ACX
Advanced Ceramic X

ATR151 Series

Multilayer Chip Antenna

Features

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

❖ Wide bandwidth, RoHS compliant

Applications

❖ RF modules for 900MHz band.

Specifications

Part Number	Operating Frequency (MHz)	Peak Gain (XZ-V)	Average Gain (XZ-V)	VSWR	Impedance
ATR151 -BR90MAA_	880~960	-0.7dBi typ.	-2.6 dBi typ.	2.2 max.	50 Ω

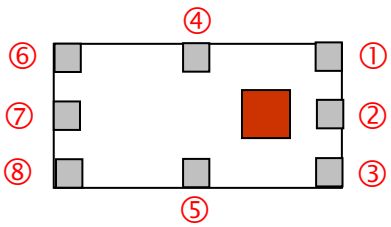
Q'ty/Reel (pcs) : 1000 pcs
Operating Temperature Range : -40 ~ +85 °C
Storage Temperature Range : -40 ~ +85 °C
Storage Period : 12 months max.
Power Capacity : 2W max.

Part Number

AT ① R151 ② - B ③ R90 ④ MAA ⑤ □ ⑥ /LF ⑦

① Type	AT : Antenna	② Dimensions (L × W)	11× 5.1 mm
③ Material Code	B	④ Initial center frequency	R90=900MHz
⑤ Specification Code	MAA	⑥ Packaging	T: Tape & Reel B: Bulk
⑦ Soldering	=lead-containing /LF=lead-free		

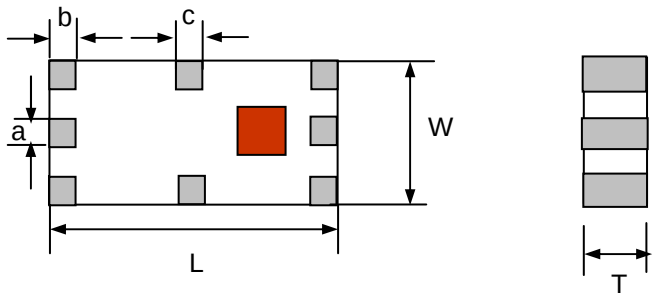
Terminal Configuration



No.	Terminal Name	No.	Terminal Name
①	NC	⑤	NC
②	Feed Point	⑥	NC
③	NC	⑦	NC
④	NC	⑧	NC

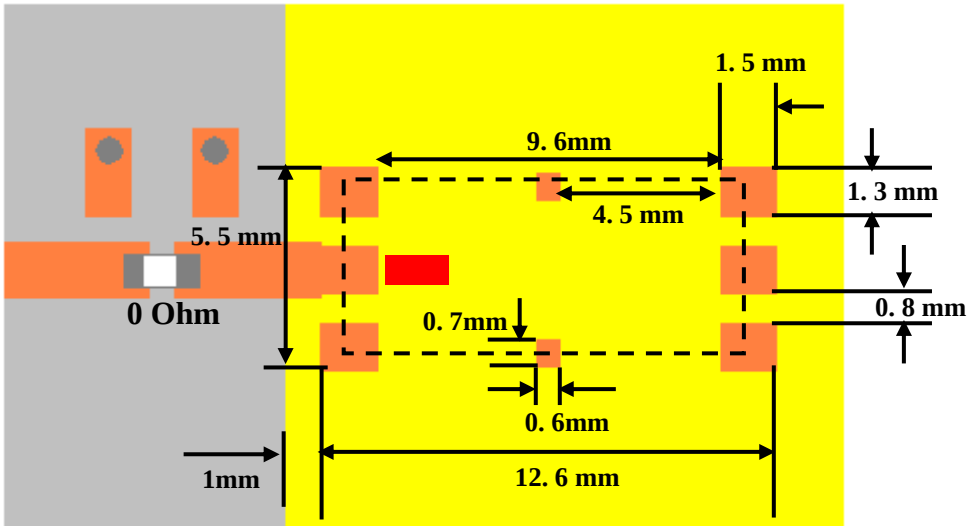
Dimensions and Recommended PC Board Pattern

Unit : mm

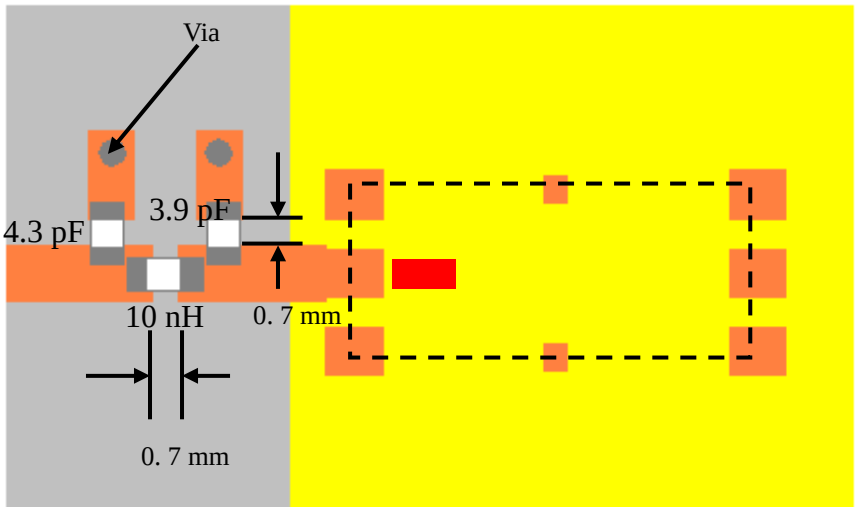


Mark	L	W	T	a	b	c
Dimensions	11.0 ±0.3	5.1 ±0.3	1.5 ±0.2	1.0±0.2	0.5 ±0.3	0.5 ±0.3

(a) Without Matching Circuits



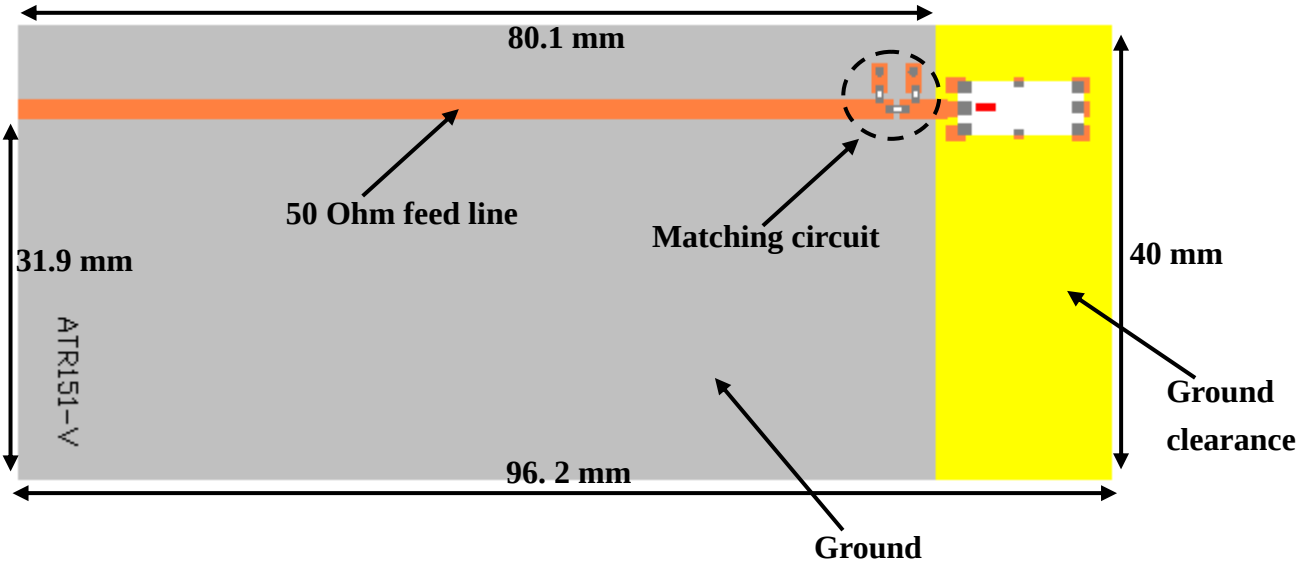
(b) With Matching Circuits



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

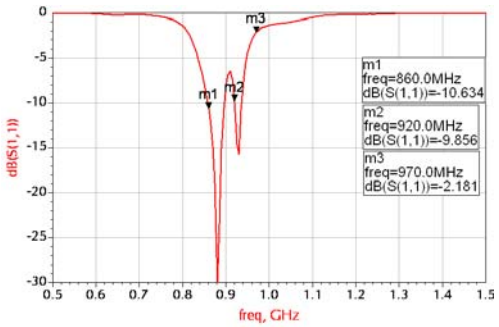
Typical Electrical Characteristics (T=25°C)

❖Test Board

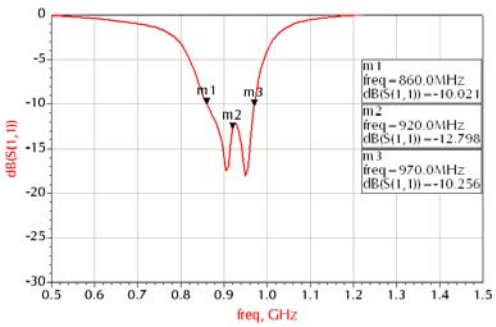


❖Return Loss

(a) Without Matching Circuit

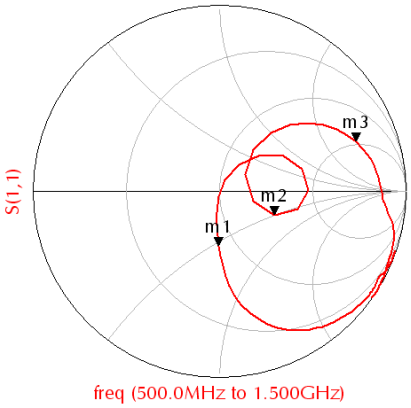


(b) With Matching Circuits

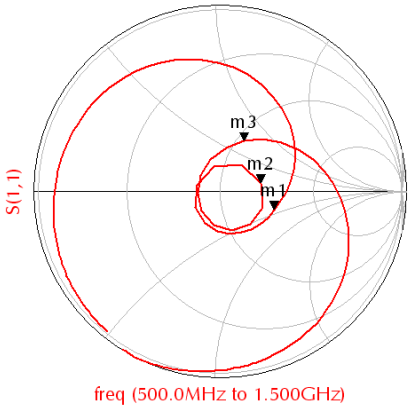


❖Smith chard

(a) Without Matching Circuit

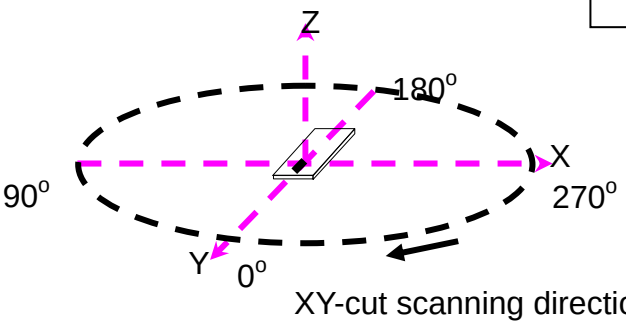


(b) With Matching Circuits

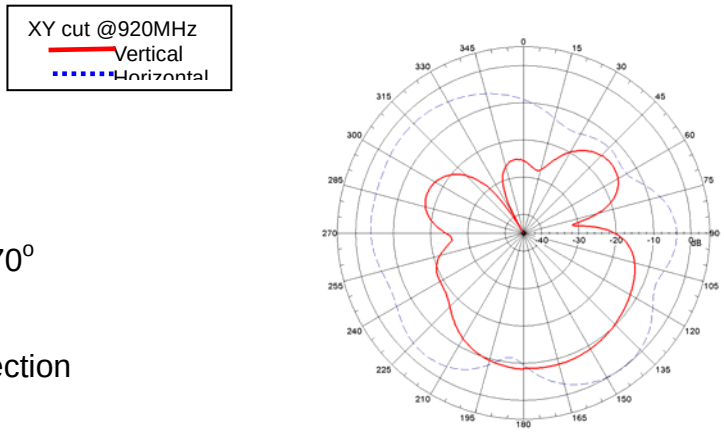


❖Radiation Patterns

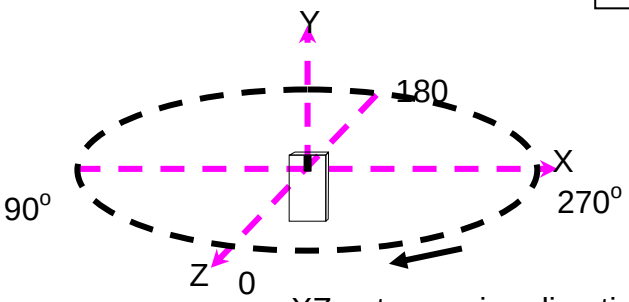
XY-V/XY-H



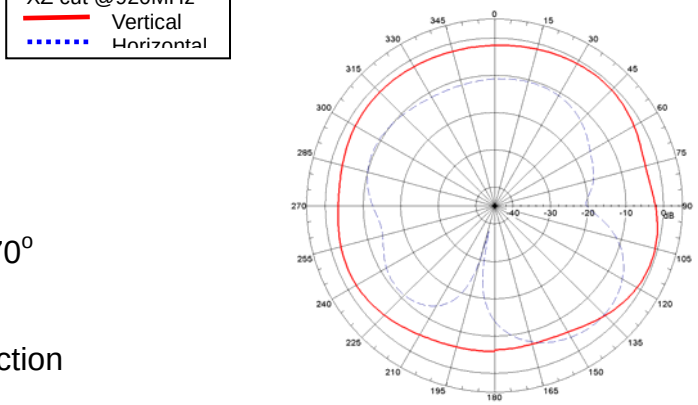
XY-cut scanning direction



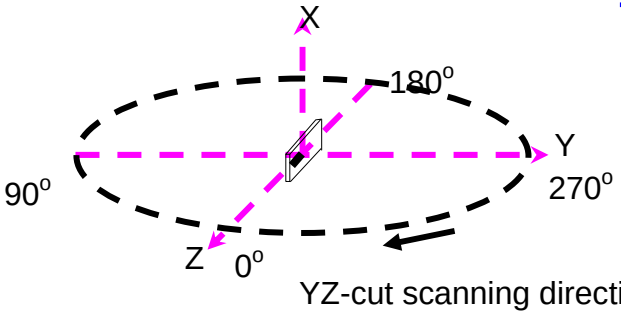
XZ-V/XZ-H



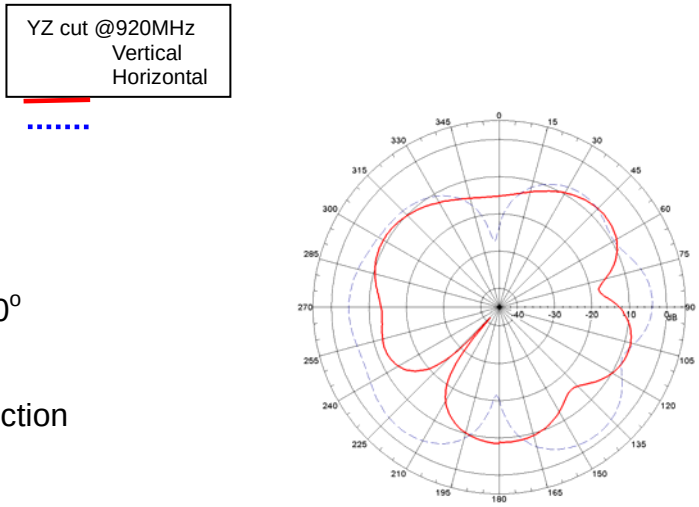
XZ-cut scanning direction



YZ-V/YZ-H

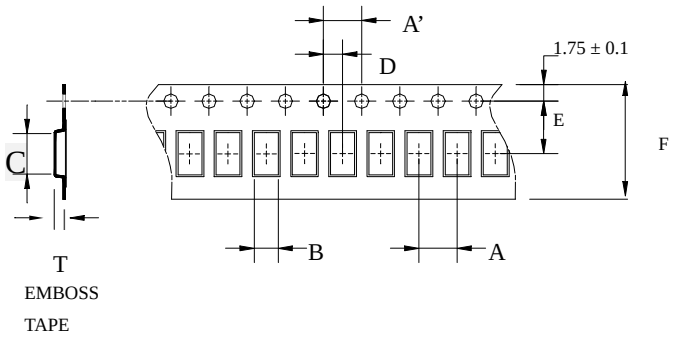


YZ-cut scanning direction



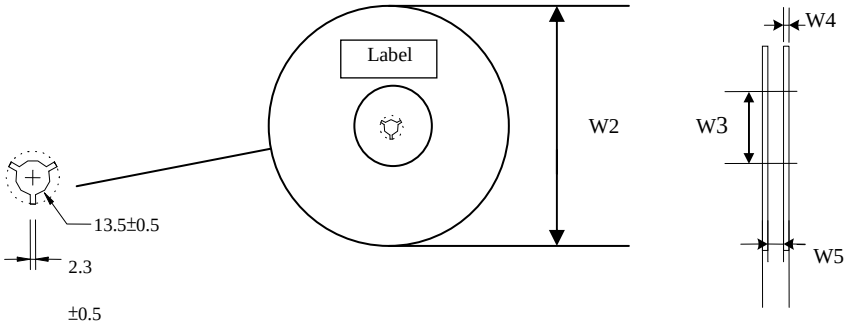
Taping Specifications

❖Tape & Reel Dimensions (Unit: mm) vs. Quantity (pcs)



Type	A	A'	B	C	D	E	F	T	Quantity/per reel	Tape material
ATR151	8.0± 0.1	4.0± 0.1	5.3± 0.1	11.30± 0.1	2.0± 0.05	11.5± 0.1	24.0± 0.3	1.75± 0.1	1,000pcs	Plastic (Embossed)

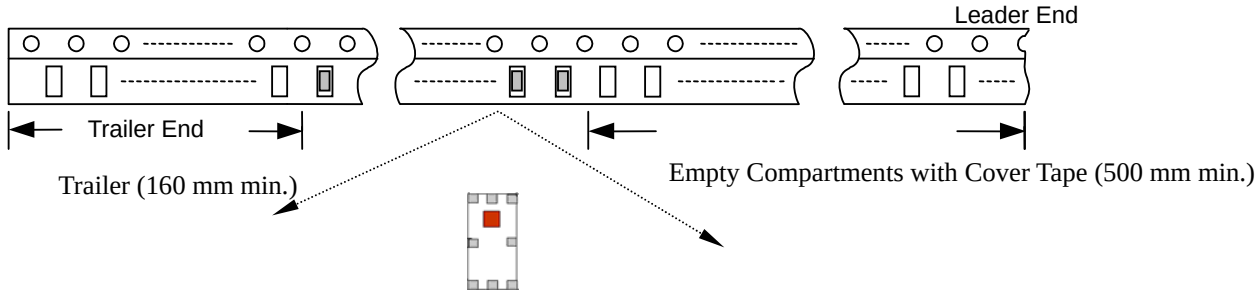
❖Reel Dimensions (Unit: mm)



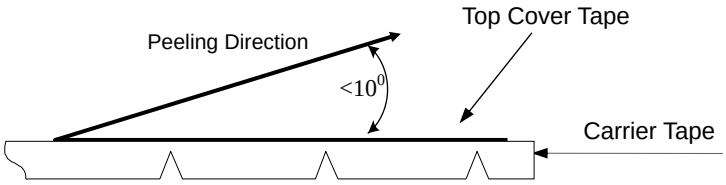
Label: Customer's Name,
ACX P/N, Q'ty, Date,
ACX Corp.

Type	W2	W3	W4	W5
ATR151	178±1	60±1	1.4±0.2	25±0.5

❖Leader and Trailer Tape



❖**Peel-off Force**



Peel-off force should be in the range of 0.2 – 1.20 N at a peel-off speed of 300±10 mm/min .

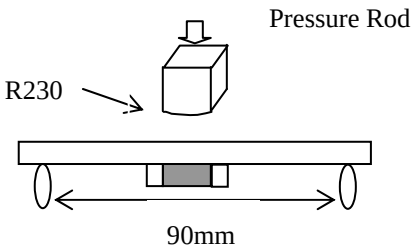
❖**Storage Conditions**

(1) Temperature: 5 ~35℃, relative humidity (RH): 45~75%.
(2) Non-corrosive environment

Notes

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

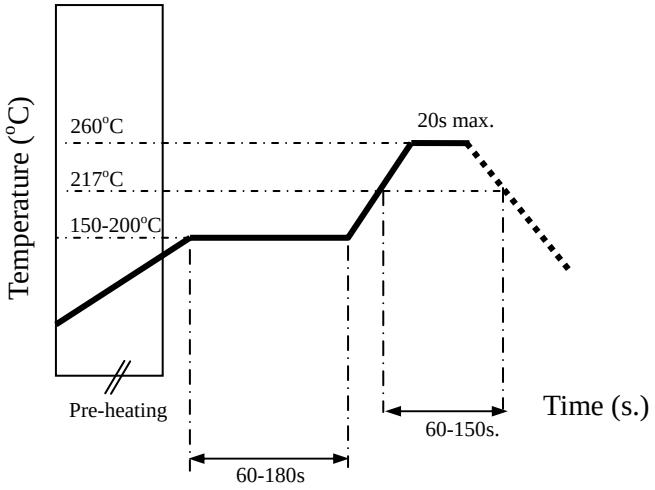
Mechanical & Environmental Characteristics

Item	Requirements	Procedure
Solderability	1. No apparent damage 2. More than 95% of the terminal electrode shall be covered with new solder	1. Preheat: 120± 5 °C 2. Solder: 245± 5°C for 5± 1 sec
Soldering strength (Termination Adhesion)	1. 1kg 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 (Substrate Bending)	1. No apparent damage	1. Solder specimen onto test jig (FR4, 0.8mm) using the recommend soldering profile. 2. Apply a bending force of 1mm deflection 
Heat/Humidity Resistance	1. No apparent damage 2. Fulfill the electrical specification after test	1. Temperature: 85± 2°C 2. Humidity: 90% ~ 95% RH 3. Duration: 1000±48hrs 4. Recovery: 1-2hrs
Thermal shock (Temperature Cycle)	1. No apparent damage 2. Fulfill the electrical specification after test	1. One cycle/step 1：125 ± 5°C for 30 min step 2：- 40 ± 5°C for 30 min 2. No of cycles：100 3. Recovery:1-2 hrs
Low Temperature Resistance	1. No apparent damage 2. Fulfill the electrical specification after test	1. Temperature: -40± 5 °C 2. Duration: 500 ±24hrs 3. Recovery: 1-2hrs

Soldering Conditions

❖**Typical Soldering Profile for Lead-free Process**

Reflow Soldering :



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