

Musical Electronics Limited

Outback Receiver / Transmitter Circuit Description

Transmitter: (RF-WS02/03 TRANSMITTER)

- 5V DC supply from J3 to reverse protection circuit D1 and switched by POWER SWITCH S2.
- Q1 is reset circuit for 2.4GHz Module J1.
- U6 is 3.3V regulator for power supply of 2.4GHz Module.
- Audio signals R & L input to 2.4 GHz Module from RCA jack J2.
- S1 is pair (Match Button) for Linking of Transmitter and Receiver.

Outback Receiver: (RF-WS02)

- 15V x 1.2A adapter supply from J1 to reverse voltage protection circuit D12.
- 8 pieces “C” battery supply from “BATT12V”
- IC3 is 5.0V regulator for 2.4GHz module CN1.
- IC1 is a “D” class audio power amplifier controller, with on-chip MCU for user interface control from switches, and timing control of charging and other functions.
- X1 is a crystal to provide the clock frequency for IC1 using IC1 on-chip crystal oscillator.
- D6 & D7 are used to let IC1 know if battery voltage is present or not.
- IC14 & IC15 are 5V voltage regulators used to provide supply voltage to IC1 from battery and AC adapter power sources.
- Q15, Q5, Q16, Q27, Q14, Q19, & Q26 are used to control deep sleep mode and to control use of battery or AC adapter power when both are present, under control of IC1 via IC16.
- IC2 is a serial flash used to store the MCU firmware of IC1
- J2, & Q7 are used to program IC2 and for MCU program debugging.
- Q10 is used for power on/off of 2.4GHz module CN1.
- IC4 & X2 is a 12 MHz clock source for the A/D (analog to digital) converter.

- IC10 is a 5V regulator for IC11.
- IC11 is A/D converter converting analog audio signal from 2.4GHz module CN1 to I2S digital audio stream input to IC1.
- IC12 is a differential buffer amplifier to balance out common mode noise on audio signal wiring from 2.4GHz module CN1.
- IC13 & Q11 is an audio detection circuit that allows IC1 to mute the speaker output when no audio source is present.
- IC16 is a shift register used to increase the number of usable control logic signals from IC1.
- IC6 is used as a comparator to detect any over current fault condition within the audio amplifier and shutdown the amplifier before permanent damage can occur.
- D9 is creates 6.8V reference voltage used by IC6.
- IC8, D13, D14, D15 is used as a step-up voltage converter to provide supply voltage for IC6.
- Q23, Q1, Q2, D2, D2 is the “D” class H bridge driver for the woofer.
- Q24, Q8, Q9, D10, & D11 is the “D” class H bridge driver for the tweeter.
- IC17, Q6, Q17, D16, & Q18 are a step-up voltage converter to increase the battery voltage to the required internal supply voltage for the D class amplifier speaker drivers Q23 & Q24.
- IC7, Q12, Q20, Q25, Q22, Q21, & D5 are a charging control circuit for fast/slow charging NiMH batteries in Outback with timing control handled by IC1.
- D2A is Bass boost indicator LED
- D3A is Charge indicator LED.
- D1A is power indicator LED.
- VR1 encoder is used to control volume by sending logic signals to IC1
- SW2 is used to enable or disable charging SW2 is used to enable or disable charging by switching logic signal to IC1.
- L/mono/R switch is used to select left, right or left + right = mono audio source by switching logic signals to IC1.
- S1 is used to enable or disable bass-boost function SW2 is used to enable or disable charging by switching logic signal to IC1.

- S2, Q3, & Q4 are used to power on/off or disable bass-boost function SW2 is used to enable or disable charging by switching logic signal to IC1.

For Model: RF-WS02 Transmitter
RF-WS02