Technical Description of Model: AMPLICALL 20

1. General description
The base consists of SAW-based receiver. It is powered by a switching mode adaptor with input rating: _100-240VAC__ and output rating: _7.5VDC 600mA__.

2. Theory of operation
- Frequency band: 433.92MHz
- Number of channel: 1

The system uses Amplitude Shift Keying (ASK). The data rate is 10 kbps.

3. RF module description
3.1 RF chip description
Brand/Type of RF chip used: _Synoxo/SYN500R_

SAW RESONATOR frequency: _433.92__ MHz

3.2 Antenna description
- Number of antenna: ___1____
- Antenna type: Printed Antenna
- Permanently affixed on PCB
- Antenna gain: ___0____ dB

Functional Block description

1. RF

IC U5 SYN550R is a high performance 433 MHz ASK receiver.
The chip consists of a power amplifier (PA), RF and IF amplifier, mixer and filter.
Oscillator X1 provides reference oscillatory frequency 13.5212MHz.
Antenna matching circuit is placed between antenna and RF IC for impedance matching purpose. It could attenuate the others useless harmonic.

2. Baseband

Baseband controller is U8 CPU IC EM78P447. The software is stored in U7 EEPROM IC 24LC02B and clocked by X3 3.58 MHz.
When U8 IC EM78P447 received effective control signal, it will control speaker/flasher/motor drive circuit to work by default function from SW1, SW2 and SW3.

2.1. Power supply/Regulation

The unit is powered by 7.5V adapter and/or 4x AA 1.5VDC battery.
The voltage stabilizing circuit provide power to the others circuit, the regulator IC U4 XC U4 XC6202 regulator IC supplies steady voltage 5V toU8 baseband controller EM78P447.
The low battery detecting circuit, 14th pin and 19th pins of U8 baseband controller EM78P447, and LED3 Power Flash can detect and indicate battery low.

2.2. Ringing detecting circuit

The call in ringing detecting circuit is major composed of F1, VAR1, C15, and IC1 17T1, ZD1, ZD3 and 13th pin of U8. When the 13th pin of U8 received ringing signal detected by IC1, and will control the relative circuit to work as default function.

2.3 Pairing circuit

The pair circuit is major composed of pairing switch, U8 IC EM78P447 and U7 EEPROM IC 24LC02B.While the one of LED1, LED2, LED4 keep light for indicate the three different remote control device, and the LED1,LED2,LED4 keep light together for indicating the 4th remote control device.

2.4. Motor/speaker/flasher drive circuit

The Motor drive circuit is major composed of 1st pins of U8, Q5 and Q7 .The 1st pin of U8 sends control signal , Q7and Q5 start to work and control the connected motor to work;

The flasher drive circuit is major composed of twenty first pins of U8, Q1 and LED1, the 21st pin of U8 output control signal, Q1 start to work and control LED1 flash.

The speaker drive circuit is composed of U8, U2 control doorbell IC TL0302 and U1 amplifier IC BA16852.

When U8 receives the effective control signal, the 8th pin of U8 will sends high level signal to U2 control doorbell IC TL0302 to send default doorbell signal (which is chosen by SW2-B) to power amplifier U1 drive speaker.

When the 13th pin of U8 receives the ringing signal, the 31st pin of U8 will send default ringtone signal (which is chosen by SW1-B) to power amplifier U1 amplifier IC BA16852 to drive speaker.