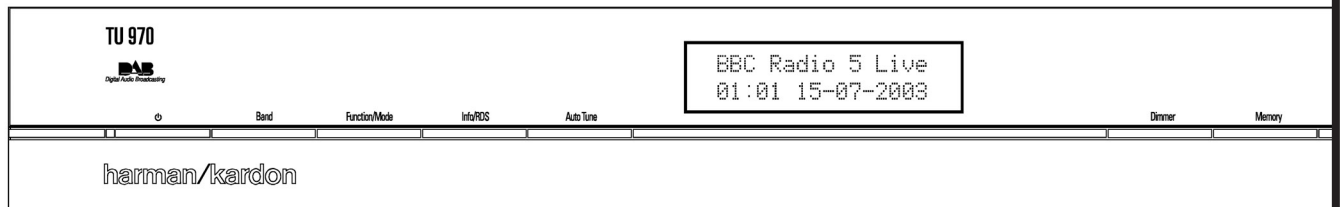


# TU 970

## SERVICE MANUAL



**harman/kardon®**

Power for the Digital Revolution®

## Technical Specifications

### FM Section

Frequency Range	87.50 MHz to 108.00 MHz (50 kHz steps)
Signal-to-Noise Ratio	65dB (Mono) 60dB (Stereo)
Presets	30

### Section

Frequency Range	522 kHz to 1620 kHz (9 kHz steps)
Signal-to-Noise Ratio	35dB
Presets	30

### DAB Section

RF Section	Band III, 174MHz-240MHz Input: 50 Ohm, nominal Max signal: -3dBm typ Sensitivity: -96dBm typ Adjacent Channel Rejection: 35dB typ
Display	2 line by 16 character DOT Matrix
Presets	10
Audio Output	Stereo, 2.5V P-P 48kHz sample rate 16 bit sample resolution
Optical S/PDIF	IEC60958 Compliant 48kHz sample rate 24 bit sample resolution

### General

Power Requirement	230-240V AC, 50Hz
Power Consumption	9W 3W (standby)

### Dimension (Max)

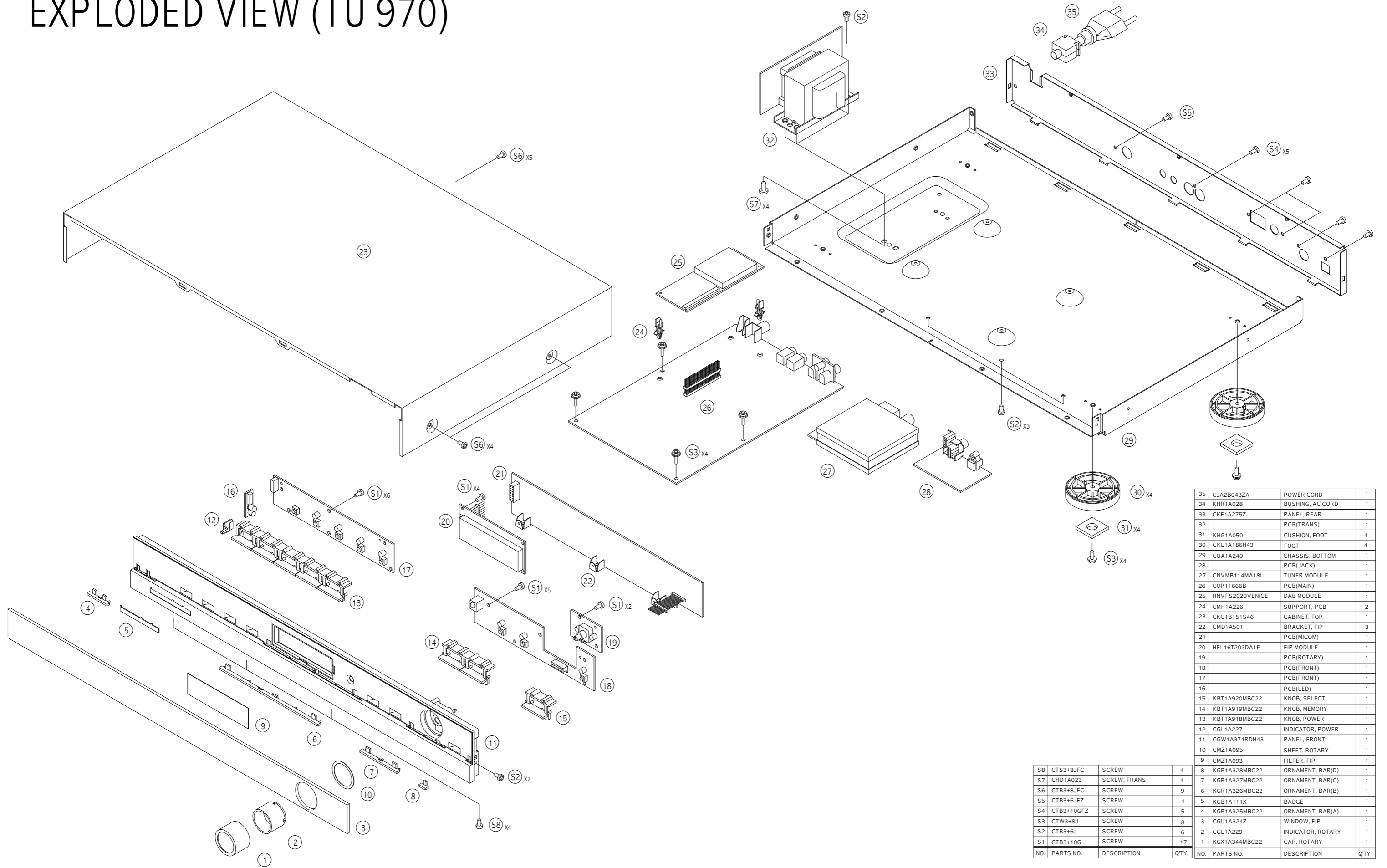
Width	442mm
Height	63mm
Depth	299mm
Weight	3.4kg

Depth measurement includes knobs, buttons and terminal connections. Height measurement includes feet and chassis.

All features and specifications are subject to change without notice.

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# EXPLODED VIEW (TU 970)



NO.	PARTS NO.	DESCRIPTION	QTY	NO.	PARTS NO.	DESCRIPTION	QTY
S8	CTS3+8JFC	SCREW	4	8	KGR1A328MBC22	ORNAMENT, BAR(D)	1
S7	CHD1A023	SCREW, TRANS	4	7	KGR1A327MBC22	ORNAMENT, BAR(C)	1
S6	CTB3+8JFC	SCREW	9	6	KGR1A326MBC22	ORNAMENT, BAR(B)	1
S5	CTB3+6JFZ	SCREW	1	5	KGB1A111X	BADGE	1
S4	CTB3+10GFZ	SCREW	5	4	KGR1A325MBC22	ORNAMENT, BAR(A)	1
S3	CTW3+8J	SCREW	8	3	CGU1A324Z	WINDOW, FIP	1
S2	CTB3+6J	SCREW	6	2	CGL1A229	INDICATOR, ROTARY	1
S1	CTB3+10G	SCREW	17	1	KGX1A344MBC22	CAP, ROTARY	1
35	CJA2B043ZA	POWER CORD	1				
34	KHR1A028	BUSHING, AC CORD	1				
33	CKF1A275Z	PANEL, REAR	1				
32		PCB(TRANS)	1				
31	KHG1A050	CUSHION, FOOT	4				
30	CKL1A186H43	FOOT	4				
29	CUA1A240	CHASSIS, BOTTOM	1				
28		PCB(JACK)	1				
27	CNVMB114MA18L	TUNER MODULE	1				
26	COP11666B	PCB(MAIN)	1				
25	HNVS2020VENICE	DAB MODULE	1				
24	CMH1A226	SUPPORT, PCB	2				
23	CKC1B151S46	CABINET, TOP	1				
22	CMD1A501	BRACKET, FIP	3				
21		PCB(MICOM)	1				
20	HFL16T202DA1E	FIP MODULE	1				
19		PCB(ROTARY)	1				
18		PCB(FRONT)	1				
17		PCB(FRONT)	1				
16		PCB(LED)	1				
15	KBT1A920MBC22	KNOB, SELECT	1				
14	KBT1A919MBC22	KNOB, MEMORY	1				
13	KBT1A918MBC22	KNOB, POWER	1				
12	CGL1A227	INDICATOR, POWER	1				
11	CGW1A374RDH43	PANEL, FRONT	1				
10	CMZ1A095	SHEET, ROTARY	1				
9	CMZ1A093	FILTER, FIP	1				

## TU970/230 TUNER

### ASSY'S

POS	PART NUMBER	PART NAME	COMMENTS
	HNVFS2020VENICE	DAB , MODULE	FS2020VENICE1.1
	CNVMB114MA18L	TUNER MODULE(EUR)	
	COP11666B	PCB , MAIN / POWER ASS'Y	TU970
	HFL16T202DA1E	VFD , MODULE	DISPLAY MODULE

### IC's

POS	PART NUMBER	PART NAME	COMMENTS
IC72	HVIRE5VL28CATZ	IC , RESET	
IC21	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1
IC22	BVI74HC4066D	I.C, SWITCHING(QUAD)	74HC4066D
IC23	HVITC74HCU04AFN	IC , INVERTER	TC74HCU04AFN
IC24	BVIKP1010B	IC, PHOTO COUPLER	
IC71	HVIANAM1371T	I.C , FLASH U-COM	
	HVIS3F84BB	I.C , FLASH U-COM	S3F84BB
IC91	HVIKA78R05ZA	I.C ASS'Y	
	CMY2A048	HEAT SINK	
	CTB3+8J	SCREW	
	HVIKA78R05	REGULATOR (5V OUTPUT LOW DROP)	KA78R05TU
IC92	HVIKA78R05ZA	I.C ASS'Y	
	CMY2A048	HEAT SINK	
	CTB3+8J	SCREW	
	HVIKA78R05	REGULATOR (5V OUTPUT LOW DROP)	KA78R05TU
IC93	HVIKA78R12ZA	I.C , ASS'Y	
	CMY2A048	HEAT SINK	
	CTB3+8J	SCREW	
	HVIKA78R12	REGULATOR(12V OUTPUT LOW DROP)	KA78R12TU
IC94	HVIRC1117ST	I.C , ADJ REGULATOR	RC1117ST

### TRANSISTOR

POS	PART NUMBER	PART NAME	COMMENTS
Q201	HVTKTC2874BT	T.R , MUTE	KTC2874B
Q202	HVTKTC2874BT	T.R , MUTE	KTC2874B
Q203	HVTKRA107MT	T.R	KRA107M
Q204	HVTKRC107MT	T.R	KRC107M
Q205	HVTKRA107MT	T.R	KRA107M
Q701	HVTKRA107MT	T.R	KRA107M
Q702	HVTKRA107MT	T.R	KRA107M
Q703	HVTKRA107MT	T.R	KRA107M
Q704	HVTKRA107MT	T.R	KRA107M
Q705	HVTKRA107MT	T.R	KRA107M
Q709	HVTKRC107MT	T.R	KRC107M
Q710	HVTKRC107MT	T.R	KRC107M
Q711	HVTKRC107MT	T.R	KRC107M
Q712	HVTKSA1175YT	T.R	KSA1175Y(DEAD)
Q713	HVTKSC2785YT	T.R	KSC2785Y(DEAD)
Q905	HVTKTC3198YT	T.R	
Q906	HVTKTA1266YT	T.R	TKTA1266YT

DIODE			
POS	PART NUMBER	PART NAME	COMMENTS
D201	HVDMTZJ3.3BT	DIODE , ZENER	3.3V 1/2W
D202	HVD1SS133MT	DIODE	1SS133T-77
D702	HVD1SS133MT	DIODE	1SS133T-77
D703	HVD1SS133MT	DIODE	1SS133T-77
D706	HVD1SS133MT	DIODE	1SS133T-77
D707	HVD1SS133MT	DIODE	1SS133T-77
D708	HVD1SS133MT	DIODE	1SS133T-77
D719	HVD1SS133MT	DIODE	1SS133T-77
D720	HVD1SS133MT	DIODE	1SS133T-77
D901	KVD1N4003ST	DIODE	1N4003
D902	KVD1N4003ST	DIODE	1N4003
D903	KVD1N4003ST	DIODE	1N4003
D904	KVD1N4003ST	DIODE	1N4003
D905	KVD1N4003ST	DIODE	1N4003
D906	HVD1SS133MT	DIODE	1SS133T-77
D907	HVDMTZJ4.7BT	DIODE , ZENER	4.7V 1/2W
D908	KVD1N4003ST	DIODE	1N4003
D909	KVD1N4003ST	DIODE	1N4003
D910	HVDMTZJ6.2BT	DIODE , ZENER	
D911	HVDMTZJ6.2BT	DIODE , ZENER	
D912	KVD1N4003ST	DIODE	1N4003
D913	HVD1SS133MT	DIODE	1SS133T-77
D701	CVD52CSBBCEAB2	BLUE L.E.D	
D709	CVD52CSBBCEAB2	BLUE L.E.D	
D710	CVD52CSBBCEAB2	BLUE L.E.D	
D711	CVD50BOGDWGA	L.E.D , 2 COLOR	
D712	CVD52CSBBCEAB2	BLUE L.E.D	
D713	CVD52CSBBCEAB2	BLUE L.E.D	
D714	CVD52CSBBCEAB2	BLUE L.E.D	
D715	CVD52CSBBCEAB2	BLUE L.E.D	
D716	CVD52CSBBCEAB2	BLUE L.E.D	
D717	CVD52CSBBCEAB2	BLUE L.E.D	
D718	CVD52CSBBCEAB2	BLUE L.E.D	
CAPASITOR			
POS	PART NUMBER	PART NAME	COMMENTS
C101	HCEA1CH471T	CAP , ELECT	
C104	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C201	HCEA1AH471T	CAP , ELECT	470UF 10V
C202	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C203	HCEA1AH471T	CAP , ELECT	470UF 10V
C204	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C205	HCEA1HH4R7T	CAP , ELECT	4.7UF 50V
C206	CCCT1H220JC	CAP , CERAMIC	22PF 50V JC
C207	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C208	HCEA1AH101T	CAP , ELECT	
C209	HCEA1HH4R7T	CAP , ELECT	4.7UF 50V
C210	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C211	HCEA1AH101T	CAP , ELECT	
C212	HCEA1HH4R7T	CAP , ELECT	4.7UF 50V
C213	CCCT1H220JC	CAP , CERAMIC	22PF 50V JC
C214	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C215	HCEA1AH101T	CAP , ELECT	
C216	HCEA1HH4R7T	CAP , ELECT	4.7UF 50V

CAPASITOR			
POS	PART NUMBER	PART NAME	COMMENTS
C217	HCEA1AH101T	CAP , ELECT	
C218	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C219	HCEA1HH4R7T	CAP , ELECT	4.7UF 50V
C220	HCEA1HH4R7T	CAP , ELECT	4.7UF 50V
C221	HCQI1H152JZT	CAP , MYLAR	1500PF 50V J
C222	HCQI1H152JZT	CAP , MYLAR	1500PF 50V J
C223	HCEA1HH4R7T	CAP , ELECT	4.7UF 50V
C224	HCEA1HH4R7T	CAP , ELECT	4.7UF 50V
C225	CCKT1H103ZF	CAP , CERAMIC	0.01UF 50V ZF
C226	CCKT1H102KB	CAP , CERAMIC	1000PF 50V KB
C228	HCEA1HH4R7T	CAP , ELECT	4.7UF 50V
C229	HCEA1AH101T	CAP , ELECT	
C230	HCEA1CH470T	CAP , ELECT	
C231	CCKT1H104ZF	CAP , CERAMIC	50V 0.1UF
C232	CCKT1H101KB	CAP , CERAMIC	100PF 50V KB
C233	CCKT1H104ZF	CAP , CERAMIC	50V 0.1UF
C234	CCCT1H330JC	CAP , CERAMIC	33PF 50V JC
C235	HCEA1AH101T	CAP , ELECT	
C701	HCEA1AH471T	CAP , ELECT	470UF 10V
C702	CCCT1H330JC	CAP , CERAMIC	33PF 50V JC
C703	CCCT1H330JC	CAP , CERAMIC	33PF 50V JC
C704	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C705	CCKT1H221KB	CAP , MYLAR	220PF 50V KB
C706	CCKT1H221KB	CAP , MYLAR	220PF 50V KB
C707	HCEA1AH101T	CAP , ELECT	
C708	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C709	CCKT1H221KB	CAP , MYLAR	220PF 50V KB
C710	CCKT1H221KB	CAP , MYLAR	220PF 50V KB
C711	CCKT1H221KB	CAP , MYLAR	220PF 50V KB
C714	HCEA1AH101T	CAP , ELECT	
C715	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C716	HCEA1AH471T	CAP , ELECT	470UF 10V
C717	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C718	CCKT1H101KB	CAP , CERAMIC	100PF 50V KB
C719	CCKT1H101KB	CAP , CERAMIC	100PF 50V KB
C720	CCKT1H101KB	CAP , CERAMIC	100PF 50V KB
C721	CCKT1H101KB	CAP , CERAMIC	100PF 50V KB
C722	CCKT1H101KB	CAP , CERAMIC	100PF 50V KB
C723	CCKT1H101KB	CAP , CERAMIC	100PF 50V KB
C724	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C726	HCEA1CH470T	CAP , ELECT	
C727	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C901	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C902	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C903	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C904	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C905	HCEA1HH220T	CAP , ELECT	22UF 50V
C906	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C908	HCEA1AH101T	CAP , ELECT	
C909	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C910	HCEA1CH101T	CAP , ELECT	100UF 16V
C911	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C914	HCEA1AH101T	CAP , ELECT	

CAPASITOR			
POS	PART NUMBER	PART NAME	COMMENTS
C915	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C916	HCEA1AH101T	CAP , ELECT	
C917	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C918	HCEA1AH101T	CAP , ELECT	
C919	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C920	HCEA1AH101T	CAP , ELECT	
C921	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C922	HCEA1AH101T	CAP , ELECT	
C923	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C924	HCEA1CH471T	CAP , ELECT	
C925	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C926	HCEA1AH101T	CAP , ELECT	
C927	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C928	HCEA1AH470T	CAP , ELECT	
C929	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF
C900	BCQE2E104KDE	CAP , LINE ACROSS	0.1UF 250V KD
C907	HCEA1CH103E	CAP , ELECT	10000UF , 16V
C912	HCEA1EH222E	CAP , ELECT	2200UF 25V
C913	HCEA1CH102E	CAP , ELECT	
C930	HCEA1CH682E	CAP , ELECT	
RESISTOR			
POS	PART NUMBER	PART NAME	COMMENTS
R101	CRD25TJ4R7T	RES , CARBON	
R104	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R105	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R201	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R203	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J
R205	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R206	CRD20TJ151T	RES , CARBON	150 OHM 1/5W J
R207	CRD20TJ151T	RES , CARBON	150 OHM 1/5W J
R208	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J
R209	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J
R210	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R212	CRD20TJ151T	RES , CARBON	150 OHM 1/5W J
R213	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J
R214	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R215	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R216	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R217	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R218	CRD20TJ151T	RES , CARBON	150 OHM 1/5W J
R219	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R220	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R221	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R222	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R223	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R224	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R225	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R226	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R227	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R228	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R229	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R230	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R231	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J

RESISTOR			
POS	PART NUMBER	PART NAME	COMMENTS
R232	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J
R233	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J
R234	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R235	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R236	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J
R237	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R238	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J
R239	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J
R240	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R241	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R242	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J
R243	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J
R245	CRD20TJ271T	RES , CARBON	270 OHM 1/5W J
R246	CRD20TJ470T	RES , CARBON	47 OHM 1/5W J
R247	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R248	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J
R249	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J
R250	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R704	CRD20TJ470T	RES , CARBON	47 OHM 1/5W J
R705	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J
R706	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R707	CRD20TJ470T	RES , CARBON	47 OHM 1/5W J
R711	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R712	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R713	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R718	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R719	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R720	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R721	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R722	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J
R723	CRD20TJ182T	RES , CARBON	1.8K OHM 1/5W J
R724	CRD20TJ272T	RES , CARBON	2.7K OHM 1/5W J
R725	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J
R726	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J
R727	CRD20TJ752T	RES , CARBON	7.5K OHM 1/5W J
R728	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R729	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R730	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R731	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R732	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R733	CRD20TJ105T	RES , CARBON	1M OHM 1/5W J
R734	CRD20TJ181T	RES , CARBON	180 OHM 1/5W J
R735	CRD20TJ471T	RES , CARBON	470 OHM 1/5W J
R736	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J
R737	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J
R738	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J
R739	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R740	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R741	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R742	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R743	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R744	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R901	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J

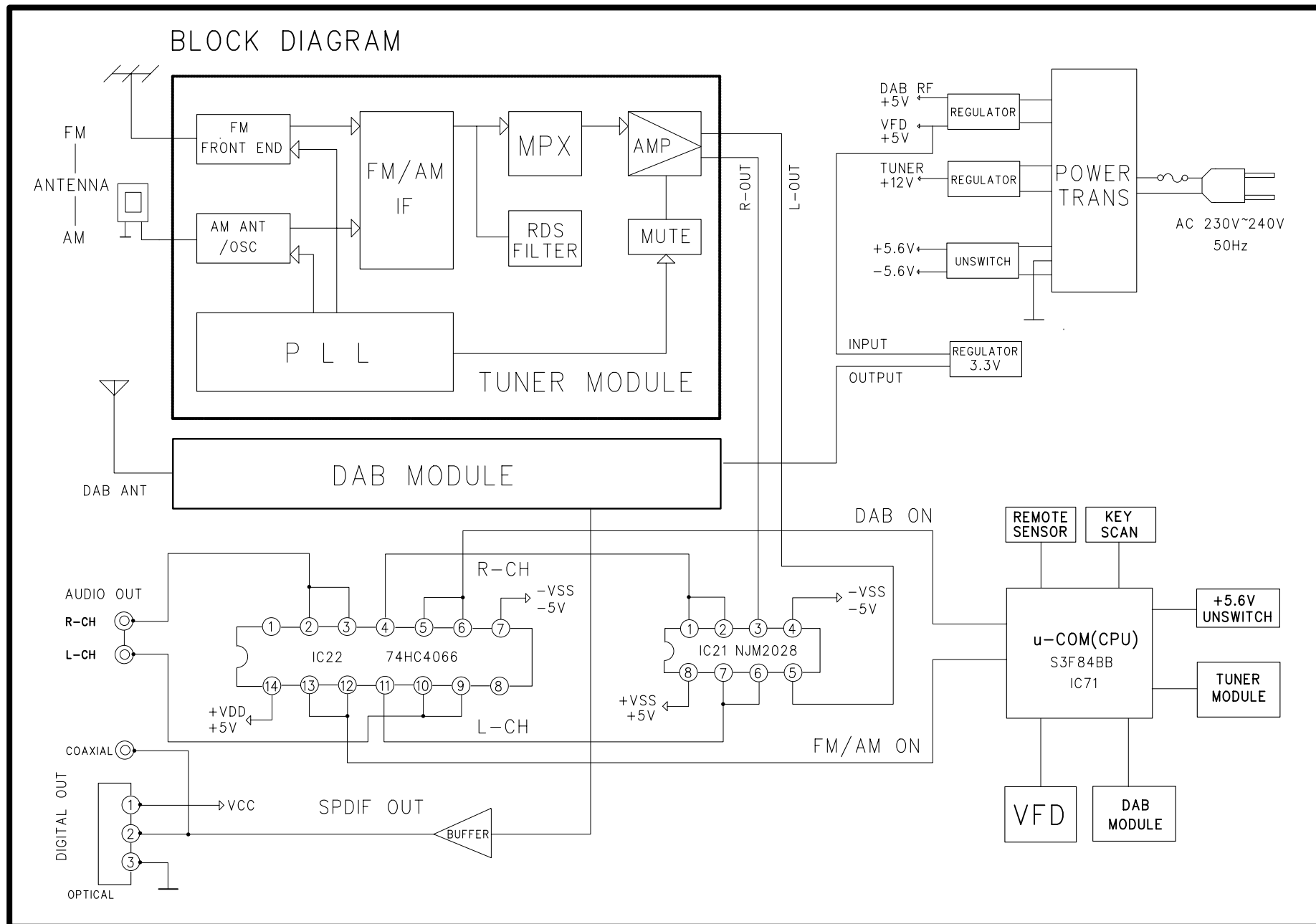


RESISTOR			
POS	PART NUMBER	PART NAME	COMMENTS
R902	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R903	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R904	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R905	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R906	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R907	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R908	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R909	CRD20TJ361T	RES , CARBON	360 OHM 1/5W J
R912	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
SWITCH			
POS	PART NUMBER	PART NAME	COMMENTS
S701	HST1A020ZT	SW , TACT	
S702	HST1A020ZT	SW , TACT	
S703	HST1A020ZT	SW , TACT	
S704	HST1A020ZT	SW , TACT	
S705	HST1A020ZT	SW , TACT	
S706	HST1A020ZT	SW , TACT	
S707	HST1A020ZT	SW , TACT	
S709	HST1A020ZT	SW , TACT	
S708	KST1A010Z	SW , TACT CN	
WAFER / WIRE ASSY			
POS	PART NUMBER	PART NAME	COMMENTS
BN21	CJP44TT153ZY	PIN , HEADER (2.00MM)	
BN23	CWZTU970BN23	WIRE , SILED ASS'Y	
BN71	KJP14HA151ZY	PIN SOCKET (2.54MM)	
BN74	KJP06TT154ZY	PIN HEADER (2.54MM)	
BN75	CWB2B903090EN	WIRE ASS'Y	
BN76	CWB2B904110EN	WIRE , ASS'Y	
BN77	CWB1C902050EN	WIRE ASS'Y	
BN78	CWB2B907140EN	ASS'Y , WIRE	
BN79	KJP05GB99ZM	CONNECTOR	
BN92	CWB1E907150BM	WIRE , ASS'Y	
CN22	KJP02TT155ZY	PIN HEADER (2.54MM)	
CN23	KJP03GB46ZM	WAFER	MOLEX53015-0310
CN72	KJP23GA115ZG	WAFER , CARD CABLE	GF120-23S-TS
CN73	KJP06GB46ZM	WAFER	
CN74	KJP06HA37ZM	WAFER	MOLEX42140-2206
CN75	KJP03GA19ZM	WAFER	
CN76	KJP04GA19ZM	WAFER	
CN77	KJP02GA19ZM	WAFER	
CN78	KJP07GB46ZM	WAFER	
CN79	KJP05GA98ZM	WAFER	
CN91	KJP02KA060ZY	WAFER	7.92MM(YUNHO)
CN92	KJP07GA01ZM	WAFER	MOLEX 5267-07A
JW21	CWE8202050AV	WIRE ASS'Y	
JW71	CWE8202070RV	WIRE ASS'Y	
JW73	CWE8202070RV	WIRE ASS'Y	
WF11	KJP17GA115ZG	WAFER, CARD CABLE	GF120-17S-TS
WF72	KJP23GA115ZG	WAFER , CARD CABLE	GF120-23S-TS
	CWC1C4A17B070B	CARD CABLE	
	CWE8202070AR	WIRE ASS'Y	

CONNECTORS			
POS	PART NUMBER	PART NAME	COMMENTS
JK21	CJJ4N063Z	JACK , BOARD	
JK22	HJSTOTX179L	MODULE , OPTICAL(TX)	TOTX179L
JK23	CJJ3G012Z	ANT , TEMINAL	RF - 055A
JK24	CJJ4M041Y	JACK , BOARD (COAX)	
JK25	CJJ2D008Z	JACK , STEREO	
JK26	CJJ2D008Z	JACK , STEREO	
PACKING			
POS	PART NUMBER	PART NAME	COMMENTS
	CPB1A013Y	BAG , POLY	
	CPG1A745Z	BOX, OUT CARTON	TU970
	CPS1A651	PAD, SNOW	TU970
	CPS1A657	PAD, TOP	
	CQXTU970	INSTRUCTION MANUAL ASS'Y	
	CARTTU970	REMOCON TRANSMITER ASS'Y	Remote control
	CJS4M009X	CORD, PIN	CORD, PIN
	CJS4N014Z	CORD , PIN	
	CJS9D002Z	CORD , JACK(MONO) 1200MM	
	CPB1061Y	BAG , POLY	
	CQE1A180Z	BOOKLET , IMFORMATIONS	
	CQX1A887Z	MANUAL , INSTRUCTION	TU970
	CSA1A018Z	FM 1 POLE ANT	
	CSA1A020Z	AM LOOP ANT	
	CSA272	ANT , DAB T	T17020N
MECH			
POS	PART NUMBER	PART NAME	COMMENTS
	KGB1A111X	BADGE , HARMAN/KARDON	
	KGX1A344MBC22	CAP, ROTARY	
	CGL1A229	INDICATOR, ROTARY	
	CGWTU970	FRONT PANEL ASS'Y	
	CGL1A227	INDICATOR, POWER	
	CGU1A324Z	WINDOW, FIP	ACRYL
	CGU1A324Z-1	WINDOW, ROTARY	
	CGW1A374RDH43	PANEL, FRONT	TU970
	CMZ1A093	FILTER, FIP	PVC 0.4T
	CMZ1A095	SHEET, ROTARY	
	CTB3+10G	SCREW	
	CTW3+10G	SCREW	
	CWC1C4A23B160B	CABLE , CARD	
	KBT1A918MBC22	KNOB, POWER	
	KBT1A919MBC22	KNOB, MEMORY	
	KBT1A920MBC22	KNOB, SELECT	
	KGR1A325MBC22	ORNAMENT, BAR(A)	
	KGR1A326MBC22	ORNAMENT, BAR(B)	
	KGR1A327MBC22	ORNAMENT, BAR(C)	
	KGR1A328MBC22	ORNAMENT, BAR(D)	
FIP1	KJP14TT152ZY	PIN HEADER (2.54MM)	
	CHG1A113	RUBBER	
	CKC1B151S46	CABINET, TOP	TU970
	CTB3+6J	SCREW	
	CTB3+8JFC	SCREW	
	CTS3+6JFC	SCREW	
	CUATU970	BOTTOM CHASSIS ASS'Y	
	CHD1A023	SCREW , TRANS	M4X10(SP/WA)

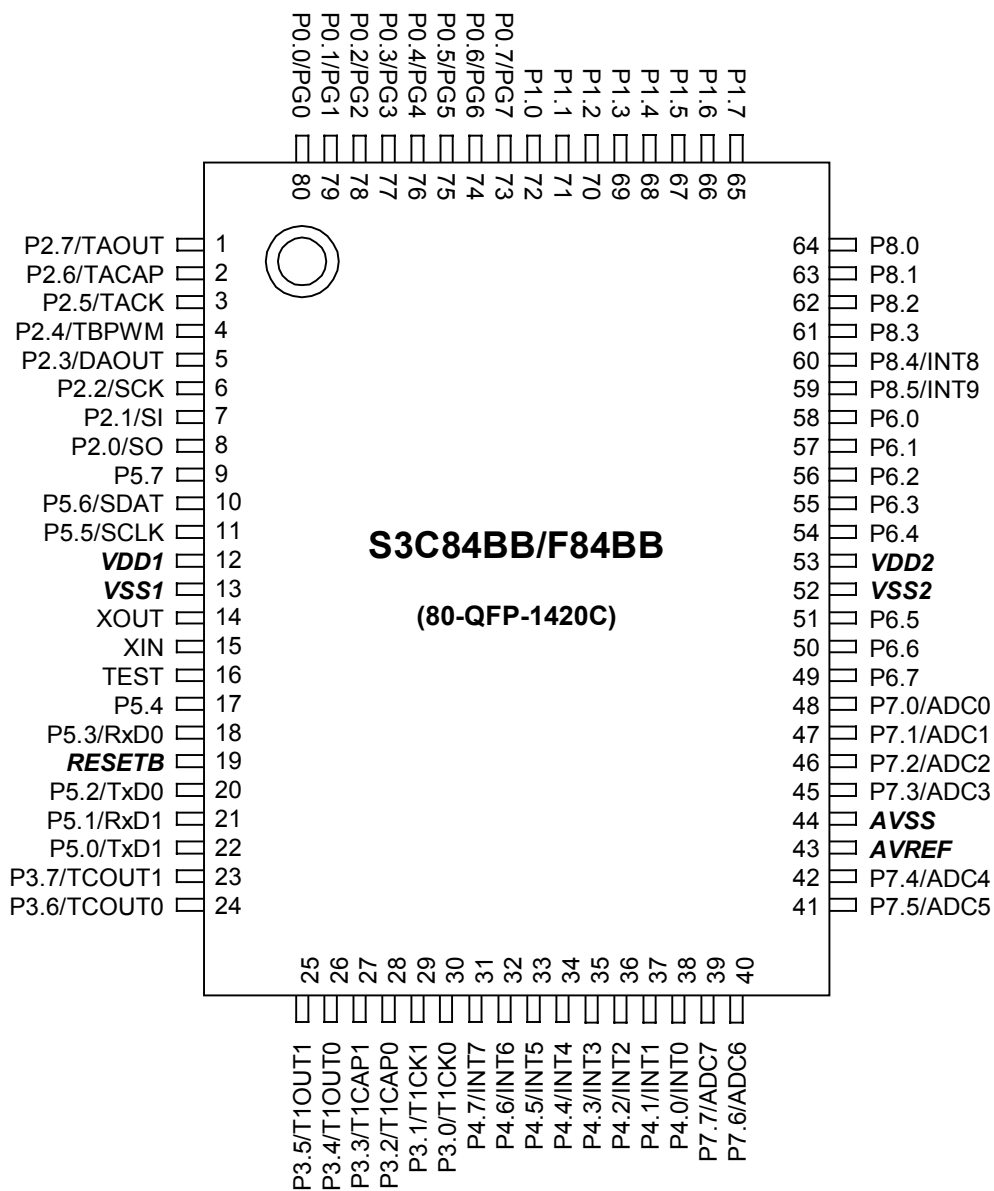
MECH			
POS	PART NUMBER	PART NAME	COMMENTS
	CJA2B043ZA	CORD , POWER(EUR)	
	CKF1A275Z	PANEL, REAR	TU970
	CKL1A186H43	FOOT	
	CMH1A226	SUPPORT , PCB	
T901	CLT5M026ZE	TRANS , POWER	230V 50Hz
MISCELLANEOUS			
POS	PART NUMBER	PART NAME	COMMENTS
ET21	CMD1A387	BRACKET , PCB	
ET71	CMD1A501	BRACKET , FIP	
ET72	CMD1A501	BRACKET , FIP	
ET73	CMD1A501	BRACKET , FIP	
ET91	CNE75	PLATE , EARTH	
ET92	CNE75	PLATE , EARTH	
RS71	KRVHIM602H32	SENSOR , REMOCON	
VE71	HSR2A028Z	VR , ENCODER	EC12B24S0034ZZZ
BAT1	HABGP40BVH3A3H	BATTERY , RECHARGEABLE	GP40BBVH3A3H
X701	HOX10000E220C	CRYSTAL	
	CTB3+10GFZ	SCREW	
	CTB3+6J	SCREW	
	CTB3+6JFZ	SCREW	
	CTW3+8J	SCREW	
	CUA1A240	CHASSIS, BOTTOM	
	KHG1A050	RUBBER , CUSHION	
	KHR1A028	BUSHING , AC CORD	
F901	KBA2C1000TLEZ	FUSE	
F901	KJCF5S	HOLDER , FUSE	



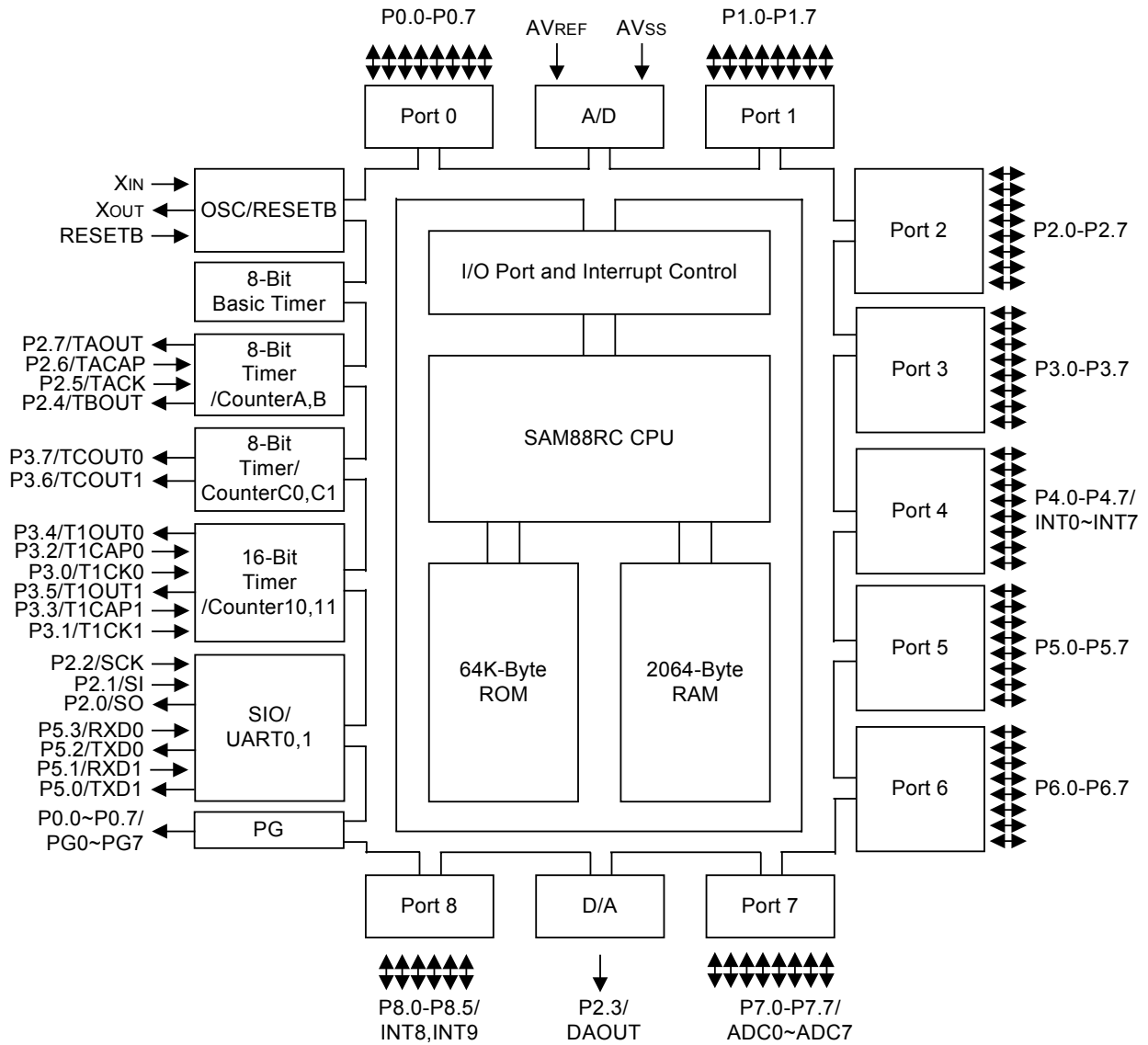




## PIN ASSIGNMENT



# IC BLOCK DIAGRAM





## IC71 S3F84BB(FLASH MEMORY), ANAM1369A(MASKING)

PIN No.	NAME	I/O	DESCRIPTION
1~8	FIP-DA	O	FIP Data output port
10	SINO	I	UART Data input port
11	SOTO	O	UART Data output port
12	VDD1	-	Power supply port(+5V)
13	VSS1	-	GND
14	X OUT	O	10MHz crystal connection port
15	X IN	I	
16	TEST	I	
19	RESET	I	Reset input port("L")
21	DAB_DIN	I	DAB Data input port
22	DAB_DOUT	O	DAB Data output port
23	DAB_CK	O	DAB Clock control port
24	FM/AM_MUTE	O	FM/AM MUTE control port("L")
25	PLL_D	O	PLL Data output port
26	PLL_CE	O	PLL Enable control port
27	PLL_CLK	O	PLL Clock control port
28	STEREO	I	Tuner module stereo control port
29	TUNED	I	Tuner module tuned control port
30	PLL_DIN	I	PLL Data input port
31	RDS_CLOCK	O	RDS Clock control port
32	RDS_DATA	I	RDS Data input port
33	BACK_UP	I	BACKUP mode control port("L")
34	REMOTE_IN	I	Remote unit data input port
35	BUS_IN	I	BUS input port
36	BUS_OUT	O	BUS output port
39,40	GND	-	GND
41	SCROLL_UP	I	Scroll up control port
42	SCROLL_DN	I	Scroll down control port
43	VREF	-	A/D converter reference voltage
44	AVSS	-	GND
46	KEY 3	-	
47	KEY 2	-	
48	KEY 1	I	Key 1 control port
52	VSS2	-	GND
53	VDD2	-	Power supply port(+5V)
54	SYSTEM_MUTE	O	System MUTE control port("L")
55	STAND_BY	O	Standby on control port("L")
56	FM/AM_ON	O	FM/AM on control port("L")
57	DAB_ON	O	DAB on control port("L")
58	POWER_ON	O	Unit turn on control port("L")
65~68	OPTION	-	GND
78	RS_P	O	Register selection port
79	WRITE	O	Write enable port
80	READ	O	Read enable port

