AC423 CIRCUIT DESCRIPTION

I. AC423 Parent Unit Main Circuit Description

Category	Number	Name	Location	Description
IC	ACT H-47	MAIN PROCESSOR	U1	Handle all RX data signals, control RF RXVCC and handle audio switching. Also acts as LCD driver.
IC	UTC8602D	AUDIO POWER AMPLIFIER	U2	Amplification of audio signal to 16 Ohm speaker SPK1
IC	XC6204B302MR	DC REGULATOR	U3	Regulate a DC3V output to main circuit such as MCU and RF parts.
IC	FT24C02A	EEPROM	U4	Memory of settings that run by U1.
TRAN-SISTORS	2N3906, 2N3904	CHARGE CONTROL	Q4, Q18	Control charging of rechargeable batteries.
BATTERIES	3.6V, 600mAH	AAA X 3 RECHARGE-ABLE BATTERIES	BAT1	DC power source 3.6Vof the Parent unit through D2, CUS04
RESONATOR	8MHz	OSCILLATOR	X1	Oscillator for processor U1
LCD	LCD_AC401	LCD DISPLAY	LCD1	LCD display for user control of unit
KEYS	METAL DOMES	KEYPAD	K1 TO 5	Key pad control
TRAN-SISTOR	8550C	RX POWER	Q9	Acts as switching control ON/OFF of RX power by U1 control pin.
TRAN-SISTOR	2N3904	POWER AMP. MUTE	Q12	Acts as switching control ON/OFF of power AMP. U2 by U1 control pin.
TRAN-SISTORS	2N3904	PILOT TONE AMP.	Q16, Q17	Amplifying received pilot tone to MCU through tone detector.
TRAN-SISTORS	2N3904	AF PRE-AMP	Q3,15	Amplifying received audio signal demodulated from RF module.
TRAN-SISTOR	8550C	SWITCH	Q5	Cut off signal from AF PRE-AMP to Audio AMP. U2 if necessary.
TRAN-SISTOR & DIODE	2N3904, LL4148	TONE DETECTOR	Q10, D7	Regulate received pilot tone signal to MCU for recognition.
TRAN-SISTOR & DIODE	2N3904, LL4148	DATA SHAPER	Q7,Q8 D4	Regulate received data signal from RF module to MCU.
RESISTORS	2.4K, 750 220, 27	VOLUME CONTROL	R2,R3, R4, R9	MCU pins V0,1,2,3 control the resistors for various levels of sound output.
DIODE	FM4004W	CURRENT GUIDE	D3	Forward DC adapter output into charging circuit and regulator input.
RF MODULE	TO RF MODULE	RF MODULE	PU RF	See details of PU RF module

II. PU RF module Circuit Description

Category	Number	Name	Location	Description
IC	MC3361BP	IF DEMOD-ULATOR	HU1	It provides the second converter, second IF, demodulator, filter amp., for receiving part of RF module. Recovered signal are fed into main PCB at pin, AUDIO OUT.
IC	GP214D	DUAL FREQUENCY SYNTHESIZ-ER	HU2	It operates to control of RX VCO loop. Serial data is sent from MCU via DATA, CLK and STB for channel selections. It generates RX 1st IF oscillation frequencies 936.7 to 938.3MHz.
CRYSTAL	11.15MHz	CRYSTAL OSCILLATOR	HX1	Provide oscillation clock to IF IC HU1 and PLL IC HU2.
IF FILTER	100uH, 220uH, 820P,100P,2200P	450KHZ FILTER	HL5, HL6, HC69,70, 71	LC filter for second IF 450kHz from down conversion of HU1.
IFT	5DL-C5001S	QUAD COIL	HIFT1	It works with HU1 FM demodulator to recover transmitted audio and data signal from NU.
METAL ROD	ROD ANTENNA	RX ANTENNA	HANT1	Single rod antenna, of no gain, which receive RF signals from surroundings.
RF FILTER	927M	RX_FILTER 927MHz	HDF1	Filter for RX IN RF signal which is fed RX antenna for rf reception. (range: 926 to 927.6MHz)
RF TRAN-SISTOR	BFR460L3	LNA	HQ4	Low noise amplifier for receiving RF signal.
Category	Number	Name	Location	Description
RF TRAN-SISTOR	BFR460L3	MIXER	HQ5	Mix received RF signal and RX VCO frequency to generate 1st IF frequency 10.7MHz.
RF TRAN-SISTOR & VARI-CAP DIODE	C5066Y 1SV305	RECEIVE VCO	HQ7 HVD2	Oscillator of frequency range, 936.7 to 938.3MHz to down convert received RF frequency for demodulation .
CAPACIT-ORS	0.5P, 10P, 2.2P	BPF	HC41,42, 43	Filter for frequency range936.7 to 938.3MHz
IF FILTER	LT10.7MJA10A1	10.7MHz BPF	HCF2	1st stage 10.7MHz IF filter
TRAN-SISTOR	2N3904	IF AMP.	HQ6	Amplifies 10.7MHz signal
IF FILTER	LT10.7MJA10A1	10.7MHz BPF	HCF1	2nd stage 10.7MHz IF filter for providing clear 10.7MHz signal to HU1 for conversion to 2nd IF, 450kHz.

AC423 FREQUENCY TABLE

 US/AU   (FCC/AU APPROVAL)

1. PARENT UNIT
A. RECECIVING FREQUENCY CHANNELS

PARENT LCD DISPLAY		CHANNEL	RX FREQUENCY	RX LO FREQUENCY
TEST MODE	NORMAL	NUMBER	(MHz)	(MHz)
C0	N.A.	1	926.0	936.7
C1	C1	2	926.2	936.9
C2	C2	3	926.4	937.1
C3	C3	4	926.6	937.3
C4	C4	5	926.8	937.5
C5	C5	6	927.0	937.7
C6	C6	7	927.2	937.9
C7	C7	8	927.4	938.1
C8	C8	9	927.6	938.3