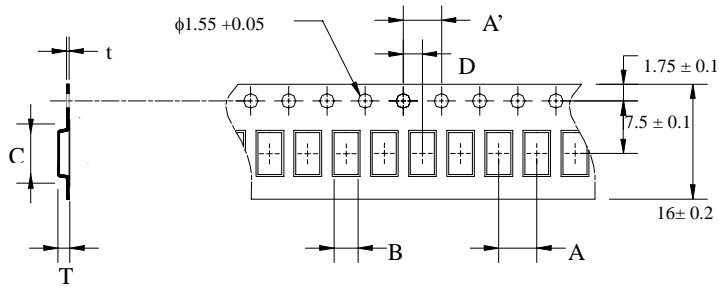


Notes

❖ The contents of this data sheet are subject to change without notice. Please confirm the specifications and delivery conditions when placing your order.

Taping Specifications

❖ Tape Dimensions (Unit: mm)

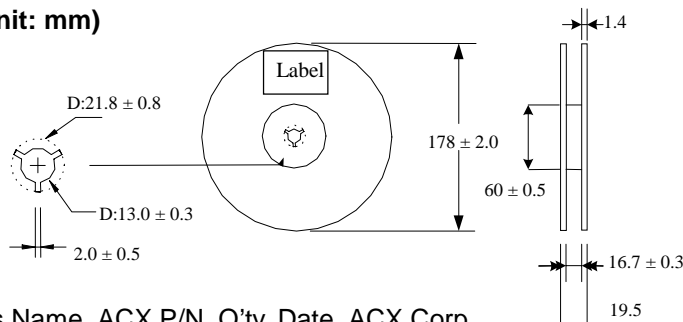


Type	A	A'	B	C	D	t	T
3216	4.0±0.1	4.0±0.1	1.9±0.1	3.5±0.1	2.0±0.1	0.20±0.05	Max. 1.4
5020	4.0±0.1	4.0±0.1	2.4±0.1	5.5±0.1	2.0±0.1	0.20±0.05	Max. 1.4
7020	4.0±0.1	4.0±0.1	2.4±0.1	7.3±0.1	2.0±0.1	0.22±0.05	Max. 1.55
7635	8.0±0.1	4.0±0.1	3.75±0.1	7.85±0.1	2.0±0.1	0.30±0.05	Max. 1.40
8516	4.0±0.1	4.0±0.1	1.85±0.1	8.70±0.1	2.0±0.1	0.25±0.05	Max. 1.40
9520	4.0±0.1	4.0±0.1	2.3±0.1	9.7±0.1	2.0±0.1	0.22±0.05	Max. 1.45
R130	8.0±0.1	4.0±0.1	3.35±0.1	10.35±0.1	2.0±0.1	0.25±0.05	Max. 1.40

❖ Quantity

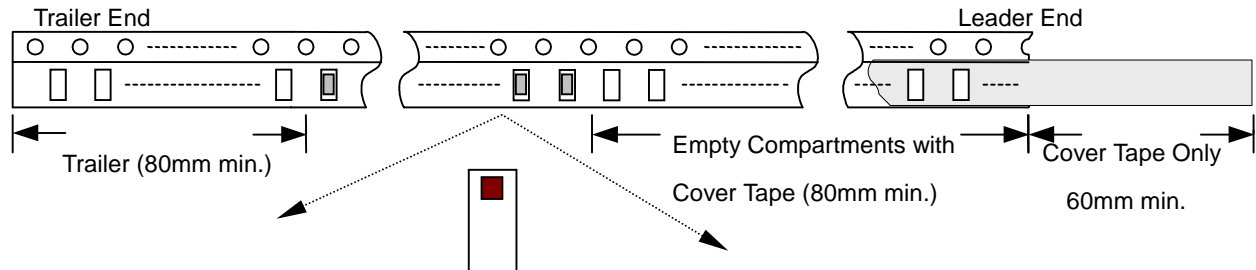
Type	3216	5020	7020	7635	8516	9520	R130
Quantity /per reel	3,000pcs	2,000	1,000 pcs	1,000 pcs	1000pcs	1,000 pcs	1,000 pcs

❖ Reel Dimensions (Unit: mm)

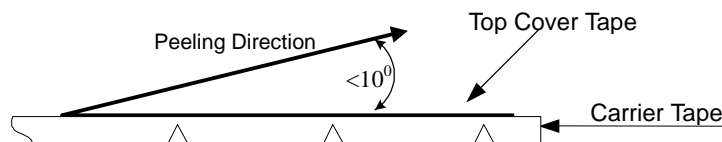


Label: Customer's Name, ACX P/N, Q'ty, Date, ACX Corp.

❖ Leader and Trailer Tape (Plastic material)



❖ Peel-off Force



Peel-off force should be in the range of 0.1 – 0.6 N at a peel-off speed of 300±10 mm/min .

❖ **Storage Conditions**

- (1) Temperature: 15 ~35 , relative humidity (RH): 45~75%.
- (2) Non-corrosive environment
- (3) Products should be used within six months of receipt.

Notes

❖ The contents of this data sheet are subject to change without notice. Please confirm the specifications and delivery conditions when placing your order.