

AT5020 Series

Multilayer Chip Antenna

Features

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

Applications

- ❖ Bluetooth/Wireless LAN/Home RF
- ❖ ISM band 2.4GHz applications



Specifications

Part Number	Frequency Range (MHz)	Peak Gain (XZ-V)	Average Gain (XZ-V)	VSWR	Impedance
AT5020 -B2R8HAA	2400 ~ 2500	0 dBi typ.	-1 dBi typ.	2 max.	50 Ω

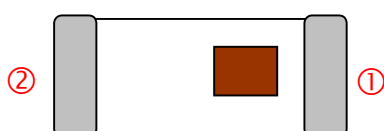
Q'ty/Reel (pcs) : 2,000pcs
 Operating Temperature Range : -40 ~ +85 °C
 Storage Temperature Range : -40 ~ +85 °C
 Power Capacity : 3W max.

Part Number

AT 5020 - B 2R8 HAA □ □
 ① ② ③ ④ ⑤ ⑥ ⑦

① Type	AT : Antenna	② Dimensions (L × W)	5.0× 2.0 mm
③ Material Code	B	④ Frequency Range	2R8=2800MHz
⑤ Specification Code	HAA	⑥ Packaging	T: Tape & Reel B: Bulk
⑦ Soldering	=lead-containing /LF=lead-free		

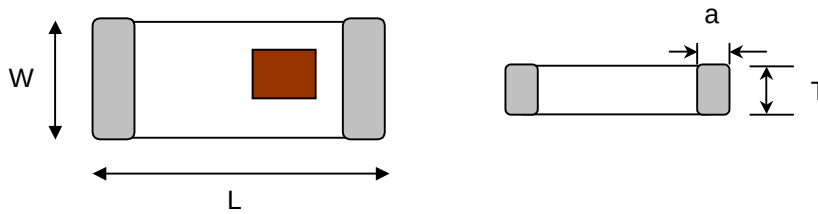
Terminal Configuration



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

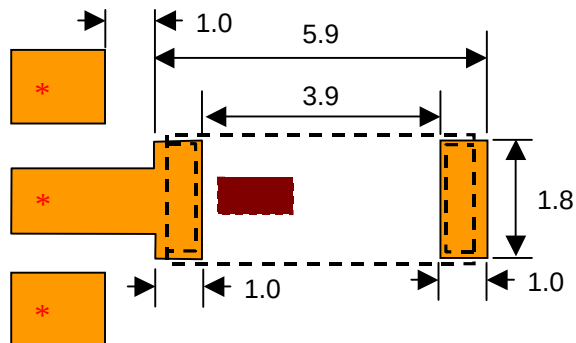
Dimensions and Recommended PC Board Pattern

Unit : mm

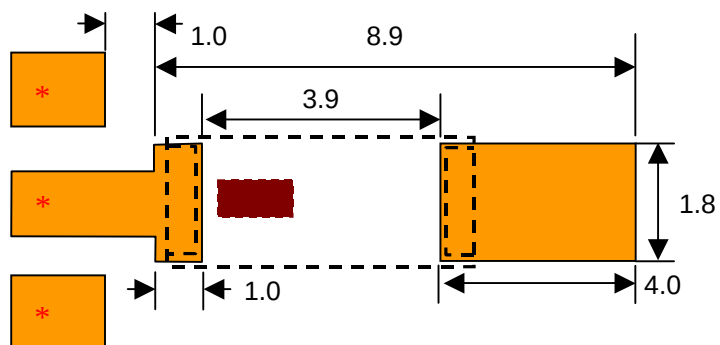


Mark	L	W	T	a
Dimensions	5.0 ± 0.2	2.0 ± 0.2	1.1 ± 0.2	0.5 ± 0.3

(a) Without Matching Circuits



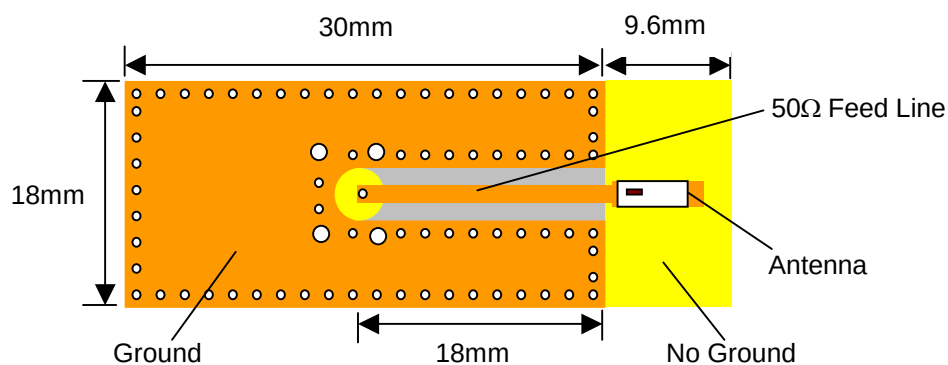
(b) With Matching Circuits



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

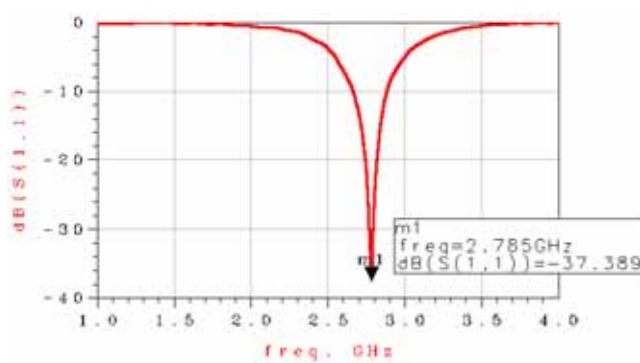
Typical Electrical Characteristics (T=25°C)

❖ Test Board

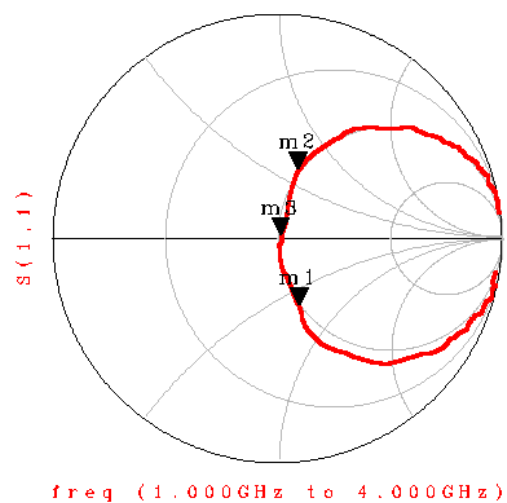
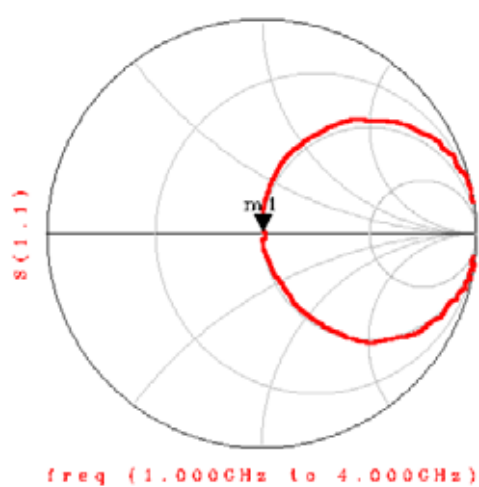
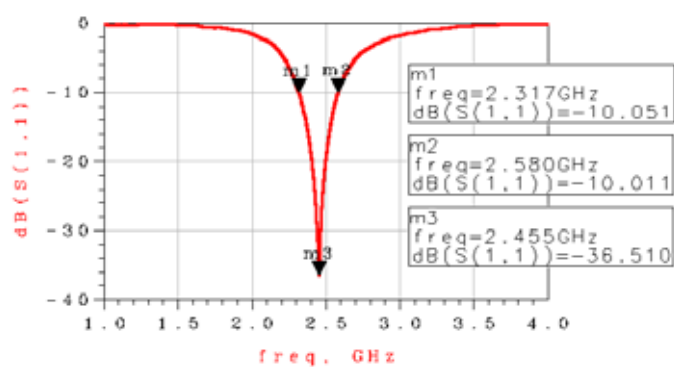


❖ Return Loss

(a) Without Matching Circuits

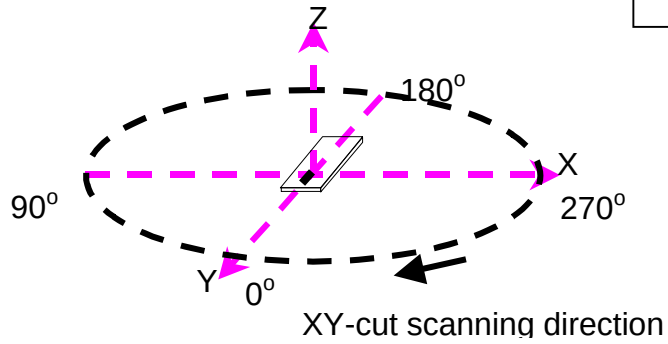


(b) With Matching Circuits

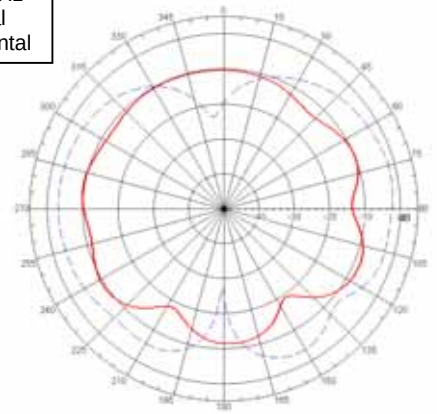


Radiation Patterns

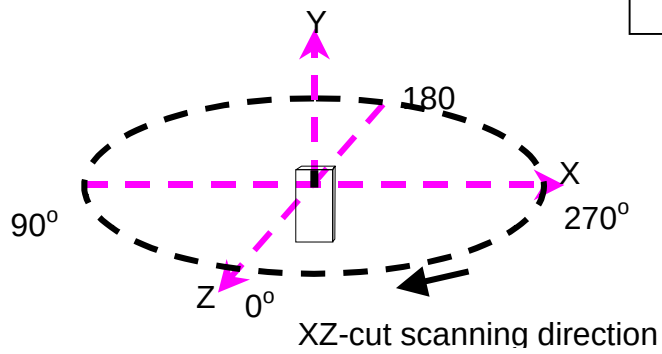
XY-V/XY-H



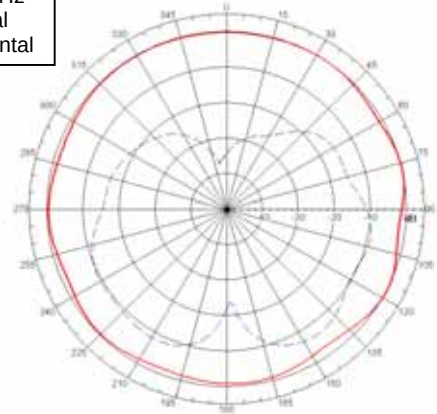
XY cut @2.45GHz
— Vertical
- - Horizontal



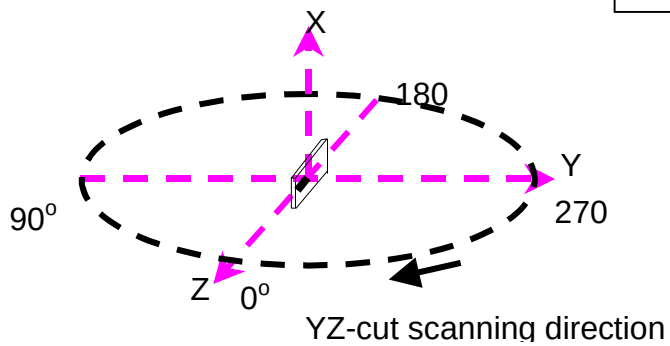
XZ-V/XZ-H



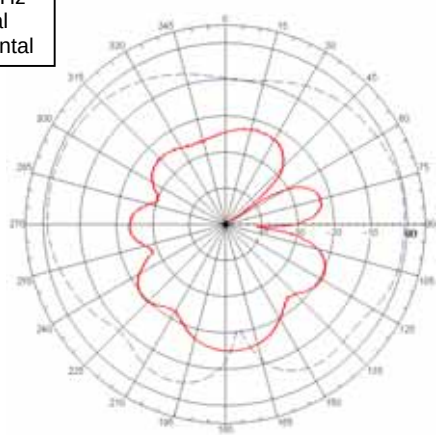
XZ cut @2.45GHz
— Vertical
- - Horizontal



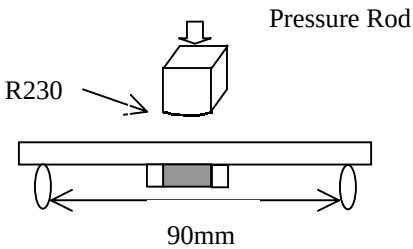
YZ-V/YZ-H



XY cut @2.45GHz
— Vertical
- - Horizontal

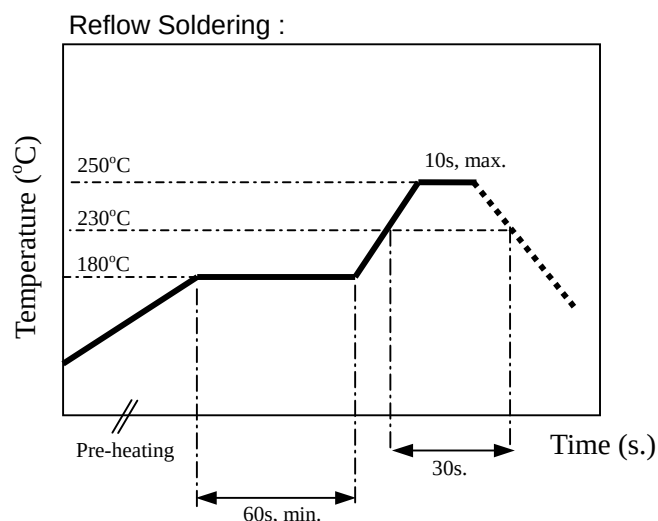
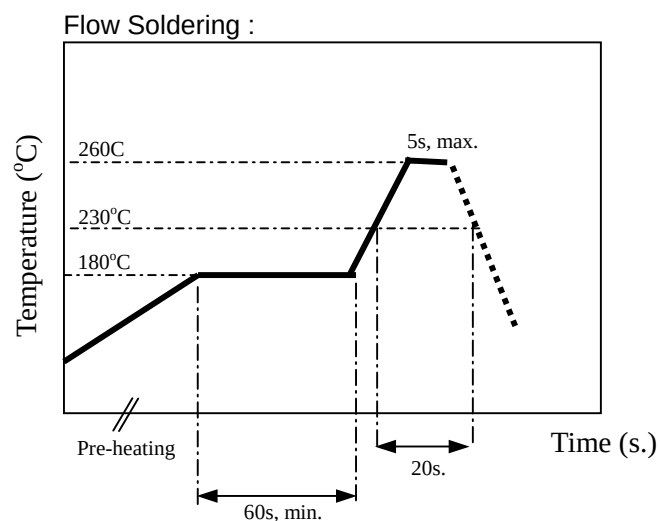


Mechanical & Environmental Characteristics

	Requirements	Procedure
Solderability	1. No apparent damage 2. More than 75% of the terminal electrode shall be covered with new solder	1. Preheat: $120 \pm 5^{\circ}\text{C}$ 2. Solder: $230 \pm 5^{\circ}\text{C}$ for 5 ± 1 sec
Thermal shock (Temperature Cycle)	1. No apparent damage 2. Fulfill the electrical specification after test	1. One cycle/ step 1: $85 \pm 5^{\circ}\text{C}$ for 20sec step 2: $-40 \pm 3^{\circ}\text{C}$ for 20sec 2. Cycle time: 30min 3. No. of cycles: 100 4. Recovery: 1-2hrs
Heat Resistance	1. No apparent damage 2. Fulfill the electrical specification after test	1. Temperature: $85 \pm 2^{\circ}\text{C}$ 2. Duration: 24 ± 2hrs 3. Recovery: 1-2hrs
Low Temperature Resistance	1. No apparent damage 2. Fulfill the electrical specification after test	1. Temperature: $-40^{\circ} \pm 5^{\circ}\text{C}$ 2. Duration: 24 ± 2hrs 3. Recovery: 1-2hrs
Humidity Resistance	1. No apparent damage 2. Fulfill the electrical specification after test	1. Temperature: $85 \pm 2^{\circ}\text{C}$ 2. Humidity: 80% ~ 85% RH 3. Duration: 1000 ± 48hrs 4. Recovery: 1-2hrs
Soldering strength (Push strength)	1. 9.8N minimum	1. Solder specimen onto test jig. 2. 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)	1. No apparent damage 2. Fulfill the electrical specification	1. Solder specimen onto test jig (FR4, 0.8mm) using the recommend soldering profile. 2. Apply a bending force of 2mm deflection 
Drop Shock	1. No apparent damage	1. 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



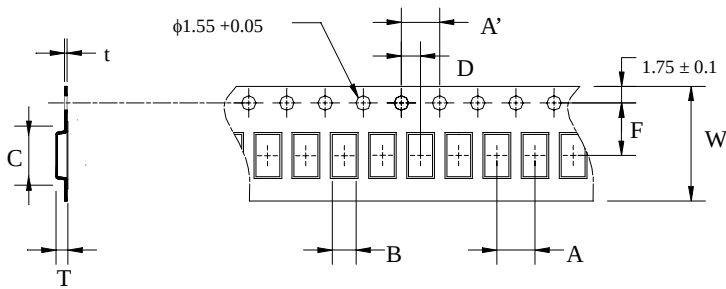
The sample must be pre-heated before soldering .The temperature difference between preheating and soldering must be within 150 °C.

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)

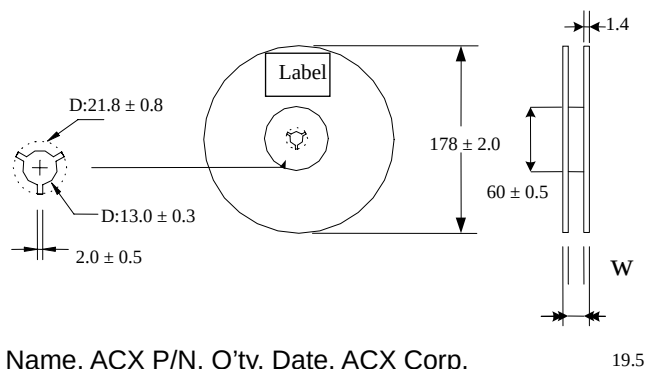


Type	A	A'	B	C	D	t	T	F	W
5020	4.0±0.1	4.0±0.1	2.4±0.1	5.4±0.1	2.0±0.1	0.25±0.05	Max. 1.4	5.5±0.1	12.0±0.1

❖ Quantity

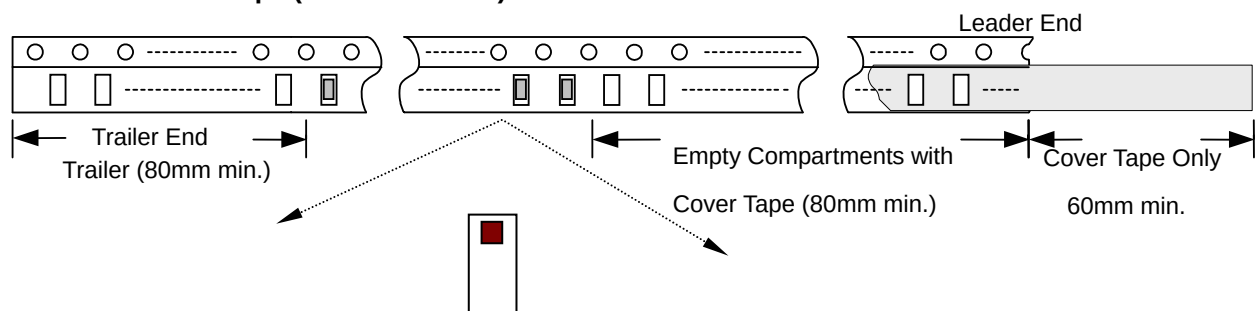
Type	5020
Quantity /per reel	2,000

❖ Reel Dimensions (Unit: mm)

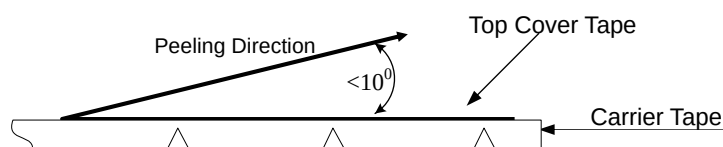


Label: Customer's Name, ACX P/N, Q'ty, Date, ACX Corp.

❖ 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.

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Manufacturer: ADVANCED CERAMIC X CORP.

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