

Function of Semiconductors

FUNCTION OF SEMICONDUCTORS

FRS500(UT873Z)

REF. N°	DESCRIPTION	MANUFACTUER	CIRCUIT FUNCTION
D101	1SS226	TOSHIBA	RX FRONTEND PROTECTOR
D102	1SS226	TOSHIBA	SQUELCH DETECTOR
D103	RLS135	TOSHIBA	ANTENNA SWITCH
D105	RLS135	ROHM	ANTENNA SWITCH
D106	HVU307	HITACHI	REFERENCE FREQUENCY CONTROLLER
D107	RB420D	ROHM	TCXO VOLTAGE SHIFTER
D108	HVU358	HITACHI	VCO
D301	CL-200-YG-C	CITIZEN	LCD BACK-LIT
D302	CL-200-YG-C	CITIZEN	LCD BACK-LIT
D303	HZK6C	HITACHI	ESD PROTECTOR
D307	HZK6C	HITACHI	ESD PROTECTOR
D316	HZK6C	HITACHI	ESD PROTECTOR
IC101	MC3361CDR2	MOTOROLA	RX 2nd MIXER,2nd IF AMP AND DETECTOR
IC102	TB31202FN	TOSHIBA	PLL
IC301	93LC46BT-SN	MICROCHIP	BACK-UP MEMORY
IC302	RH5VL22CA	RICOH	CPU RESET CIRCUIT
IC303	uPD789405	NEC	MICROPROCESSOR
IC305	NJM2073M	JRC	RX AF POWER AMPLIFIER
IC306	TK11130SC	TOKO	3.0V VOLTAGE REGULATOR
IC307	TK11228BMCL	TOKO	2.8V VOLTAGE REGULATOR
IC308	AK2345	ASAHIKASEI MICRO	CTCSS ENCODER/DECODER WITH AF B.P.F
Q101	2SC5065-Y	TOSHIBA	RX RF AMPLIFIER
Q102	2SC5065-Y	TOSHIBA	RX RF AMPLIFIER
Q103	2SC5065-Y	TOSHIBA	RX 1st MIXER
Q106	NE5500179A	NEC	TX FINAL POWER AMPLIFIER
Q107	2SC3357	NEC	TX DRIVER
Q108	2SC5065-Y	TOSHIBA	TX PRE DRIVER
Q110	2SC1623-L6	NEC	RIPPLE FILTER FOR VCO
Q111	2SC5065-Y	TOSHIBA	VCO BUFFER
Q112	2SC5065-Y	TOSHIBA	VCO OSCILLATOR
Q113	2SC4226	NEC	VCO SHIFT SWITCHING FOR RX
Q115	2SA1162-Y	TOSHIBA	TX INHIBIT SWITCHING
Q117	2SC1623-L6	NEC	NOISE AMPLIFIER FOR RX SQUELCH
Q118	2SC1623-L6	NEC	TX INHIBIT SWITCHING
Q301	2SC1623	NEC	BACK-LIT LED SWITCHING
Q302	2SA1162-Y	TOSHIBA	TX POWER SOURCE SWITCHING
Q303	2SA1162-Y	TOSHIBA	TX FINAL TRANSISTOR BIAS SWITCHING
Q305	2SC1623-L6	NEC	RX AF POWER SOURCE SWITCHING
Q306	2SB815-B6	SANYO	RX AF POWER SOURCE SWITCHING
Q307	2SA1162-Y	TOSHIBA	PLL POWER SOURCE SWITCHING
Q308	2SA1162-Y	TOSHIBA	RX POWER SOURCE SWITCHING
Q310	2SA1162-Y	TOSHIBA	PUSH TO TALK SWITCHING
Q311	2SC2712-Y	TOSHIBA	MICROPHONE PRE AMPLIFIER
Q313	2SD1048-X6	SANYO	VIBRATOR SWITCHING

TRANSMITTER

STEP	MODE	CHANNEL	FREQUENCY	CONDITION / CONNECTION	ADJUST	METHOD
1	TX	14	467.7125MHz	RF POWER METER TO ANTENNA PATTERN(HOT AND GND) OF THE RF PC-BOARD.	-	CHECK THE RF OUTPUT POWER "LESS THAN 0.5W".
2	TX	14	467.7125MHz	FM LINEAR DETECTOR TO ANTENNA PATTERN(HOT AND GND) OF THE RF PC-BOARD. THROUGH THE RF ATTENUATOR.0.3kHz 200mV RMS AF SIGNAL TO MIC INPUT.	RT103	ADJUST RT103 TO OBTAIN SQUARE-WAVE OF MODULATION.
3	TX	14	467.7125MHz	FM LINEAR DETECTOR TO ANTENNA PATTERN(HOT AND GND) OF THE RF PC-BOARD. THROUGH THE RF ATTENUATOR. 1kHz 100mV RMS AF SIGNAL TO MIC INPUT.	RT301	ADJUST RT301 TO OBTAIN +/- 1.9kHz MODULATION.
4	TX	14	467.7125MHz	FM LINEAR DETECTOR TO ANTENNA TERMINAL THROUGH THE RF ATTENUATOR. "WITH 167.9Hz CTCSS TONE"	RT302	ADJUST RT302 TO OBTAIN +/- 0.45kHz MODULATION.

ALIGNMENT PROCEDURE FOR MODEL FRS500(UT873Z)

PLL SYNTHESIZER

STEP	MODE	CHANNEL	FREQUENCY	CONDITION / CONNECTION	ADJUST	METHOD
1	TX	14	467.7125MHz	DC VOLTMETER TO "V CONT"	-	CHECK THE VOLTAGE "LESS THAN 2V DC".
2	TX	1	462.5625MHz	SAME AS STEP 1	-	CHECK THE VOLTAGE "MORE THAN 1V DC".
3	RX	1	462.5625MHz	SAME AS STEP 1	-	CHECK THE VOLTAGE "MORE THAN 1V DC".
4	RX	14	467.7125MHz	SAME AS STEP 1	-	CHECK THE VOLTAGE "LESS THAN 2V DC".
5	TX	14	467.7125MHz	FREQUENCY COUNTER TO ANTENNA TERMINAL THROUGH THE RF ATTENUATOR.	RT102	ADJUST RT102 WITHIN 467.7125MHz +/- 50Hz.

RECEIVER

RF SIGNAL GENERATOR : 1kHz +/- 3kHz MODULATION

STEP	MODE	CHANNEL	FREQUENCY	CONDITION / CONNECTION	ADJUST	METHOD
1	RX	14	467.7125MHz	DC VOLTMETER TO "PIN 9 OF IC101. RF SIGNAL GENERATOR TO ANTENNA TERMINAL.	L117	ADJUST L117 TO OBTAIN 1V DC AT 1000uV NON MODULATED RF INPUT.
2	RX	14	467.7125MHz	RF SIGNAL GENERATOR TO ANTENNA PATTERN(HOT AND GND) OF THE RF PC-BOARD. AF LEVEL METER TO EXTERNAL SPEAKER JACK WITH 8 OHMS DUMMY LOAD.	RT101	ADJUST RT101 TO OBTAIN SQUELCH OPENED POINT AT 0.2uV RF INPUT.