DENON

For Japan model

Ver. 1

SERVICE MANUAL

MODEL DVD-310

DVD VIDEO PLAYER

注　意

サービスをおこなう前に、このサービスマニュアルを必ずお読みください。本機は、火災、感電、けがなどに対する安全性を確保するために、さまざまな配慮をおこなっており、また法的には「電気用品安全法」にもとづき、所定の許可を得て製造されております。従ってサービスをおこなう際は、これらの安全性が維持されるよう、このサービスマニュアルに記載されている注意事項を必ずお守りください。

- For purposes of improvement, specifications and design are subject to change without notice.

- 本機の仕様は性能改良のため、予告なく変更することがあります。
- 補修用性能部品の保有期間は、製造打切後 8年です。

- Please use this service manual with referring to the operating instructions without fail.

- 修理の際は､必ず取扱説明書を参照の上、作業を行ってください。

- Some illustrations using in this service manual are slightly different from the actual set.

- 本文中に使用しているイラストは、説明の都合上現物と多少異なる場合があります。

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S-1129V.01 DE/CDM 0307

SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the unit is defective.

LASER RADIATION

Do not stare into beam or view directly with optical instruments, class 3A laser product.

注　意　サービス、点検時には次のことにご注意願います。

◉注意事項をお守りください！
サービスのとき特に注意を必要とする個所については、キャビネット、部品、シャーシなどにラベルや捺印で、注意事項を表示しています。これらの注意書きおよび取扱説明書などの注意事項を必ずお守りください。

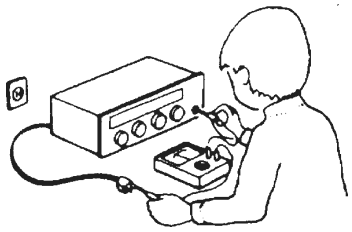
◉感電に注意！
(1) このセットは、交流電圧が印加されていますので、通電時に内部金属部に触れると感電することがあります。従って通電サービス時には、絶縁トランスの使用や手袋の着用、部品交換には、電源プラグを抜くなどして、感電にご注意ください。
(2) 内部には、高電圧の部分がありますので、通電時の取扱には、十分ご注意ください。

◉指定部品の使用！
セットの部品は難燃性や耐電圧など安全上の特性を持ったものとなっています。従って交換部品は、使用されていたものと同じ特性の部品を使用してください。特に配線図、部品表に⚠印で指定されている安全上重要な部品は必ず指定のものをご使用ください。

◉部品の取付けや配線の引きまわしは、元どおりに！
安全上、テープやチューブなどの絶縁材料を使用したり、プリント基板から浮かして取付けた部品があります。また内部配線は引きまわしやクランパーによって発熱部品や高圧部品に接近しないように配慮されていますので、これらは必ず元どおりにしてください。

◉サービス後は安全点検を！
サービスのために取り外したねじ、部品、配線などが元どおりになっているか、またサービスした個所の周辺を劣化させてしまったところがないかなどを点検し、外部金属端子部と、電源プラグの刃の間の絶縁チェックをおこなうなど、安全性が確保されていることを確認してください。

（絶縁チェックの方法）
電源コンセントから電源プラグを抜き、アンテナや、プラグなどを外し、電源スイッチを入れます。500V絶縁抵抗計を用いて、電源プラグのそれぞれの端子と、外部露出金属部〔アンテナ端子、ヘッドホン端子、マイク端子、入力端子など〕との間で、絶縁抵抗値が1MΩ以上であること、この値以下のときは、セットの点検修理が必要です。



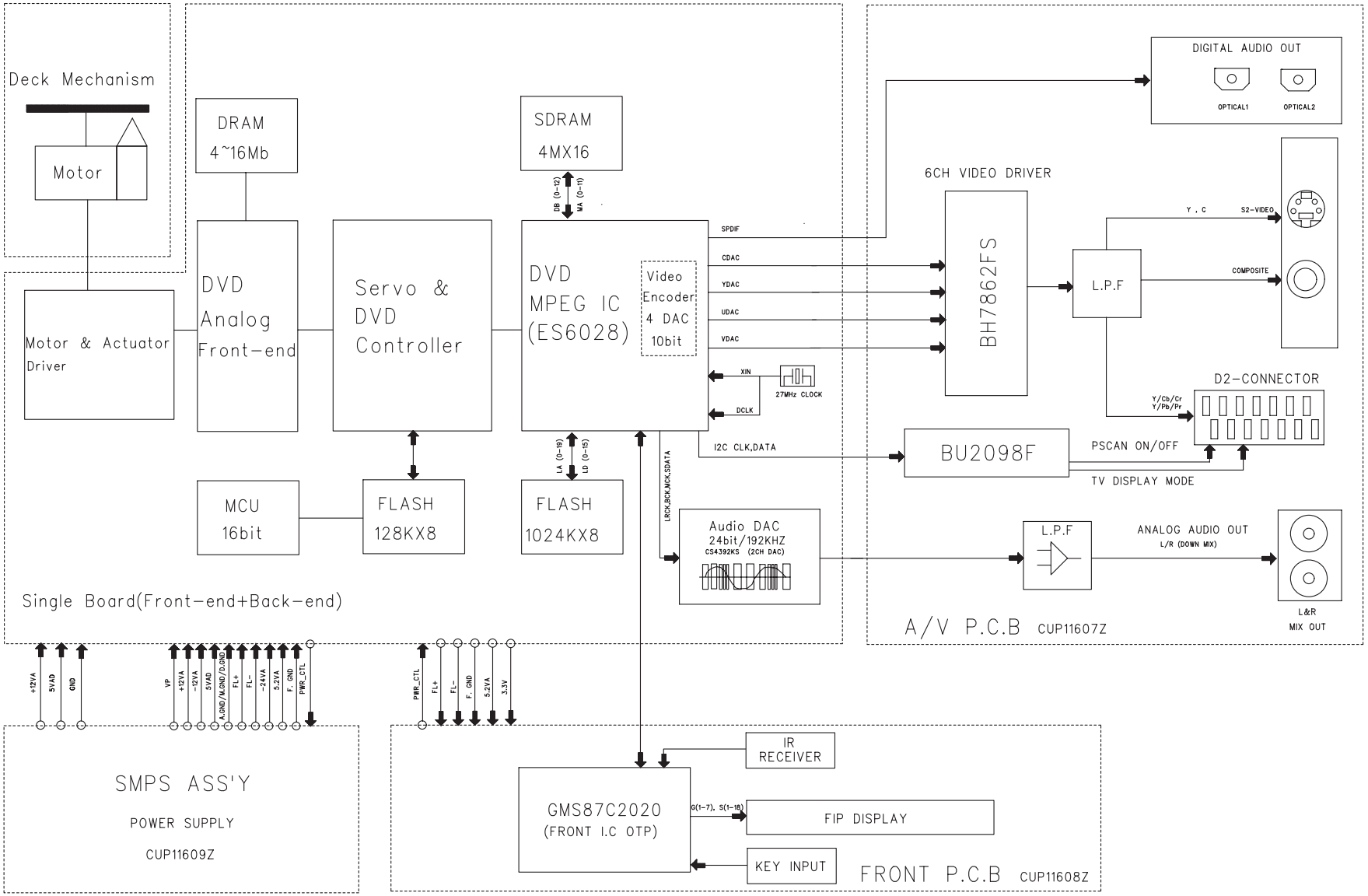
注　意　安全上重要な部品について

本機に使用している多くの電気部品、および機構部品は安全上、特別な特性を持っています。この特性はほとんどの場合、外観では判別つきにくく、また、もとの部品より高い定格（定格電力、耐圧）を持ったものを使用しても安全性が維持されるとは、限りません。安全上の特性を持った部品は、このサービスマニュアルの配線図、部品表につぎのように表示していますので、必ず指定されている部品番号のものを使用願います。

(1)配線図… ⚠マークで表示しています。

(2)部品表… ⚠マークで表示しています。
指定された部品と異なるものを使用した場合には、感電、火災などの危険を生じる恐れがあります。

BLOCK DIAGRAM



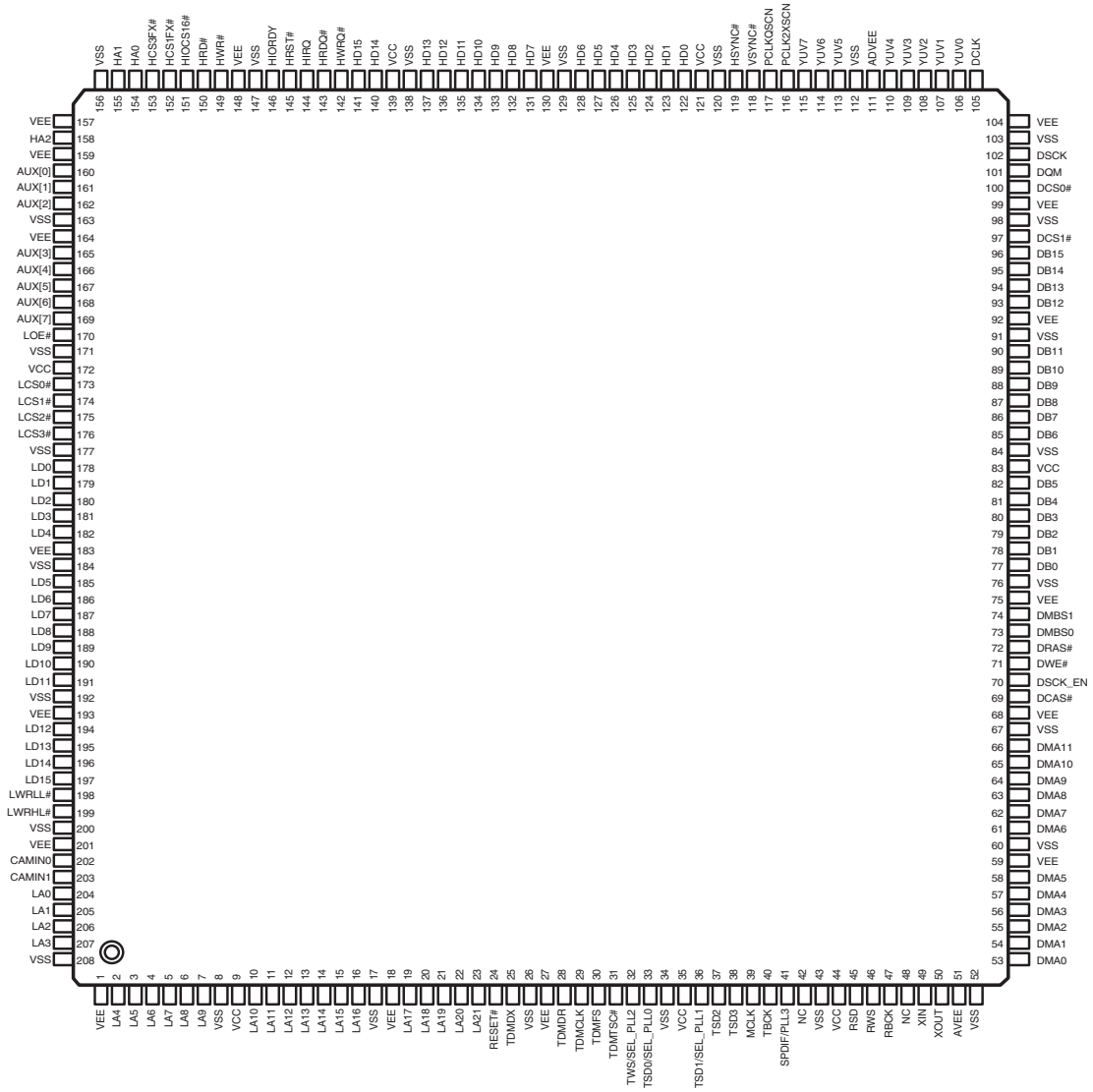
半導体一覧表

Only major semiconductors are shown, general semiconductors etc. are omitted to list.
主な半導体を記載しています。汎用の半導体は記載を省略しています。

● IC's

Note: Abbreviation ahead of IC No. indicates the name of P.W.B., etc.
注): IC No. の前の記号は、基板の名称を表します。
AV: A/V P.W.B. ME: MECHA P.W.B.
FR: FRONT P.W.B. SM: SMPS P.W.B.

ES6028FW (ME: U9)



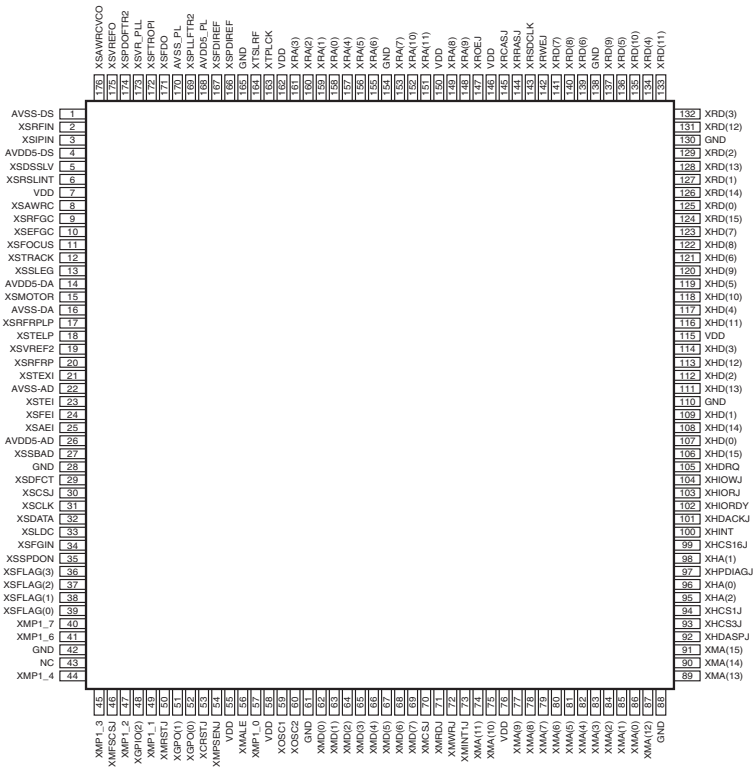
ES6038 Terminal Function

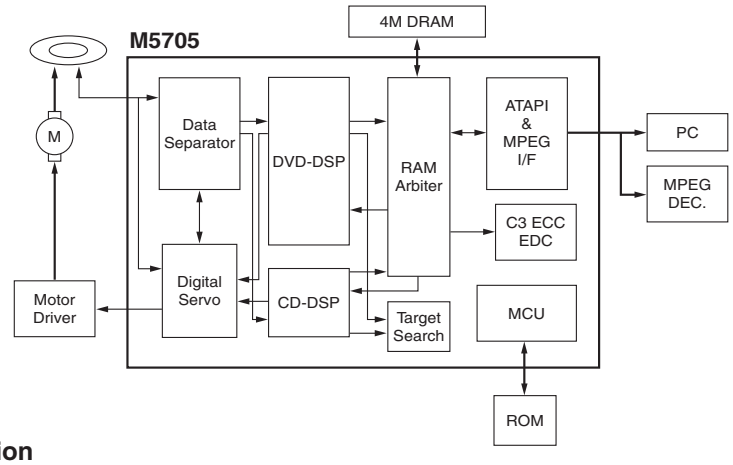
Pin No.	Pin Name	I/O	Function
1, 18, 27, 59, 68, 75, 92, 99, 104, 130, 148, 157, 159, 164, 183, 193, 201	VEE	I	I/O power supply.
8, 17, 26, 34, 43, 52, 60, 67, 76, 84, 91, 98, 103, 112, 120, 129, 138, 147, 156, 163, 171, 177, 184, 192, 200, 208	VSS	I	Ground.
23:19, 16:10, 7:2, 207:204	LA[21:0]	O	Device address output.
9, 35, 44, 83, 121, 139, 172	VCC	I	Core power supply.

Pin No.	Pin Name	I/O	Function
24	RESET#	I	Reset input, active low.
25	TDMDX	O	TDM transmit data.
28	TDMDR	I	TDM receive data.
29	TDMCLK	I	TDM clock input.
30	TDMFS	I	TDM frame sync.
31	TDMTSC#	O	TDM output enable.
32	TWS	O	Audio transmit frame sync.
	SEL_PLL2	I	System and DSCK output clock frequency selection is made at the rising edge of RESET#. The matrix below lists the available clock frequencies and their respective PLL bit settings. **SEL_PLL2 SEL_PLL1 SEL_PLL0 Clock Type** 0 0 0 VCO off. 0 0 1 DCLK 0 1 0 Bypass mode 0 1 1 DCLK x 2 1 0 0 DCLK x 4.5 1 0 1 DCLK x 3 1 1 0 DCLK x 3.5z 1 1 1 DCLK x 4
33	TSD0	O	Audio transmit serial data port 0.
	SEL_PLL0	I	Refer to the description and matrix for SEL_PLL2 pin 32.
36	TSD1	O	Audio transmit serial data port 1.
	SEL_PLL1	I	Refer to the description and matrix for SEL_PLL2 pin 32.
37	TSD[2]	O	Audio transmit serial data output 2.
38	TSD[3]	O	Audio transmit serial data output 3.
39	MCLK	I/O	Audio master clock for audio DAC.
40	TBCK	O	Audio transmit bit clock.
41	SPDIF	O	S/PDIF output.
	SEL_PLL3	I	Clock source select. **SEL_PLL3 Clock Source** 0 Crystal oscillator 1 DCLK input
42,48	NC		No connect pins. Leave open.
45	RSD	I	Audio receive serial data.
46	RWS	I	Audio receive frame sync.
47	RBCK	I	Audio receive bit clock.
49	XIN	I	Crystal input.
50	XOUT	O	Crystal output.
51	AVEE	I	Analog power for PLL.
66:61, 58:53	DMA[11:0]	O	DRAM address bus [11:0]
69	DCAS#	O	DRAM column address strobe,
70	DSCK_EN	O	DRAM clock enable.
71	DWE#	O	DRAM write enable.
72	DRAS#	O	DRAM row address strobe.
73	DMBS0	O	SDRAM bank select 0.
74	DMBS1	O	SDRAM bank select 1.
96:93, 90:85, 82:77	DB[15:0]	I/O	DRAM data bus [15:0]
97, 100	DCS[1:0]#	O	SDRAM chip select [1:0]
101	DQM	O	Data input/output mask.
102	DSCK	O	Output clock to SDRAM.
105	DCLK	I	27 MHz clock input to PLL.
106	UDAC	O	Video UDAC output.
107	VREF	I	Internal voltage to video DAC.
108	CDAC	O	Video CDAC output.
109	COMP	I	Compensation input.
110	RSET	I	DAC current adjustment resistor input.
111	ADVEE	I	Analog power for video DAC.
113	YDAC	O	Video YDAC output.

Pin No.	Pin Name	I/O	Function
114	VDAC	O	Video VDAC output.
115	YUV7	O	YUV7 pixel output data.
116	PCLK2XSCN	I/O	27 MHz video output pixel clock.
117	PCLKQSCN	O	13.5 MHz video output pixel clock.
118	VSYNC#	I/O	Vertical sync, active low.
119	HSYNC#	I/O	Horizontal sync, active low.
127:122	HD[5:0]	I/O	Host data I/O [5:0].
128	HD[6]	I/O	Host data I/O [6].
131	HD[7]	I/O	Host data I/O [7].
132	HD[8]	I/O	Host data bus 8.
133	HD[9]	I/O	Host data bus line 9.
134	HD[10]	I/O	Host data bus line 10.
135	HD[11]	I/O	Host data bus line 11.
136	HD[12]	I/O	Host data bus line 12.
137	HD[13]	I/O	Host data bus line 13.
140	HD[14]	I/O	Host data bus line 14.
141	HD[15]	I/O	Host data bus line 15.
142	HWRQ#	O	Host write request.
143	HRRQ#	O	Host read request.
144	HIRQ	I/O	Host interrupt.
145	HRST#	O	Host reset.
146	HIORDY	I	Host I/O ready.
149	HWR#	I/O	Host write.
150	HRD#	O	Host read.
151	HIOCS16#	I	Device16-bit data transfer.
152	HCS1FX#	O	Host select 1.
153	HCS3FX#	O	Host select 3.
158, 155:154	HA[2:0]	I/O	Host address bus.
160	AUX[0]	O	I^2C DATA.
162	AUX[2]	I/O	Auxiliary ports 2.
165	AUX[3]	I/O	Auxiliary ports 3.
169:166	AUX[7:3]	I/O	Auxiliary ports 7:3.
170	LOE#	O	Device output enable.
176:173	LCS[3:0]#	O	Chip select [3:0].
197:194, 191:185, 182:178	LD[15:0]	I/O	EPROM device data bus.
198	LWRLL#	O	Device low-byte write enable.
199	LWRHL#	O	Device high-byte write enable.
202	CAMIN0	I	Camera YUV 0.
203	CAMIN1	I	Camera YUV 1.
161	AUX[1]	O	I^2C CLK.

M5705 (ME: U1)





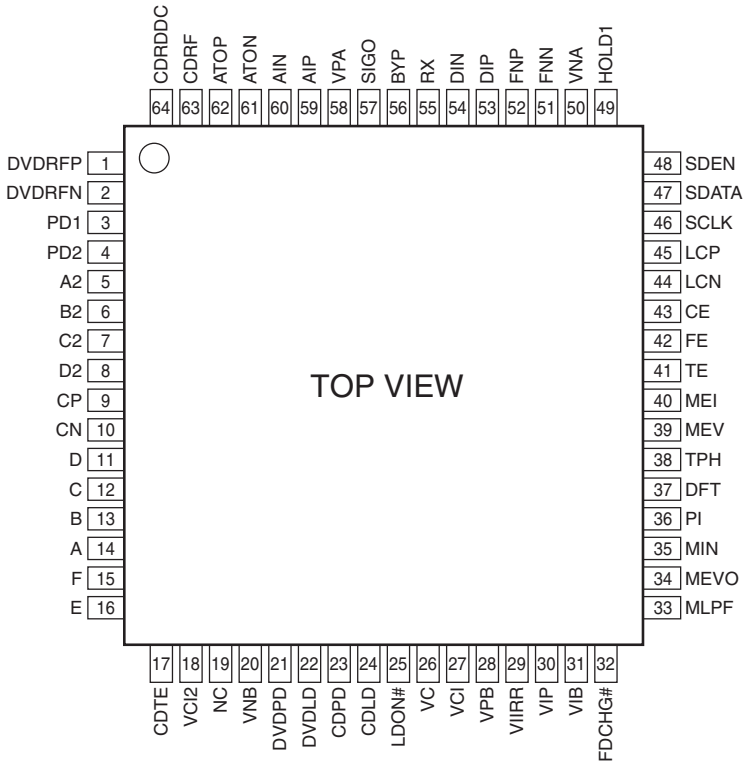
M5705 Terminal Function

Pin No.	Pin Name	Type	Description
2	XSRFIN	I/A	Analog RF signal input after passing through the equalizer
3	XSIPIN	I/A	Inverting input pin of data slicer
5	XSDSSLV	O/A	Slice level output pin
6	XSRSLINT	I/A	Reference current setting pin for analog data slicer
8	XSAWRC	O/A	Output for enlarge VCO range. Analog output from DAC buffer
9	XSRFGC	O/A	RF gain control output
10	XSEFGC	O/A	E,F gain control output
11	XSFOCUS	O/A	Output voltage level for focusing buffer IC
12	XSTRACK	O/A	Output voltage level for tracking buffer IC
13	XSSLEG	O/A	Output voltage level for sledge buffer IC
15	XSMOTOR	O/A	Output voltage level for spindle motor buffer IC
17	XSRFRPLP	I/A	High bandwidth low pass filter input for RFRP
18	XSTELP	I/A	High bandwidth low pass filter input for TE
19	XSVREF2	I/A	2.1V reference voltage input
20	XSRFRP	I/A	RF ripple/envelope signal input
21	XSTEXI	I/A	Tracking zero crossing input signal
23	XSTEI	I/A	Tracking error input signal
24	XSFEI	I/A	Focus error input signal
25	XSCEI	I/A	1. Center error input signal 2. Photo Interrupt input

Pin No.	Pin Name	Type	Description
27	XSSBAD	I/A	Sub-beam addition signal input
166	XSPDIREF	I/A	Phase detector reference current generator. Connect a resistor between this pin and ground to set reference current
167	XSFDIREF	I/A	Frequency detector reference current generator. Connect a resistor between this pin and ground to set reference current
169	XSPLLFTR2	I/A	Data PLL loop filter pin#2
171	XSFDO	O/A	Output node of frequency detector charge pump circuit
172	XSFTROPI	I/A	Input node of loop filter OP circuit
173	XSVR_PLL	I/A	PLL reference voltage input
174	XSPDOFTR2	I/A	Phase detector filter pin#1
175	XSVREFO	O/A	Reference voltage output
176	XSAWRCVCO	I/A	Auto Wide Range Control of VCO input pin. For enlarge VCO range in CAV mode
29	XSDFCT	I	Detect detection signal input
30	XSCSJ	O	Chip select signal for accessing control registers
31	XSCLK	O	Clock output for accessing control registers
32	XSDATA	I/O	Registers data input/output pin
33	XSLDC	O	Laser diode on/off control output for both CD/DVD
34	XSFGIN	I	Motor Hall sensor input
35	XSSPDON	O	Spindle motor on output
36, 37, 38, 39	XSFLAG[3:0]	O	These pins are used to monitor some status of servo control block
48, 51, 52	XGPIO[2:0]	I/O	1. These pins are used as general purpose I/O bus 2. When use internal microcontroller, XGPIO[2] can be used as programmable I/O port 3.6.
40	XMP1_7	I/O	Internal microcontroller programmable I/O port 1.7.
41	XMP1_6	I/O	Internal microcontroller programmable I/O port 1.6.
43	XMP1_5	I/O	This pin is now changed to be NC.
44	XMP1_4	I/O	Internal microcontroller programmable I/O port 1.4.
45	XMP1_3	I/O	Internal microcontroller programmable I/O port 1.3.
47	XMP1_2	I/O	Internal microcontroller programmable I/O port 1.2.
49	XMP1_1	I/O	Internal microcontroller programmable I/O port 1.1.
57	XMP1_0	I/O	Internal microcontroller programmable I/O port 1.0. This pin is default used as the A16 (microcontroller address line 16)
46	XMFSCSJ	I/O	Output chip select connected to external flash ROM chip enable pin
54	XMPSENJ	I/O	Output program store enable connected to external ROM PSENJ pin.
56	XMALE	I/O	This signal is used as address latch signal in address/data mux mode
70	XMCSJ	I/O	1. This signal must be asserted for all microcontroller accesses to the register of this chip 2. When use internal microcontroller, this signal can be used as programmable I/O port 3.1
71	XMRDJ	I/O	1. This signal is used as the Read Strobe signal 2. When use internal microcontroller, this signal can be used as programmable I/O port 3.0
72	XMWRJ	I/O	This signal is used as the Wire Strobe signal
73	XMINT1J	I/O	1. This signal is an interrupt line to the microcontroller 2. When use internal microcontroller, this signal can be used as programmable I/O port 3.7
74, 75, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 89, 90, 91	XMA[15:0]	I/O	These pins are used as address bus
62, 63, 64, 65, 66, 67, 68, 69	XMD[7:0]	I/O	These pins are used as data bus for the 16-bit processor mode, or the address/data mux bus for the 8-bit processor mode.
163	XTPLCK	I/O	PLCK test pin
164	XTSLRF	I/O	SLRF test pin
59	XOSC1	I	Crystal input/System clock. The input frequency from outside crystal or oscillator is 33.8688MHz
60	XOSC2	O	Crystal output
53	XCRSTJ	I	Chip Reset. As asserted low input generates a component reset that stops all operations within the chip and deasserts all output signals. All input/output signals are set to input.
94	XHCS1J	I	This pin is used to select the command block task file registers
93	XHCS3J	I	This pin is used to select the control block task file registers
103	XHIORJ	I	Asserted by the host during a host I/O read operation
104	XHIOWJ	I	Asserted by the host during a host I/O write operation
105	XHDRQ	O	1. DMA request. This pin is configured as the DMA request signal, and is used during DMA transfer between the host and the controller. This pin is tri-stated when DMA transfers are not enabled. 2. MPEG acknowledge. This pin is used as the ACKJ signal when MPEG interface mode is selected.
101	XHDACKJ	I	1. DMA acknowledge. This pin is configured as DACKJ, and is used as the DMA acknowledge signal during DMA data transfers. 2. MPEG request. This pin is used as the REQ signal when MPEG interface mode is selected
99	XHCS16J	O	1. 16-bit data select. This signal indicates that a 16-bit data transfer is active on the host data bus. This pin is open-drain tri-state output. 2. MPEG clock. This pin is used as the CLOCK signal when MPEG interface mode is selected.
50	XHRSTJ	I	Host Reset. The reset of ATA bus
100	XHINT	O	1. Host interface request. This tri-state pin is the host interrupt request, and is asserted to indicate to the host that the controller needs attention. 2. MPEG begin. This pin is used as the BEGIN signal when MPEG interface mode is selected

Pin No.	Pin Name	Type	Description
97	XHPDIAGJ	I/O	This pin is used as the Passed Diagnostics signal, and may be an input or an open-drain output
92	XHDASPJ	I/O	This pin is used as the Drive Active/Slave Present signal, and is an input or an open-drain output. This pin is used for Master/Slave drive communication and/or for driving an LED
102	XHIORDY	I/O	1. I/O channel ready. This signal is driven low to extend host transfer cycles when the controller is not ready to respond. This pin will be tri-stated when a read or write is not in progress. 2. MPEG error. This pin is used as the ERROR signal when MPEG interface mode is selected
95, 96, 98	XHA[2:0]	I	Host address lines. The host address lines A[2:0] are used to access the various host control, status, and data registers
106, 107, 108, 109, 111, 112, 113, 114, 116, 117, 118, 119, 120, 121, 122, 123	XHD[15.0]	I/O	1. Host data bus. This bus is used to transfer data and status between the host and the controller. 2. MPEG data bus 7-8. The HD[7:0] are used as the DATA [7:0] when MPEG interface mode is selected. 3. VCD I/F. Bit3-0 are used as VCD I/F signal when VCD function is enabled. The relationship of bit3-0 and VCD I/F is as follow HD0—CD-DATA HD1—CD-LRCK HD2—CD-BCK HD3—CD-C2PO
143	XRSDCLK	O	This signal is the clock output for SDRAM
147	XROEJ	O	This signal is used as the memory output enable for external DRAM buffers. After RSTJ is asserted, this signal will be low
142	XRWEJ	O	This signal is asserted low when a buffer memory write operation is active
144	XRRASJ	O	This signal is used as Row address output to external DRAM buffer. After RSTJ is asserted, this signal will be high
145	XRCASJ	O	This signal is used as column address output to external DRAM. After RSTJ is asserted, this signal will be high
148, 149, 151, 152, 153, 155, 156, 157, 158, 159, 160, 161	XRA[11:0]	O	1. RAM address lines. These are bits11-0 for addressing the buffer memory. 2. Hardware setting. The bits6-0 are used as hardware setting for some functions. RA[9] : FLASH size is 64K/128K 1: FLASH size is 64K 0: FLASH size is 128K RA[8] : External CPU is 8032/H8 1: 8032 0: H8 RA[7] : Microcontroller programmable I/O port 1 pin control 1: By internal microcontroller 0: By registers to decide input/output RA[6] : System test pin output 1: Normal operation 0: System test pin output RA[5] : For testing purpose, don't need to set RA[4] : IDE master/slave 1: Slave 0: Master RA[3] : For testing purpose, don't need to set RA[2] : For testing purpose, don't need to set RA[1-0] : MCU Mode selection 11: Normal Mode (internal uP, internal address latch) 10: Outside uP Mode (ICE Mode) 01: Test mode for internal uP testing 00: Internal uP mode with external address latch
124, 125, 126, 127, 128, 129, 131, 132, 134, 135, 136, 137, 138, 139, 140, 141	XRD[15:0]	I/O	These signals are the 8-bit parallel data lines to/from the buffer memory.
4	AVDD5_DS		Analog Power +5V for Data Slicer part
14	AVDD5_DA		Analog Power +5V for DAC part
26	AVDD5_AD		Analog Power +5V for ADC part
168	AVDD5_PL		Analog Power +5V for Data PLL part
7, 55, 58, 76, 115, 146, 150, 162	VDD		Power +3.3V for digital core logic and pad
1	AVSS_DS		Analog Ground for Data Slicer part
16	AVSS_DA		Analog Ground for DAC part
22	AVSS_AD		Analog Ground for ADC part
170	AVSS_PL		Analog Ground for Data PLL part
28, 42, 61, 88, 110, 130, 138, 154, 165	GND		Digital Ground core logic and pad.

SP3721A (ME: U2)



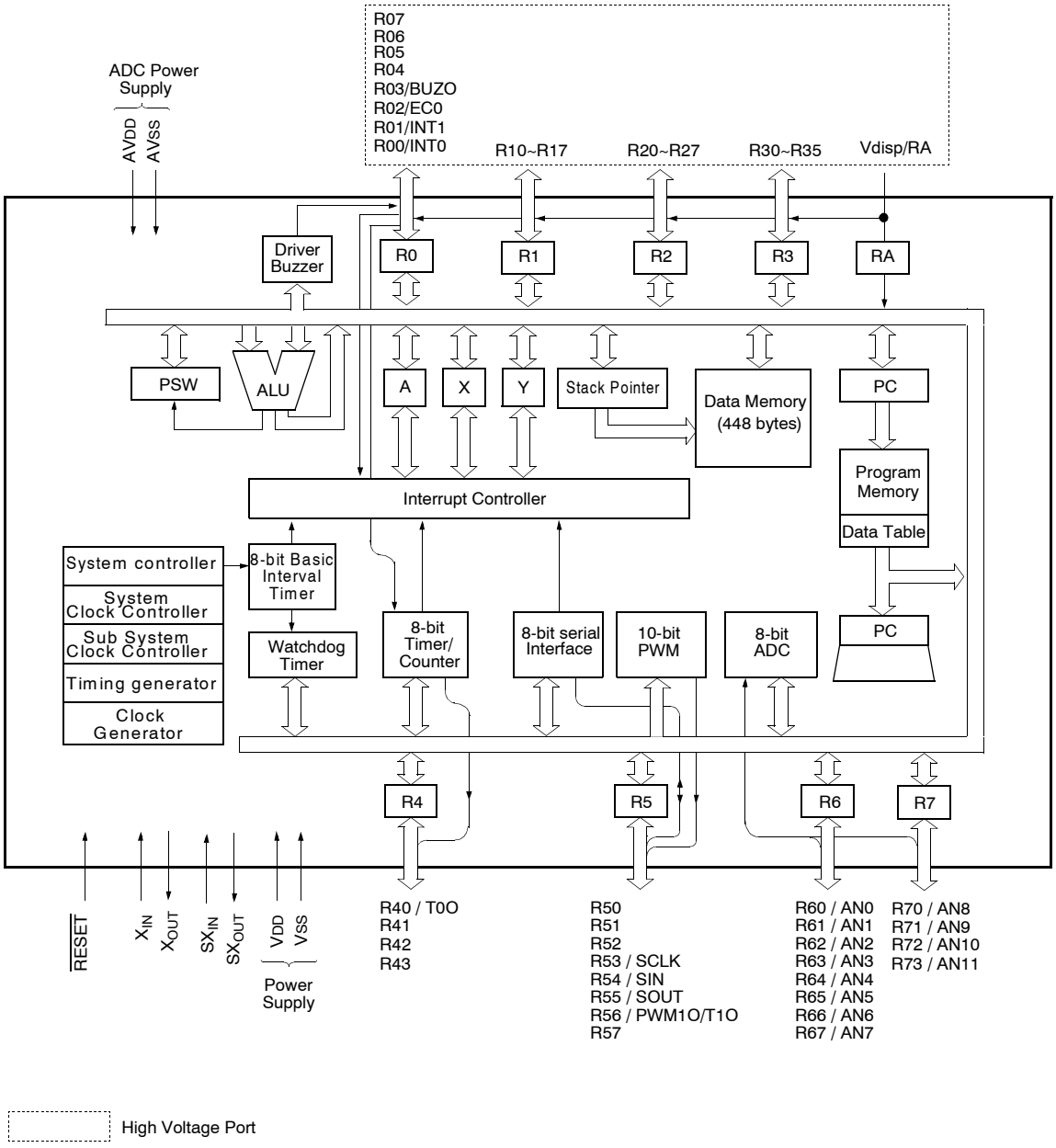
SP3721A Terminal Function

Pin No.	Pin Name	Type	Description
1, 2	DVDREP, DVDREN	I	RF Signal Inputs. Differential RF signal attenuator input pins
63	CDRF	I	RF Signal Inputs. Single-ended RF signal attenuator input pin
59, 60	AIP, AIN	I	AGC Amplifier Inputs. Differential AGC amplifier input pins
53, 54	DIP, DIN	I	Analog inputs for RF Single Buffer. Differential analog inputs to the RF single-ended output buffer and full wave rectifier
32	FDCHG#	I	Low Impedance Enable. A TTL compatible input pin that activates the FDCHG switches. A low level activates the switches and the falling edge of the internal FDCHG triggers the fast decay for the MIRR bottom hold circuit. (open high)
49	HOLD1	I	Hold Control. A TLL compatible control pin which, when pulled high, disables the RF AGC charge pump and holds the RF AGC amplifier gain at its present value. (open high)
11~14	D, C, B, A	I	Photo Detector Interface Inputs. Inputs from the main beam Photo detector matrix outputs
5~8	A2, B2, C2, D2	I	Photo Detector Interface Inputs. AC coupled inputs for the DPD from the main beam Photo detector matrix outputs
15~16	F, E	I	CD tracking Error Inputs. Inputs from the CD photo detector error outputs.
3~4	PD1, PD2	I	CD Photo detector Interface Inputs. Inputs from the CD photo detector error outputs
40	MEI	I	Mirror Envelope Inputs. The SIGO envelope input pin
35	MIN	I	RF signal Input for Mirror. AC coupled inputs for the mirror detection circuit from the pull-in signal output. (PI)
21	DVDPD	I	APC Input. DVD APC input pin from the monitor photo diode
23	CDPD	I	APC Input. CD APC input pin from the monitor photo diode
25	LDON#	I	APC Output On/Off. APC output control pin. A low level activates the LD output. (open high)
61, 62	ATON/ATOP	O	Differential Attenuator Output. Attenuator outputs
51, 52	FNN, FNP	O	Differential Normal Output. Filter normal outputs
57	SIGO	O	Single Ended Normal Output. Single-ended RF output
64	CDRFDC	O	CD RF Signal Output. Single ended CD RF summing output
42	FE	O	Focusing Error Signal Output. Focus error output reference to VCI
41	TE	O	Tracking Error Signal Output. Tracking error output reference to VCI

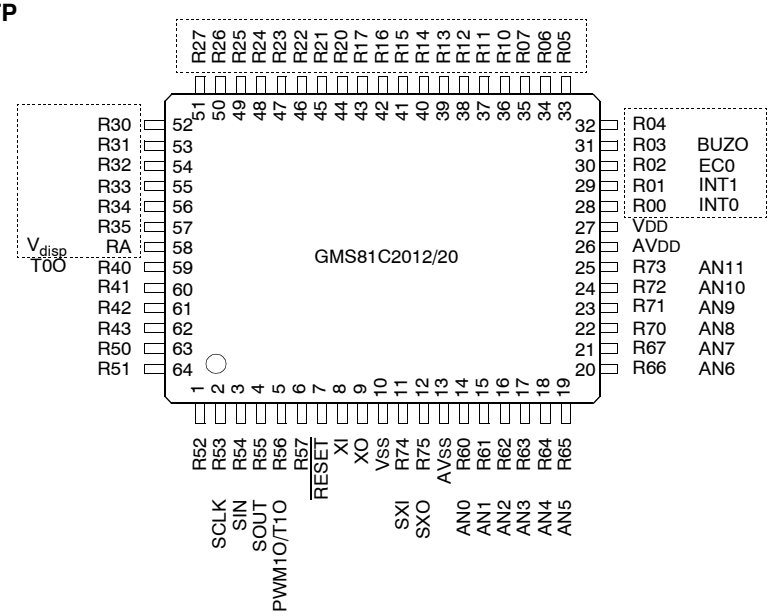
Pin No.	Pin Name	Type	Description
43	CE	O	Center Error Signal Output. Center error output reference to VCI
34	NEVO	O	SIGO Bottom Envelope Output. Bottom envelope for mirror detection
37	DFT	O	Defect Output. Pseudo CMOS output. When a defect is detected, the DFT output goes high. Also the servo AGC output can be monitored at this pin, when CAR bits 7-4 are '0011'
29	MIRR	O	Mirror Detect Output. Mirror Detect comparator output. Pseudo CMOS output
36	PI	O	Pull-in Signal Output. The summing signal output of A, B, C, D or PD1, PD2 for mirror detection. Reference to VCI
22	DVDLD	O	APC output. DVD APC output pin to control the laser power
24	CDLD	O	APC output. CD APC output pin to control the laser power
56	BYP	I/O	The RF AGC integration capacitor CBYP, is connected between BYP and VPA
9	CP	I/O	Differential Phase tracking LPF pin. An external capacitance is connected between this pin and the CN pin
10	CN	I/O	Differential Phase tracking LPF pin. An external capacitance is connected between this pin and the CP pin
45	LCP	—	Center Error LPF pin. An external capacitance is connected between this pin and the LCN pin
44	LCN	—	Center Error LPF pin. An external capacitance is connected between this pin and the LCP pin
30	MP	—	MIRR signal Peak hold pin. An external capacitance is connected to between this pin and VPB
31	MB	—	MIRR signal Bottom hold pin. An external capacitance is connected to between this pin and VPB
39	MEV	—	Sigo Bottom Envelope pin. An external capacitance is connected to between this pin and VPB
17	CDTE	—	CD Tracking. E-F Opamp output for feedback
38	TPH	—	PI Top Hold pin. An external capacitance is connected to between this pin and VPB
26	VC	—	Reference Voltage output. This pin provides the internal DC bias reference voltage (+2.5V lix). Output Impedance is less than 50ohms
27	VCI	—	Reference Voltage input. DC bias voltage input for the servo input reference
18	VCI2	—	Reference Voltage input. DC bias voltage input for the servo input reference
55	RX	—	Reference Resistor Input. An external 8.2kohm, 1% resistor is connected from this pin to ground to establish a precise PTAT (proportional to absolute temperature) reference current for the filter
33	MLPF	—	MIRR signal LPF pin. An external capacitance is connected between this pin and VPB
19	NC	—	No Connect
48	SDEN	I	Serial Data Enable. Serial Enable CMOS input. A high level input enable the serial port (Not to be left open)
47	SDATA	I/O	Serial Data. Serial data bi-directional CMOS pin. NRZ programming data for the internal registers is applied to this input (Not to be left open)
46	SCLK	I	Serial Clock. Serial Clock CMOS input. The clock applied to this pin is synchronized with the data applied to SDATA (Not to be left open)
58	VPA		Power. Power supply pin for the RF block and serial port
28	VPB		Power. Power supply pin for the servo block
50	VNA		Ground. Ground pin for the RF block and serial port
20	VNB		Ground. Ground pin for the servo bolck

GMS87C2020Q (FR: IC91)

BLOCK DIAGRAM



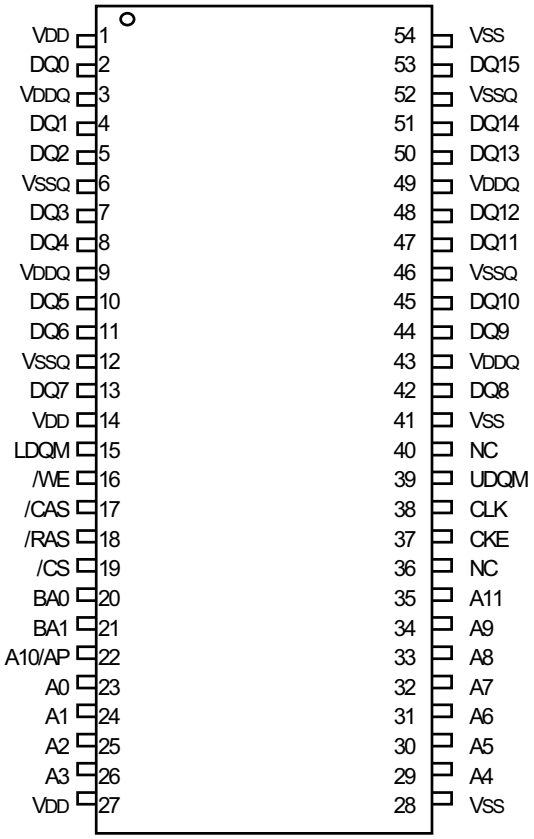
64MQFP



PIN NAME	In/Out	Function	
		Basic	Alternate
VDD	-	Supply voltage	
VSS	-	Circuit ground	
RA (V_{disp})	I(I)	1-bit high-voltage Input only port	High-voltage input power supply pin
$\overline{\text{RESET}}$	I	Reset signal input	
XIN	I	Oscillation input	
XOUT	O	Oscillation output	
SXIN(R74)	I	Sub Oscillation input	General I/O ports
SXOUT(R75)	O	Sub Oscillation output	
R00 (INT0)	I/O (I)	8-bit high-voltage I/O ports	External interrupt 0 input
R01 (INT1)	I/O (I)		External interrupt 1 input
R02 (EC0)	I/O (I)		Timer/Counter 0 external input
R03 (BUZO)	I/O (O)		Buzzer driving output
R04~R07	I/O		
R10~R17	I/O	8-bit high-voltage I/O ports	
R20~R27	I/O	8-bit high-voltage I/O ports	
R30~R35	I/O	6-bit high-voltage I/O ports	
R40 (T0O)	I/O (O)	4-bit general I/O ports	Timer/Counter 0 output
R41~R43	I/O		
R50~R52	I/O	8-bit general I/O ports	
R53 (SCLK)	I/O (I/O)		Serial clock source
R54 (SIN)	I/O (I)		Serial data input
R55 (SOUT)	I/O (O)		Serial data output
R56 (PWM1O/T1O)	I/O (O)		PWM 1 pulse output /Timer/Counter 1 output
R57	I/O		
R60~R67 (AN0~AN7)	I/O (I)	8-bit general I/O ports	Analog voltage input
R70~R73 (AN8~AN11)	I/O (I)	4-bit general I/O ports	
AVDD	-	Supply voltage input pin for ADC	
AVSS	-	Ground level input pin for ADC	
VDD	-	Supply voltage	
VSS	-	Circuit ground	

Port Function Description

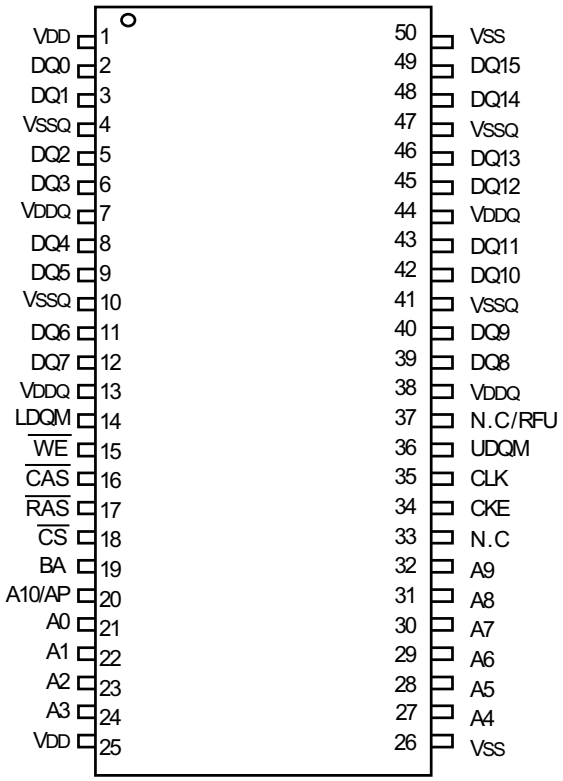
HY57V65120BTC-75 (ME: U11)



PIN DESCRIPTION

PIN	PIN NAME	DESCRIPTION
CLK	Clock	The system clock input. All other inputs are registered to the SDRAM on the rising edge of CLK
CKE	Clock Enable	Controls internal clock signal and when deactivated, the SDRAM will be one of the states among power down, suspend or self refresh
$\overline{CS}$	Chip Select	Enables or disables all inputs except CLK, CKE and DQM
BA0,BA1	Bank Address	Selects bank to be activated during $\overline{RAS}$ activity Selects bank to be read/written during $\overline{CAS}$ activity
A0 ~ A11	Address	Row Address : RA0 ~ RA11, Column Address : CA0 ~ CA7 Auto-precharge flag : A10
$\overline{RAS}$, $\overline{CAS}$, $\overline{WE}$	Row Address Strobe, Column Address Strobe, Write Enable	$\overline{RAS}$, $\overline{CAS}$ and $\overline{WE}$ define the operation Refer function truth table for details
LDQM, UDQM	Data Input/Output Mask	Controls output buffers in read mode and masks input data in write mode
DQ0 ~ DQ15	Data Input/Output	Multiplexed data input / output pin
VDD/VSS	Power Supply/Ground	Power supply for internal circuits and input buffers
VDDQ/VSSQ	Data Output Power/Ground	Power supply for output buffers
NC	No Connection	No connection

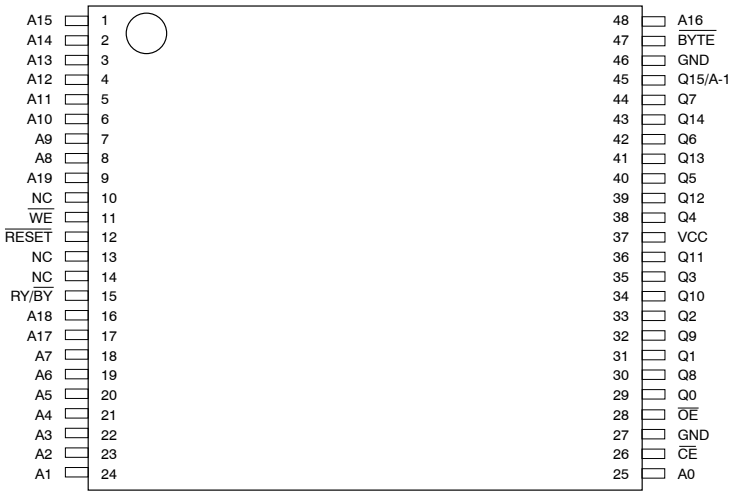
T431616A-8S(ME:U5)



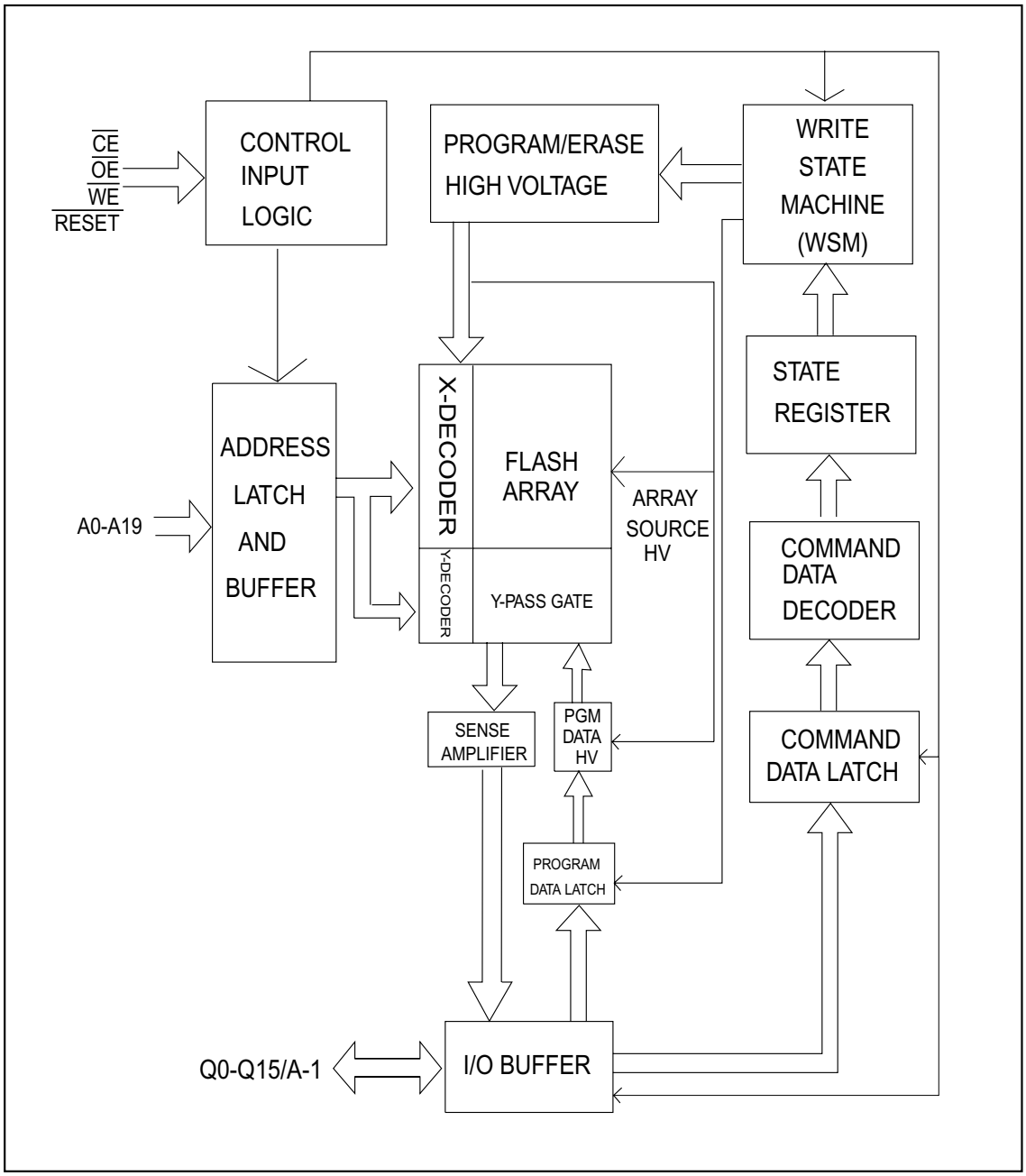
PIN DESCRIPTION

PIN	PIN NAME	DESCRIPTION
CLK	System Clock	Active on the positive going edge to sample all input.
$\overline{CS}$	Chip Select	Disables or enables device operation by masking or enabling all input except CLK,CKE and L(U)DQM
CKE	Clock Enable	Masks system clock to freeze operation from the next clock cycle. CKE should be enabled at least one cycle prior to new command. Disable input buffers for power down in standby.
A0 ~ A10/AP	Address	Row/column aaddresses are multiplexed on the same pins. Row address : RA0 ~ RA10,column address : CA0 ~ CA7
BA	Bank Select Address	Selects bank to activated during row address latch time. Select bank for read/write during column address latch time.
$\overline{RAS}$	Row Address Strobe	Latches row addresses on the positive going edge of the CLK with $\overline{RAS}$ low. Enables row access & precharge.
$\overline{CAS}$	Column Address Strobe	Latches column addresses on the positive going edge of the CLK with $\overline{CAS}$ low. Enables column access.
$\overline{WE}$	Write Enable	Enables write operation and row precharge. Latches data in starting from $\overline{CAS}$, $\overline{WE}$ active.
L(U)DQM	Data Input/Output Mask	Makes data output Hi-Z, t_{SHZ} after the clock and masks the output. Blocks data input when L(U)DQM active.
DQ0 ~ DQ15	Data Input/Output	Data inputs/outputs are multiplexed on the same pins.
V_{DD}/V_{SS}	Power Supply/Ground	Powe and ground for the input buffers and the core logic.
V_{DDQ}/V_{SSQ}	Data Output Power/Ground	Isolated power supply and ground for the output buffers to provide improved noise immunity.
N.C/RFU	No Connection/Reserved for Future Use	This pin is recommended to be left No Connection on the device.

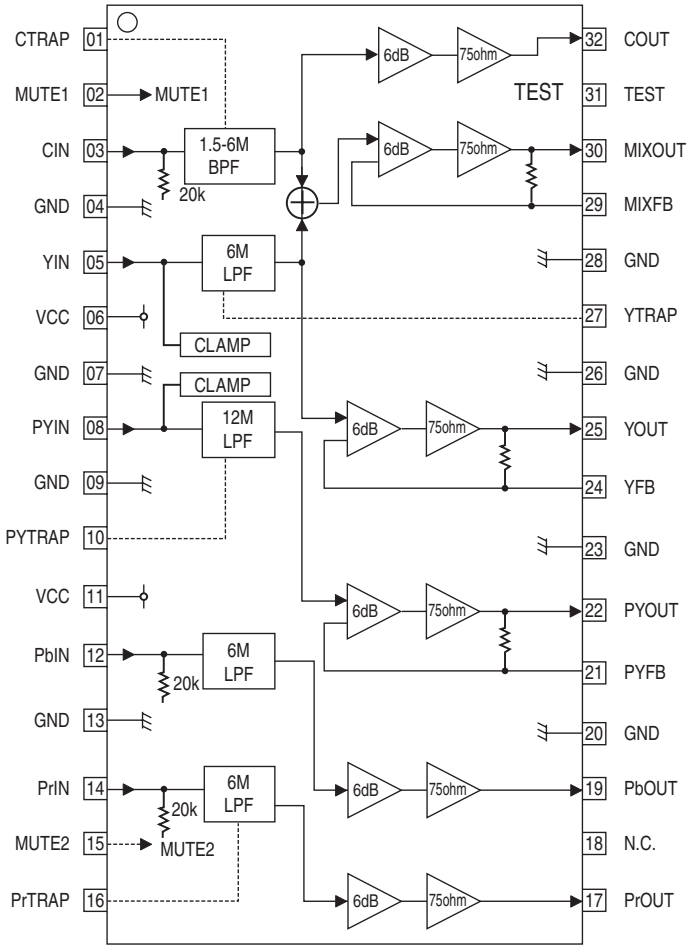
MX29LV160ABTC-70 (ME: U10)



BLOCK DIAGRAM



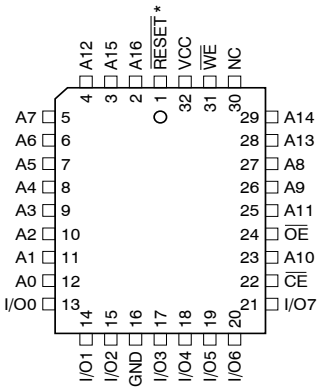
BH7862FS (AV: IC54)



BH7862FS Terminal Function

Pin No.	Port	Description
1	CTRAP	Pin for LC resonation
10	PYTRAP	
16	PrTRAP	
27	YTRAP	
2	MUTE1	Mute control pin, L: C, MIX, Y simultaneous mute
3	CIN	Signal input pin, chroma signal & color-difference signal
12	PbIN	
14	PrIN	
4, 7, 9, 13, 20, 23, 26, 28	GND	GND pin
5	YIN	Signal input pin, luminance signal
8	PYIN	
6	VCC	Power supply for C, MIX, Y
11		Power supply for PY, Pb, Pr
15	MUTE2	Mute control pin, L: PY, Pb, Pr simultaneous mute
17	PrOUT	Signal output pin, color-difference signal
19	PbOUT	
18	N.C.	—
21	PYFB	Signal output pin, luminance signal (progressive)
22	PYOUT	
24	YFB	Signal output pin, luminance signal (interlace)
25	YOUT	
29	MIXFB	Signal output pin, Y/C MIX signal
30	MIXOUT	
31	TEST	TEST pin
32	COUT	Signal output pin, chroma signal

AT49F001N-70JC(ME:U3)

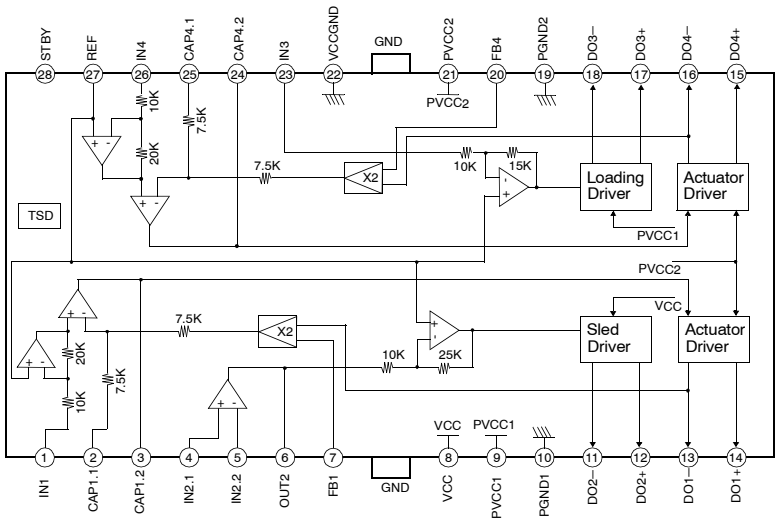


Pin Configurations

Pin Name	Function
A0 - A16	Addresses
$\overline{CE}$	Chip Enable
$\overline{OE}$	Output Enable
$\overline{WE}$	Write Enable
$\overline{RESET}$	RESET
I/O0 - I/O7	Data Inputs/Outputs
NC	No Connect
DC	Don't Connect

*Note: This pin is a DC on the AT49F001N(T).

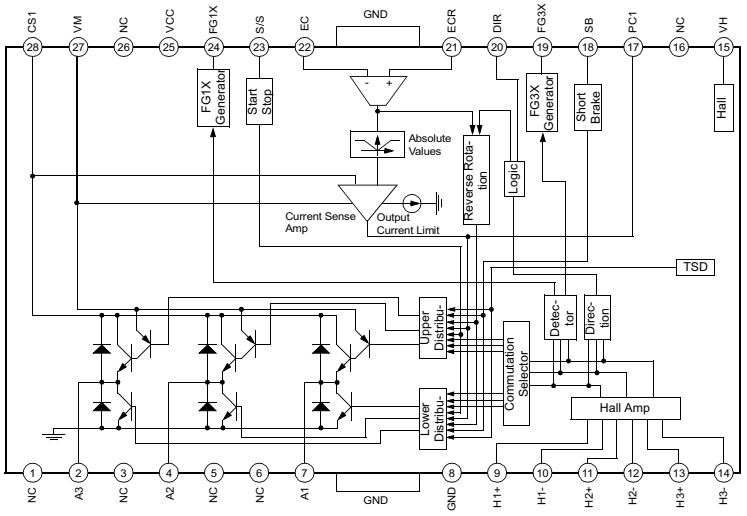
FAN8024BDTF(ME:U6)



Pin Definitions

Pin Number	Pin Name	I/O	Pin Function Description
1	IN1	I	CH1 input
2	CAP1.1	-	Connection with capacitor
3	CAP1.2	-	for CH1
4	IN2.1	I	OP-AMP CH2 input(+)
5	IN2.2	I	OP-AMP CH2 input(-)
6	OUT2	O	OP-AMP CH2 output
7	FB1	I	Feedback for CH1
8	VCC	-	Signal Vcc
9	PVCC1	-	Power Supply 1
10	PGND1	-	Power Ground 1
11	DO2−	O	Drive2 Output (-)
12	DO2+	O	Drive2 Output (+)
13	DO1−	O	Drive1 Output (-)
14	DO1+	O	Drive1 Output (+)
15	DO4+	O	Drive4 Output (+)
16	DO4−	O	Drive4 Output (-)
17	DO3+	O	Drive3 Output (+)
18	DO3−	O	Drive3 Output (-)
19	PGND2	-	Power Ground 2
20	FB4	-	Feedback for CH4
21	PVCC2	-	Power Supply 2
22	VCCGND	-	Vcc ground
23	IN3	I	CH3 input
24	CAP4.2	-	Connection with capacitor
25	CAP4.1	-	for CH4
26	IN4	I	CH4 input
27	REF	I	Bias voltage input
28	STBY	I	Stand-by input

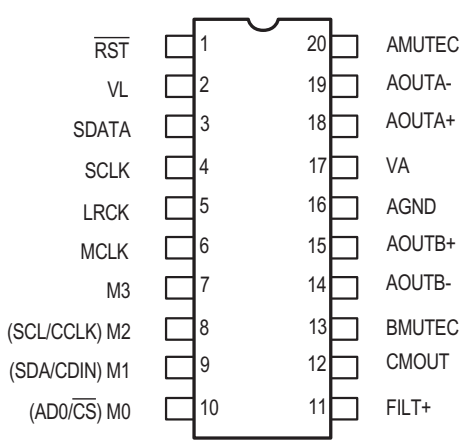
FAN8423D3TF(ME:U7)

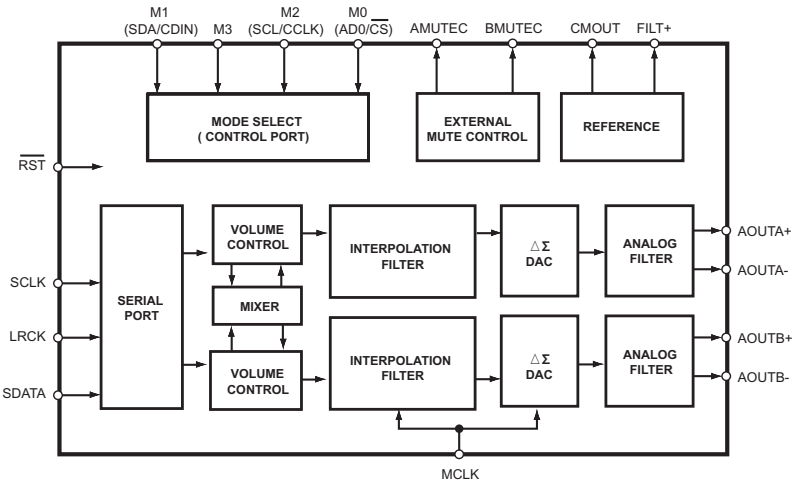


Pin Definitions

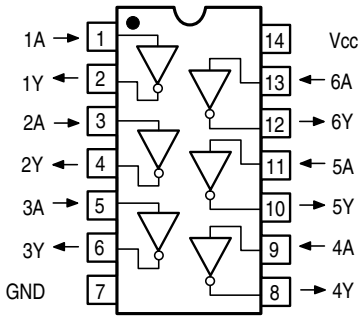
Pine Number	Pin Name	I/O	Pin Function Description
1	NC	-	No connection
2	A3	O	Output (A3)
3	NC	-	No connection
4	A2	O	Output (A2)
5	NC	-	No connection
6	NC	-	No connection
7	A1	O	Output (A1)
8	GND	-	Ground
9	H1+	I	Hall signal (H1+)
10	H1-	I	Hall signal (H1-)
11	H2+	I	Hall signal (H2+)
12	H2-	I	Hall signal (H2-)
13	H3+	I	Hall signal (H3+)
14	H3-	I	Hall signal (H3-)
15	VH	I	Hall bias
16	NC	-	No connection
17	PC1	-	Phase compensation capacitor
18	SB	I	Short brake
19	FG3X	O	FG waveform (3X)
20	DIR	O	Rotational direction output
21	ECR	I	Output current control reference
22	EC	I	Output current control voltage
23	S/S	I	Power save (Start/Stop switch)
24	FG1X	O	FG waveform (1X)
25	VCC	-	Supply voltage (Signal)
26	NC	-	No connection
27	VM	-	Supply voltage (Motor)
28	CS1	-	Output current detection

CS4392(ME: U16)

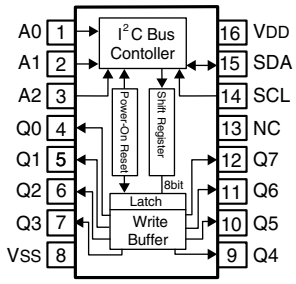




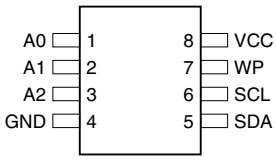
SN74HCU04PWR (ME: U8)



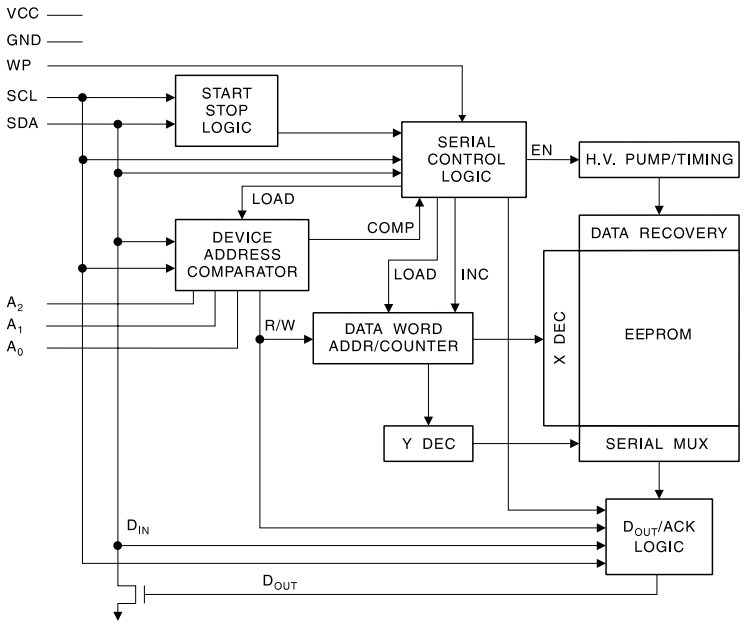
BU2098F (AV: IC51)



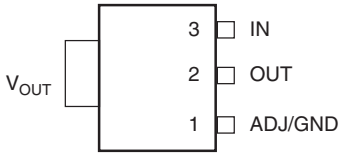
AT24C02N(ME: U13)



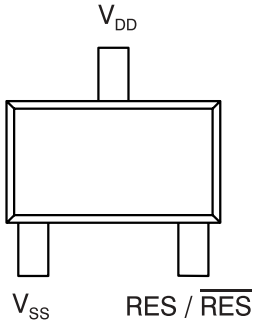
Block Diagram



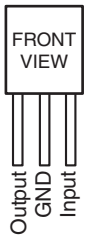
RC1117S285T(ME: Q4)



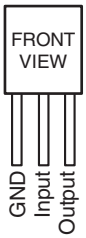
V6309M(ME: Q5)



KA78L08AZ (AV: IC52)



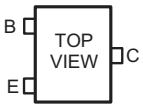
AK79L08AZ (AV: IC53)



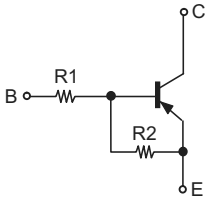
● TRANSISTORS

KRA107M
KRC107M

DTC114TK

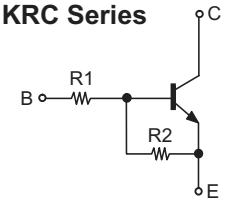


KRA Series



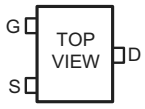
	R1	R2
KRA107M	10kohm	47kohm

DTC Series
KRC Series

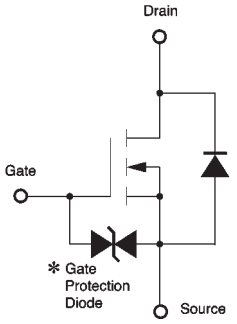


	R1	R2
KRC107M	10kohm	47kohm
DTC114TK	10kohm	—

2SK2731

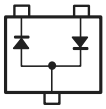


G: Gate
S: Source
D: Drain

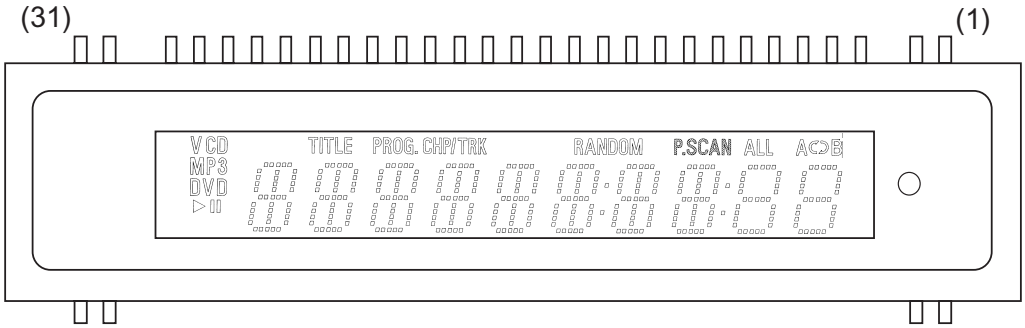


● DIODE

MMBD4148SE



● FL DISPLAY HNV06SC15T (F901)



◎ Color of Illumination ◎

- Reddish Orange (Rsh.O. x=0.624,y=0.374) ----- Hatched patterns.
- Green (G. x=0.250,y=0.439) ----- Others.

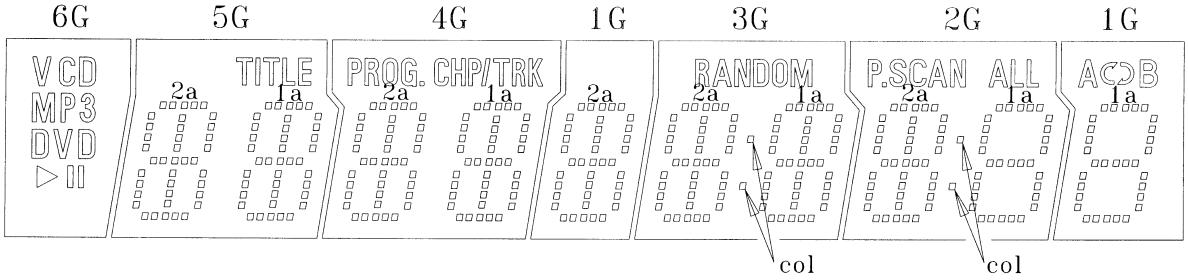
PIN CONNECTION

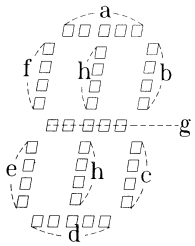
PIN NO.	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	F2	F2	NP	1G	2G	3G	4G	5G	6G	NX	P18	P17	P16	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NP	F1	F1

◎ Notes ◎

1) Fn : Filament pin
2) nG : Grid pin
3) Pn : Anode pin
4) NC : No Extended pin
5) NP : No pin

GRID ASSIGNMENT



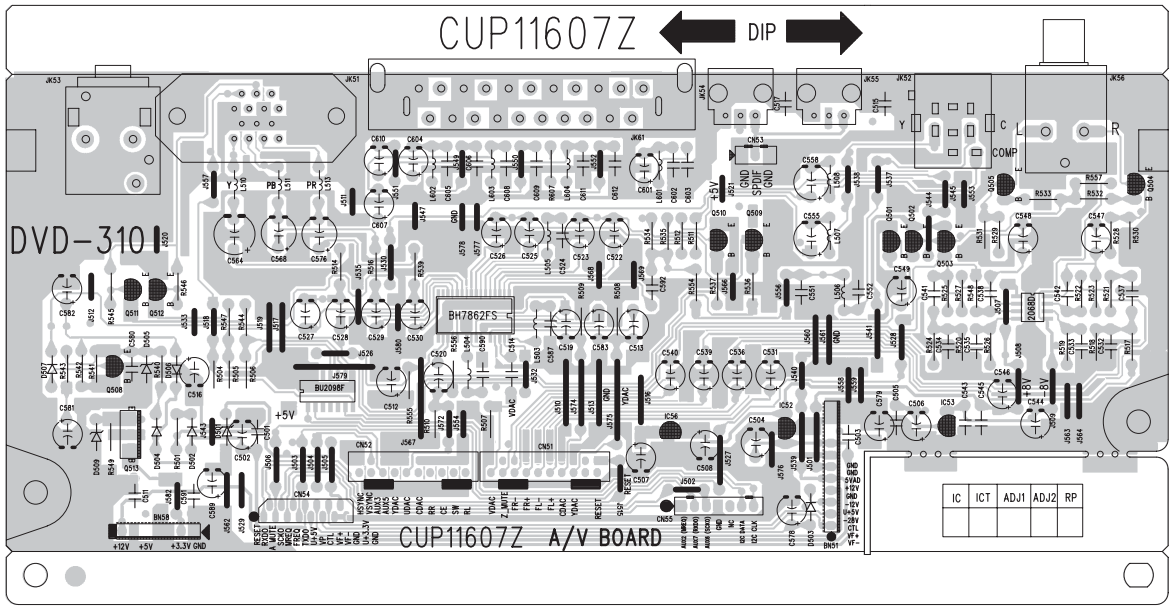


ANODE CONNECTION

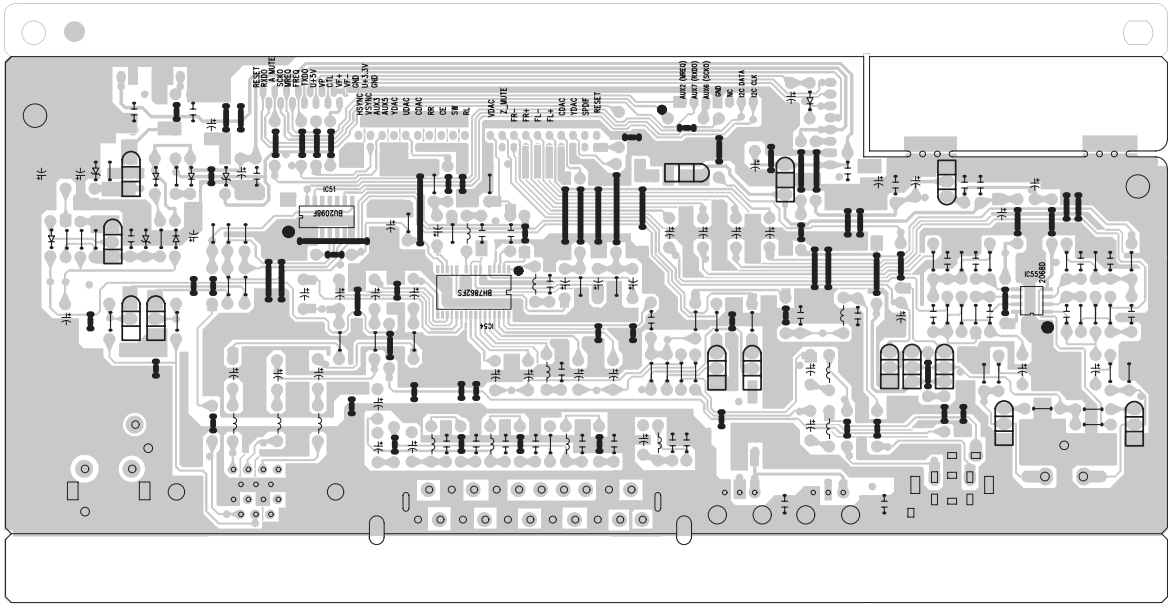
	6G	5G	4G	3G	2G	1G
P1	DVD	1a	1a	1a	1a	1a
P2	V	1b	1b	1b	1b	1b
P3		1f	1f	1f	1f	1f
P4	CD	1g	1g	1g	1g	1g
P5	MP3	1c	1c	1c	1c	1c
P6		1e	1e	1e	1e	1e
P7		1d	1d	1d	1d	1d
P8		1h	1h	1h	col	B
P9		2a	2a	2a	2a	2a
P10		2b	2b	2b	2b	2b
P11		2f	2f	2f	2f	2f
P12		2g	2g	2g	2g	2g
P13		2c	2c	2c	2c	2c
P14		2e	2e	2e	2e	2e
P15		2d	2d	2d	2d	2d
P16	▷	2h	2h	2h	2h	2h
P17	II	TITLE	CHP/TRK	col	P.SCAN	↻
P18			PROG.	RANDOM	ALL	A

PRINTED WIRING BOARD

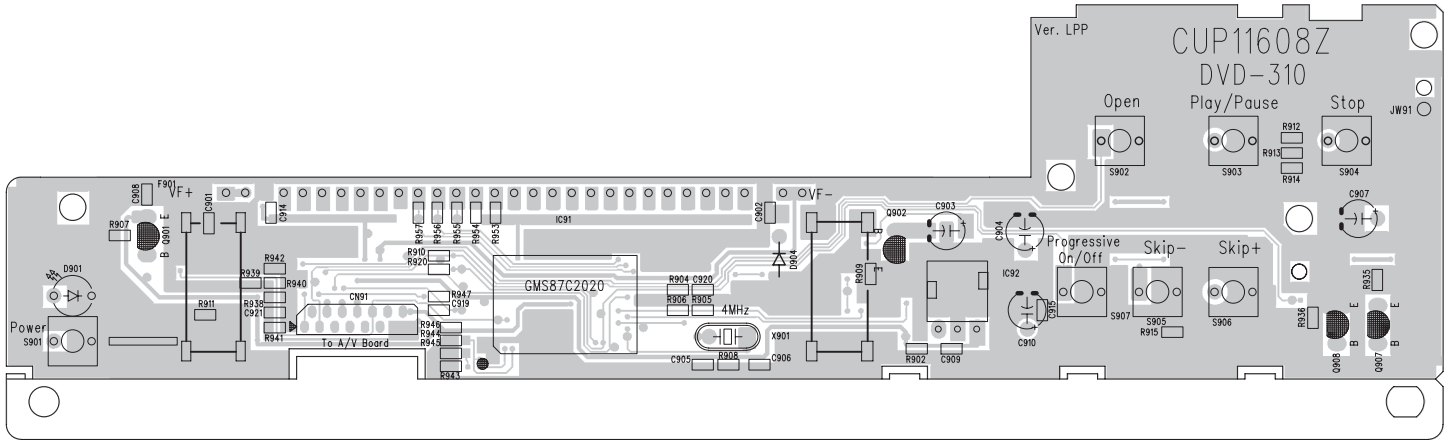
CUP11607Z A/V UNIT ASS'Y COMPONENT SIDE



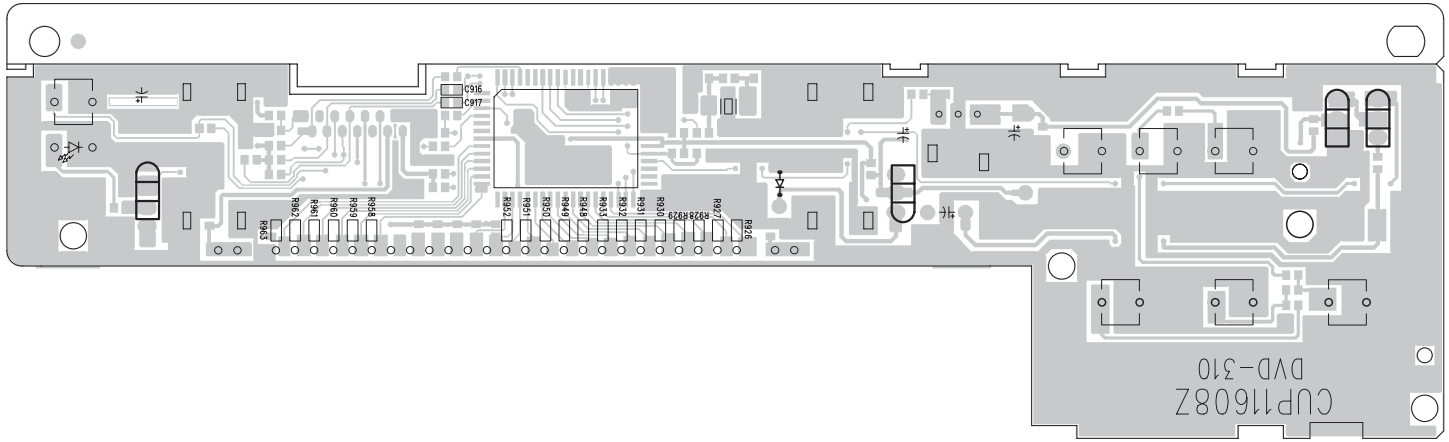
CUP11607Z A/V UNIT ASS'Y FOIL SIDE



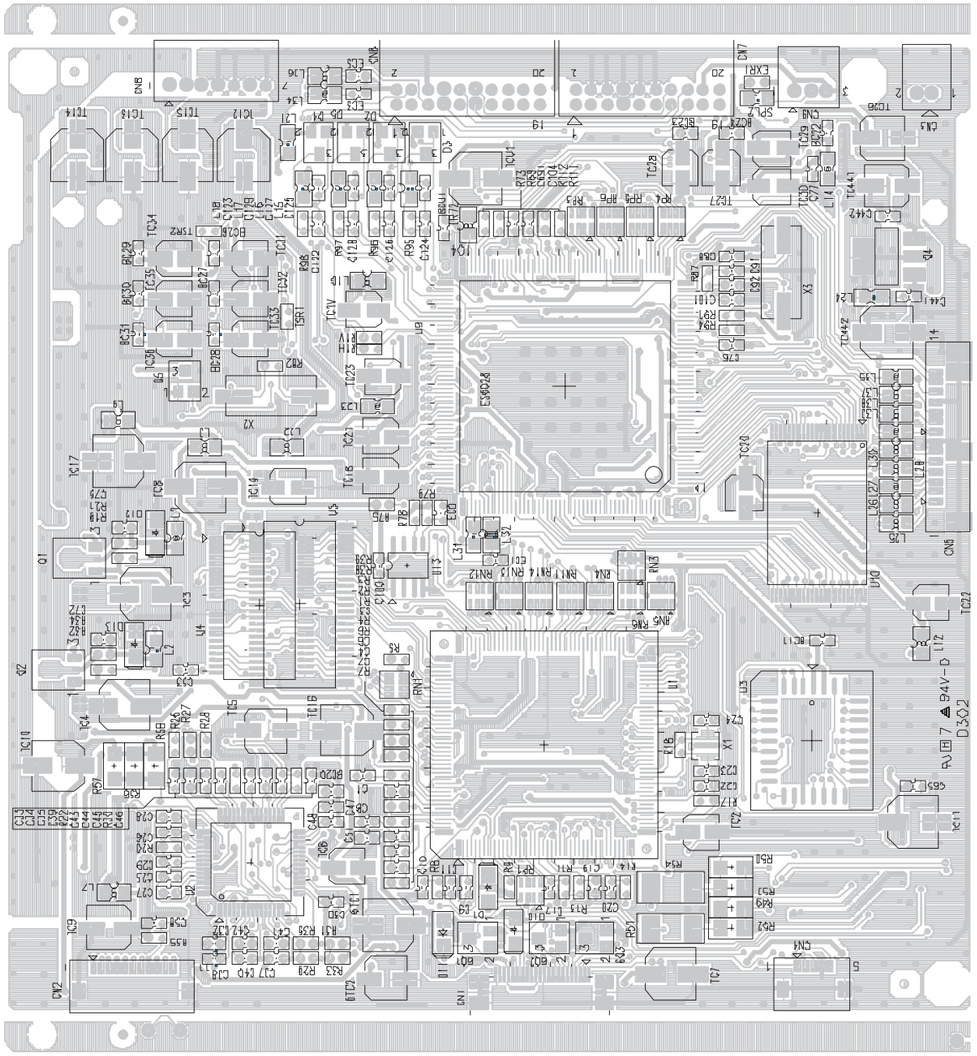
CUP11608Z FRONT UNIT ASS'Y COMPONENT SIDE



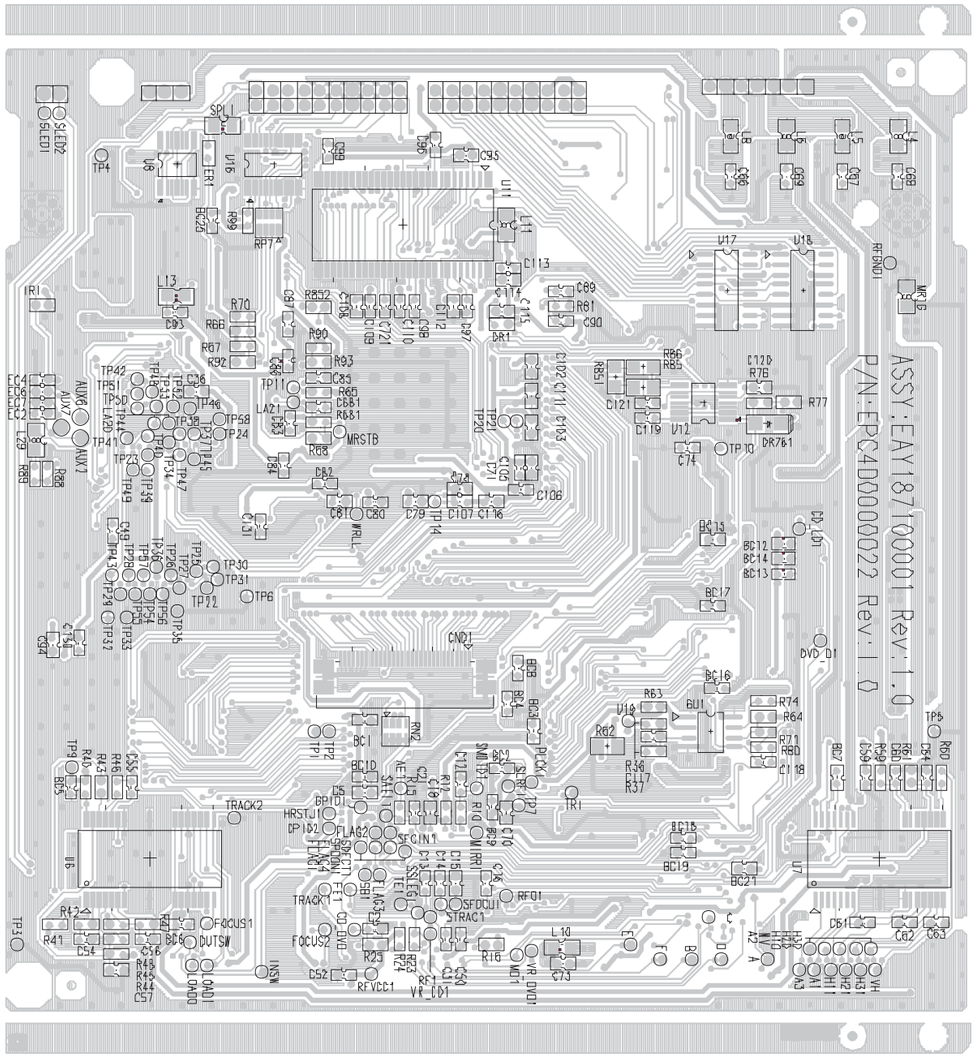
CUP11608Z FRONT UNIT ASS'Y FOIL SIDE



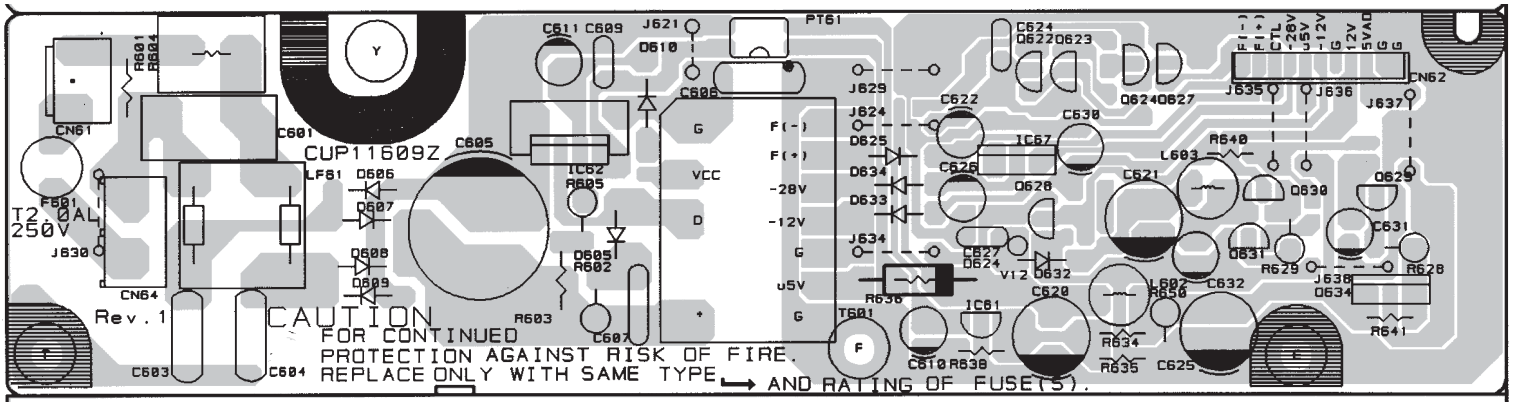
RL-S871 MECHANISM UNIT ASS'Y COMPONENT SIDE



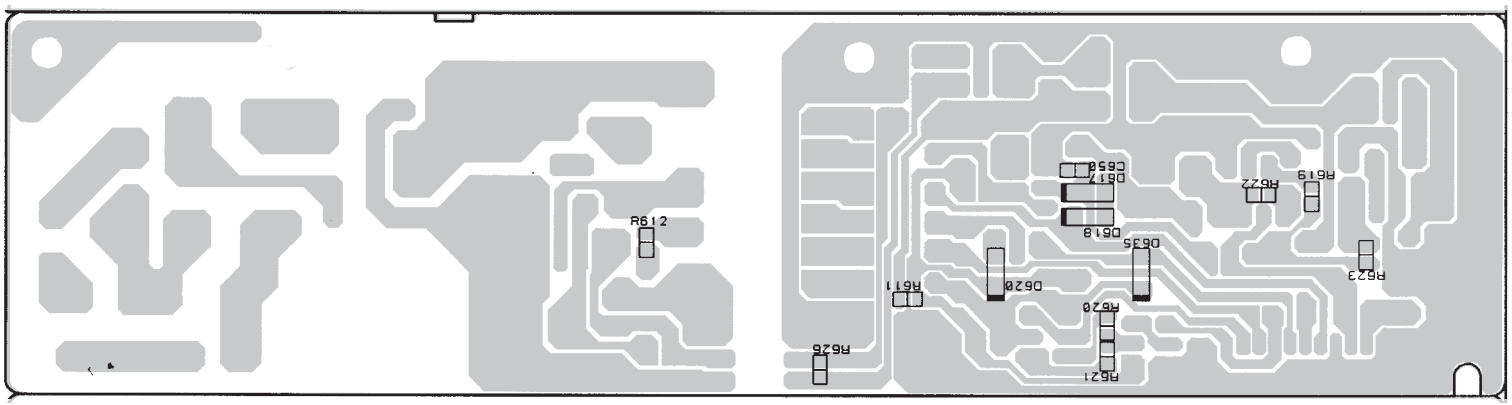
RL-S871 MECHANISM UNIT ASS'Y FOIL SIDE



CUP11609Z SMPS UNIT ASS'Y COMPONENT SIDE



CUP11609Z SMPS UNIT ASS'Y FOIL SIDE



NOTE FOR PARTS LIST

- Part indicated with the mark "⊙" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film Resister ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)
- Not including Carbon Chip Resister 1/16W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:
Parts marked with this symbol ⚠ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

部品表について

1．◉印の部品は常時在庫していませんので供給に長時間を要することがあります。
場合によっては、供給をお断りすることがあります。
2．部品を発注する際は特に数字の“1”と英字の“I”との区別をはっきり記入してください。
3．部品番号を表示していない部品は供給できません。
4．⚠ 印の部品は安全上重要な部品です。交換するときは、安全性維持のため必ず指定の部品をご使用ください。
5．★印のついている部品は分解図中には記載していません。
6．カーボン抵抗器± 5%、1/4W 型は記載していません。定数は回路図を参照願います。
7．カーボンチップ抵抗器 1/16W 型は記載していません。定数は回路図を参照願います。
8．部品表の抵抗器、コンデンサの品名記号の読み方は表を参照してください。

● Resistors

Ex.: RN (Type) 14K (Shape and performance) 2E (Power) 182 (Resistance) G (Allowable error) FR (Others)

RD : Carbon RC : Composition RS : Metal oxide film RW : Winding RN : Metal film RK : Metal mixture	2B : 1/8W 2E : 1/4W 2H : 1/2W 3A : 1W 3D : 2W 3F : 3W 3H : 5W	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	P : Pulse-resistant type NL : Low noise type NB : Non-burning type FR : Fuse-resistor F : Lead wire forming

✻ Resistance

1 8 2 ⇒ 1800 ohm = 1.8 kohm
Indicates number of zeros after effective number.
2-digit effective number.
• Units: ohm

1 R 2 ⇒ 1.2 ohm
1-digit effective number.
2-digit effective number, decimal point indicated by R.
• Units: ohm

● Capacitors

Ex.: CE (Type) 04W (Shape and performance) 1H (Dielectric strength) 2R2 (Capacity) M (Allowable error) BP (Others)

CE : Aluminum foil electrolytic CA : Aluminum solid electrolytic CS : Tantalum electrolytic CQ : Film CK : Ceramic CC : Ceramic CP : Oil CM : Mica CF : Metallized CH : Metallized	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1V : 35V 1H : 50V 2A : 100V 2B : 125V 2C : 160V 2D : 200V 2E : 250V 2H : 500V 2J : 630V	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20% Z : +80% −20% P : +100% −0% C : ±0.25pF D : ±0.5pF = : Others	HS : High stability type BP : Non-polar type HR : Ripple-resistant type DL : For change and discharge HF : For assuring high requency U : UL part C : CSA part W : UL-CSA type F : Lead wire forming

✻ Capacity (electrolyte only)

2 2 2 ⇒ 2200µF
Indicates number of zeros after effective number.
2-digit effective number.
• Units: µF.

2 R 2 ⇒ 2.2µF
1-digit effective number.
2-digit effective number, decimal point indicated by R.
• Units: µF.

✻ Capacity (except electrolyte)

2 2 2 ⇒ 2200pF=0.0022µF
(More than 2) Indicates number of zeros after effective number.
2-digit effective number.
• Units: pF.

2 2 1 ⇒ 220pF
(0 or 1) Indicates number of zeros after effective number.
2-digit effective number.
• Units: pF.

• When the dielectric strength is indicated in AC, "AC" is included after the dieelectric strength value.

●抵抗器

例) RN 種類 / 14K 形状特性 / 2E 電力 / 182 抵抗値 / G 許容差 / FR その他

RD : カーボン RC : 固定体 RS : 金属系皮膜 RW : 巻線 RN : 金属皮膜 RK : 金属混合体	2B : 1/8 W 2E : 1/4 W 2H : 1/2 W 3A : 1 W 3D : 2 W 3F : 3 W 3H : 5 W	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	P : 耐パルス形 NL : 低雑音形 NB : 不燃形 FR : ヒューズ抵抗 F : リード線成形

＊抵抗値

18 2 ⇒ 1800Ω=1.8kΩ
有効数字につづく 0 の数を表わす。
2 桁の有効数字を表わす。

1R 2 ⇒ 1.2Ω
1 桁の有効数字を表わす。
2 桁の有効数字で小数点は R で表わす。
：単位はΩ

●コンデンサ

例) CE 種類 / 04W 形状特性 / 1H 耐圧 / 2R2 容量 / M 許容差 / BP その他

CE : アルミ箔電解 CA : アルミ固体電解 CS : タンタル電解 CQ : フィルム CK : セラミック CC : セラミック CP : オイル CM : マイカ CF : メタライズド CH : メタライズド	0J : 6.3 V 1A : 10 V 1C : 16 V 1E : 25 V 1V : 35 V 1H : 50 V 2A : 100 V 2B : 125 V 2C : 160 V 2D : 200 V 2E : 250 V 2H : 500 V 2J : 630 V	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20% Z : +80% −20% P : +100% − 0% C : ±0.25pF D : ±0.5pF = : その他	HS : 高安定形 BP : 無極性形 HR : 耐リップル形 DL : 充放電対策用 HF : 高周波保証用 U : UL 部品 C : CSA 部品 W : UL-CSA 部品 F : リード線成形

＊容量値

● 電解コンデンサの場合

22 2 ⇒ 2200µF
有効数字につづく 0 の数を表わす。
2 桁の有効数字を表わす。
：単位はµF

2R 2 ⇒ 2.2µF
1 桁の有効数字を表わす。
2 桁の有効数字で小数点は R で表わす。
：単位はµF

● 電解コンデンサ以外の場合

22 2 ⇒ 2200pF=0.0022µF
有効数字につづく 0 の数を表わす。
(0 の数が 2 以上の場合)
2 桁の有効数字を表わす。
：単位はpF

22 1 ⇒ 220pF
有効数字につづく 0 の数を表わす。
(0 の数が 0 または 1 の場合)
2 桁の有効数字を表わす。
：単位はpF

● 耐圧を交流で表示する場合は、耐圧表示の次に「AC」を表示します。

PARTS LIST OF P.W.B. UNIT ASS'Y

CUP11607Z A/V UNIT ASS'Y

	Ref. No.	Part No.	Part Name	Remarks	New
SEMICONDUCTORS GROUP					
	IC051	943 0006 905	BU2098F		
	IC052	943 0005 605	KA78L08AZT		
	IC053	943 0005 702	KA79L08AZT		
	IC054	943 0007 001	BH7862FS		
	IC055	943 0007 108	NJM2068MD-TE1		
	Q501	943 0004 208	KRC107M		
	Q502,503	943 0004 208	KRA107M		
	Q504,505	943 0006 002	KTD1302		
	Q508	943 0006 109	KSA916YT		
	Q509,511	943 0006 206	KTA1268GR		
	Q510,512	943 0006 303	KTC3200GR		
	Q513	943 0007 700	KSD288Y		
	D501	943 0005 401	MTZJ3.3BT		
	D502-504	943 0004 101	1SS133T-77		
	D505	943 0005 508	MTZJ4.3CT		
	D506,507	943 0004 101	1SS133T-77		
	D509	943 0005 508	MTZJ4.3CT		
CAPACITORS GROUP					
	C501,503	943 0016 018	CERAMIC BS1H104ZF		
	C504	943 0016 131	ELECT EA1CH101T		
	C505	943 0016 018	CERAMIC BS1H104ZF		
	C506	943 0016 131	ELECT EA1CH101T		
	C510	943 0016 144	ELECT EA1CH221T		
	C511	943 0016 018	CERAMIC BS1H104ZF		
	C512	943 0016 131	ELECT EA1CH101T		
	C513	943 0016 186	ELECT EA1HH100T		
	C514,515	943 0016 018	CERAMIC BS1H104ZF		
	C516	943 0016 131	ELECT EA1CH101T		
	C519,520	943 0016 173	ELECT EA1EH470T		
	C522	943 0016 131	ELECTHEA1CH101T		
	C523	943 0016 160	ELECTHEA1EH220T		
	C524	943 0016 050	CERAMIC BS1H510KB		
	C525	943 0016 131	ELECT EA1CH101T		
	C526	943 0016 160	ELECT EA1EH220T		
	C527	943 0016 131	ELECT EA1CH101T		
	C528	943 0016 160	ELECT EA1EH220T		
	C529,530	943 0016 115	ELECT EA1AH470T		
	C531	943 0016 186	ELECT EA1HH100T		
	C533	943 0016 063	CERAMIC BS1H681KB		
	C534	943 0016 021	CERAMIC BS1H152MX		
	C535	943 0016 063	CERAMIC BS1H681KB		
	C536,	943 0016 186	ELECT EA1HH100T		
	C539,540	943 0016 186	ELECT EA1HH100T		
	C541	943 0016 047	CERAMIC BS1H222MX		
	C542	943 0016 063	CERAMIC BS1H681KB		
	C543	943 0016 018	CERAMIC BS1H104ZF		
	C544	943 0016 131	ELECT EA1CH101T		
	C545	943 0016 018	CERAMIC BS1H104ZF		
	C546	943 0016 131	ELECT EA1CH101T		
	C547,548	943 0016 186	ELECT EA1HH100T		
	C549	943 0016 144	ELECT EA1CH221T		
	C550	943 0016 128	ELECT EA1AH471T		

	Ref. No.	Part No.	Part Name	Remarks	New
	C555	943 0016 102	ELECT EA0JH102T		
	C558	943 0016 157	ELECT EA1CH471T		
	C564	943 0016 102	ELECT EA0JH102T		
	C568	943 0016 128	ELECT EA1AH471T		
	C571	943 0016 018	CERAMIC BS1H104ZF		
	C576	943 0016 128	ELECT EA1AH471T		
	C578,579	943 0016 131	ELECT EA1CH101T		
	C580	943 0016 005	CERAMIC BS1H102KB		
	C581	943 0016 144	ELECT EA1CH221T		
	C582	943 0016 199	ELECT EA1HH3R3T		
	C583	943 0016 186	ELECT EA1HH100T		
	C587	943 0016 050	CERAMIC BS1H510KB		
	C589	943 0016 131	ELECT EA1CH101T		
	C590	943 0016 034	CERAMIC BS1H220KB		
	C592	943 0016 018	CERAMIC BS1H104ZF		
	C593,594	943 0016 047	CERAMIC BS1H222MX		
OTHER PARTS GROUP					
	BN051	943 0006 400	CWB1C511090GN		
	BN058	943 0006 507	CWB1C507070GN		
	CN051,052	943 0006 604	KJP20GA147ZY		
	CN054	943 0006 701	KJP15GA117ZG		
	CN055	943 0006 808	KJP07GA47ZG		
	JK051	943 0007 205	BJJYKF45-3001		
	JK052	943 0007 302	CJJ9N004Z		
	JK054,055	943 0007 506	HJS9L001Z		
	JK056	943 0007 603	CJJ4N062Z		
	L503	943 0005 809	HLQ02CR68KT		
	L504	943 0005 906	HLQ02CR39KT		
	L505	943 0005 809	HLQ02CR68KT		

CUP11608Z FRONT UNIT ASS'Y

	Ref. No.	Part No.	Part Name	Remarks	New
SEMICONDUCTORS GROUP					
	IC091	943 0004 703	GMS87C2020Q		
	IC092	943 0004 800	KSM-603TH2		
	Q901	943 0004 208	KRA107M		
	Q902	943 0004 305	KRC107M		
	Q907	943 0004 208	KRA107M		
	Q908	943 0004 305	KRC107M		
	D901	943 0004 004	SLR342VCTB7T089 (RED)		
	D904	943 0004 101	1SS133T-77		
	F901	943 0004 606	HNV06SC15T		
CAPACITORS GROUP					
	C901-902	943 0016 238	CHIP US1E104ZF		
	C903	943 0016 225	ELECT EA1HKS1R0T		
	C904	943 0016 209	ELECT EA1CKS100T		
	C905	943 0016 241	CHIP US1E150JA		
	C906	943 0016 267	CHIP US1H330JA		
	C907	943 0016 212	ELECT EA1CKS470T		
	C908	943 0016 238	CHIP US1E104ZF		
	C909	943 0016 254	CHIP US1H102KB		
	C910	943 0016 212	ELECT EA1CKS470T		
	C914,915	943 0016 238	CHIP US1E104ZF		
	C920,921	943 0016 238	CHIP US1E104ZF		
OTHER PARTS GROUP					
	CN091	943 0004 509	KJP15GB113ZG		
	S901-907	943 0004 402	SW , TACT		
	X901	943 0004 907	HOX04000E150C (4MHz)		

RL-S871 MECHANISM UNIT ASS'Y

	Ref. No.	Part No.	Part Name	Remarks	New
SEMICONDUCTORS GROUP					
	U1	943 0011 903	M5705		
	U2	943 0012 009	SP3721A		
	U3	943 0012 805	AT49F001N-70JC		
	U5	943 0012 902	T431616A-8S		
	U6	943 0013 008	FAN8024BD TF		
	U7	943 0013 105	FAN8423D 3TF		
	U8	943 0013 202	SN74HCU04PWR		
	U9	943 0013 309	ES6028FW		
	U10	943 0013 406	MX29LV160ABTC-70		
	U11	943 0013 503	HY57V651620BTC-75		
	U13	943 0013 600	AT24C02N-10SC		
	U16	943 0013 707	CS4392-KZ		
	Q1,2	943 0011 408	2SB1132 T100 R/Q		
	Q4	943 0011 806	RC1117S285T		
	Q5	943 0013 804	VA6309M		
	6Q1,2	943 0011 505	2SK2731		
	6Q3	943 0011 602	DTC114TKA		
	6U1	943 0011 709	BA4560		
	D1	943 0011 204	DIODE, RLS4148		
	D2-5	943 0011 301	DIODE, MMBD4148SE		
	D10-13	943 0011 204	DIODE, RLS4148		
RESISTORS GROUP					
	RN1	943 0015 349	ARC241 33R		
	RN2,3	943 0015 381	ARC241 10K		
	RN4	943 0015 349	ARC241 33R		
	RN5	943 0015 352	ARC241 47R		
	RN6	943 0015 349	ARC241 33R		
	RN11-14	943 0015 365	ARC241 100R		
	RP1	943 0015 378	ARC241 3.3K		
	RP3	943 0015 349	ARC241 33R		
	RP4-6	943 0015 323	ARC241 10R		
	DR761	943 0015 417	RC115%0R2012(0805)		
	ER1	943 0015 462	RC215%33R0603(1608)		
	IR1	943 0015 608	RC215%10K0603(1608)		
CAPACITORS GROUP					
	C1	943 0015 226	CERAMIC,0.047U (47N),10%,16V		
	C3	943 0015 174	CERAMIC,560P,10%,50V		
	C4,5	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C6	943 0015 132	CERAMIC,47P,5%,50V		
	C7,8	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C9	943 0015 190	CERAMIC,1000P,10%,50V		
	C11	943 0015 213	CERAMIC,6800P,10%,50V		
	C12,13	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C14,15	943 0015 161	CERAMIC,470P,10%,50V		
	C16	943 0015 190	CERAMIC,1000P,10%,50V		

	Ref. No.	Part No.	Part Name	Remarks	New
	C17,18	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C19,20	943 0015 190	CERAMIC,1000P,10%,50V		
	C21,22	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C25-30	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C31,32	943 0015 187	CERAMIC,680P,10%,50V		
	C33-35	943 0015 129	CERAMIC,33P,5%,50V		
	C36	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C37,38	943 0015 187	CERAMIC,680P,10%,50V		
	C39	943 0015 226	CERAMIC,0.047U (47N),10%,16V		
	C40,41	943 0015 187	CERAMIC,680P,10%,50V		
	C42	943 0015 145	CERAMIC,100P,5%,50V		
	C43	943 0015 190	CERAMIC,1000P,10%,50V		
	C44	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C45	943 0015 239	CERAMIC,0.33U,-20 - 80%,16V		
	C46	943 0015 158	CERAMIC,160P,5%,50V		
	C47	943 0015 200	CERAMIC,4700P,10%,50V		
	C48	943 0015 190	CERAMIC,1000P,10%,50V		
	C49-53	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C54,55	943 0015 145	CERAMIC,100P,5%,50V		
	C56	943 0015 200	CERAMIC,4700P,10%,50V		
	C57,58	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C59	943 0015 242	CERAMIC,1U,-20 - 80%,10V		
	C60-71	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C72,73	943 0015 242	CERAMIC,1U,-20 - 80%,10V		
	C74	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C75	943 0015 242	CERAMIC,1U,-20 - 80%,10V		
	C76	943 0015 116	CERAMIC,15P,5%,50V		
	C77-90	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C91,92	943 0015 103	CERAMIC,6.8P,5%,50V		
	C94-100	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C102-117	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C122-129	943 0015 161	CERAMIC,470P,10%,50V		
	C130,131	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C441,442	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	C681	943 0015 200	CERAMIC,4700P,10%,50V		
	C691	943 0015 116	CERAMIC,15P,5%,50V		
	BC1-21	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	BCU1	943 0015 255	CERAMIC,0.1U,-20 - 80%,25V		
	TC2	943 0015 271	ELECTROLYTIC,20%,22U/6.3V		
	TC3,4	943 0015 297	ELECTROLYTIC,20%,100U/6.3V		
	TC5	943 0015 284	ELECTROLYTIC,20%,47U/6.3V		
	TC6	943 0015 271	ELECTROLYTIC,20%,22U/6.3V		
	TC7	943 0015 310	ELECTROLYTIC,20%,220U/6.3V		
	TC8	943 0015 297	ELECTROLYTIC,20%,100U/6.3V		
	TC11,12	943 0015 297	ELECTROLYTIC,20%,100U/6.3V		
	TC13	943 0015 310	ELECTROLYTIC,20%,220U/6.3V		
	TC14,15	943 0015 297	ELECTROLYTIC,20%,100U/6.3V		
	TC16,17	943 0015 310	ELECTROLYTIC,20%,220U/6.3V		
	TC18,19	943 0015 271	ELECTROLYTIC,20%,22U/6.3V		
	TC20-23	943 0015 268	ELECTROLYTIC,20%,10U/16V		
	TC441	943 0015 284	ELECTROLYTIC,20%,47U/6.3V		
	TC442	943 0015 310	ELECTROLYTIC,20%,220U/6.3V		
	6TC1	943 0015 310	ELECTROLYTIC,20%,220U/6.3V		
	6TC2	943 0015 284	ELECTROLYTIC,20%,47U/6.3V		
	TCU1	943 0015 310	ELECTROLYTIC,20%,220U/6.3V		
	TC1V	943 0015 268	ELECTROLYTIC,20%,10U/16V		

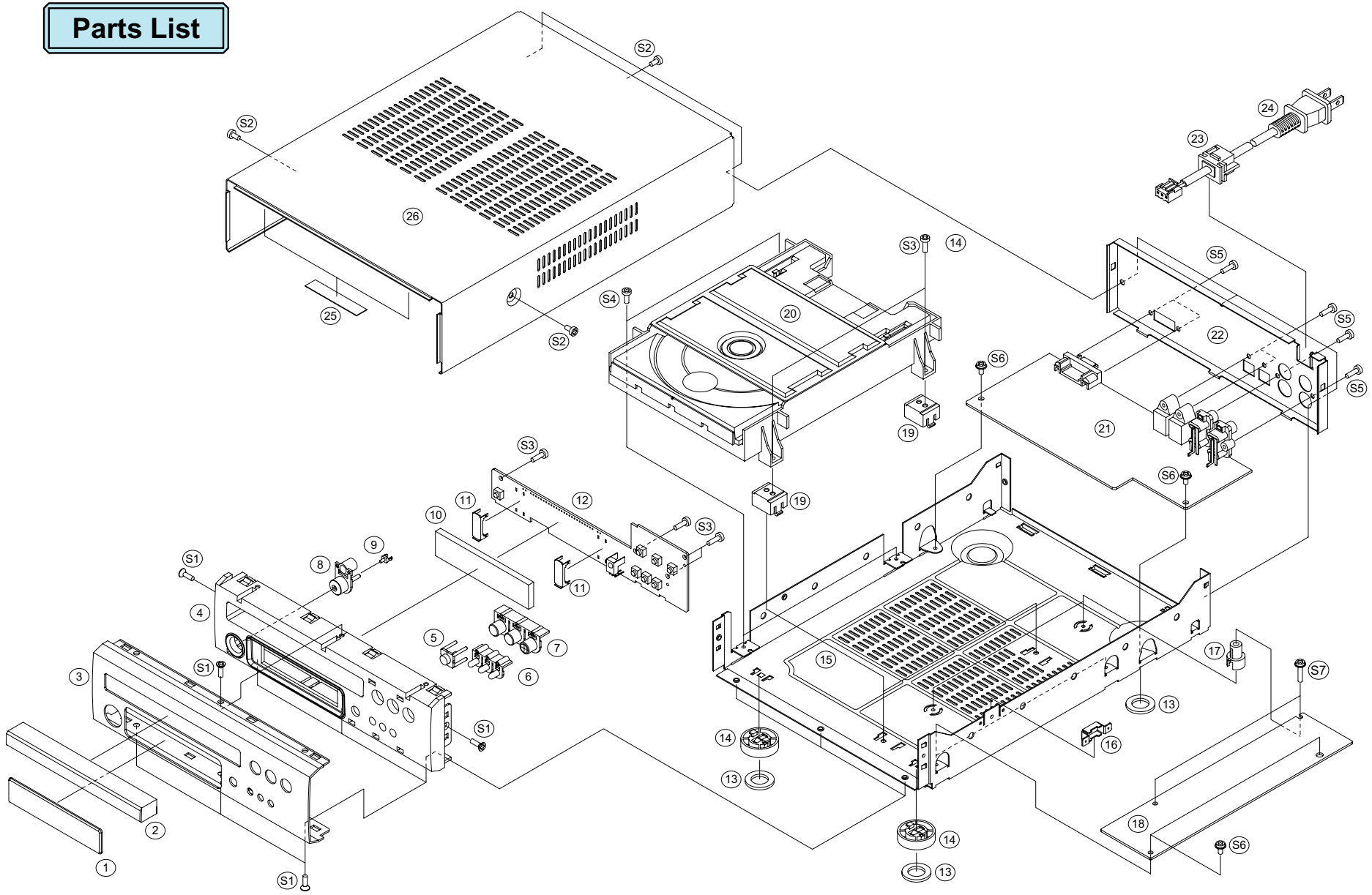
	Ref. No.	Part No.	Part Name	Remarks	New
OTHER PARTS GROUP					
	CN1	943 0014 201	CONN, PICKUP CON24-05M(Top Contact)		
	CN1	943 0014 201	CONN, PICKUP CON24-05M(Top Contact)		
	CN2	943 0014 308	CONN, SPINDLE MOTOR CON11A1MD		
	CN3	943 0014 405	CONN, SLED ACTUATOR 2PIN 2mm PITCH		
	CN4	943 0014 502	CONN, LOADING CONN, 5PIN		
	CN5	943 0017 703	CONN, FRONT PANEL CONN, 14PIN		
	CN6,7	943 0017 800	CONN, AUDIO,VIDEO CONN, 20PIN		
	CN8	943 0014 609	CONN, POWER CONN, 7PIN		
	CN9	943 0014 706	CONN, SPDIF CONN,3PIN		
	L1,2	943 0014 803	IND,3.9UH,2012(0805)		
	L3-12	943 0015 006	FB,2012(0805)600E,1.5A,POWER		
	L15-18	943 0014 900	IND,2.2UH,2012(0805)		
	L21-38	943 0015 006	FB,2012(0805)600E,1.5A,POWER		
	L1G	943 0017 907	FB,2012(0805)121E,1.5A,POWER		
	LR72	943 0017 907	FB,2012(0805)121E,1.5A,POWER		
	MR1G	943 0017 907	FB,2012(0805)121E,1.5A,POWER		
	R851	943 0017 907	FB,2012(0805)121E,1.5A,POWER		
	SPL1	943 0017 907	FB,2012(0805)121E,1.5A,POWER		
	X1	943 0014 007	RESONATOR,33.8688MHZ		
	X3	943 0014 104	X-TAL, 27MHz		

CUP11609Z SMPS UNIT ASS'Y

	Ref. No.	Part No.	Part Name	Remarks	New
RESISTORS GROUP					
	R604	943 0018 003	CEMENT RESISTOR 10Ω/5W		
OTHER PARTS GROUP					
	F601	943 0018 100	FUSE 250V/2A		

EXPLODED VIEW

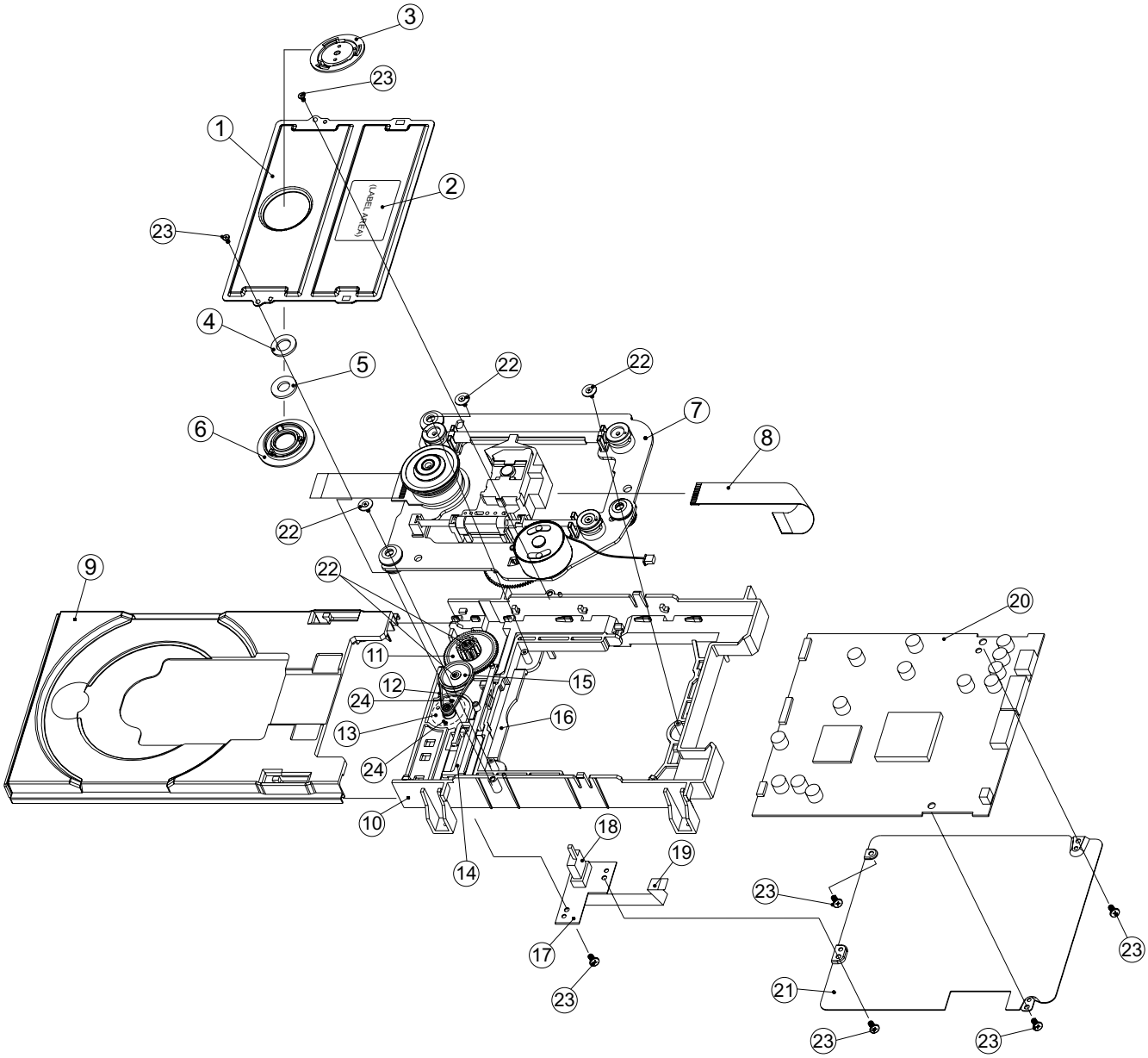
Parts List



PARTS LIST OF EXPLODED VIEW

	Ref. No.	Part No.	Part Name	Remarks	Q'ty	New
	1	943 0002 200	WINDOW , FIP		1	
	2	943 0002 103	ORNAMENT , DOOR		1	
	3	943 0002 909	PANEL , AL		1	
	4	943 0002 802	PANEL , SUB		1	
	5	943 0002 705	WINDOW , IR		1	
	6	943 0002 501	KNOB , PROGRAM		1	
	7	943 0002 404	KNOB , OPEN		1	
	8	943 0002 307	KNOB , STAND-BY		1	
	9	943 0002 608	INDICATOR , STAND-BY		1	
	10	943 0004 606	FIP		1	
	11	-	BRACKET,FIP		2	
	12	943 0003 005	FRONT P.W.B. ASS'Y		1	
	13	943 0003 500	CUSHION , FOOT		4	
	14	943 0003 403	FOOT , FRONT		2	
	15	943 0007 904	CHASSIS , BOTTOM		1	
	16	943 0016 306	COVER , SCREW		1	
	17	943 0005 207	HOLDER , PW.D		2	
	18	943 0007 807	SMPS P.W.B. ASS'Y		1	
	19	943 0005 304	SUPPORT , MECHA		2	
	20	943 0009 009	RL-S871 DVD MECHA		1	
	21	943 0003 102	A/V P.W.B. ASS'Y		1	
	22	943 0003 704	PANEL , REAR		1	
	23	943 0008 000	BUSHING , AC CORD		1	
⚠	24	943 0003 801	POWER CORD		1	
	25	943 0008 204	TAPE , HEMELON		2	
	26	943 0003 607	CABINET , TOP		1	
★		-	CARD CABLE		1	
★		-	STICKER , CAUTION		1	
★		943 0001 308	LABEL , RATING		1	
SCREWS						
	S1	943 0016 319	CTS3+8JFC		6	
	S2	943 0016 322	CTB3+6JFC		5	
	S3	943 0016 335	CTB3+10G		6	
	S4	943 0016 348	CTB3+10J		2	
	S5	943 0016 351	CTB3+10GFZ		6	
	S6	943 0016 364	CTW3+6J		4	
	S7	943 0016 377	CTW3+16J		2	

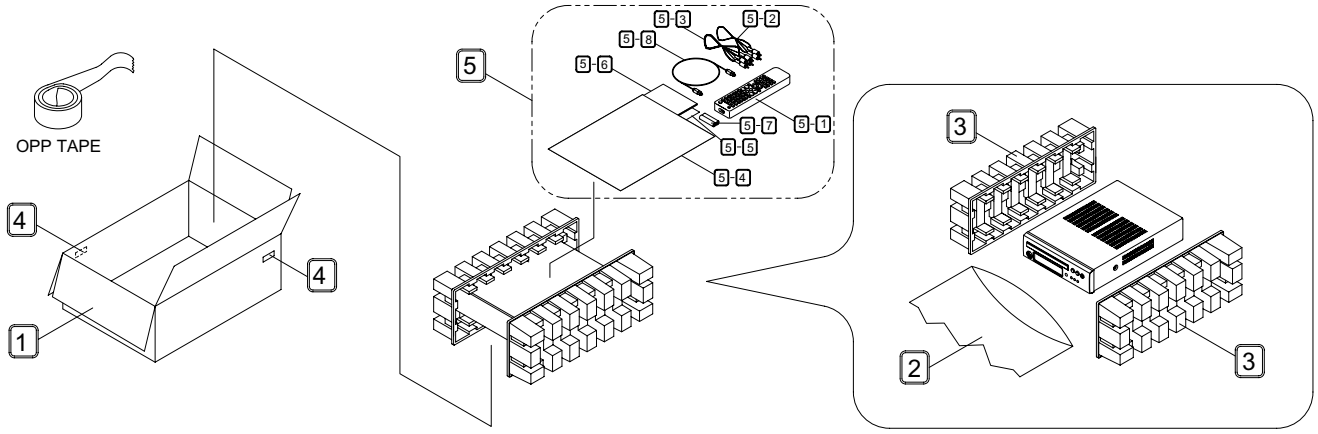
EXPLODED VIEW OF DVD MECHANISM UNIT



PARTS LIST OF DVD MECHANISM UNIT

	Ref. No.	Part No.	Part Name	Remarks	Q'TY	New
	1	943 0010 302	COVER,TOP		1	
	2	-	LABEL,MODEL		1	
	3	943 0010 409	CLAMP,TOP		1	
	4	943 0010 603	PLATE,CLAMP		1	
	5	943 0010 700	MAGNET		1	
	6	943 0010 506	CLAMP,BTM		1	
	7	943 0010 205	FEEDING ASS'Y		1	
	8	943 0010 904	FFC,P/U		1	
	9	943 0010 807	TRAY,DISC		1	
	10	943 0009 203	BASE,LOADING		1	
	11	943 0009 504	PINION,LOADING		1	
	12	943 0009 708	BELT		1	
	13	943 0009 300	AY L/MOTOR		1	
	14	943 0009 407	SLIDE,CAM		1	
	15	943 0009 601	GEAR,PULLY		1	
	16	943 0009 805	LEVER,CAM		1	
	17	943 0009 902	PCB,LOADING		1	
	18	943 0010 001	DETECTOR SWITCH		1	
	19	943 0010 108	FFC,LOADING PCB		1	
	20	943 0017 004	RL-S871,P.W.B. ASS'Y		1	
	21	943 0011 000	COVER,BTM2		1	
	22	943 0016 416	SCREW,TAP		5	
	23	943 0016 429	SCREW,TAP		7	
	24	943 0016 403	SCREW,MC		2	

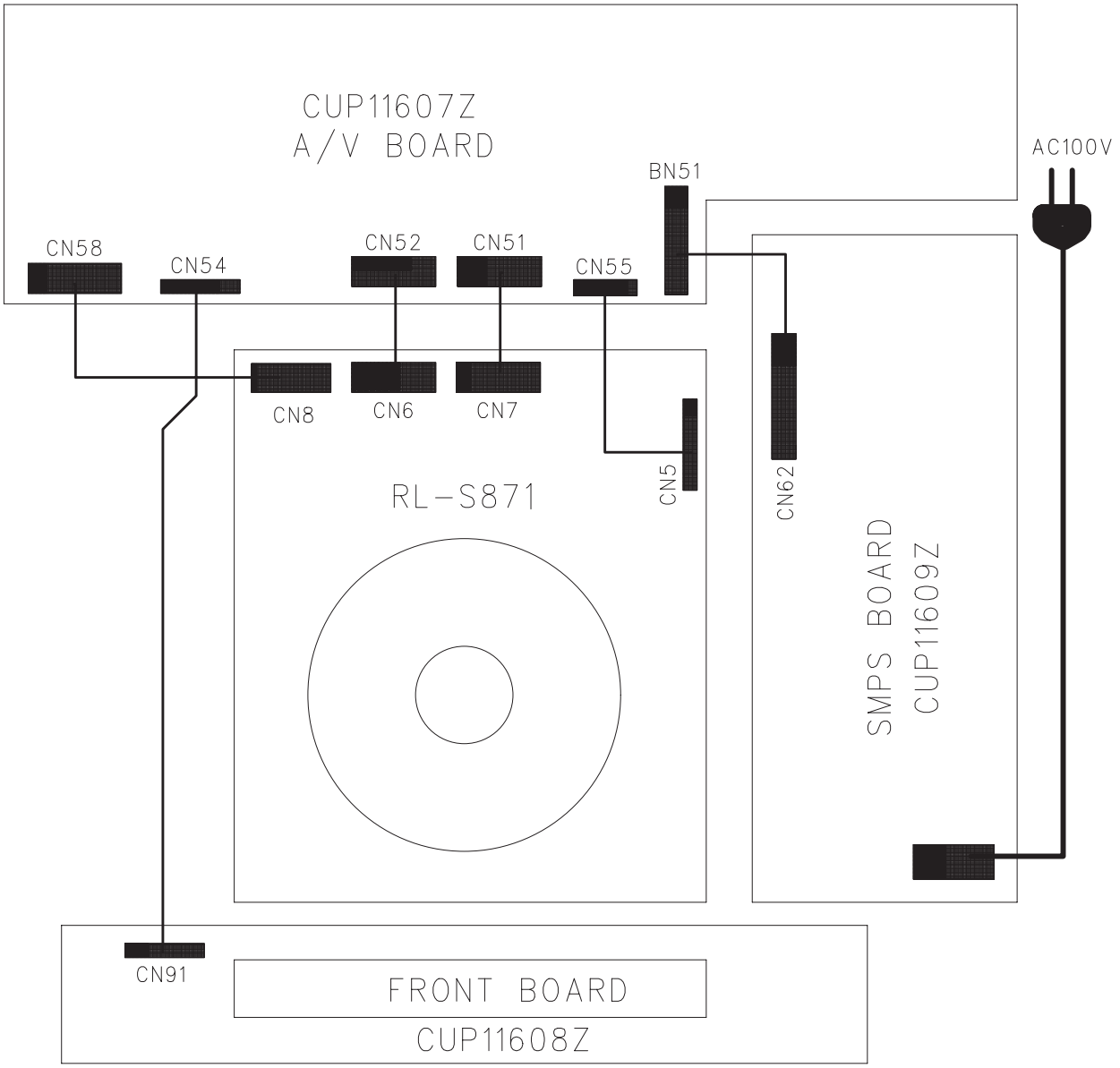
PACKING VIEW



PARTS LIST OF PACKING & ACCESSORIES

	Ref. No.	Part No.	Part Name	Remarks	Q'ty	New
	1	943 0001 104	BOX , OUT CARTON		1	
	2	943 0001 007	BAG , POLY(SET)		1	
	3	943 0001 201	PAD , PAPER		2	
	4	-	LABEL , SERIAL NO		2	
	5	-	INSTRUCTION MANUAL ASS'Y		1	
	5-1	943 0001 502	REMOCON TRANSMITER ASS'Y		1	
	5-2	943 0001 609	CORD . PIN (1P)	YELLOW (1.5M)	1	
	5-3	943 0001 706	CORD , PIN		1	
	5-4	943 0001 803	BAG , POLY		1	
	5-5	515 0918 005	SERVICE STATION LIST		1	
	5-6	943 0001 900	MANUAL , INSTRUCTION		1	
	5-7	-	BATTERY		2	
	5-8	943 0002 006	OPTICAL CABLE		1	
★		515 0919 004	GURANTEE CARD (S)		1	
★		943 0001 405	LABEL , POS		1	
★		943 0008 107	CLAMPER		3	

WIRING DIAGRAM



PIN DISCRIPTION

BN51<---->CN62

1	FL-
2	FL+
3	PWR_CTL
4	VP
5	5.2VA
6	-12V
7	GND
8	+12V
9	5VAD
10	GND
11	GND

BN55<---->CN5

1	I2C CLK
2	I2C DATA
3	NC
4	GND
5	AUX6
6	AUX7
7	AUX2

BN91<---->CN54

1	RESET
2	AUX7
3	A_MUTE
4	AUX6
5	AUX2
6	AUX3
7	AUX5
8	5.2VA
9	VP
10	PWR_CTL
11	VF+
12	VF-
13	GND
14	+3.3V
15	GND

BN58<---->CN8

1	+12V
2	GND
3	+5V
4	GND
5	GND
6	+3.3V
7	GND

CN51<---->CN7

1	V_DAC	11	FL +
2	GND	12	GND
3	Z_MUTE	13	C_DAC
4	GND	14	GND
5	FR -	15	Y_DAC
6	GND	16	GND
7	FR +	17	SPDIF
8	GND	18	GND
9	FL -	19	AUX4
10	GND	20	EXRST

CN52<---->CN6

1	HSYNC	11	C_DAC
2	GND	12	GND
3	VSYNC	13	RR
4	AUX3	14	GND
5	AUX5	15	CE
6	GND	16	GND
7	Y_DAC	17	SW
8	GND	18	GND
9	U_DAC	19	RL
10	GND	20	GND

NOTE FOR SCHEMATIC DIAGRAM

1. WARNING:

Parts marked with this symbol ⚠ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

2. CAUTION:

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the unit is defective.

3. WARNING:

DO NOT return the unit to the customer until the problem is located and corrected.

4. NOTICE

ALL RESISTANCE VALUES IN OHM. k=1,000 OHM
M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD.
p=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

SIGNAL LINE

配線図について

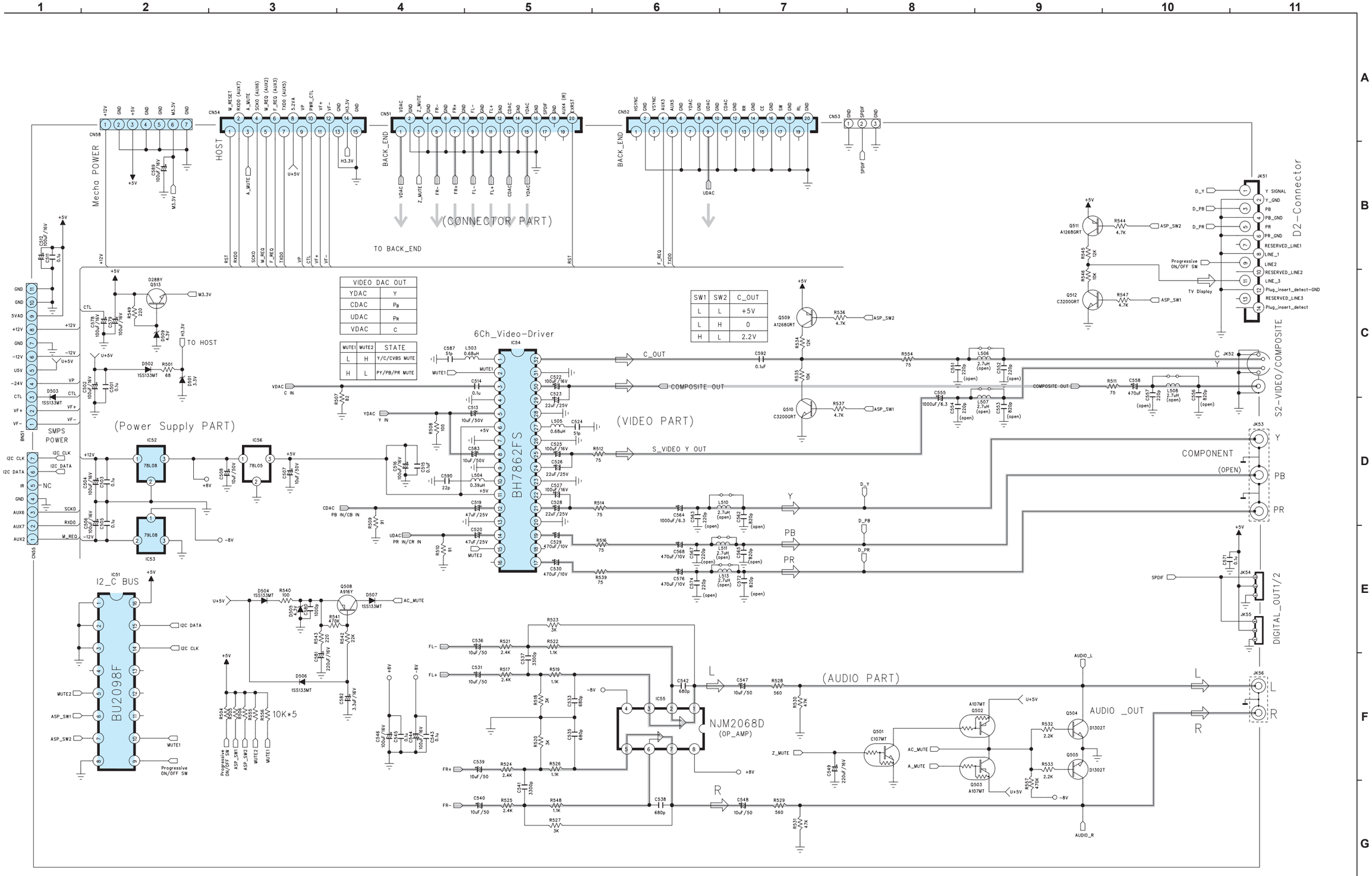
⚠ 印の部品は安全を維持するために重要な部品です。
従って交換時は必ず指定の部品を使用してください。

注）

1. 指定なき抵抗値は Ω、k は kΩ、M は MΩ を示す。
2. 指定なきコンデンサーの値は μF、p は pF を示す。
3. 各部の電圧は無信号の値を示す。
4. この配線図は基本配線図です。改良等のため変更することがありますのでご了承ください。

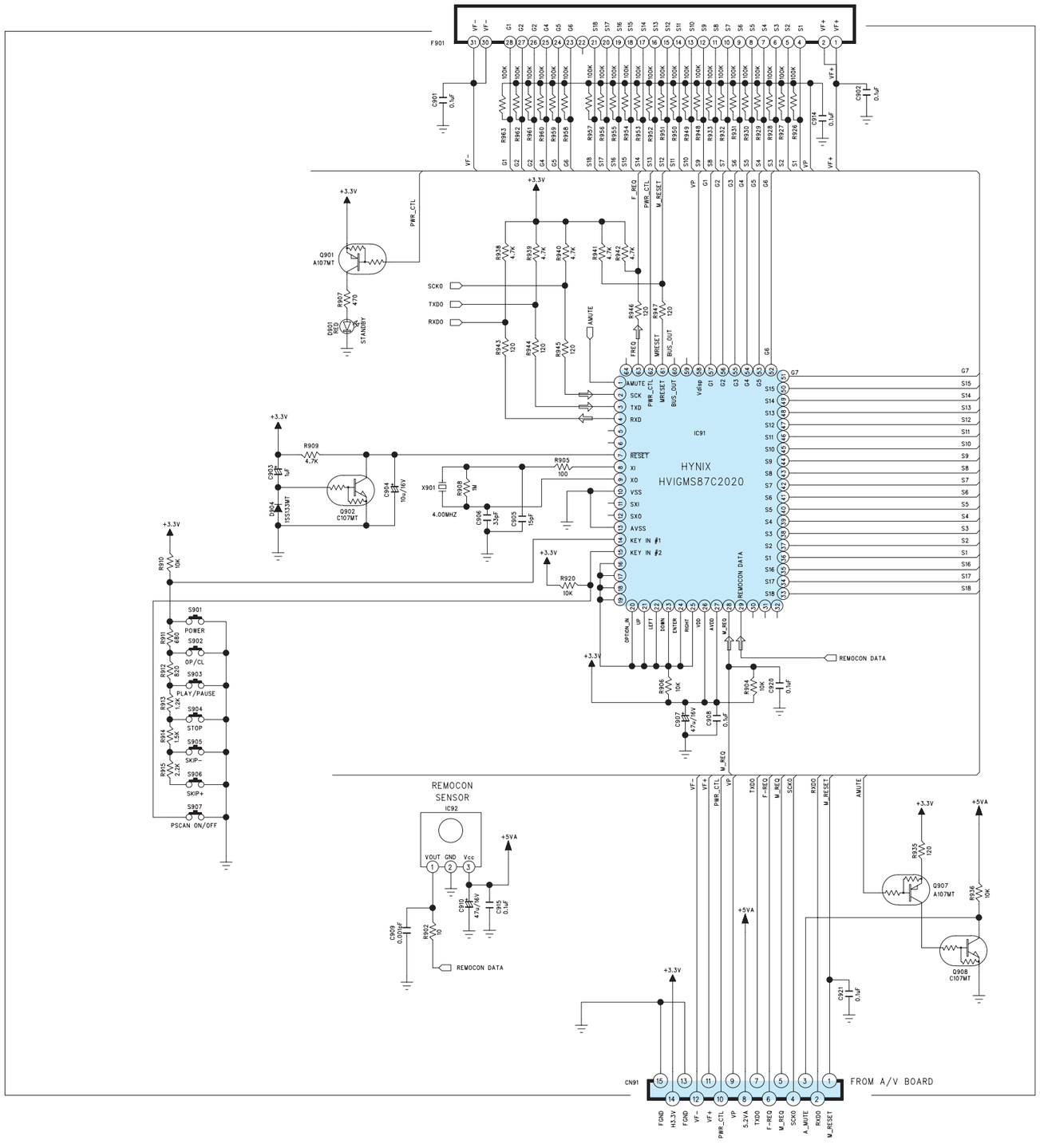
SIGNAL LINE

SCHEMATIC DIAGRAMS (1/9)



SCHEMATIC DIAGRAMS (1/9)

CUP11607Z A/V BOARD



SCHEMATIC DIAGRAMS (2/9)

CUP11608Z FRONT BOARD

U9

ES6028

U10 MX29LV800BTC-70

U11 HY57V651620B

U12A Open(74HCU04)

U12B Open(74HCU04)

U12C Open(74HCU04)

U12D Open(74HCU04)

U12E Open(74HCU04)

U12F Open(74HCU04)

U13 AT24C02A

Q4 RC1117-285T

Q5 VA6309

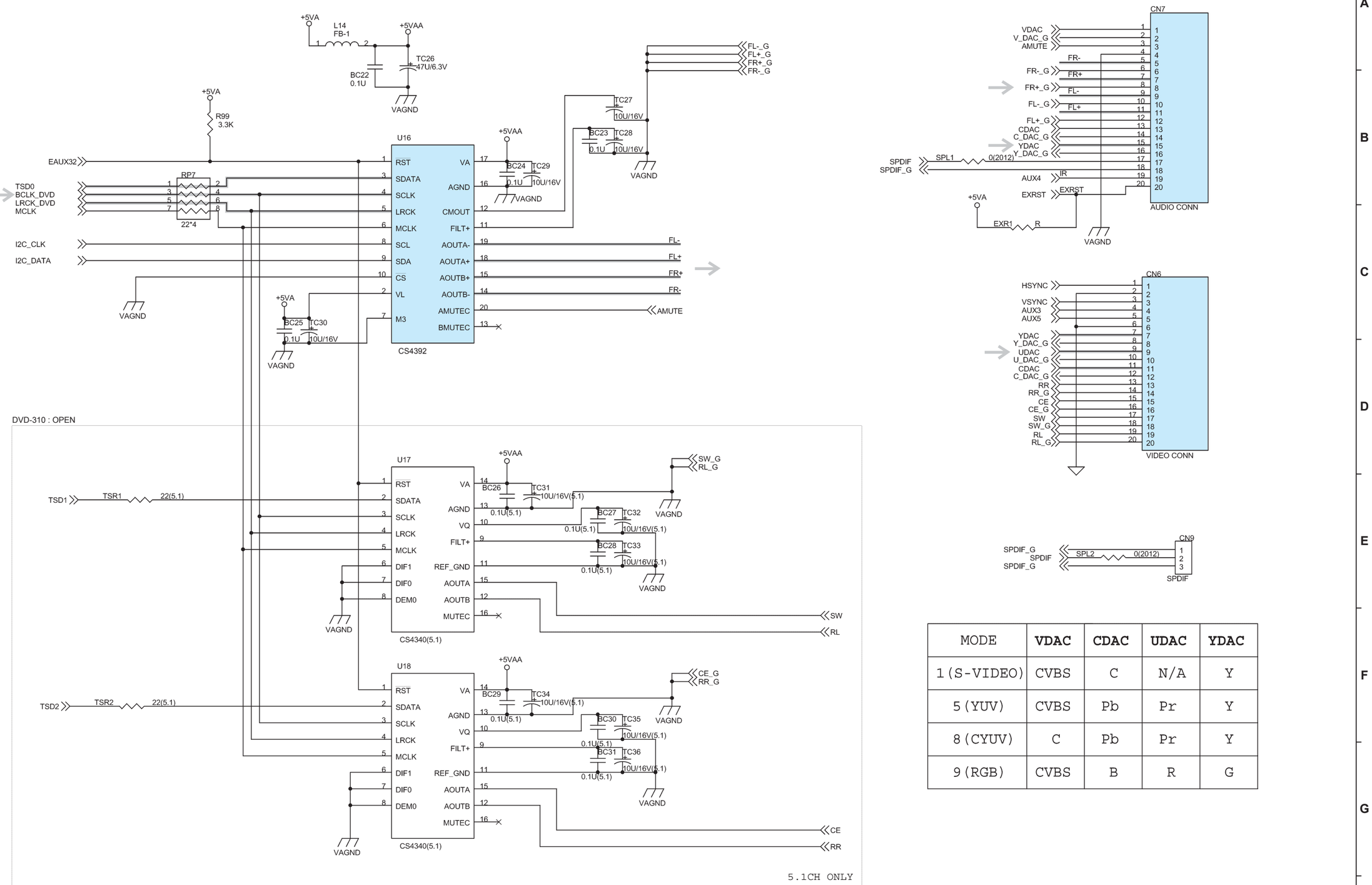
DR761 4148

MMBD4148SE

Debuging port

33Mhz(For DVD AUDIO Only)

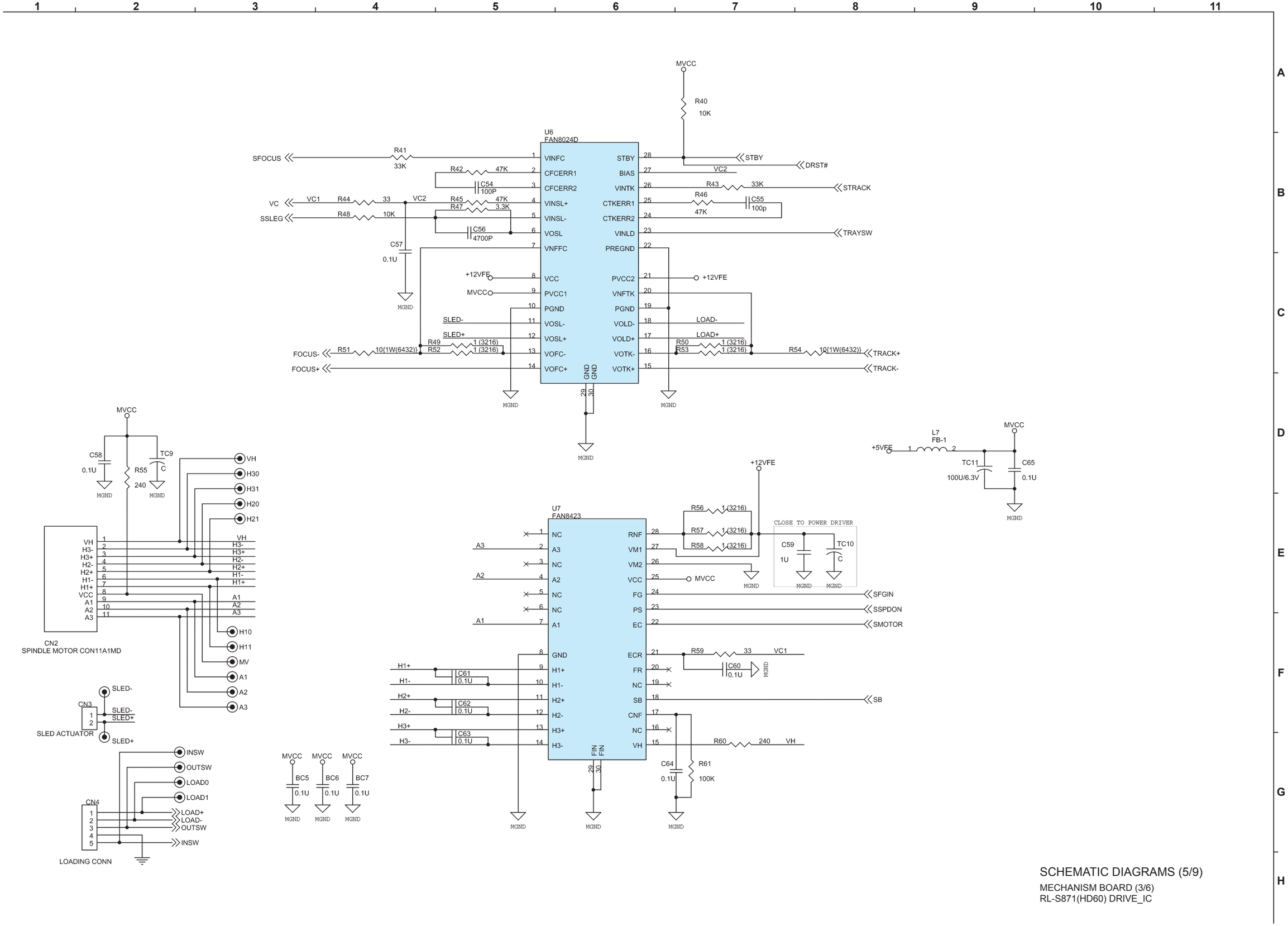
SCHEMATIC DIAGRAMS (4/9)



MODE	VDAC	CDAC	UDAC	YDAC
1(S-VIDEO)	CVBS	C	N/A	Y
5(YUV)	CVBS	Pb	Pr	Y
8(CYUV)	C	Pb	Pr	Y
9(RGB)	CVBS	B	R	G

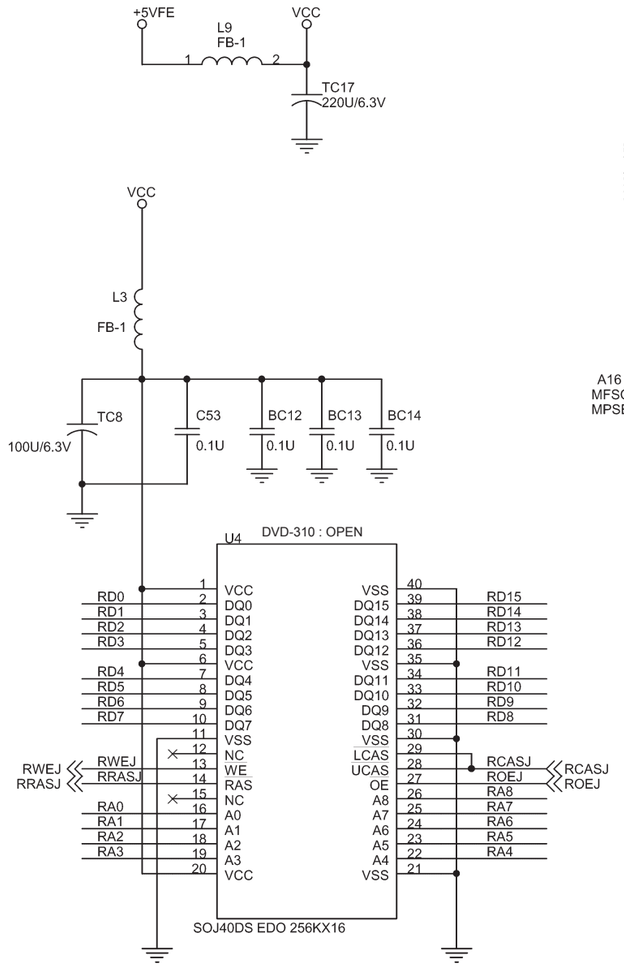
SCHEMATIC DIAGRAMS (4/9)

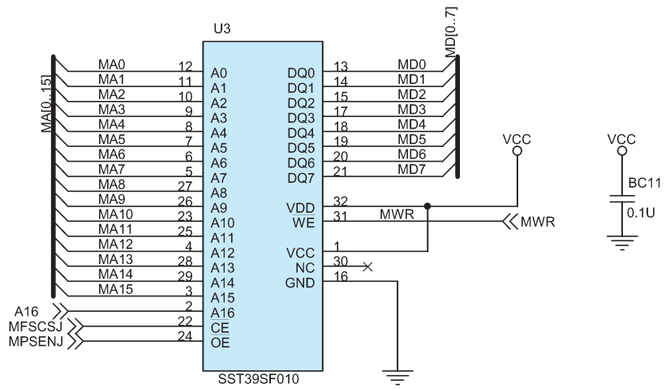
MECHANISM BOARD (2/6)
RL-S871(HD60) AUDIO_DAC

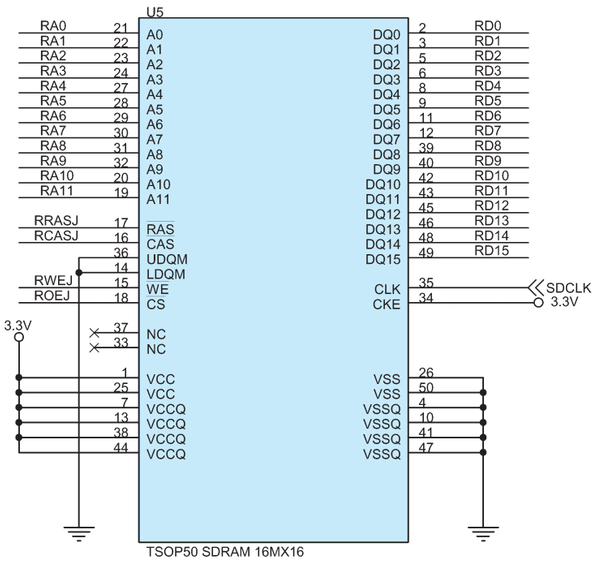


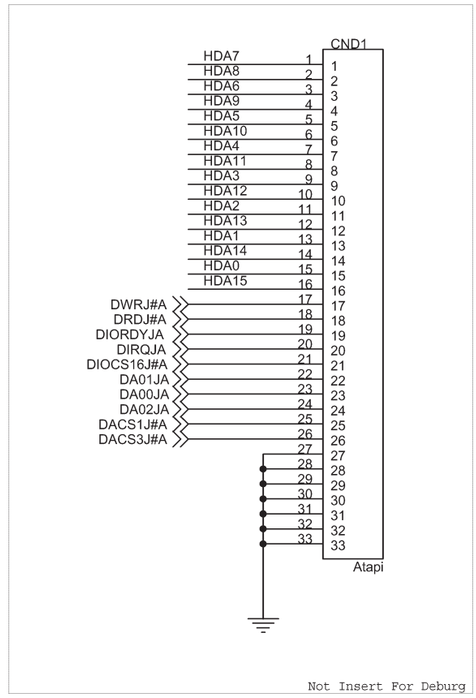
SCHEMATIC DIAGRAMS (5/9)

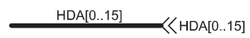
MECHANISM BOARD (3/6)
RL-S871(HD60) DRIVE_IC

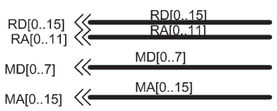


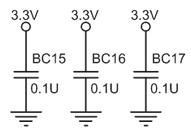






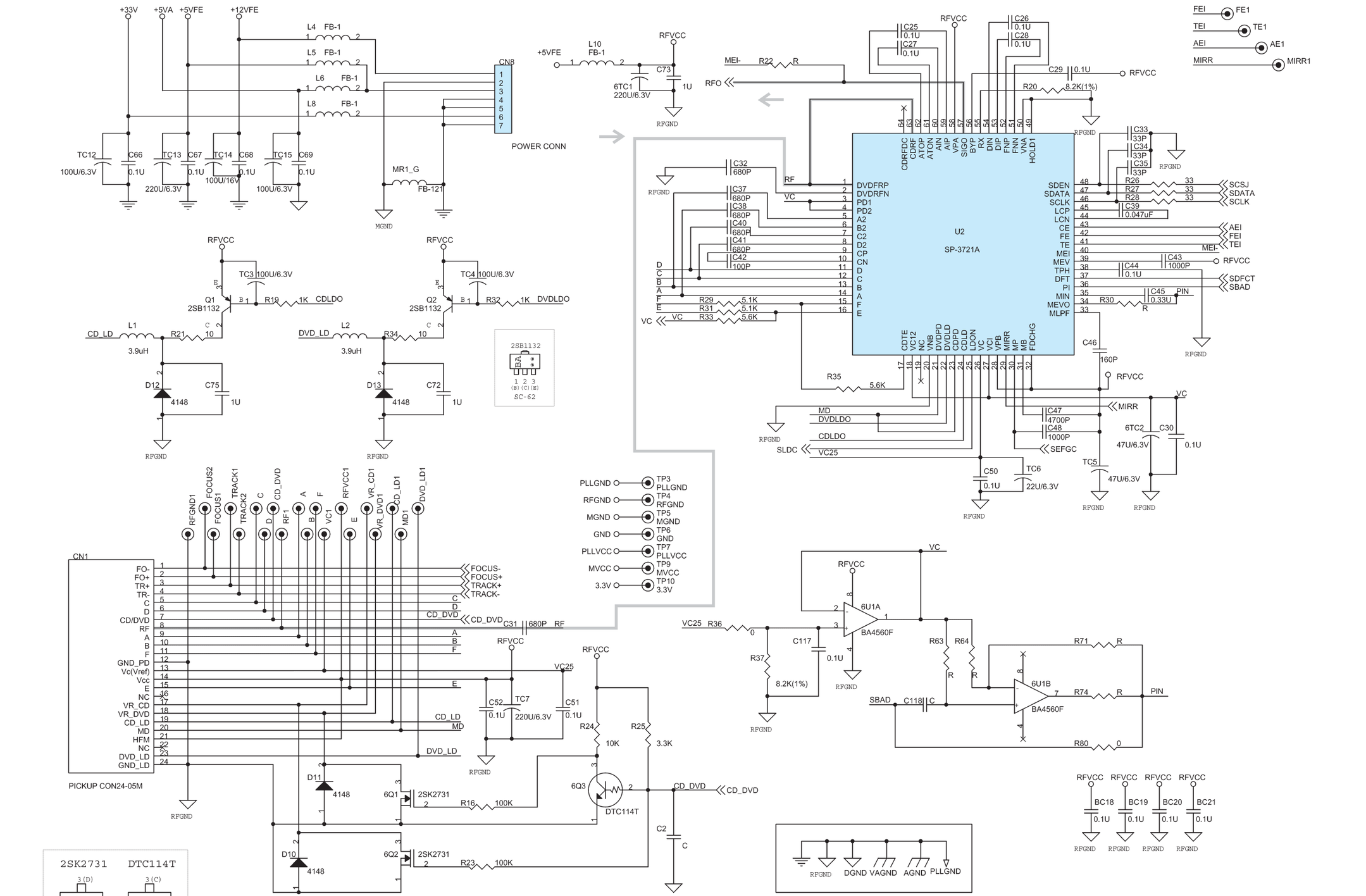






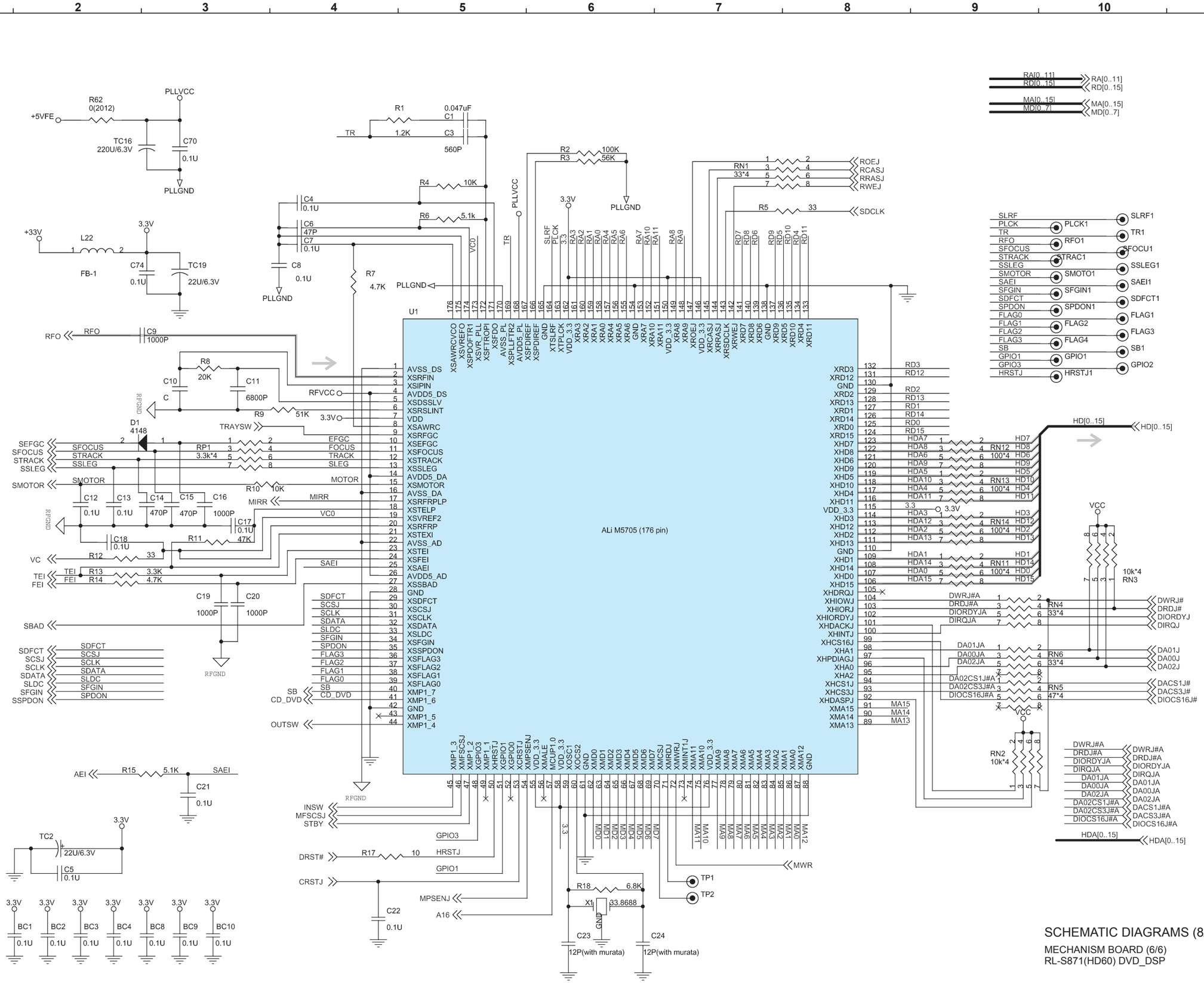
SCHEMATIC DIAGRAMS (6/9)

MECHANISM BOARD (4/6)
RL-S871(HD60) DRAM_FE



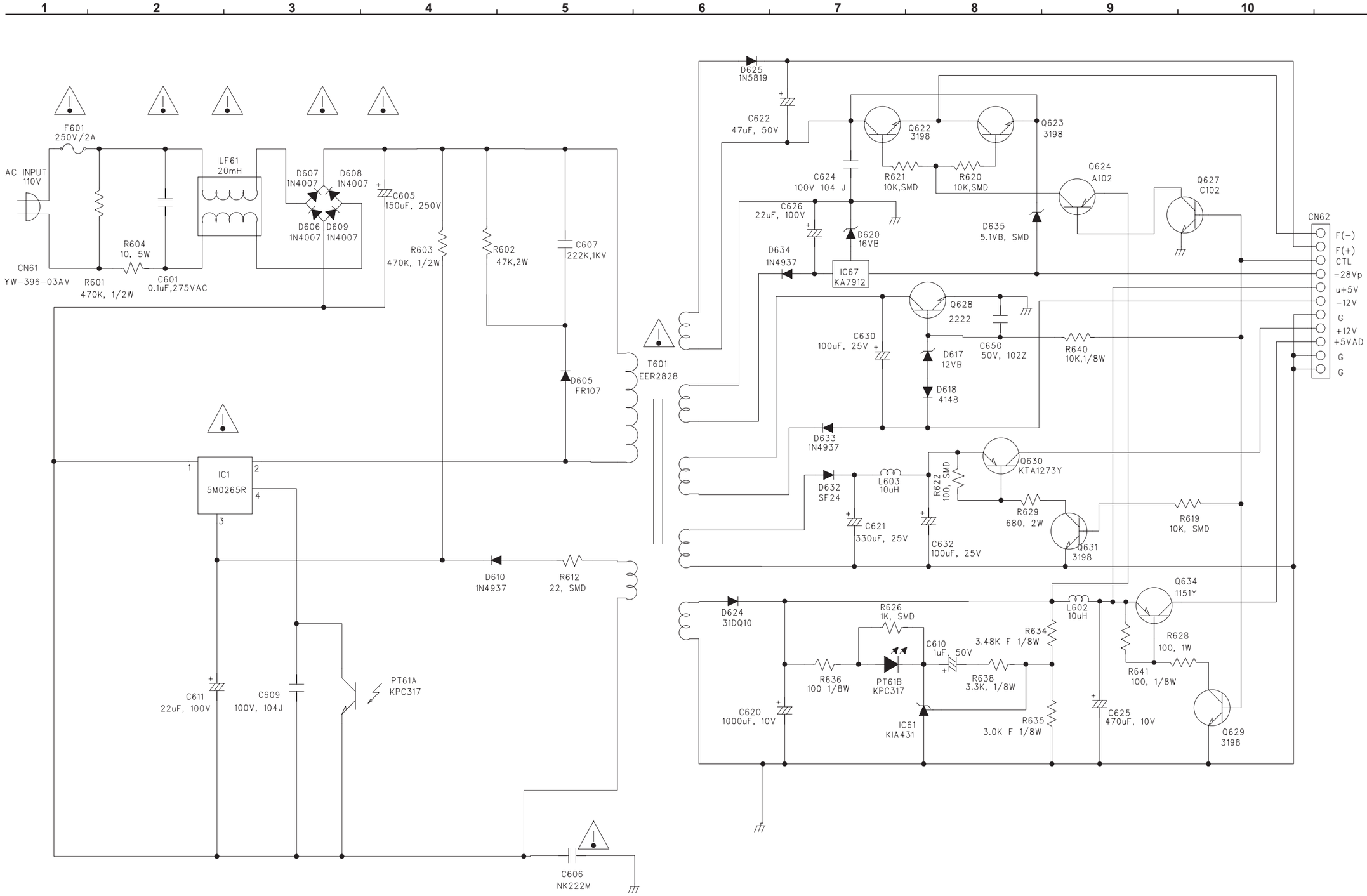
SCHEMATIC DIAGRAMS (7/9)

MECHANISM BOARD (5/6)
RL-S871(HD60) RF_AMP



SCHEMATIC DIAGRAMS (8/9)

MECHANISM BOARD (6/6)
RL-S871(HD60) DVD_DSP



SCHEMATIC DIAGRAMS (9/9)

CUP11609Z SMPS BOARD