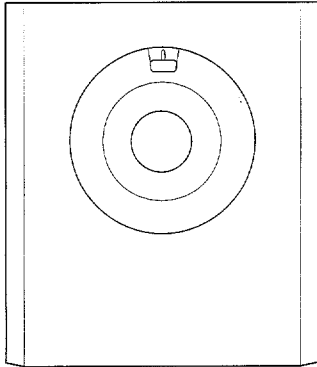


aiwa



TS-W60



POWERED SUBWOOFER

• TYPE : U, EZ, HR

REVISION PUBLISHING

- This Service Manual is the "Revision Publishing" and replaces "Simple Manual", TS-W60 (U,EZ,HR), S/M Code No. 09-994-411-1T1.

S/M Code No. 09-996-411-1R1

MANUAL
SERVICE

SPECIFICATIONS

Input terminals INPUT 1 jack
INPUT 2 terminals

Input sensitivity/Impedance
INPUT 1: 1 V / 50 kilo ohms (at 60 Hz)
INPUT 2: 9 V / 4.4 kilo ohms
(L and R) (at 60 Hz)
SPEAKERS OUT terminals

Output terminals
Power output FTC RULE
120 watts, Min. RMS at 4 ohms, from
40 Hz to 160 Hz, with no more than 1 %
Total Harmonic Distortion
120 W (4 ohms, T.H.D. 1 % at 60 Hz)
150 W (4 ohms, T.H.D. 10 % at 60 Hz)
DIN MUSIC POWER: 220W

Frequency response 35 Hz – 200 Hz

Speaker type Bass reflex type
Speaker unit 20 cm (Magnetically shielded type)
Power requirement U: AC 120 V, 60 Hz
EZ: AC 230 V, 50 Hz
HR: AC 120 V / 220 V – 240 V
switchable, 50 / 60 Hz

Power consumption U: 55 W
EZ, HR: 65 W

Dimensions (w/h/d) 295 x 340 x 430 mm
(11⁵/₈ x 13¹/₂ x 17 inches.)

Weight 11.5 kg (25 lbs 6 oz.)

• Design and specifications are subject to change without notice.

ACCESSORIES / PACKAGE LIST

If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-YP1-903-010		IB, U (ESF) FOS<U>
1	8Z-YP1-901-010		IB, H (ECA) FOS<HR>
1	8Z-YP1-906-010		IB, EZ (9L) FOS<EZ>
2	87-YP3-632-010		186-C13000, CORD ASSY
3	8Z-YP1-618-010		CORD, SPKR 2P ACC
△ 4	87-042-062-010		PLUG, CONVERSION S-I6115<HR>

ELECTRICAL MAIN PARTS LIST

If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF.NO.	PART NO.	KANRI NO.	DESCRIPTION	REF.NO.	PART NO.	KANRI NO.	DESCRIPTION
IC				C216	87-016-658-090		CAP,E 4700-35 SMG
	87-A20-754-010	IC,BA4558N-DX		C217	87-016-657-090		CAP,E 3300-71
	84-SP2-636-010	IC,MC14013BCP		C218	87-016-657-090		CAP,E 3300-71
				C219	87-016-299-080		CAP,E 10-100 SME
				C220	87-016-299-080		CAP,E 10-100 SME
TRANSISTOR				CN4	87-009-260-010		CONNECTOR, 6P
	87-A30-111-080	TR,C2N5401		CN16	87-009-256-010		CONN,2P V 52147
	87-026-269-080	TR,DTA114ES <EZ,HR>		CNA2	8Z-YP1-612-010		CORD ASSY,4P SP
	87-026-609-080	TR,KTA1266GR		CNA4	8Z-YP1-625-010		CORD ASSY,5P UHR
	87-026-610-080	TR,KTC3198GR		J1	87-099-801-010		JACK,PIN 1P BLK
	87-A30-112-080	TR,C2N5551		△ PR204	87-A90-094-080		PROTECTOR,0.5A 491SERIES 60V
	87-A30-076-080	C-TR,2SC3052F		R107	87-A00-262-080		RES,M/F 0.15-2W J
	87-A30-097-010	TR,FN 1016		R108	87-A00-262-080		RES,M/F 0.15-2W J
	87-A30-098-010	TR,FP 1016		R109	87-A00-262-080		RES,M/F 0.15-2W J
	87-A30-162-010	FET,2SK2937		S1	86-SP2-633-010		SW,SL 1-1-2
	89-420-612-010	TR,2SD2061 (2W)		S2	86-SP2-633-010		SW,SL 1-1-2
				S3	86-SP2-633-010		SW,SL 1-1-2
DIODE				TH101	87-A91-042-080		C-THMS,100K 55001
	87-020-465-080	DIODE,1SS133 (110MA)		TM1	87-A60-659-010		TERMINAL,SPKR 4P HSP-134V*05Z
	87-A40-345-080	ZENER,MTZJ10C		TM2	87-A60-659-010		TERMINAL,SPKR 4P HSP-134V*05Z
	87-070-136-080	ZENER,MTZJ5.1B		VR1	87-YP5-623-010		102-20KB-11001,VR RTRY 20KBX1H
	87-A40-004-080	ZENER,MTZJ16A		VR2	8Z-YP1-620-010		VR,RTRY 20KBX2 H XVO122GPHJN20
	87-017-978-080	DIODE,1N4003					
	87-A40-001-080	ZENER,MTZJ12C		TRANS C.B			
	87-A40-184-010	DIODE,RK34		C200	87-010-384-080		CAP, ELECT 100-25V
	87-A40-116-060	DIODE,RS403L-B-D-51		C201	87-010-404-080		CAP, ELECT 4.7-50V
				C202	87-010-405-080		CAP, ELECT 10-50V
				C203	87-018-209-080		CAP, CER 0.1-50V
				C204	87-018-209-080		CAP, CER 0.1-50V
MAIN C.B				C205	87-018-209-080		CAP, CER 0.1-50V
C1	87-010-385-080	CAP, ELECT 220-25V		C206	87-018-209-080		CAP, CER 0.1-50V
C2	87-010-405-080	CAP, ELECT 10-50V		C207	87-018-209-080		CAP, CER 0.1-50V
C3	87-010-385-080	CAP, ELECT 220-25V		C208	87-018-209-080		CAP, CER 0.1-50V
C4	87-010-405-080	CAP, ELECT 10-50V		C209	87-010-409-080		CAP, ELECT 220-50V
C5	87-010-182-080	C-CAP,S 2200P-50 B		C210	87-010-405-080		CAP, ELECT 10-50V
C6	87-010-401-080	CAP, ELECT 1-50V		C211	87-010-396-080		CAP,E 470-35 SME
C7	87-010-406-080	CAP, ELECT 22-50V		C212	87-010-401-080		CAP, ELECT 1-50V
C11	87-010-405-080	CAP, ELECT 10-50V		C213	87-010-384-080		CAP, ELECT 100-25V
C12	87-010-401-080	CAP, ELECT 1-50V		C214	87-010-196-080		C-CAP,S 0.1-50V
C13	88-700-910-080	CAP,M 0.1-50 J		C221	87-010-384-080		CAP, ELECT 100-25V
C14	88-700-840-080	CAP,M 0.033-50 J		CN6	87-049-469-010		CONN,4P V
C15	87-010-322-080	C-CAP,S 100P-50 CH		CN11	87-099-674-010		CONN,2P VA V <U,EZ>
C16	87-010-405-080	CAP, ELECT 10-50V		CN14	87-A60-959-010		CONN,5P V VH B5B9 <HR>
C17	87-010-405-080	CAP, ELECT 10-50V		CN17	87-009-796-010		CONN,8P TKC-M X
C18	87-010-322-080	C-CAP,S 100P-50 CH		△ F201	87-035-192-010		FUSE, 4AT <EZ,HR>
C19	87-010-406-080	CAP, ELECT 22-50V		△ F201	87-035-489-010		FUSE, 4A125V D UL <U>
C20	87-010-405-080	CAP, ELECT 10-50V		△ FC101	87-033-213-080		CLAMP, FUSE
C21	87-010-405-080	CAP, ELECT 10-50V		△ FC102	87-033-213-080		CLAMP, FUSE
C22	87-010-405-080	CAP, ELECT 10-50V		△ PR201	87-A90-069-080		FUSE,2A 125V 251<U>
C23	87-010-405-080	CAP, ELECT 10-50V		△ PR201	87-A90-091-080		PROTECTOR 2A 491<EZ,HR>
C24	87-010-248-080	CAP, ELECT 220-10V		△ PR202	87-A90-069-080		FUSE,2A 125V 251<U>
C25	87-010-405-080	CAP, ELECT 10-50V		△ PR202	87-A90-091-080		PROTECTOR 2A 491<EZ,HR>
C26	87-010-405-080	CAP, ELECT 10-50V		△ PR203	87-A90-410-080		FUSE,0.5A 125V 251<U>
C27	87-010-406-080	CAP, ELECT 22-50V		△ PR203	87-A90-393-080		PROTECTOR 0.5A 491<EZ,HR>
C28	87-010-248-080	CAP, ELECT 220-10V		△ PT1	8Z-YP1-615-010		PT,U <U>
C29	87-010-196-080	C-CAP,S 0.1-50V		△ PT1	8Z-YP1-616-010		PT,E <EZ>
C30	87-010-196-080	C-CAP,S 0.1-50V		△ PT1	8Z-YP1-617-010		PT,HR <HR>
C31	87-010-196-080	C-CAP,S 0.1-50V		RY201	87-045-389-010		RELAY,OSA-SS-212DM5
C52	87-010-322-080	C-CAP,S 100P-50 CH <EZ>		RY202	87-045-389-010		RELAY,OSA-SS-212DM5
C100	87-A10-812-080	C-CAP,S 220P-200 J CH					
C101	87-010-260-080	CAP, ELECT 47-25V		FRONT C.B			
C102	87-010-246-080	CAP, ELECT 47-35V		CN1	87-009-309-010		CONN,3P 51048
C104	87-010-196-080	C-CAP,S 0.1-50V		D214	8Z-YP1-606-010		LED,GRN DIA3
C105	87-010-182-080	C-CAP,S 2200P-50 B		△ S101	87-YP4-607-010		SW,PUSH 202-SPUN19
C106	87-010-196-080	C-CAP,S 0.1-50V					
C107	87-010-196-080	C-CAP,S 0.1-50V		CONN C.B			
C108	87-010-196-080	C-CAP,S 0.1-50V		CN3	87-009-312-010		CONNECTOR, 6P
C109	87-010-322-080	C-CAP,S 100P-50 CH <EZ>		CN15	87-009-257-010		CONN,2P 51048
C121	87-010-197-080	C-CAP,S 0.01-25 KB					
C215	87-016-658-090	CAP,E 4700-35 SMG					

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
CN19	87-099-542-010		CONN, 8P TKC-M08P-B1
CN20	87-099-545-010		CONN, 14P TKC-M14P-B1
CNA1	8Z-YP1-610-010		CORD ASSY, 5P
CNA3	8Z-YP1-611-010		CORD ASSY, 4P

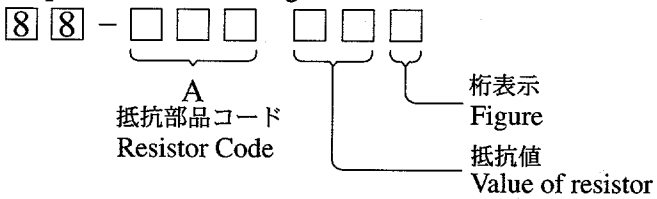
SW C.B <HR>

△ T201	82-304-743-010	TERMINAL, 1P
△ T202	82-304-743-010	TERMINAL, 1P
△ S202	87-A90-234-010	SW, SL 1-2-2 SW2201

チップ抵抗部品コード/CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち

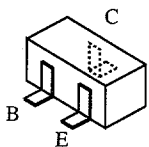
Chip Resistor Part Coding



チップ抵抗 Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法/Dimensions (mm)			抵抗コード : A Resistor Code : A	
				外形/Form	L	W		t
1/16W	1005	± 5%	CJ		1.0	0.5	0.35	104
1/16W	1608	± 5%	CJ		1.6	0.8	0.45	108
1/10W	2125	± 5%	CJ		2	1.25	0.45	118
1/8W	3216	± 5%	CJ		3.2	1.6	0.55	128

TRANSISTOR ILLUSTRATION



2SC3052F



C2N5551



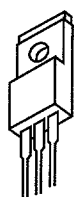
DTA114ES



2SK2937

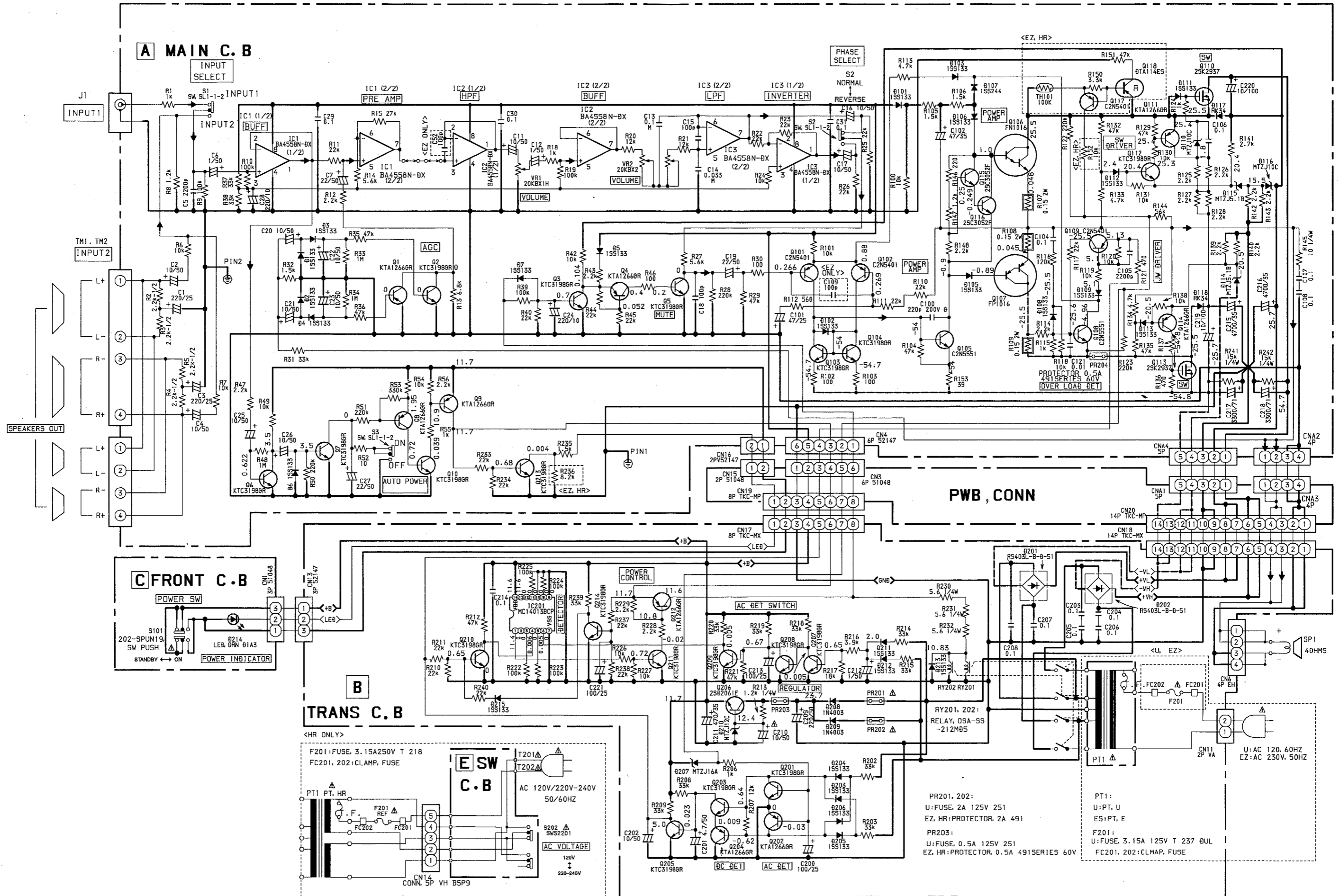


KTA1266GR
KTC3198GR
C2N5401

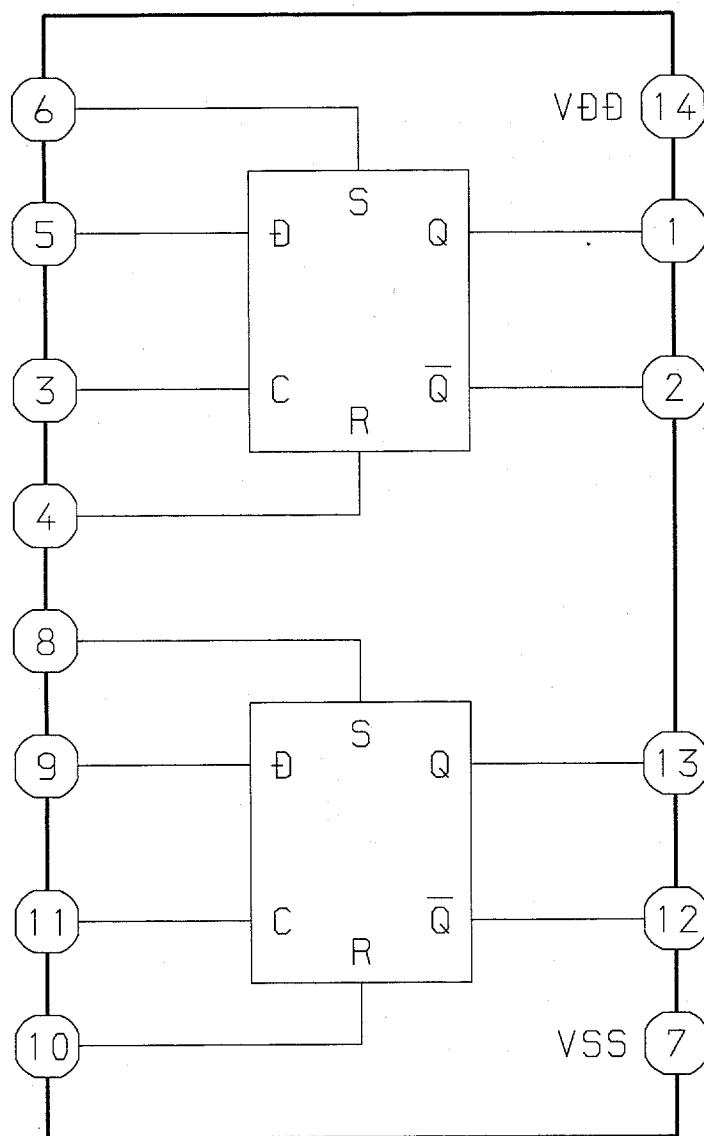


2SD2061
FN1016
FP1016

SCHEMATIC DIAGRAM



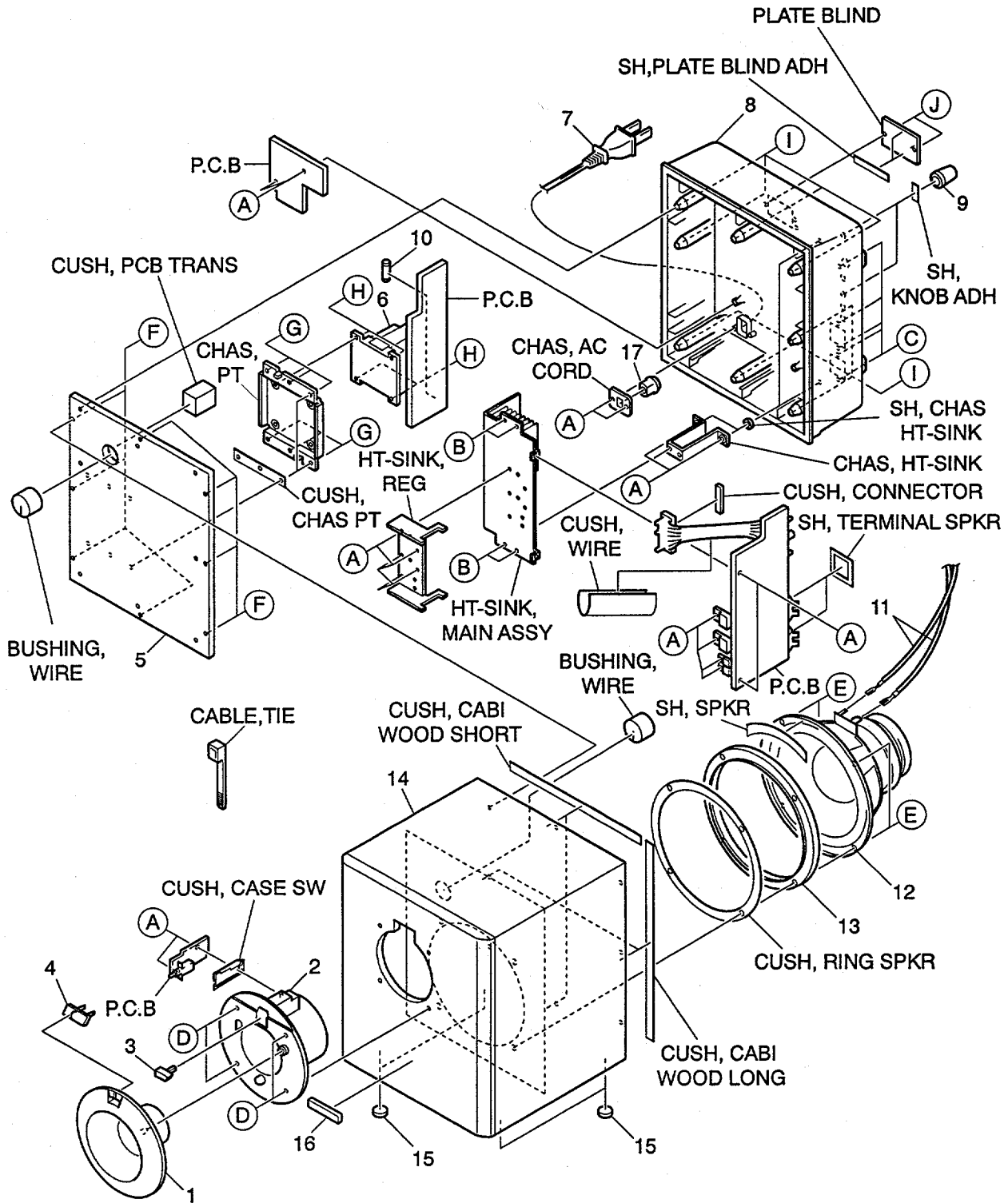
IC BLOCK DIAGRAM
IC, MC14013BCP



TRUTH TABLE

INPUT				OUTPUT	
CLOCK	DATA	RESET	SET	Q	\bar{Q}
	0	0	0	0	1
	1	0	0	1	0
	X	0	0	Q	\bar{Q}
X	X	1	0	0	1
X	X	0	1	1	0
X	X	1	1	1	1

MECHANICAL EXPLODED VIEW 1 / 1



MECHANICAL PARTS LIST 1 / 1

If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-YP1-003-010		PANEL, DUCT	△ 10	87-035-191-010		FUSE 3.15A 250V T 218
1	8Z-YP1-015-010		PANEL, DUCT UL	11	8Z-YP1-612-010		CORD ASSY, 4P SP
2	8Z-YP1-201-010		CASE, SW	12	8Z-YP1-614-010		SPKR, 200 4OHM
2	8Z-YP1-230-010		CASE, SW UL	13	8Z-YP1-202-010		RING, SPKR
3	8Z-YP1-005-010		BTN, POWER	14	8Z-YP1-008-010		CABI, WOOD BOX<U, HR>
4	8Z-YP1-006-010		WINDOW, LED	14	8Z-YP1-009-010		CABI, WOOD BOX E1<EZ>
5	8Z-YP1-209-010		PANEL, WOOD<U, HR>	15	8Z-YP1-212-010		FOOT, BOX
5	8Z-YP1-210-010		PANEL, WOOD E1<EZ>	16	81-VSI-022-010		BADGE, AIWA N44
△ 6	8Z-YP1-616-010		PT, E<EZ>	A	87-067-703-010		TAPPING SCREW, BVT2+3-10
△ 6	8Z-YP1-617-010		PT, HR	B	87-067-689-010		TAPPING SCREW, BVTT+3-8
△ 6	8Z-YP1-615-010		PT, U	C	87-755-096-410		VT2+3-10 W/O SLOT
△ 7	8Z-YP1-624-010		AC CORD ASSY U SPT, 2W	D	8Z-YP1-231-010		SW+3.5-12
△ 7	8Z-YP1-623-010		AC CORD ASSY, E W<EZ>	E	8Z-YP1-232-010		UT1+4-20
△ 7	8Z-YP1-622-010		AC CORD ASSY, HR W<HR>	F	87-YP4-211-010		SW+3.5-22
△ 7	87-A80-110-010		AC CORD ASSY, U SPT-2W<U>	G	8Z-YP1-236-010		UT1+3.5-16
8	8Z-YP1-001-010		CABI REAR<EZ>	H	87-078-019-010		S-SCREW, IT+4-6
8	8Z-YP1-002-010		CABI REAR HR<HR>	I	8Z-YP1-233-010		SW+3.5-20
8	8Z-YP1-007-010		CABI REAR UL<U>	J	8Z-YP1-215-010		VT2+2.6-8 W/O SLOT NI
9	8Z-YP1-004-010		KNOB, RTRY VOL				
△ 10	87-035-488-010		FUSE 3.15A 125V T 237 DUL				

COLOR NAME TABLE

Basic color symbol	Color	Basic color symbol	Color	Basic color symbol	Color
B	Black	C	Cream	D	Orange
G	Green	H	Gray	L	Blue
LT	Transparent Blue	N	Gold	P	Pink
R	Red	S	Sliver	ST	Titan Silver
T	Brown	V	Violet	W	White
WT	Transparent White	Y	Yellow	YT	Transparent Yellow
LM	Metallic Blue	LL	Light Blue	GT	Transparent Green
LD	Dark Blue	DT	Transparent Orange		

REFERENCE NAME LIST

ELECTRICAL SECTION

DESCRIPTION	REFERENCE NAME
ANT	ANTENNAS
C-	CHIP
C-CAP	CAP, CHIP
C-CAP TN	CAP, CHIP TANTALUM
C-COIL	COIL, CHIP
C-DI	DIODE, CHIP
C-DIODE	DIODE, CHIP
C-FET	FET, CHIP
C-FOTR	FILTER, CHIP
C-JACK	JACK, CHIP
C-LED	LED, CHIP
C-RES	RES, CHIP
C-SFR	SFR, CHIP
C-SLIDE SW	SLIDE SWITCH, CHIP
C-SW	SWITCH, CHIP
C-TR	TRANSISTOR, CHIP
C-VR	VOLUME, CHIP
C-ZENER	ZENER, CHIP
CAP, CER	CAP, CERA-SOL
CAP, E	CAP, ELECT
CAP, M/F	CAP, FILM
CAP, TC	CAP, CERA-SOL
CAP, TC-U	CAP, CERA-SOL SS
CAP, TN	CAP, TANTALUM
CERA FIL	FILTER, CERAMIC
CF	FILTER, CERAMIC
DL	DELAY LINE
E/CAP	CAP, ELECT
FILT	FILTER
FLTR	FILTER
FUSE RES	RES, FUSE
MOT	MOTOR
P-DIODE	PHOTO DIODE
P-SNSR	PHOTO SENSER
P-TR	PHOTO TRANSISTOR
POLY VARI	VARIABLE CAPACITOR
PPCAP	CAP, PP
PT	POWER TRANSFORMER
PTR, RES	PTR, MELF
RC	REMOTE CONTROLLER
RES NF	RES, NON-FLAMMABLE
RESO	RESONATOR
SHLD	SHIELD
SOL	SOLENOID
SPKR	SPEAKER
SW, LVR	SWITCH, LEVER
SW, RTRY	SWITCH, ROTARY
SW, SL	SWITCH, SLIDE
TC CAP	CAP, CERA-SOL
THMS	THERMISTOR
TR	TRANSISTOR
TRIMER	CAP, TRIMMER
TUN-CAP	VARIABLE CAPACITOR
VIB, CER	RESONATOR, CERAMIC
VIB, XTAL	RESONATOR, CRYSTAL
VR	VOLUME
ZENER	DIODE, ZENER

MECHANICAL SECTION

DESCRIPTION	REFERENCE NAME
ADHESHIVE	SHEET ADHESHIVE
AZ	AZIMUTH
BAR-ANT	BAR-ANTENNA
BAT	BATTERY
BATT	BATTERY
BRG	BEARING
BTN	BUTTON
CAB	CABINET
CASS	CASSETTE
CHAS	CHASSIS
CLR	COLLAR
CONT	CONTROL
CRSR	CURSOR
CU	CUSHION
CUSH	CUSHION
DIR	DIRECTION
DUBB	DUBBING
FL	FRONT LOADING
FLY-WHL	FLYWHEEL
FR	FRONT
FUN	FUNCTION
G-CU	G-CUSHION
HDL	HANDOL
HIMERON	CLOTH
HINGE, BAT	HINGE, BATTERY
HLDR	HOLDER
HT-SINK	HEAT SINK
IB	INSTRUCTION BOOKLET
IDLE	IDLER
IND, L-R	INDICATOR, L-R
KEY, CONT	KEY, CONTROL
KEY, PRGM	KEY, PROGRAM
KNOB, SL	KNOB, SLIDE
LBL	LABEL
LID, BATT	LID, BATTERY
LID, CASS	LID, CASSETTE
LVR	LEVER
P-SP	P-SPRING
PANEL, CONT	PANEL, CONTROL
PANEL, FR	PANEL, FRONT
PRGM	PROGRAM
PULLY, LOAD MO	PULLY, LOAD MOTOR
RBN	RIBBON
S-	SPECIAL
SEG	SEGMENT
SH	SHEET
SHLD-SH	SHIELD-SHEET
SL	SLIDE
SP	SPRING
SP-SCREW	SPECIAL-SCREW
SPACER, BAT	SPACER, BATTERY
SPR	SPRING
SPR-P	P-SPRING
SPR-PC-PUSH	P-SPRING, C-PUSH
T-SP	T-SPRING
TERM	TERMINAL
TRIG	TRIGGER
TUN	TUNING
VOL	VOLUME
W	WASHER
WHL	WHEEL
WORM-WHL	WORM-WHEEL

サービス技術ニュース	
番号	連絡内容
G-	-
G-	-
G-	-

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