

AT1608 Series

Multilayer Chip Antenna

Features

- ◆ Monolithic SMD with small, low-profile and light-weight type.
- ◆ Wide bandwidth
- ◆ RoHS compliant

Applications

- ◆ 2400~2500MHz ISM Band Systems.



Specifications

Part Number	Operating Frequency (MHz)	Peak Gain (dBi typ.)	Average Gain (dBi typ.)	VSWR	Impedance
AT1608-Q2R4HAL_	2400~2480	0.5 (YZ-total)	-2.0 (YZ-total)	3 max.	50 Ω

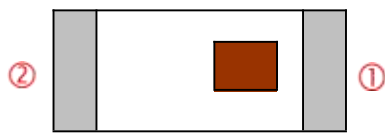
Q'ty/Reel (pcs)	: 4000 pcs
Operating Temperature Range	: -40 ~ +85 °C
Storage Temperature Range	: -40 ~ +85 °C
Storage Period	: 12 months max.
Power Capacity	: 3W max.

Part Number

AT **1608** **-** **Q** **2R4** **HAL**  
 ① ② ③ ④ ⑤ ⑥ ⑦

① Type	AT : Antenna	② Dimensions (L × W)	1.6 × 0.8 mm
③ Material Code	Q	④ Initial center frequency	2R4=2400MHz
⑤ Specification Code	HAL	⑥ Packaging	T: Tape & Reel B: Bulk
⑦ Soldering	/LF=lead-free		

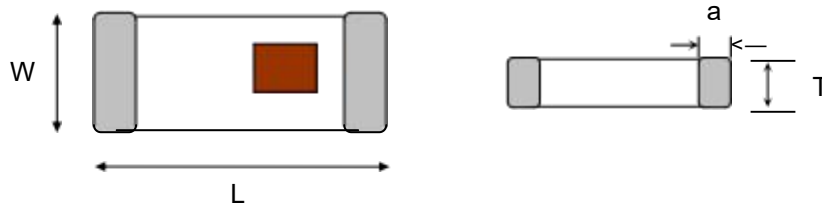
Terminal Configuration



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

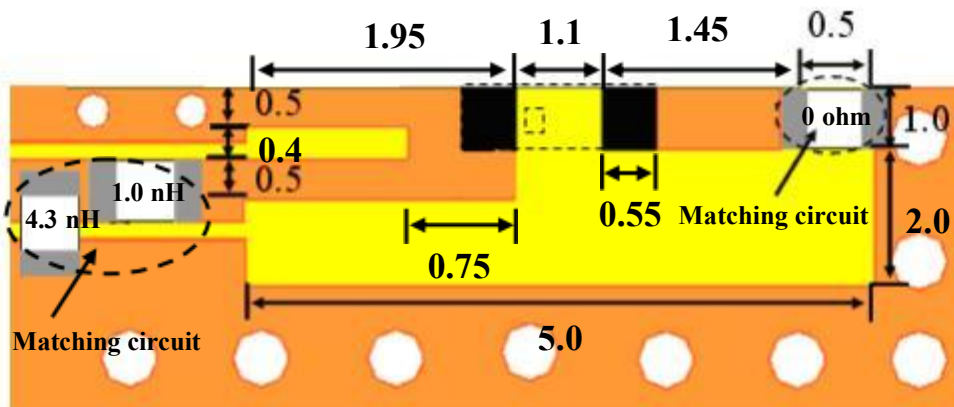
Dimensions and Recommended PC Board Pattern

Unit : mm



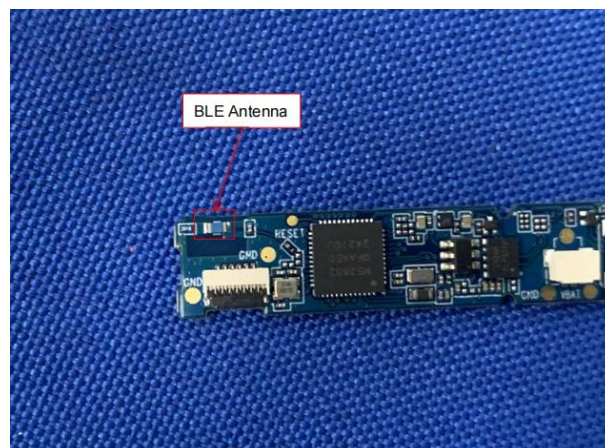
Mark	L	W	T	a
Dimensions	1.6 ± 0.1	0.8 ± 0.1	0.4 ± 0.1	0.25 ± 0.1

◆Antenna Footprint with matching (Unit : mm)



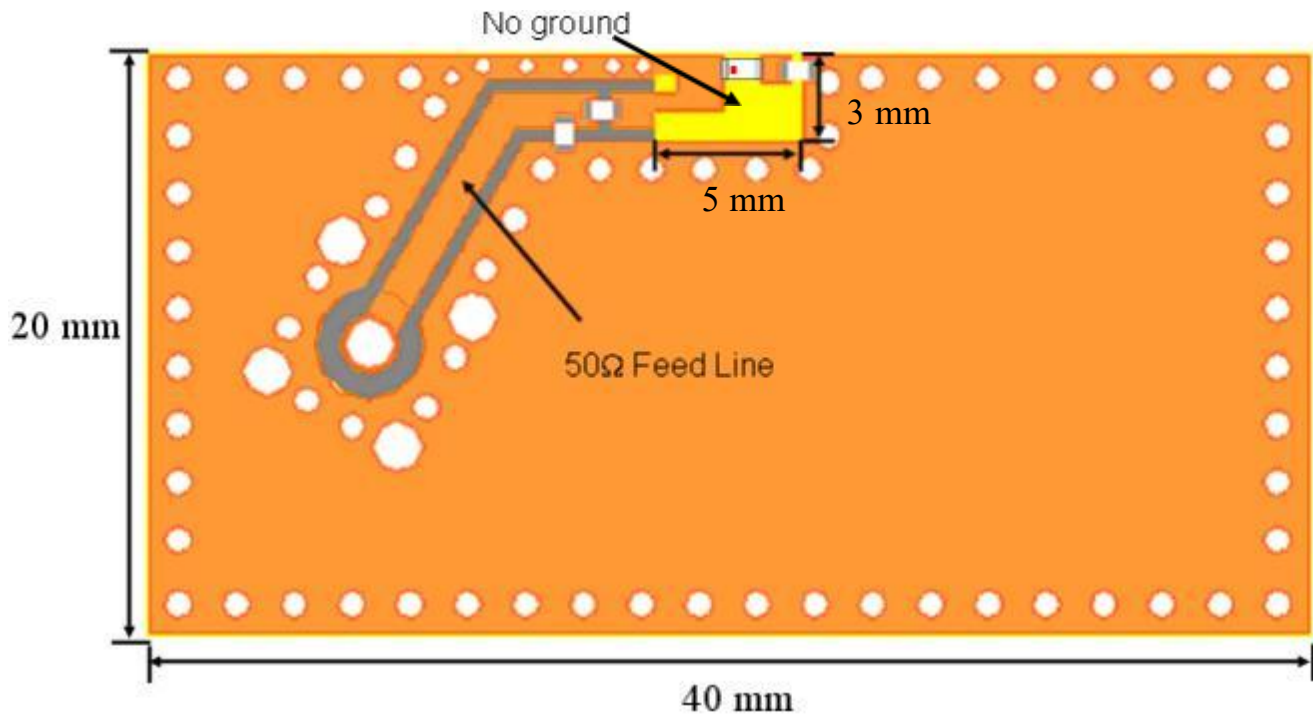
(Matching circuit and component values will be different, depending on PCB layout)

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

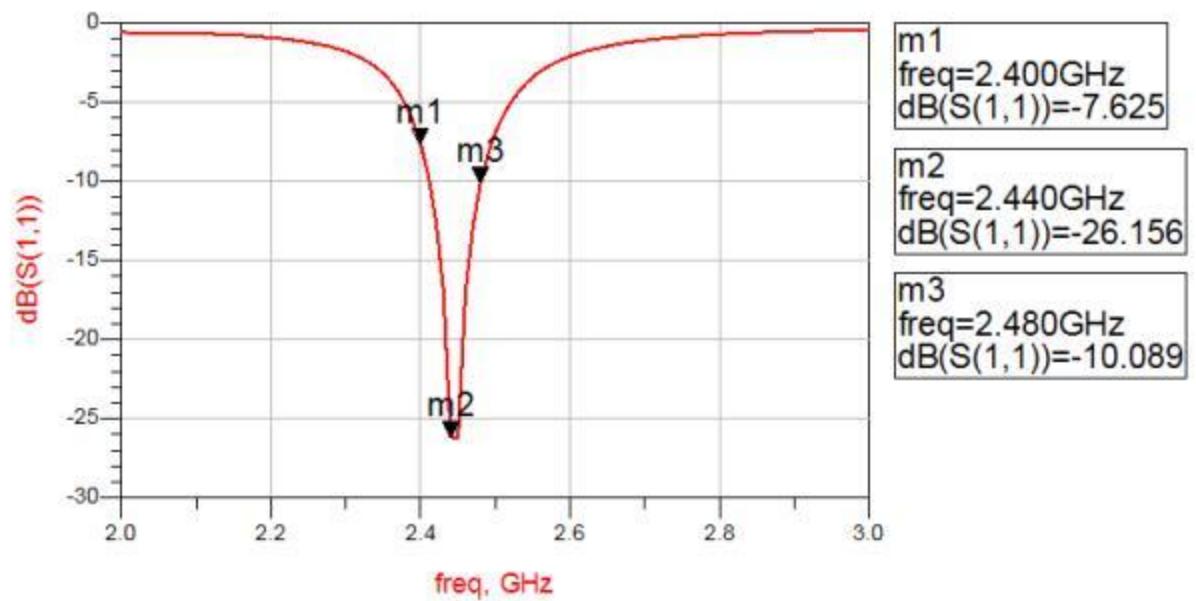


Typical Electrical Characteristics (T=25°C)

◆ Test Board

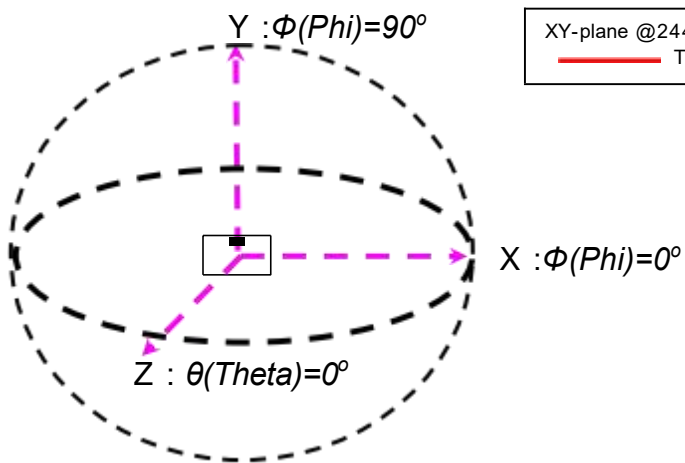


◆ Return Loss with matching circuits

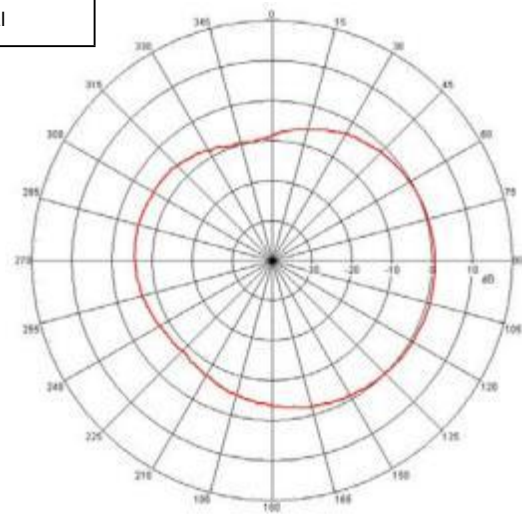


◆ Radiation Patterns @ 2.44 GHz

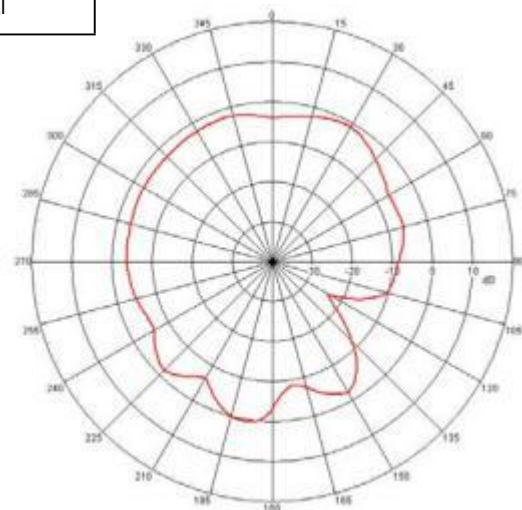
(Antenna Efficiency 38 % @ 2.4 GHz ; 49 % @ 2.44 GHz ; 44 % @ 2.48 GHz)



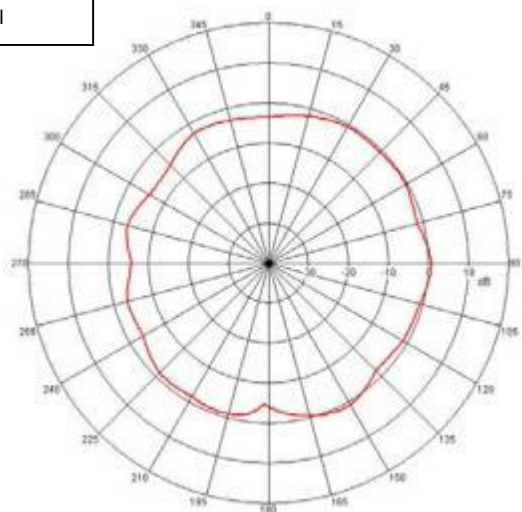
XY-plane @2440MHz
— Total



XZ-plane @2440MHz
— Total

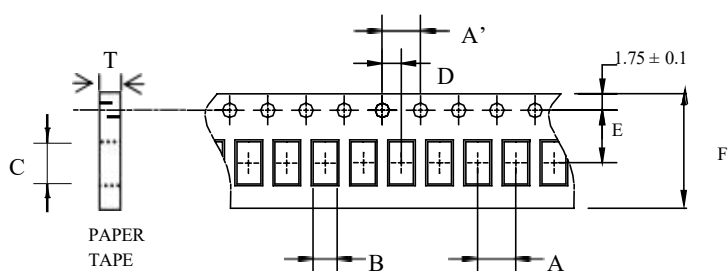


YZ-plane @2440MHz
— Total



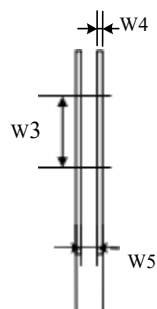
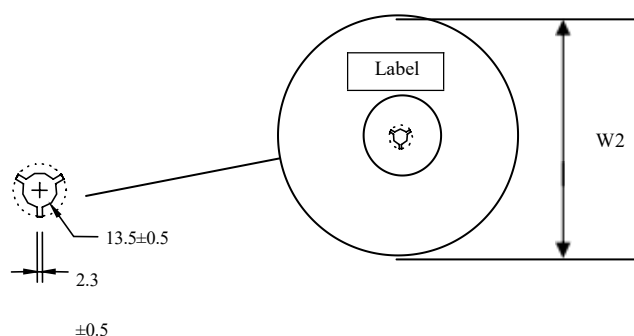
Taping Specifications

◆Tape & Reel Dimensions (Unit: mm)



Type	A	A'	B	C	D	E	F	T	Quantity/per reel	Tape material
1608	4.0±0.1	4.0±0.1	0.95±0.1	1.80±0.1	2.0±0.1	3.5±0.1	8.0±0.1	0.60±0.03	4,000pcs	Paper

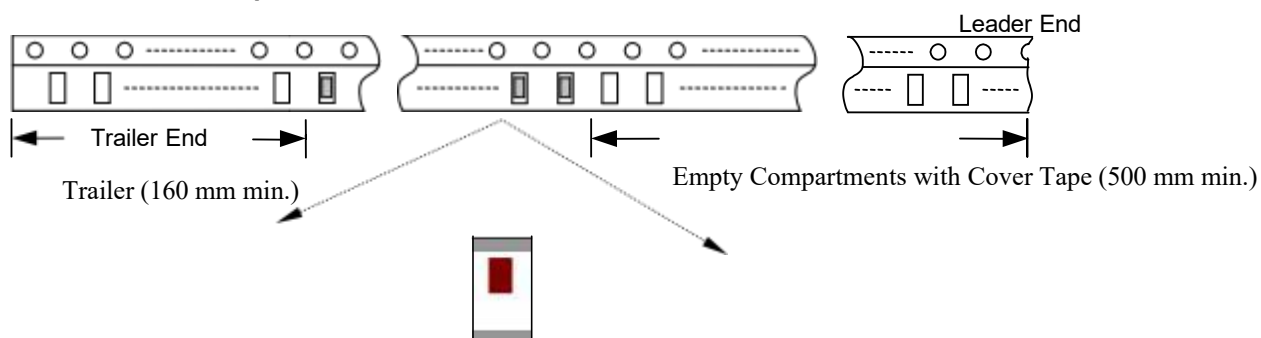
◆Reel Dimensions (Unit: mm)



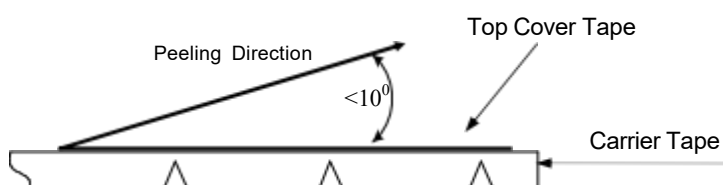
Label: Customer's Name,
ACX P/N, Q'ty, Date,
ACX Corp.

Type	W2	W3	W4	W5
1608	178±1	60±1	1.4±0.2	9.0±0.3

◆Leader and Trailer Tape



◆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 .

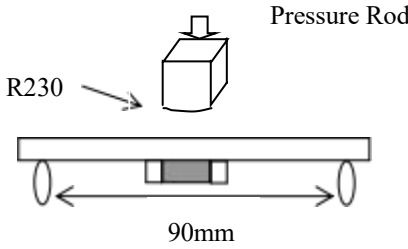
◆Storage Conditions

- (1) Temperature: 5 ~35°C, 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.

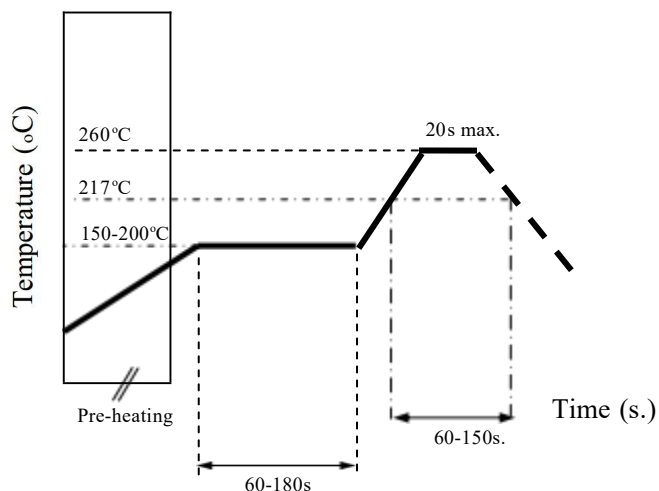
Mechanical & Environmental Characteristics

Item	Requirements	Procedure
Solderability	- No apparent damage - More than 95% of the terminal electrode shall be covered with new solder	- Preheat: $120 \pm 5^{\circ}\text{C}$ - Solder: $245 \pm 5^{\circ}\text{C}$ for 5 ± 1 sec
Soldering strength (Termination Adhesion)	10N minimum	- 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 (Substrate Bending)	No apparent damage	- Solder specimen onto test jig (FR4, 0.8mm) using the recommend soldering profile. - Apply a bending force of 2mm deflection. 
Heat/Humidity Resistance	- No apparent damage - Fulfill the electrical specification after test	- Temperature: $85 \pm 2^{\circ}\text{C}$ - Humidity: 90% ~ 95% RH - Duration: 1000 ± 48hrs - Recovery: 1-2hrs
Thermal shock (Temperature Cycle)	- No apparent damage - Fulfill the electrical specification after test	- One cycle/step 1 : $125 \pm 5^{\circ}\text{C}$ for 30 min step 2 : $-40 \pm 5^{\circ}\text{C}$ for 30 min - No of cycles : 100 - Recovery: 1-2 hrs
Low Temperature Resistance	- No apparent damage - Fulfill the electrical specification after test	- Temperature: $-40 \pm 5^{\circ}\text{C}$ - Duration: 500 ± 24hrs - Recovery: 1-2hrs

Soldering Conditions

◆ Typical Soldering Profile for Lead-free Process

Reflow Soldering :



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