

ATW-T201

(1) Audio PCB

Audio signal from microphone capsule is input to MIC IN and AFGND.

B+ is used microphone capsule which is required of power supply.

Input signal from guitar cable goes into Guitar IN and AFGND.

Q1 is the buffer amplifier.

User arranges VR1 and VR2 input signal label.

IC1 (1/2) is pre amplifier.

It stays on clip if added more than 0.2V to MIC IN.

Gain setting at 35dB against MIC IN (VR1 MAX) and 20dB against Guitar IN (VR2 MAX).

It is available to input up to 135dB SPL on condition of audio pressure level to microphone capsule.

The max level is equal to max MIC input level.

It stays on clip if added more than 0.9V to Guitar IN. This level equals to MAX Guitar input level.

IC1 works as a compressor combined with IC2.

The D1, Q2 circuit block is a modulation limiter.

C8, C21 are oscillator prevention capacitors.

VR3 (10Kohm) is potentiometer which controls modulation level.

When SW1 is in a position of ST, C31 and ground is shorted, and goes to mute mode.

When the voltage of 9V battery lowers, D2 dims to inform the user that it is the time to change the battery.

(2) RF PCB

X-tal is applied for Oscillation and Modulation circuit.

Q201 is sextic overtone (X6 multiplier) oscillation circuit.

Oscillation by x-tal is equivalent to the oscillation circuit of series of C and L.

It is set to gain the higher frequency than x-tal's unique oscillation frequency by putting D202 that is set to reverse bias with the series of x-tal, L201, R201 and R203.

Therefore, by VR201 oscillation frequency can be fine-tuned.

Also by adding the sound signal to D202, D202's capacity is changed by its voltage change and modulated.

Zero temperature coefficient condenser is used in C203 and C204 in order to get the stable oscillation that is close to sine wave against the temperature change.

TL1, C205 and TL2, C208 consist of double-tuned circuit, which reduce spurious.

Q202 is the transistor for frequency amplification.

L203, VC1 is the circuit to tune to X2 frequency from the prior stage.

L203, VC1 and L204, VC2 consist of double-tuned circuit, which reduce spurious.

Q203 is the transistor for RF amplification tuned by L205 and VC3.

RF output can be controlled by rotating trimmer condenser of VC1, VC2 and VC3.

Supplied voltage for Q202 and Q203 is switched by SW2. It also enables to switch RF output high or low.

From C217 to L208 are the filter circuit. It cuts the spurious higher than oscillation frequency and will match to antenna of T201.