

S/M No. :OSHL711001

# Service Manual

LCD MONITOR

**Model:** HL711S  
HL711D



✓ **Caution**

: In this Manual, some parts can be changed for improving, their performance without notice in the parts list. So, if you need the latest parts information, please refer to PPL(Parts Price List) in Service Information Center

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## HL711S/HL711D

### PRECAUTIONS

 **Warning** : The following information will help you avoid the risk of electric shock, serious injury, and death.

- Plug the power cord into a properly grounded outlet.  
There is the risk of electric shock.
- If you hear a noise or smell smoke from the computer or adaptor, unplug the power cord immediately, and call the service center.  
There is the risk of electric shock or fire.
- Do not overload an electrical outlet with too many devices.  
There is the risk of fire.
- Do not unplug from the outlet by pulling the power cord or when your hands are wet.  
There is the risk of electric shock or fire.
- Do not bend the power cord excessively or place heavy objects on it. Keep children and pets away from the power cord as they may damage the power cord. There is the risk of electric shock or fire.
- Do not use a damaged power cord or plug. Make sure the plug fits snugly into the outlet.  
There is the risk of electric shock or fire.
- Do not expose the monitor to the direct sun light.
- Do not block the fan louvers.  
There is the risk of fire or damage to the monitor.
- Do not attempt to disassemble, fix, or modify the monitor.  
There is the risk of electric shock or fire.
- Keep the monitor away from high temperature, humidity, and dust.  
Operating environment = 0 ~ 40 Degrees Celsius  
Operating environment = 30 ~ 80 Relative Humidity
- Do not allow any object or liquid to enter inside the monitor.  
There is the risk of electric shock, fire, or damage to the monitor.



**Caution** : The following information will help you avoid the risk of minor or moderate injury, or damage to the monitor.

- Use a proper voltage/current level indicated.
- Do not clean the LCD with abrasive chemicals.  
There is the risk of damage to the LCD.
- Do not scratch and damage the LCD with sharp objects.
- Keep the monitor away from objects and electrical appliances that may generate electromagnetic fields.
- Place the monitor on a flat, stable surface.  
The monitor may fall and there is the risk of damage or injury.
- Unplug the power cord when the monitor is not in use for a prolonged period of time.

### Instruction for Cleaning the Monitor

- Make sure the power cord is unplugged.
- Do not spill or pour liquid on the monitor.
  
- Cleaning the LCD panel
  1. Use a clean, soft cloth to wipe off dust from the LCD.
  2. If still not clean, wipe the LCD with a clean soft cloth with a small amount of glass cleaner without alcohol or ammonia.

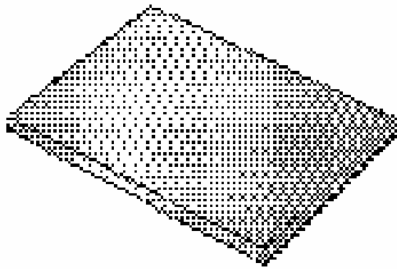
- **Caution**

Do not use alcohol or ammonia based cleaning products. Abrasive chemicals, such as alcohol or ammonia, may damage the monitor. The company is not responsible for the damages to the monitor caused by the use of alcohol or ammonia based cleaning products.

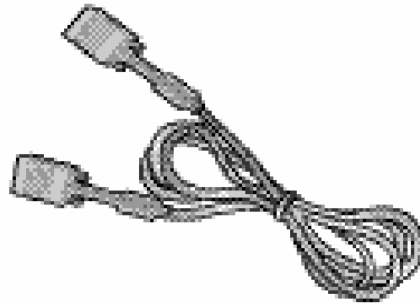
**ITEMS**



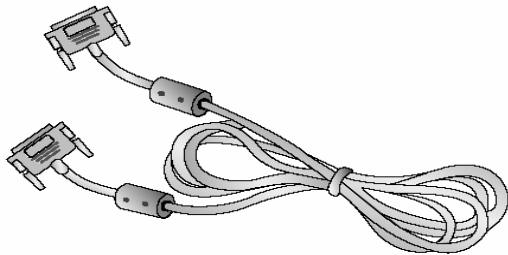
Power cord



User Manual



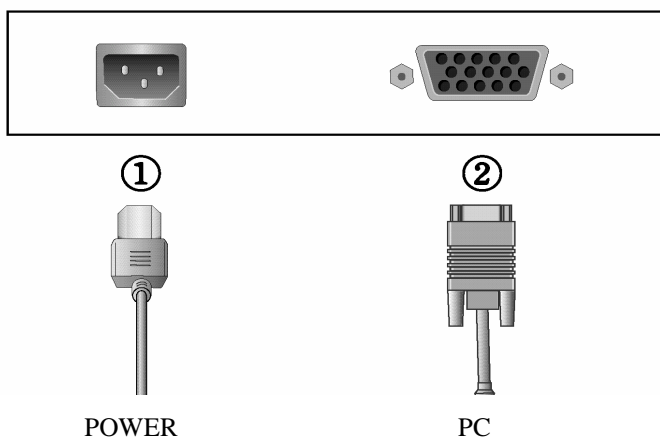
15-pin D-Sub Signal Cable



24-pin DVI Cable

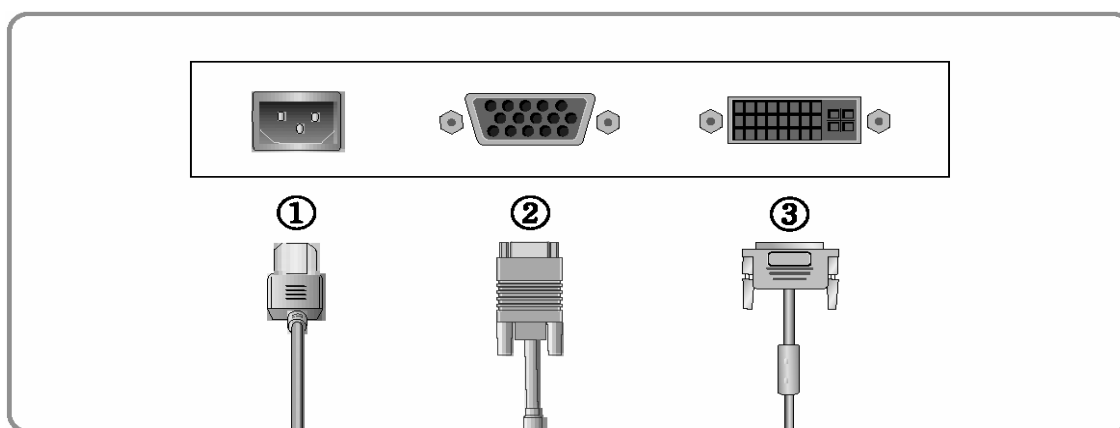
## HOW TO CONNECT THE SEVERAL CABLES TO THE LCD MONITOR

### HL711S Cable Connections



Name	Cable connections
1	POWER CORD
2	15-PIN D-SUB SIGNAL CABLE

### HL711D Cable Connections





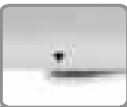
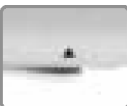

No.	Name	Cable connections
1	Power	Power Cord
2	PC	15-pin D-Sub Signal Cable
3	DVI	24-pin DVI Cable

## ADJUSTING THE MONITOR

### HL711S/HL711D The Function Control Buttons



#### How to use the function Key.

Button	Function
	<ol style="list-style-type: none"> <li>1. First click : The OSD main menu appears.</li> <li>2. Second click : The OSD main menu disappears.</li> </ol>
	<ol style="list-style-type: none"> <li>1. Select a command function.</li> <li>2. When you push Auto button, this will optimize quality automatically.</li> </ol>
	<p>Down :</p> <ol style="list-style-type: none"> <li>1. Automatic adjust color(white level) for various input source's white level.</li> <li>2. Move the on-screen highlighted command item to the next one.</li> <li>3. Decrease the current value.</li> </ol>
	<p>UP :</p> <ol style="list-style-type: none"> <li>1. Move the on-screen highlighted command item to the Previous one.</li> <li>2. Increase the current option value.</li> </ol>
	Power On/Off toggle button.



**HL711S/HL711D SPECIFICATIONS**

**HL711S/HL711D Specifications**

<b>Panel Specification</b>	
Panel Type	<b>HT17E13-100 or other</b>
Panel Dimension	<b>358.5 (H) x 296.5 (V) x 17.0(D) mm typ.</b>
Screen diagonal	<b>17.0 inches [337.92 (H) x 270.336 (V)mm</b>
Pixel pitch	<b>0.264mm x 0.264mm</b>
Pixel format	<b>1280(horizontal) x 1024 (Vertical) Pixels RGB stripe arrangement</b>
Color depth	<b>8bit (16,777,216 colors)</b>
Viewing angle (Deg)	<b>H</b>
	Right 80(Typ.)
	Left 80(Typ.)
	<b>V</b>
	Up 65(Typ.)
	Down 65(Typ.)
Response Time	<b>16 ms</b>
Contrast ratio	<b>500 : 1(typ.)</b>
Average brightness	<b>300 cd/m<sup>2</sup> (typ.)</b>
Cross talk	<b>Horizontal:2.0%(Max.), Vertical:2.0%(Max.)</b>
Vertical Sync (Frame rate)	<b>60Hz(typ.), 75Hz(Max)</b>
Horizontal Sync	<b>31 ~ 80KHz</b>
Dclk	<b>54MHz(Typ.),68MHz(Max.)</b>
Electrical Interface	<b>LVDS</b>
<b>Monitor's specification</b>	
Resolution	<b>Recommend: 1280x1024@60Hz Max. : 1280x1024@75Hz</b>
Frequency	<b>Horizontal: 31.5 ~ 80 KHz Vertical : 56 ~ 75 Hz</b>
Sync. Signal	<b>TTL, P. or N.</b>
OSD Control	<b>Power,Menu,Select/Auto,Down,Up</b>

## DISPLAY MODES

Mode	Resolution	Horizontal Frequency(KHz)	Vertical Frequency(Hz)	Pixel Clock Frequency(MHz)	Sync Polarity(H/V)
VGA	720 X 400	31.468	70.087	28.322	-/+
	640 X 480	31.468	59.940	25.175	-/-
		35.000	66.670	30.240	-/-
		37.500	75.000	31.500	-/-
SVGA	800 X 600	37.879	60.300	40.000	+/+
		48.077	72.188	50.000	+/+
		46.875	75.000	49.500	+/+
XGA	1024 X 768	48.363	60.004	65.000	-/-
		56.476	70.000	75.000	-/-
		60.023	75.029	78.750	+/+
SXGA	1280 X 1024	63.981	60.020	108.000	+,-/+, -
		79.976	75.025	135.000	+/+

The optimal resolution is 1280 1024@60Hz(HL711S/HL711D)

## DPMS POWER SAVING MODE

State	Signal			Power Consumption	Recovery Time	LED Color and Operating status
	H-sync	V-sync	RGB			
ON	Active	Active	Active	Under 40Watt	-	Green
Standby mode	Inactive	Active	Blanked	Less than 5Watt	Within 2Sec	Amber
Suspend mode	Active	Inactive	Blanked			Amber
OFF	Inactive	Inactive	Blanked			Amber

## OSD MENU

### Menu Tree

Main Menu	Sub Menu	Function Description
BRIGHT/CONTRAST	BRIGHTNESS	Control of brightness
	CONTRAST	Control of contrast
	GAMMA	Control of gamma
	EXIT	
COLOR	COLOR1	Color Temperature 9300k
		(some blue color)
	COLOR2	Color Temperature 6500k
		(some red color)
	USER COLOR	RED : 0 ~ 100
		GREEN : 0 ~ 100
		BLUE : 0 ~ 100
EXIT		
POSITION	HORIZONTAL	Control of horizontal position
	VERTICAL	Control of vertical position
	CLOCK	Control of horizontal clock
	PHASE	Control of phase
	EXIT	
OSD FUNCTION	OSD POSITION	Moves the OSD Menu
	OSD TIME	OSD display time
	LANGUAGE	Select OSD language
	EXIT	
SETUP	AUTO BALANCE	Automatic adjust color
	INFORMATION	Display monitor's information
	RECALL	Factory default values
	EXIT	

## **FACTORY SET**

If you push the up button more than 5 seconds in valid PC signal status, factory setting value in MCU save into EEPROM. Every value changes factory setting value.

After factory set executes, power OFF → power ON automatically.

You must push the auto button because of optimum image quality automatically.

When user want factory setting value, you must execute this function.

## **BURN-IN MODE**

If you push the down button more than 5 seconds in disconnected signal cable status, you can see changed color.

Burn-In mode displays chaged color continually. (white, red, blue, green etc.)

We can check normal operating status of the monitor under mass production.

If you want to finish Burn-In mode, you can turn off the power by only push the power button.

## INVERTER & POWER

### Inverter & POWER(HL711S/HL711D)

- L.I.P.S : LCD INVERTER POWER SYSTEM(FLF1742-04A)

### Specification

- Operate 4 CCFL Lamps.
- Current Feedback Control
- Input Voltage : DC 12V.
- When any lamp doesn't operate, the panel is under protection status.  
Protection status means that circuit protect the other lamp.
- PWM Control.
- Remote Power On/Off control
- High Efficiency

### Electrical Characteristics

Description	Min	Typ	Max	Sign	Remark
Input Voltage	11.0	12.0	13.0	Vin	
Input Current	1.5	1.7	1.9	A	12Vdc
Output Current	5.0	6.0	7.0	mArms	1ccfl current
Lamp Frequency	40	47	55	kHz	
ON/OFF Control	Normal Operation			ON	Vin=12V ON/OFF=5V
	Shunt-down(Lamp off)			OFF	Vin=12V ON/OFF=0V
Kick-Off Voltage	MORE THAN 1100			Vrms	Kick-Off

**Pin Connection**

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- INPUT CONNECTOR CON1

Pin NO.	Symbol	Description
1,2	VIN 1	Input Voltage : 12V
3,4,7	GND	GND
5,6	VIN 2	Inopt Voltage : 5V
8	ON/OFF	Power System Return
9	NC	NC

- OUTPUT CONNECTOR CN1,2,3,4

Pin NO.	Symbol	Description
1	HV1,2,3,4	HI VOLTAGE TERMINAL
2	LV1,2,3,4	LOV VOLTAGE TERMINAL

**TROUBLESHOOTING**

**No operating at all**

What you see	Suggested Actions
Is the power inserted correctly?	Insert the plug correctly referring to the User Manual.
Does the Power Adapter operate correctly?	Check the Power Adapter. The green LED is OK.
The Power Adapter operates correctly, but the LCD Monitor does not operate correctly.	Check the harness of the FUNC. B/D.
Does The Power On/Off and the LED Operate correctly?	If the program of the MICOM is error, then exchange the MICOM. If the AD B/D is error, then exchange the AD B/D.
The Power On/Off and the LED operate correctly, but the OSD menu doesn't display on screen.	First, operate the FACTORY SET. Second, check the Panel Harness that is connected to the AD B/D. Check the LAMP Harness of the Panel. Lastly, exchange the LIPS.
The OSD menu operates correctly but the image doesn't display on screen.	Insert the SIGNAL Cable correctly referring to the User Manual. Check the LAMP Harness of Panel and Inverter. Lastly, Check the LAMP of Panel.
The Power On/Off operates correctly, but the screen is 'ALL WHITE'.	The LAMP is OK. Check the Panel Harness that is connected to the AD B/D.
The Power On/Off operates correctly, but the screen is 'ALL BLACK'.	Check the LAMP Cable. Check or exchange the LIPS. Check the Panel Cable.

**Doesn't display on LCD**

<p>“Out of range” message</p>	<p>[Window 98, 98 second, Me,2000]                  Reboot safe mode. (press the F8 key).                  Setting Resolution 1280*1024 in display properties menu and then setting 60Hz vertical frequency.                  → You can see resolution information the lower end of OSD menu when you push the menu button.</p> <p>[Window XP ]                  After reboot a computer, display booting menu on screen by press the F8 key.                  Select VGA mode and then setting Resolution 1280*1024 in display properties menu and setting 60Hz vertical frequency.</p>
<p>“No signal Input” message</p>	<p>Check the signal cable.                  Check DPMS mode in PC.                  Check pins of the signal cable.</p>
<p>If PC keeps DPMS status                  Continually                  (No signal Input,                  LED color amber)</p>	<p>Check the signal cable.                  Check pins of the signal cable.                  Check HS_VGA and VS_VGA in schematics.</p>
<p>Doesn't display on screen                  Correctly include OSD menu</p>	<p>Check scaler output signal.                  Check panel harness between panel and AD B/D.                  Check solder status of the scaler.</p>
<p>Doesn't display on screen                  Correctly except OSD menu</p>	<p>Check the signal cable.                  Check scaler input signal (RGB,H-SYNC,V-SYNC)</p>
<p>Noise in vertical pattern.</p>	<p>Execute Auto Config.                  According to graphic card.                  Check 60Hz vertical frequency in display properties.</p>
<p>Display position error</p>	<p>Auto Config                  Display position error occurred on dark or moving picture.(like game)                  In this case, you must execute Auto Config in windows screen.</p>

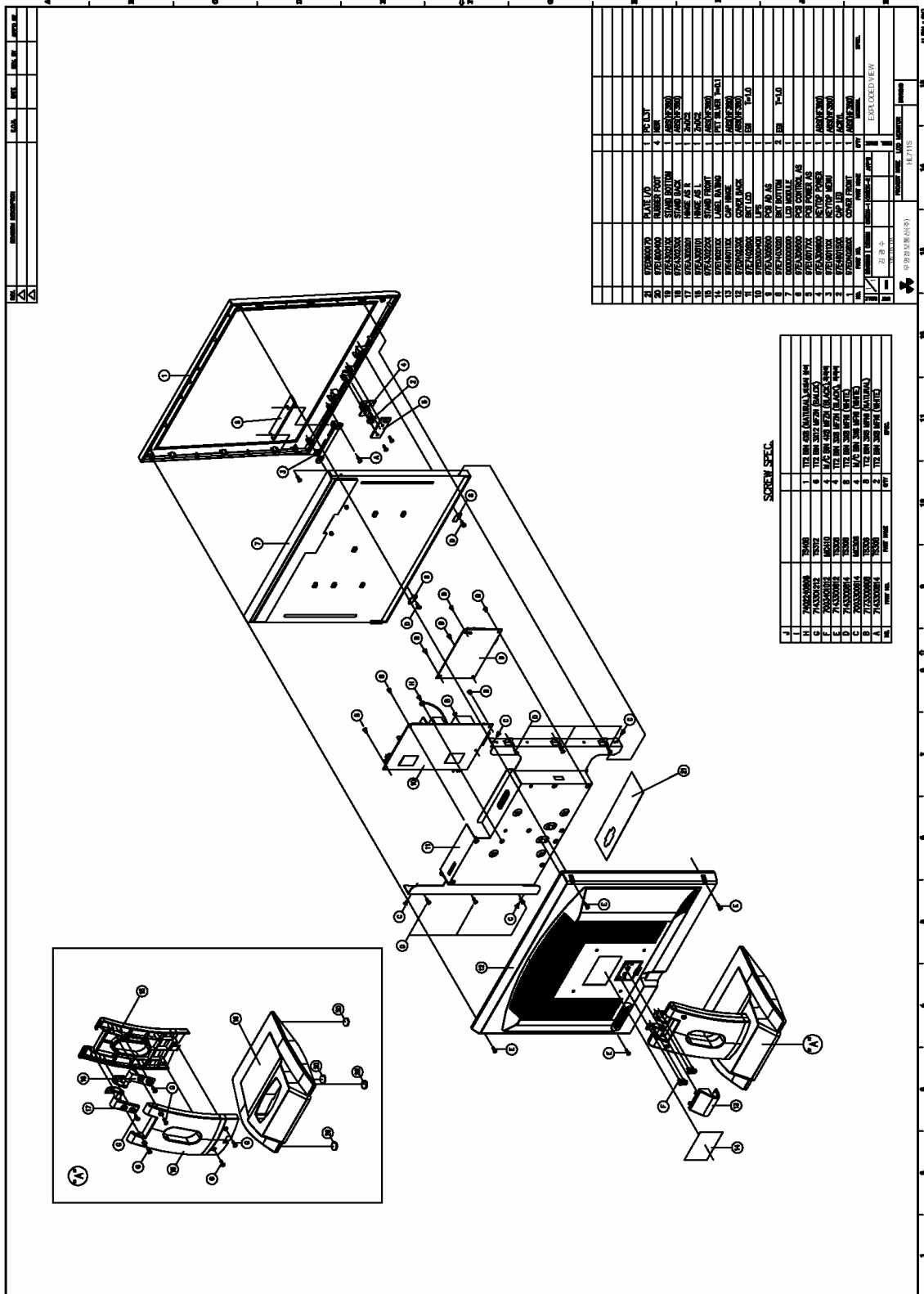


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Color error include OSD menu	Check the panel harness. Check scaler output signal.
Color error except OSD ment.	Check the signal cable. Check pins of the signal cable. Check input/output signal of the signal cable
Key button error	Check the function(key) harness. Check the function ass'y (mechanical).
Brightness differ between upper and lower on screen.	Because of viewing angle.

**EXPLODE VIEW**

**HL711S/HL711D**



**PART LIST**

**HL711S/HL711D Mechanical Part List**

SCREW SPEC.

NO.	PART NO.	PART NAME	Q'TY	SPEC.
H	7402240808	TS408	1	TT2 BIN 4X8 (NATURAL), 치와샤 불이
G	7143301212	TS312	6	TT2 BIN 3X12 MFZN (BALCK)
F	7003401012	MC410	4	M/C BIN 4X8 MFZN (BLACK), 흑착색
E	7143300812	TS308	4	TT2 BIN 3X8 MFZN (BLACK), 흑착색
D	7143300814	TS308	8	TT2 BIN 3X8 MFNI (WHITE)
C	7003300614	MC306	4	M/C BIN 3X6 MFNI (WHITE)
B	7173300608	TS306	8	TT2 BIN 3X6 MFNI (NATURAL)
A	7143300814	TS308	2	TT2 BIN 3X8 MFNI (WHITE)

NO.	PART NO.	PART NAME	Q'TY	MATERIAL	SPEC.
21	97E0600170	PLATE I/O	1	PC 0.3T	
20	97E1800400	RUBBER FOOT	4	NBR	
19	97E43021XX	STAND BOTTOM	1	ABS(HF380)	
18	97E43023XX	STAND BACK	1	ABS(HF380)	
17	97EA305201	HINGE AS R	1	ZnDC2	
16	97EA305101	HINGE AS L	1	ZnDC2	
15	97E43022XX	STAND FRONT	1	ABS(HF380)	
14	97E19021XX	LABEL RATING	1	PET SILVER T=0.1	
13	97E46011XX	CAP HINGE	1	ABS(HF380)	
12	97E01023XX	COVER BACK	1	ABS(HF380)	
11	97E74028XX	BKT LCD	1	EGI T=1.0	
10	97E0300400	LIPS	1		
9	97EA305500	PCB AD AS	1		
8	97E7403020	BKT BOTTOM	2	EGI T=1.0	
7	0000000000	LCD MODULE	1		
6	97EA306500	PCB CONTROL AS	1		
5	97E10017XX	PCB POWER AS	1		
4	97EA306600	KEYTOP POWER	1	ABS(HF380)	
3	97E10011XX	KEYTOP MENU	1	ABS(HF380)	
2	97E46015XX	CAP LED	1	ACRYL	
1	97E01028XX	COVER FRONT	1	ABS(HF380)	

**HL711S AD B/D Part List**

Location	Parts Code	Parts Name	Parts Spec.	A/J	Remark
C41,C42,C43	HCCK200JBA	C CHIP	20pF 50V J 1608		
C61,C62,C85, C90	HCCK220JBA	C CHIP	22pF 50V J 1608		
C44	HCCK330JBA	C CHIP	33pF 50V J 1608		
C92	HCCK101JBA	C CHIP	100pF 50V J 1608		
C45	HCCK221JBA	C CHIP	220pF 50V J 1608		
C93	HCCK471JBA	C CHIP	470pF 50V J 160		
C9,C13,C16, C16,C20,C29, C37	HCCH103KBA	C CHIIP	10nF 25V K 1608		
C6,C8,C12, C15,C19,C24, C26,C28,C34, C35,C36,C38, C39,C40,C48, C49,C50,C51, C53,C54,C55, C56,C58,C64, C66,C68,C69, C70,C71,C72, C74,C76,C77, C78,C79,C80, C81,C82,C84, C87,C88,C91, C94,C95,C96, C97	HCCK104ZBA	C CHIP	0.1uF 50V Z 1608		
CE47,CE52, CE65,CE73,CE75	CEXF1C100A	C ELECTRO	16V 10uF 20% 5x11		
CE83,CE86	CEXF1C470A	C ELECTRO	16V 47uF 20% 5x11		
CE7,CE10,CE11, CE14,CE17,CE23 CE25,CE27,CE63 ,CE67	CEXF1C101A	C ELECTRO	16V 100uF 20% 6.3*11		
CE4,CE5,CE89	CEXF1C471A	C ELECTRO	16V 470uF 20% 10x12.5		

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D4,D5,D6,D7, D8,D9,D10, D12,D13,D14	DBAV99----	CHIP DIODE	BAV99 (SOT-23)		
D16	DZMM55C5V6	ZENER DIODE	ZMM55C5V6		
FB3	HFA3216121	CHIP BEAD	CIM31J121NE (BEAD_120ohm_3216)		
FB4,FB5,FB6, FB7,FB8	HFA2012301	CHIP BEAD	CIM21J301NE (BEAD_300ohm_2012)		
FB10,FB15, R16,FB16, FB18,FB19, FB20,FB21, FB22	HFA1608121	CHIP BEAD	CIM10J121NC (BEAD_120ohm_1608)		
J1	99E6203095	CONN WAFER	IBP-09S-20T(GIL-S-9P-S2T2)		
J2	97E6200100	15-PIN D-SUB	DAH-15RF-4B4-FH		
J3	97E6200710	CONN WAFER	12507WR-30000 (30P LVDS wafer YEONHO)		
J5	97E6200734	CONN WAFER	IBP-07R-20T(GIL-S-7P-S2L2-EF)		
Q1,Q2,Q3	TSBT3906-B	TR CHIP	SBT3906		
R6,R9,FB9, FB11,R12, FB12,FB13, FB14,R40,R41	HRFS000JBA	R CHIP	0 ohm 1/16W J 1608		
R17,R18,R19	HRFS750JBA	R CHIP	75 ohm 1/16W J 1608		
R3,R4,R5,R7, R8,R10,R11, R13,R14,R15, R22,R42,R49, R50,R51,R52, R53,R57,R58	HRFS101JBA	R CHIP	100 ohm 1/16W J 1608		
R100	HRFS391JBA	R CHIP	390 ohm 1/16W J 1608		
R56,R66,R70	HRFS471JBA	R CHIP	470 ohm 1/16W J 1608		
R65,R69	HRFS102JBA	R CHIP	1K ohm 1/16W J 1608		
R28	HRFS122JBA	R CHIP	1.2K ohm 1/16W J 1608		
R20	HRFS222JBA	R CHIP	2.2K ohm 1/16W J 1608		

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R1,R29,R34, R39,R44,R45, R46,R47,R60, R61,R62,R64, R68	HRFS472JBA	R CHIP	4.7K ohm 1/16W J 1608		
R35	HRFS822JBA	R CHIP	8.2K ohm 1/16W J 1608		
R21,R43	HRFS103JBA	R CHIP	10K ohm 1/16W J 1608		
R63,R67	HRFS223JBA	R CHIP	22K ohm 1/16W J 1608		
R54,R55	HRFS473JBA	R CHIP	47K ohm 1/16W J 1608		
R27	HRFS104JBA	R CHIP	100K ohm 1/16W J 1608		
R36	HRFS105JBA	R CHIP	1M ohm 1/16W J 1608		
U1	1916433CL-	IC POWER	RT9164-33CL (TO-252 Package)		
U1	1A111733UC	IC REGULATOR	APL1117-33UC-TR (TO-252 Package)	A	
U3	1A1117E18	IC REGULATOR	AP1117E18A (SOT-223 Package)		
U6	1TSU16AJ--	IC SCALER(MSTAR)	TSU16AJ		
U7	1FDC6329L-	IC INTEGRATED LOADSWITCH	FDC6329L SUPERSOT TM-6		
U8	1AT24C16--	IC EEPROM (ATMEL)	AT24C16-10SI-2.5 (SOIC 8PIN)		
U9	97E6300230	MCU SOCKET	CCSD-44T-SM (44P-PLCC type)		
U9A	1WT61P4L44	MCU (WELTREND)	WT61P4L44		
Y1	5XJ14R318E	CRYSTAL QUARTZ	14.31818MHz XTAL_2 20pF DIP		
Y2	5XJ24----E	CRYSTAL QUARTZ	24MHz XTAL_2 22pF DIP		
PCB	97E6500890-00	HL711D(M) AD PCB	Double Side (119*80)		
	97E8800500	PANEL HARNESS	30PIN-TO-30PIN HARNESS with core		
	97E8800510	PANEL HARNESS	30PIN-TO-30PIN HARNESS with core	A	
	97E8804012	PANEL HARNESS	30PIN-TO-30PIN HARNESS with core	A	
	97E8804040	PANEL HARNESS	30PIN-TO-30PIN HARNESS with core	A	
	97E8804041	PANEL HARNESS	30PIN-TO-30PIN HARNESS	A	

## HL711S/HL711D Service Manual

			with core		
	97E8804042	PANEL HARNESS	30PIN-TO-30PIN HARNESS with core (SAMSUNG E6 Panel)	A	
	97E8804043	PANEL HARNESS	30PIN-TO-30PIN HARNESS with core (SAMSUNG E6 Panel)	A	
	97E8804011	POWER HARNESS	9P-TO-9P HARNESS (220mm)		
	97E8804024	POWER HARNESS	9P-TO-9P HARNESS (220mm)	A	
	97E8804050	Function HARNESS	7P-TO-7P HARNESS (310mm)		
	97E8804060	Function HARNESS	4P-TO-4P HARNESS (70mm)		

**HL711D AD B/D Part List**

Location	Parts Code	Parts Name	Parts Spec.	A/J	Remark
C41,C42,C43	HCKK200JBA	C CHIP	20pF 50V J 1608		
C108,C109	HCCF474KBA	C CHIP	16V 470Nf k 1608		
C61,C62,C85, C90	HCKK220JBA	C CHIP	22pF 50V J 1608		
C44	HCKK330JBA	C CHIP	33pF 50V J 1608		
C92	HCKK101JBA	C CHIP	100pF 50V J 1608		
C45	HCKK221JBA	C CHIP	220pF 50V J 1608		
C93	HCKK471JBA	C CHIP	470pF 50V J 1608		
C9,C13,C16, C16,C20,C29, C37	HCCH103KBA	C CHIIP	10nF 25V K 1608		
C6,C8,C12, C15,C19,C24, C26,C28,C34, C35,C36,C38, C39,C40,C48, C49,C50,C51, C53,C54,C55, C56,C58,C64, C66,C68,C69, C70,C71,C72, C74,C76,C77, C78,C79,C80, C81,C82,C84, C87,C88,C91, C94,C95,C96, C97	HCKK104ZBA	C CHIP	0.1uF 50V Z 1608		
CE47,CE52, CE65,CE73,CE75	CEXF1C100A	C ELECTRO	16V 10uF 20% 5x11		
CE83,CE86	CEXF1C470A	C ELECTRO	16V 47uF 20% 5x11		
CE7,CE10,CE11, CE14,CE17,CE23 CE25,CE27,CE63 ,CE67	CEXF1C101A	C ELECTRO	16V 100uF 20% 6.3*11		
CE4,CE5,CE89	CEXF1C471A	C ELECTRO	16V 470uF 20% 10x12.5		



## HL711S/HL711D Service Manual

D4,D5,D6,D7, D8,D9,D10, D12,D13,D14, D17,D18,D19, D20,D21,D22, D23,D24	DBAV99----	CHIP DIODE	BAV99 (SOT-23)		
D16	DZMM55C5V6	ZENER DIODE	ZMM55C5V6		
DZ10,DZ11,DZ12	DUDZS5.6B-	ZENER DIODE	UDZS 5.6B(SOD-323)		
FB3	HFA3216121	CHIP BEAD	CIM31J121NE (BEAD_120ohm_3216)		
FB4,FB5,FB6, FB7,FB8	HFA2012301	CHIP BEAD	CIM21J301NE (BEAD_300ohm_2012)		
FB10,FB15, R16,FB16, FB18,FB19, FB20,FB21, FB22	HFA1608121	CHIP BEAD	CIM10J121NC (BEAD_120ohm_1608)		
J1	99E6203095	CONN WAFER	IBP-09S-20T(GIL-S-9P-S2T2)		
J2	97E6200100	15-PIN D-SUB	DAH-15RF-4B4-FH		
DVI1	97E6200790	DVI_29PIN	361R02-0		
J3	97E6200710	CONN WAFER	12507WR-30000 (30P LVDS wafer YEONHO)		
J5	97E6200734	CONN WAFER	IBP-07R-20T(GIL-S-7P-S2L2-EF)		
Q1,Q2,Q3	TSBT3906-B	TR CHIP	SBT3906		
R6,R9,FB9, FB11,R12, FB12,FB13, FB14,R40,R41	HRFS000JBA	R CHIP	0 ohm 1/16W J 1608		
R1	HRFS330JBA	R CHIP	33 ohm 1/16W J 1608		
R17,R18,R19	HRFS750JBA	R CHIP	75 ohm 1/16W J 1608		
R3,R4,R5,R7, R8,R10,R11, R13,R14,R15, R22,R42,R49, R50,R51,R52, R53,R57,R58, R133,R134, R135,R146,R147	HRFS101JBA	R CHIP	100 ohm 1/16W J 1608		

## HL711S/HL711D Service Manual

R100	HRFS391JBA	R CHIP	390 ohm 1/16W J 1608		
R56,R66,R70	HRFS471JBA	R CHIP	470 ohm 1/16W J 1608		
R65,R69	HRFS102JBA	R CHIP	1K ohm 1/16W J 1608		
R28	HRFS122JBA	R CHIP	1.2K ohm 1/16W J 1608		
R20	HRFS222JBA	R CHIP	2.2K ohm 1/16W J 1608		
R1,R29,R34, R39,R44,R45, R46,R47,R60, R61,R62,R64, R68,R144,R145	HRFS472JBA	R CHIP	4.7K ohm 1/16W J 1608		
R35	HRFS822JBA	R CHIP	8.2K ohm 1/16W J 1608		
R21,R43	HRFS103JBA	R CHIP	10K ohm 1/16W J 1608		
R63,R67	HRFS223JBA	R CHIP	22K ohm 1/16W J 1608		
R54,R55	HRFS473JBA	R CHIP	47K ohm 1/16W J 160		
R27	HRFS104JBA	R CHIP	100K ohm 1/16W J 1608		
R36	HRFS105JBA	R CHIP	1M ohm 1/16W J 1608		
U1	1916433CL-	IC POWER	RT9164-33CL (TO-252 Package)		
U1	1A111733UC	IC REGULATOR	APL1117-33UC-TR (TO-252 Package)	A	
U10	1AT24C02--	IC EEPROM (ATMEL)	AT24C02-10SI-2.7(SOIC 8P)		
U3	1A1117E18	IC REGULATOR	AP1117E18A (SOT-223 Package)		
U6	1TSU56AJ--	IC SCALER(MSTAR)	TSU56AJ		
U7	1FDC6329L-	IC INTEGRATED LOADSWITCH	FDC6329L SUPERSOT TM-6		
U8	1AT24C16--	IC EEPROM (ATMEL)	AT24C16-10SI-2.5 (SOIC 8PIN)		
U9	97E6300230	MCU SOCKET	CCSD-44T-SM (44P-PLCC type)		
U9A	1WT61P4L44	MCU (WELTREND)	WT61P4L44		
Y1	5XJ14R318E	CRYSTAL QUARTZ	14.31818MHz XTAL_2 20pF DIP		
Y2	5XJ24----E	CRYSTAL QUARTZ	24MHz XTAL_2 22pF DIP		
PCB	97E6500890-00	HL711D(M) AD PCB	Double Side (119*80)		
	97E8800500	PANEL HARNESS	30PIN-TO-30PIN HARNESS with core		
	97E8800510	PANEL HARNESS	30PIN-TO-30PIN HARNESS	A	

## HL711S/HL711D Service Manual

			with core		
	97E8804012	PANEL HARNESS	30PIN-TO-30PIN HARNESS with core	A	
	97E8804040	PANEL HARNESS	30PIN-TO-30PIN HARNESS with core	A	
	97E8804041	PANEL HARNESS	30PIN-TO-30PIN HARNESS with core	A	
	97E8804042	PANEL HARNESS	30PIN-TO-30PIN HARNESS with core (SAMSUNG E6 Panel)	A	
	97E8804043	PANEL HARNESS	30PIN-TO-30PIN HARNESS with core (SAMSUNG E6 Panel)	A	
	97E8804011	POWER HARNESS	9P-TO-9P HARNESS (220mm)		
	97E8804024	POWER HARNESS	9P-TO-9P HARNESS (220mm)	A	
	97E8804050	Function HARNESS	7P-TO-7P HARNESS (310mm)		
	97E8804060	Function HARNESS	4P-TO-4P HARNESS (70mm)		

### HL711S/HL711D FUNCTION KEY B/D Part List

Location	Parts Code	Parts Name	Parts Spec.	A/J	Remark
PCB	97E6500843-00	FUNCTION_PCB	1 LAYER(102.5*15mm) HL711S/D		
J1	99E6203075	CONN WAFER	IBP-07S-20T(GIL-S-7P-S2L2-EF)		
J2	99E6203045	CONN WAFER	IBP-04S-20T(GIL-S-4P-S2T2-EF)		
R1,R2	HRFS152JBA	R CHIP	1/6W 1.5K J 1608		
R3	HRFS302JBA	R CHIP	1/6W 3K J 1608		
SW1,SW2, SW3,SW4,	5S51280A6-	TACT SWITCH	1280A6 (KNOB-5mm)		

### HL711S/HL711D FUNCTION LED B/D Part List

Location	Parts Code	Parts Name	Parts Spec.	A/J	Remark
PCB	97E6500844-00	LED FUNCTION_PCB	2 LAYER(41.5*15mm) HL711S/D		
J1	99E6203045	CONN WAFER	IBP-04S-20T(GIL-S-4P-S2T2-EF)		
LED	DLSAM3270-	LED	LED 3pai 3PIN(2.54-PITCH)		
SW5	5S51280A6-	TACT SWITCH	1280A6 (KNOB-5mm)		

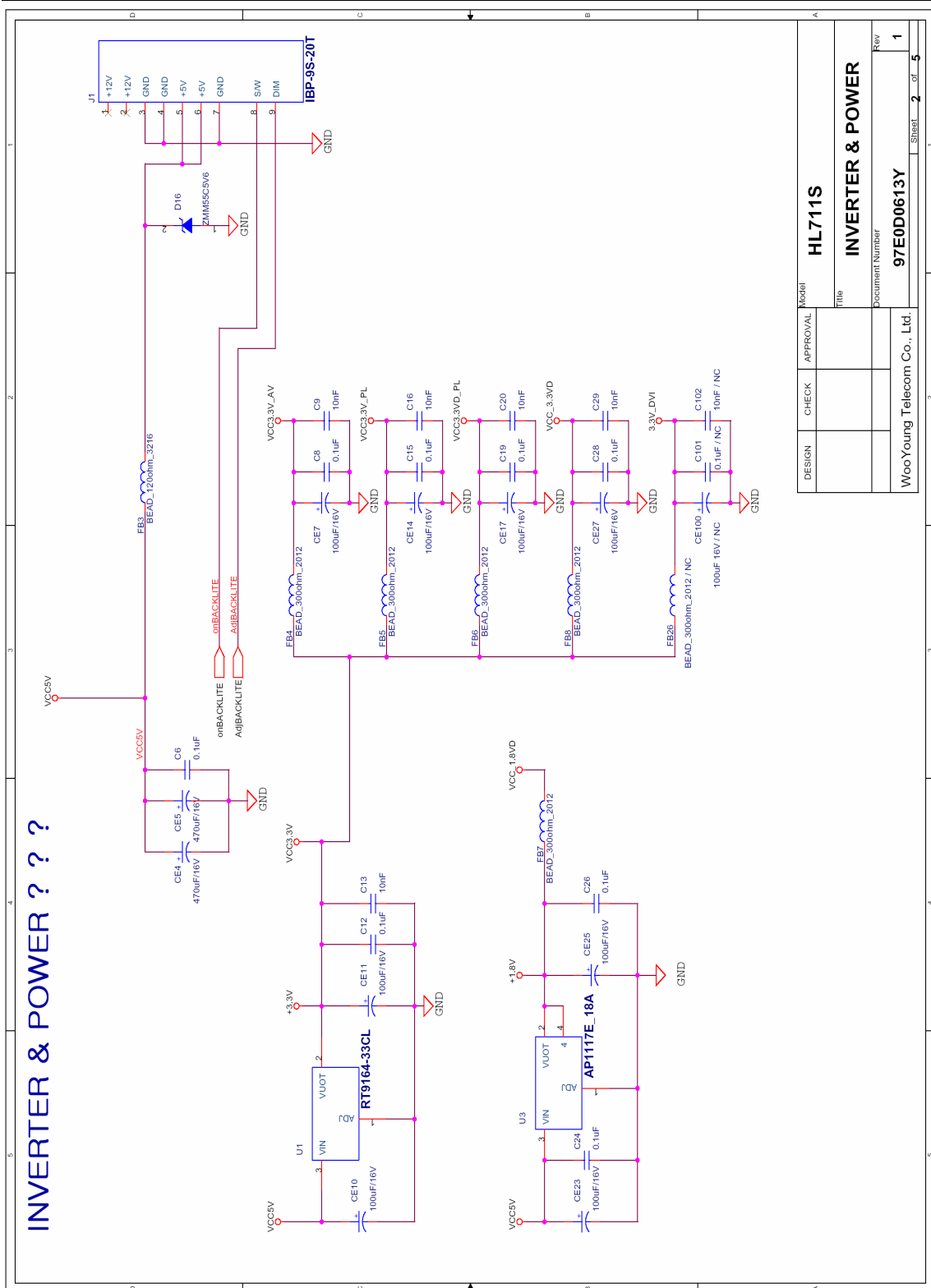
## Inverter &amp; POWER BD Part List(FLF1742-04A)

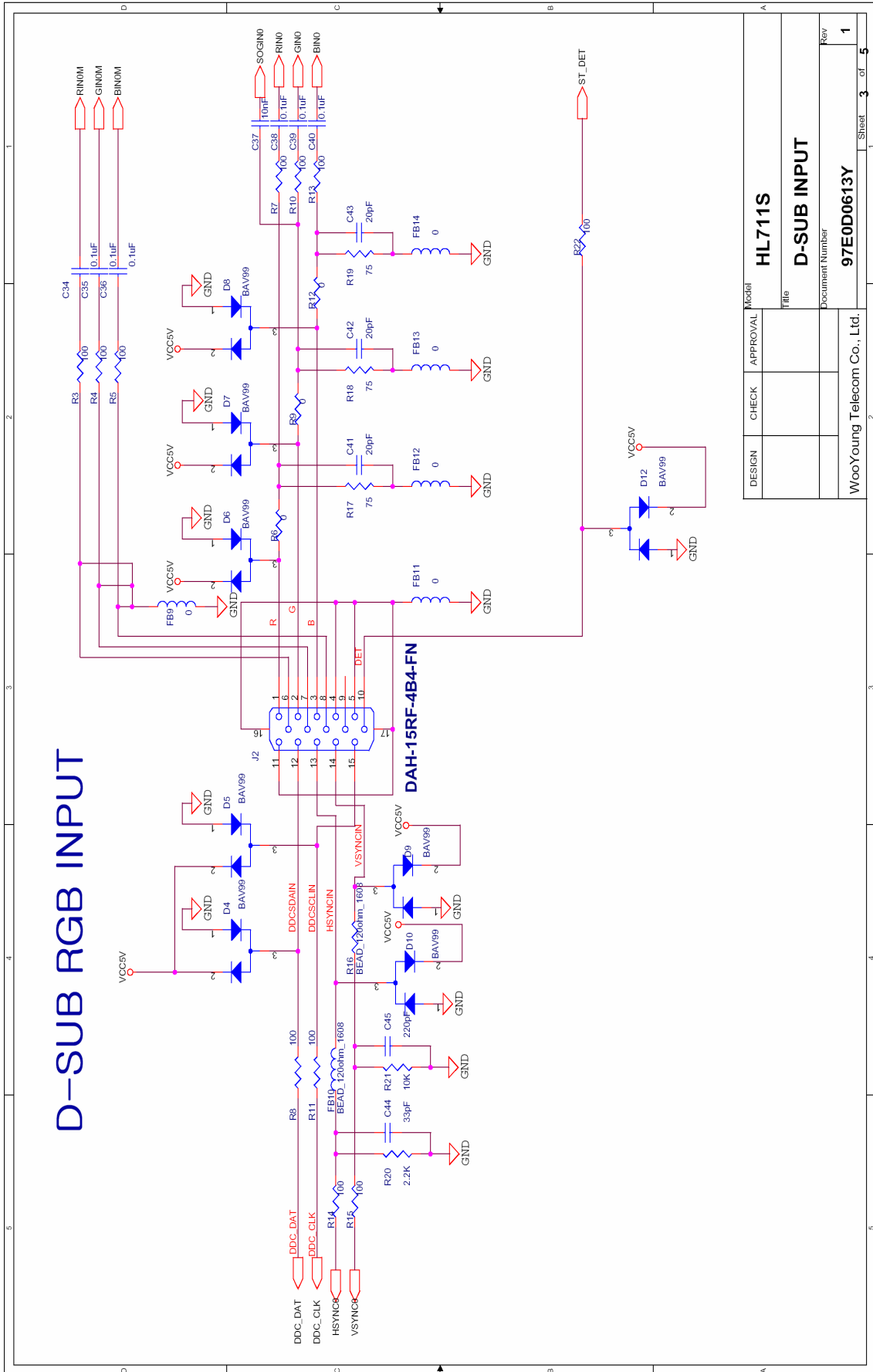
NO.	Ref.	PART TYPE	1st. Vendor	2nd. Vendor
1	LF101	LFL002A	DONGHEUNG	GET
2	PC101	LTV-817B-M,PC817,TCET1103	Sharp,Fairchild	LITON,Vishay
3	Q101	SPA04N60C3-A,STP5NC70ZFP	INFINEON	ST
4	BD101	KBP206G	Diodes	TSC
5	D104,105	SB560	VISHAY	DIODES,G.S
6	D103	STPS10150CT,MBR20100CT	ST	Diodes,VISHAY
7	C105	CE82u400V85SD,SHL,GS	SAMYOUNG	LUBICON, PARTSNIC
8	C103,104	KNB1560MKP-334K	ISKRA	PILCO,SUNIL
9	VS1	VARISTOR 7D471	ILJIN(AMOTECH)	CNR
10	C101,102	DG222Y1	DOOSAN, DONGIL	NRT,SEC
11	C114	DG472Y1	DOOSAN, DONGIL	NRT,SEC
12	C2	CE220U25V105LXZ,WL,RT	SAMYOUNG	LUBICON, PARTSNIC
13	CN100	SS-120, BCP-031S,7003,ST-01	SHENG,BM	RONG FENG,SOLTEAM
14	CN101	GIL-S-9P-S2T2-EF	LG	
15	IC103	ICE2AS01	INFINEON	
16	CN1,2,3,4	35002WR-02, S02-BDS-1	YEONHO	MOLEX,JST
17	T101	TRSL002B	DONGHEUNG	GET
18	T1,2	TRS1801H-DIP	DONGHEUNG	GET
19	U1,2	FDS8958,SI4562DY,ELM14600AA	Fairchild	Vishay,ELM
20	U3	BIT3105	BITE	
21	Q2,105	KRC407,DTC114YUA	Rohm, Diodes	KEC,AUK
22	Q1	KRA307,DTA114YUA	Rohm, Diodes	KEC,AUK
23	D101	RGF10J, RS1J	ZOWIE,DIODES	TSC,PANJIT
24	D4,106	RLS4148,LL4148	Rohm, Diodes	KEC,VISHAY
25	D3	DAN217,BAV99	Rohm, Diodes	KEC,AUK
26	D1,2	UDZS5.6B,BZT52C5V6S-7	Rohm, Diodes	KEC,AUK
27	ZD101	UDZS18B,BZT52C18V0S	Rohm, Diodes	KEC,AUK
28	ZD103	UDZS20B,BZT52C20V0S	Rohm, Diodes	KEC,AUK
29	Q4,5	RK7002, 2N7002, STK7002	Rohm, Diodes	KEC,AUK
30	C1,18	CC106Z10V3216	Rohm,JEIL	SAMSUNG,T
31	C8	CC473K50V2012	Rohm,JEIL	SAMSUNG,TDK
32	C112,113	CC471K50V2012	Rohm,JEIL	SAMSUNG,TDK
33	C13	CC271K50V2012	Rohm,JEIL	SAMSUNG,TDK
34	C6,7,12,122,125	CC103K50V2012	Rohm,JEIL	SAMSUNG,TDK
35	C11,14	CC104K50V2012	Rohm,JEIL	SAMSUNG,TDK
36	C3,4,16,119	CC105Z16V2012	Rohm,JEIL	SAMSUNG,TDK
37	R14	CR1608J621	Rohm,JEIL	SAMSUNG,TDK
38	R13	CR1608J102	Rohm,JEIL	SAMSUNG,TDK
39	R15,17,18,20	CR1608J103	Rohm,JEIL	SAMSUNG,TDK
40	R2,3	CR1608J183	Rohm,JEIL	SAMSUNG,TDK

NO.	Ref.	PART TYPE	1st. Vendor	2nd. Vendor
41	R12	CR1608J433	Rohm,JEIL	SAMSUNG,TDK
42	R23	CR1608J472	Rohm,JEIL	SAMSUNG,TDK
43	R7	CR1608J753	Rohm,JEIL	SAMSUNG,TDK
44	R11	CR1608J124	Rohm,JEIL	SAMSUNG,TDK
45	R21	CR1608J224	Rohm,JEIL	SAMSUNG,TDK
46	R8,10	CR1608J105	Rohm,JEIL	SAMSUNG,TDK
47	R24,25	CR2012J221	Rohm,JEIL	SAMSUNG,TDK
48	R128	CR2012J561	Rohm,JEIL	SAMSUNG,TDK
49	R16	CR2012J102	Rohm,JEIL	SAMSUNG,TDK
50	R22	CR2012J122	Rohm,JEIL	SAMSUNG,TDK
51	R123,126	CR2012F1801	Rohm,JEIL	SAMSUNG
52	R140	CR2012J000	Rohm,JEIL	SAMSUN
53	R104,121	CR2012J181	Rohm,JEIL	SAMSUNG, TDK
54	R119,122	CR2012J332	Rohm,JEIL	SAMSUNG, TDK
55	R107	CR2012J183	Rohm,JEIL	SAMSUNG, TDK
56	R109,114,117	CR2012J100	Rohm,JEIL	SAMSUNG,
57	R115,116	CR2012J470	Rohm,JEIL	SAMSUNG,TD K
58	R127	CR2012F6801	Rohm,JEIL	SAMSUNG,TD K
59	R124	CR2012F2702	Rohm,JEIL	SAMSUNG,TD K
60	R111	CR3216J100	Rohm,JEIL	SAMSUNG,TDK
61	R134,135	CR3216J124	Rohm,JEIL	SAMSUNG,TDK
62	R101,102,103	CR3216J334	Rohm,JEIL	SAMSUNG,TDK
63	C115	CE680u25V105RD,KM	SAMYOUNG	LUBICON,PARTSNIC
64	C116	CE470u25V105RD,KM	SAMYOUNG	LUBICON,PARTSNIC
65	C118	CE470u10V105RD,KM	SAMYOUNG	LUBICON,PARTSNIC
66	C117	CE1000u10V105RD,K	SAMYOUNG	LUBICON,PARTSNIC
67	C121	CE1U50V85SHL,SD,G	SAMYOUNG	LUBICON,PARTSNIC
68	C110	CE47U50V85SHL,SD,G	SAMYOUNG	LUBICON,PARTSNIC
69	IC102	TL431A	Fair Child	WOOSUK,Dio des
70	L101,102	NDL001A (3.3UH)	DONGHEUNG	GET,ABco
71	BC102	EBFL001A	DONGHEUNG	GET
72	C5,10	CL120K3K	DOOSAN	DONGIL,NEWCON
73	C111	222K 1KV	DOOSAN	DONGIL,NRT
74	R113	1W 0.625F	JEIL	SMART
75	R112	MORS 2W J 100K	JEIL	SMART
76	D102	PR1003,BYT42M,FR10	Diodes,VISHAY	SUNGHO
77	TH101	SCK08053MS,NTC 5D-	Thinking	SAMKYUNG
78	F101	SR-5 3.15A,663-3.15	SAVEFUZE	RHEETE L

CIRCUIT DIAGRAM

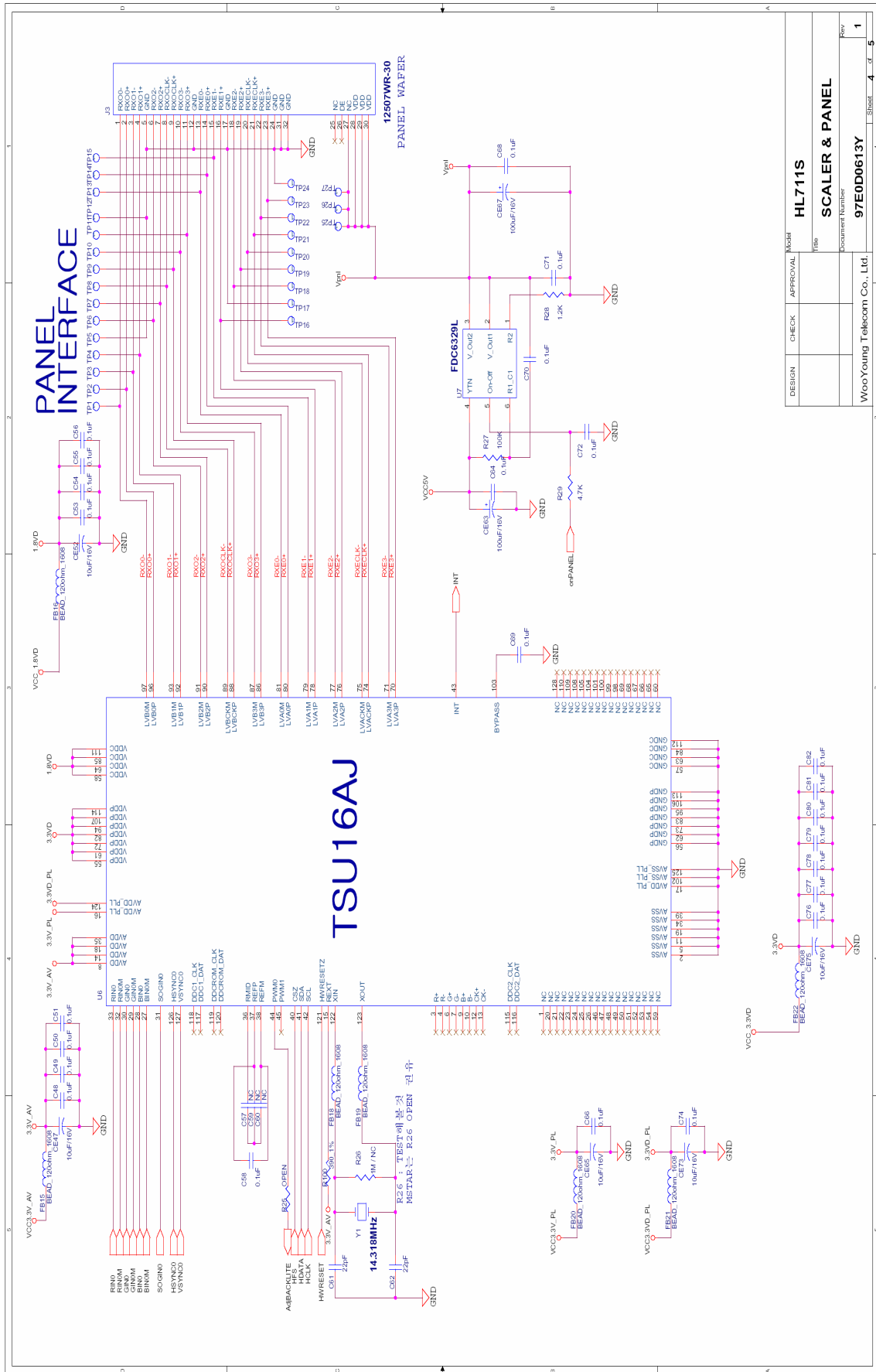
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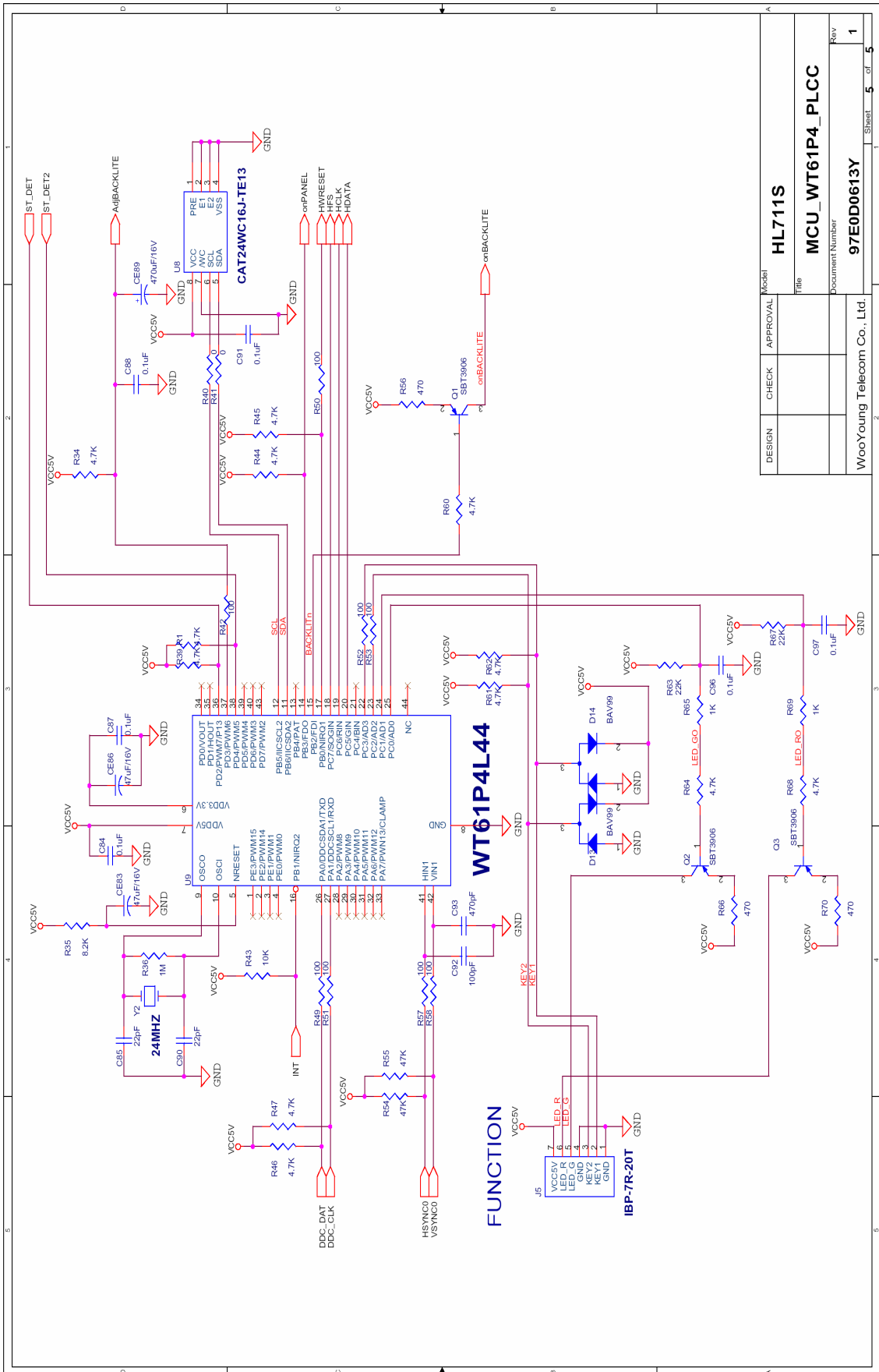
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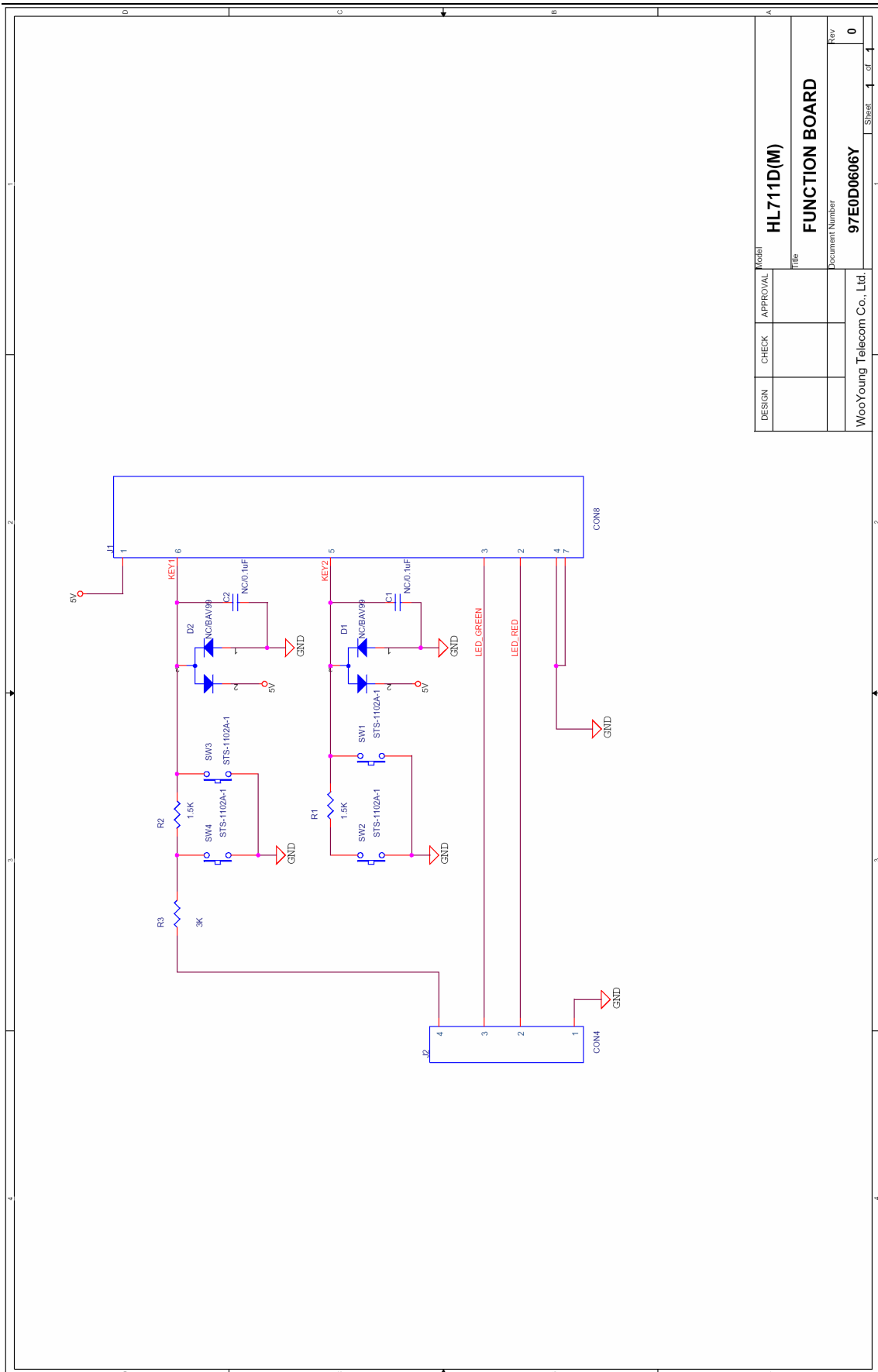
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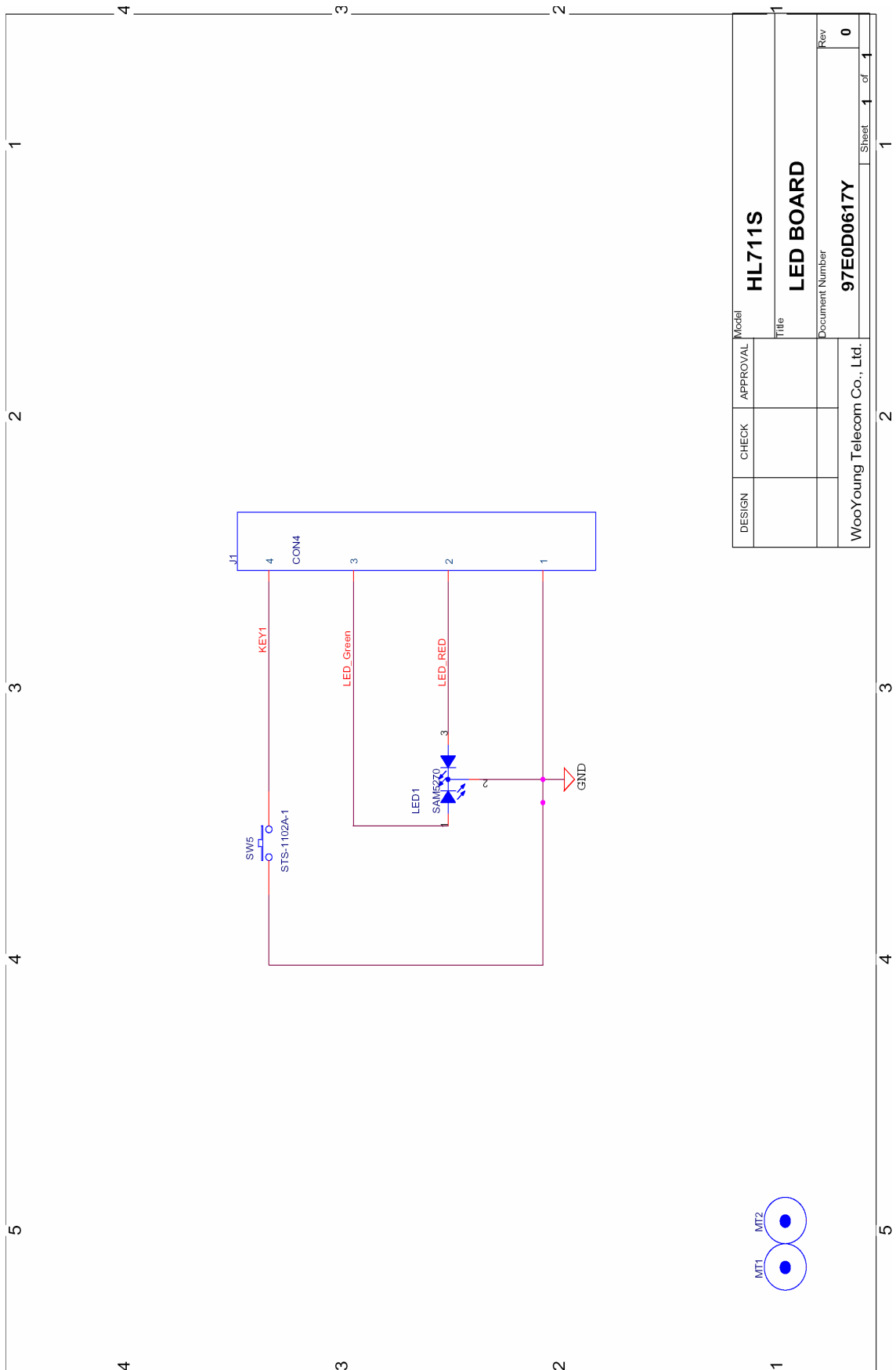
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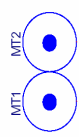


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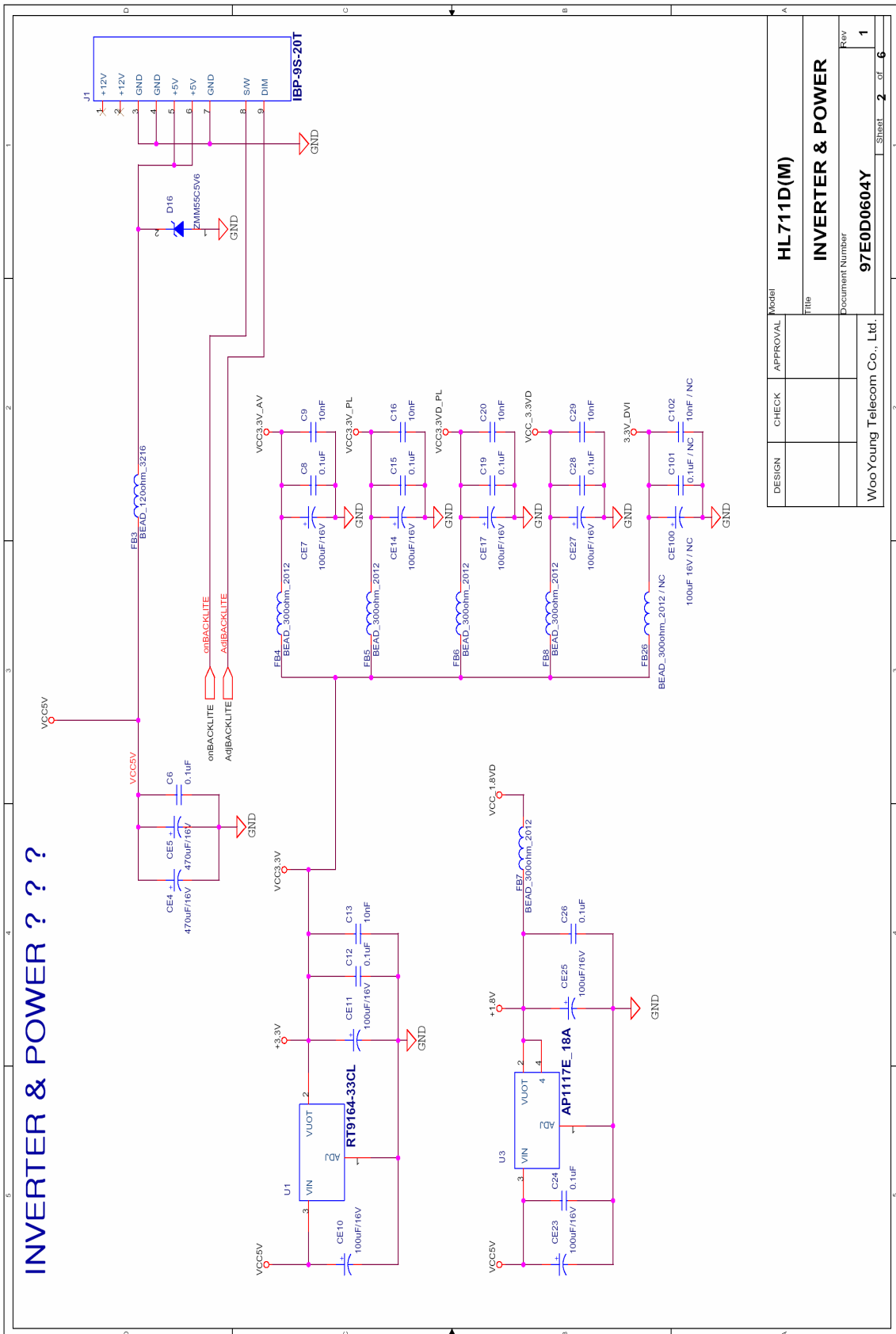
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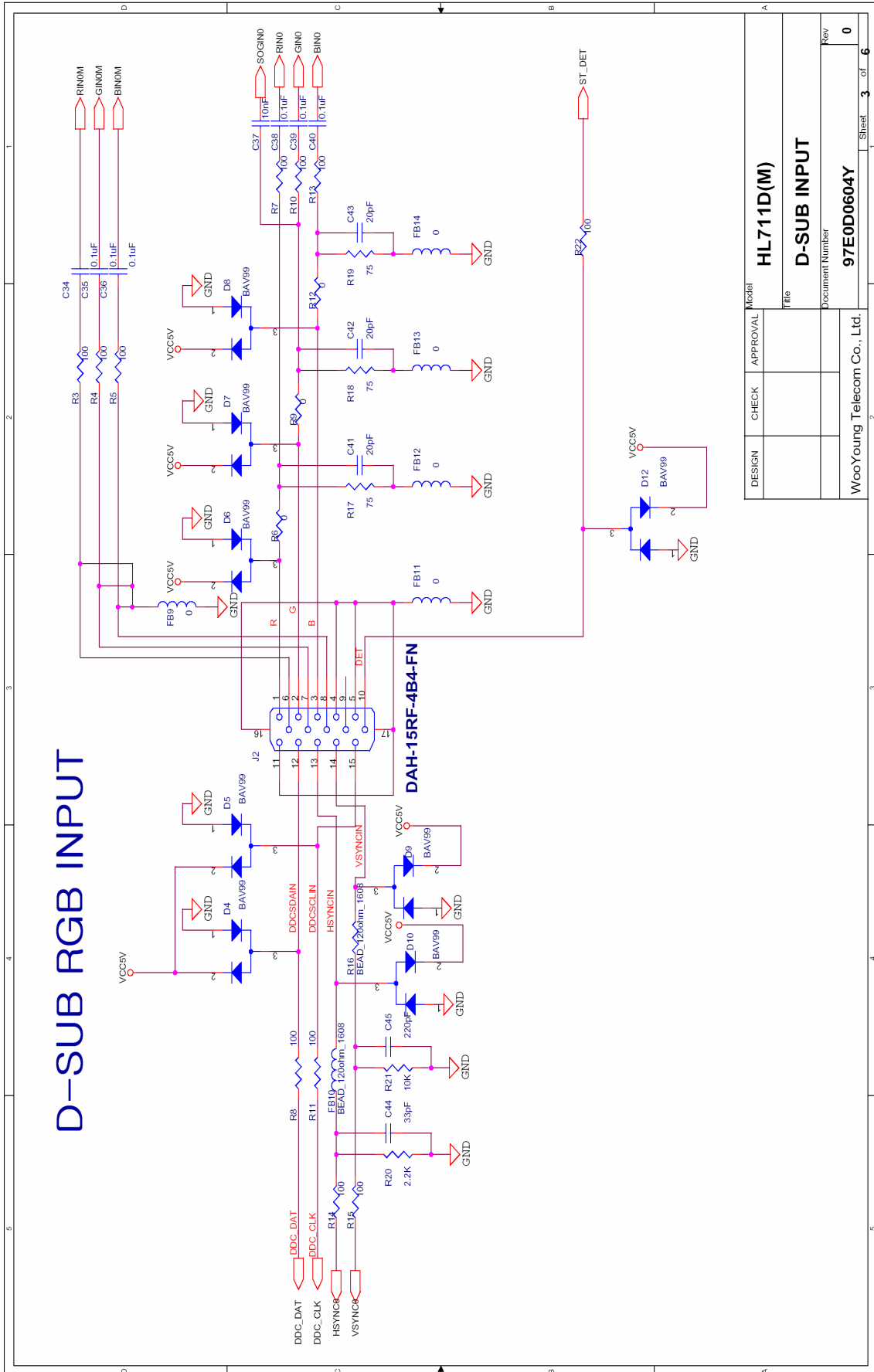


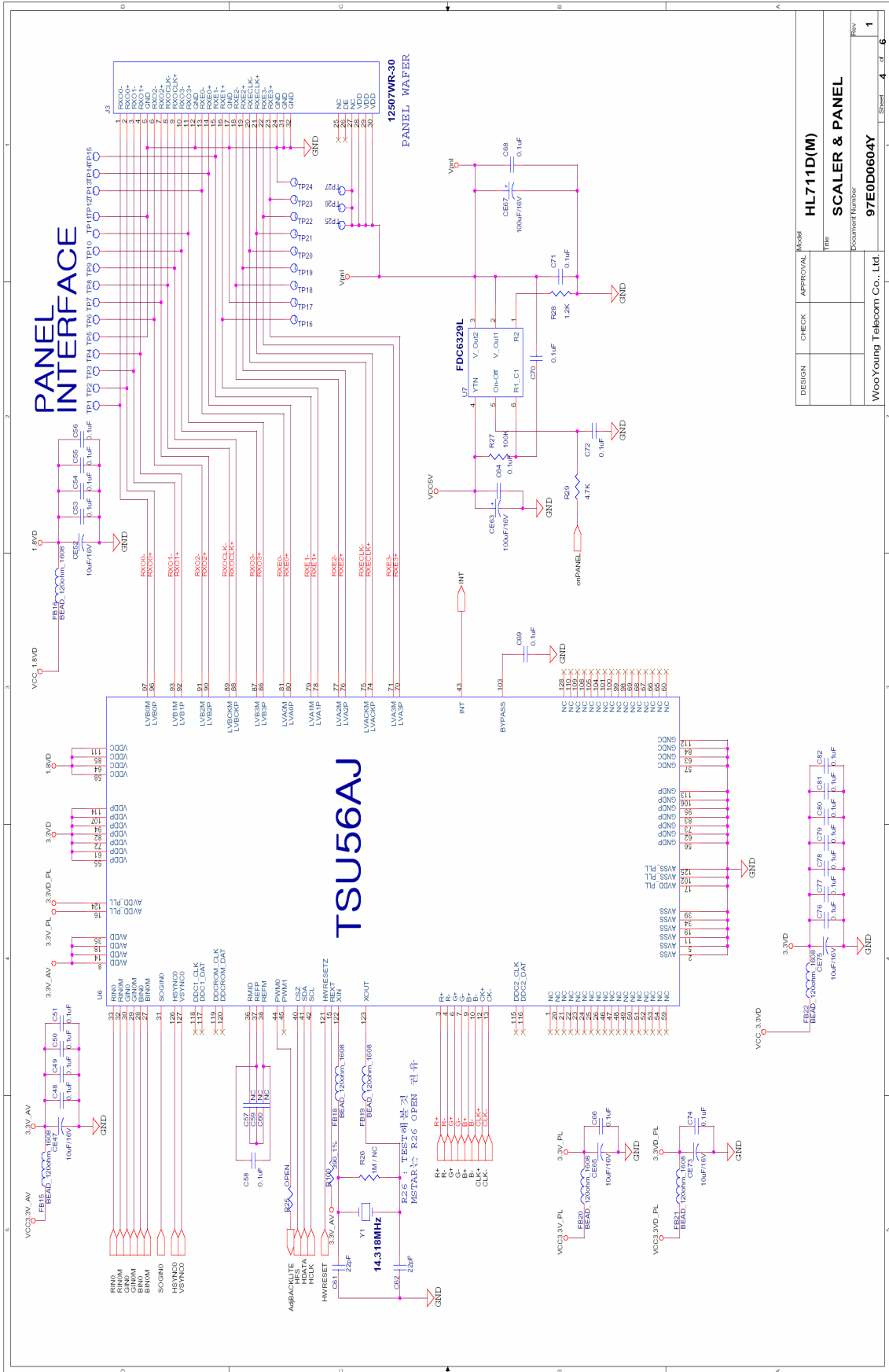
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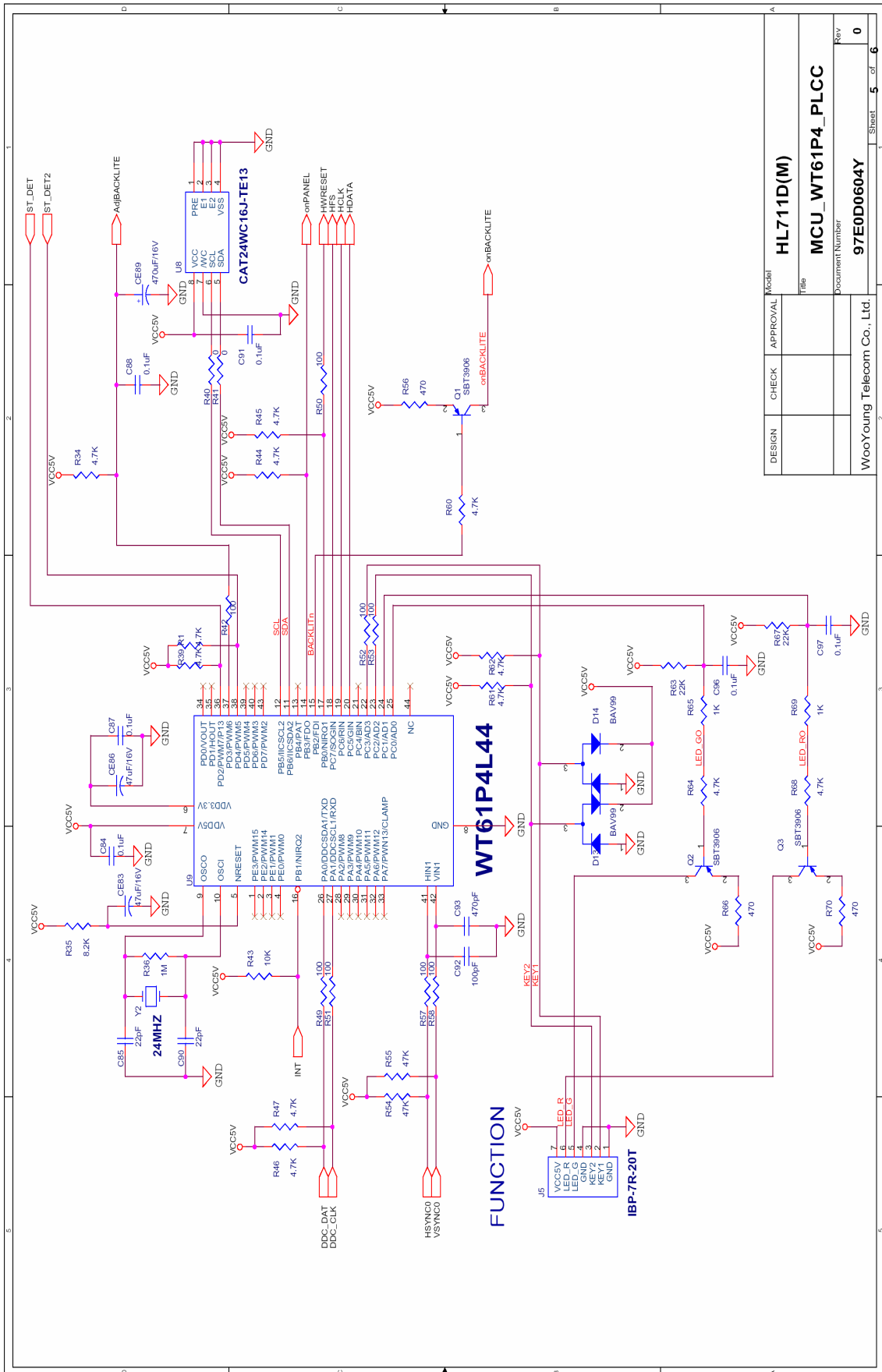
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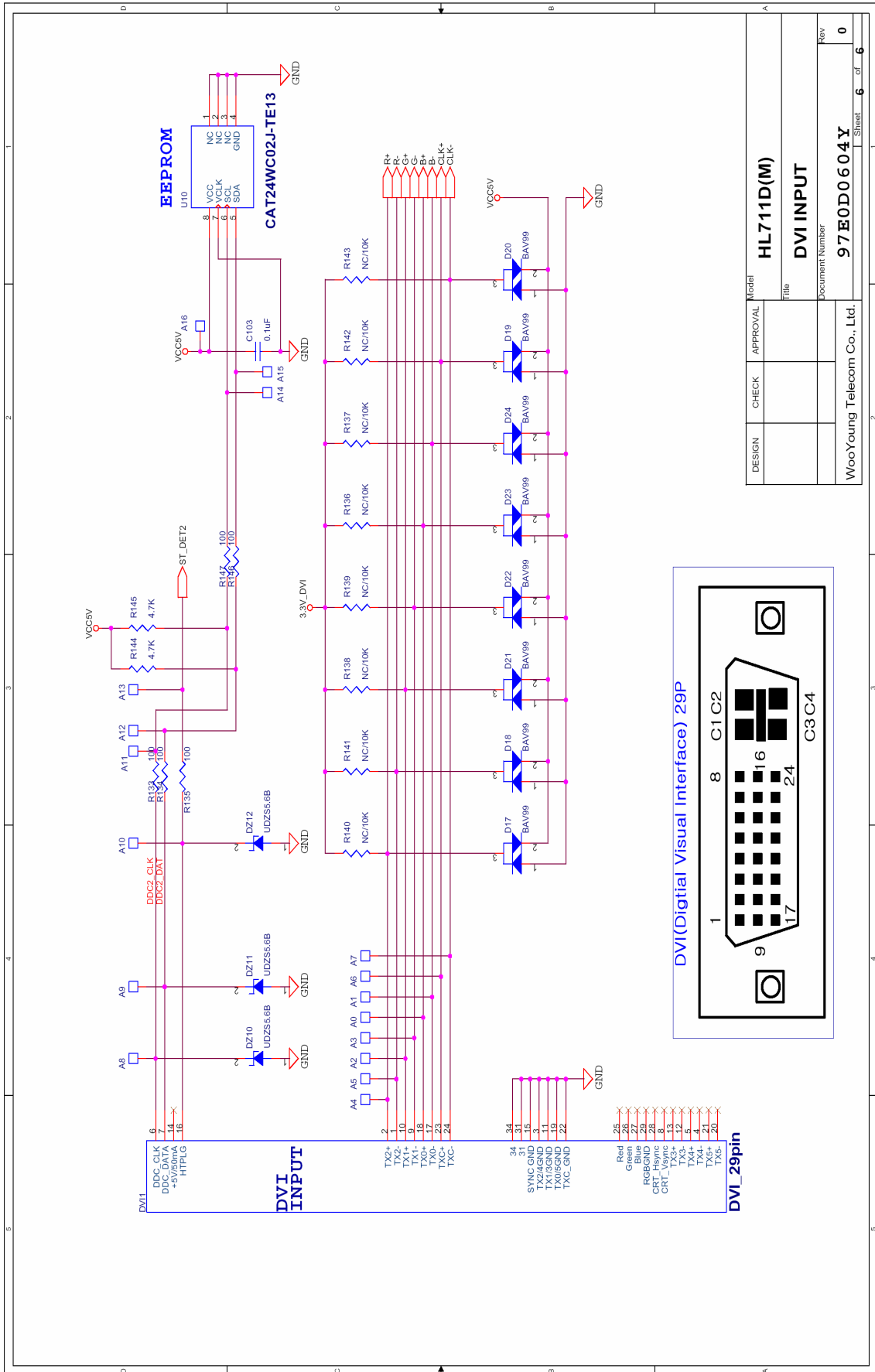




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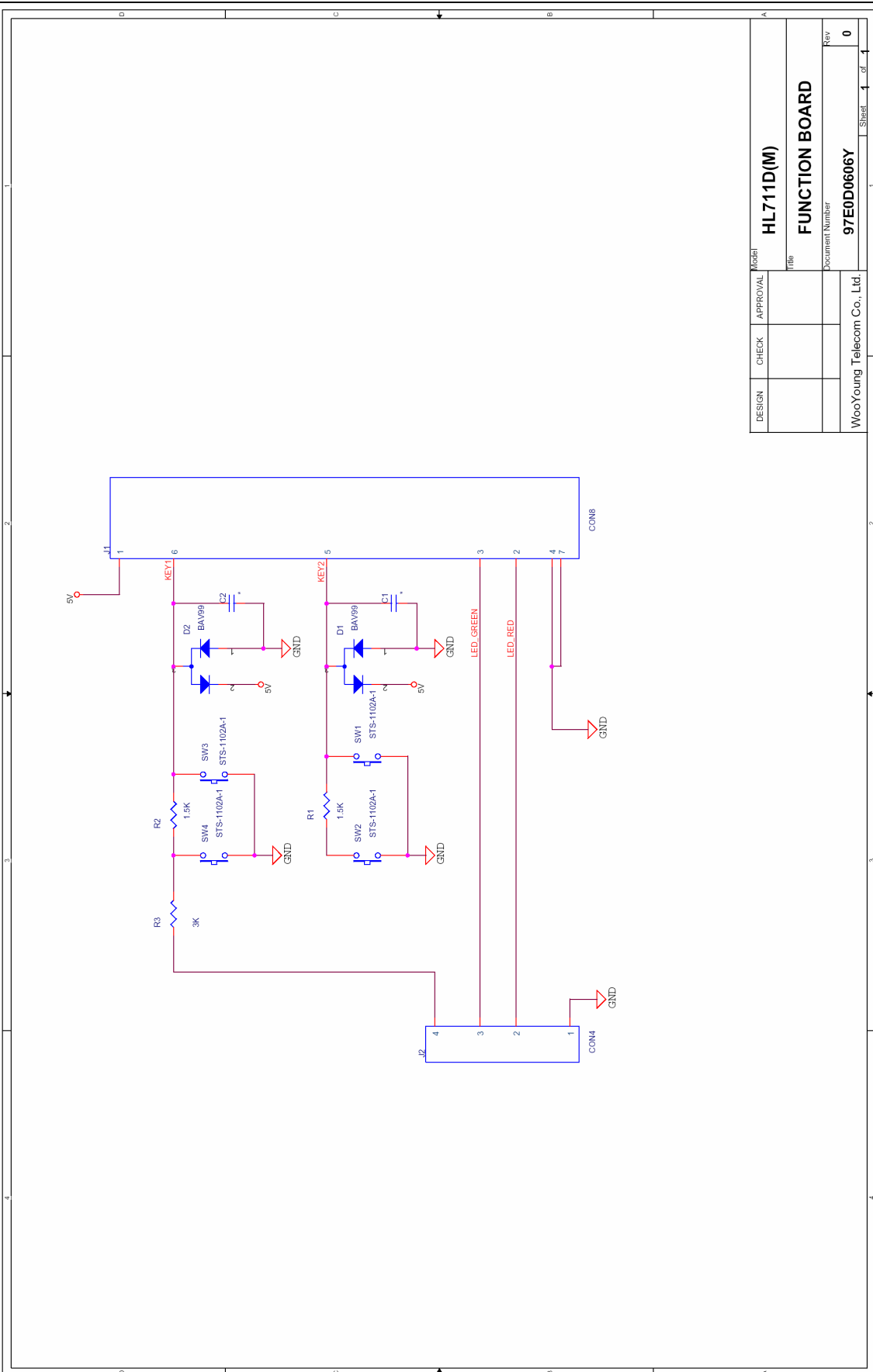


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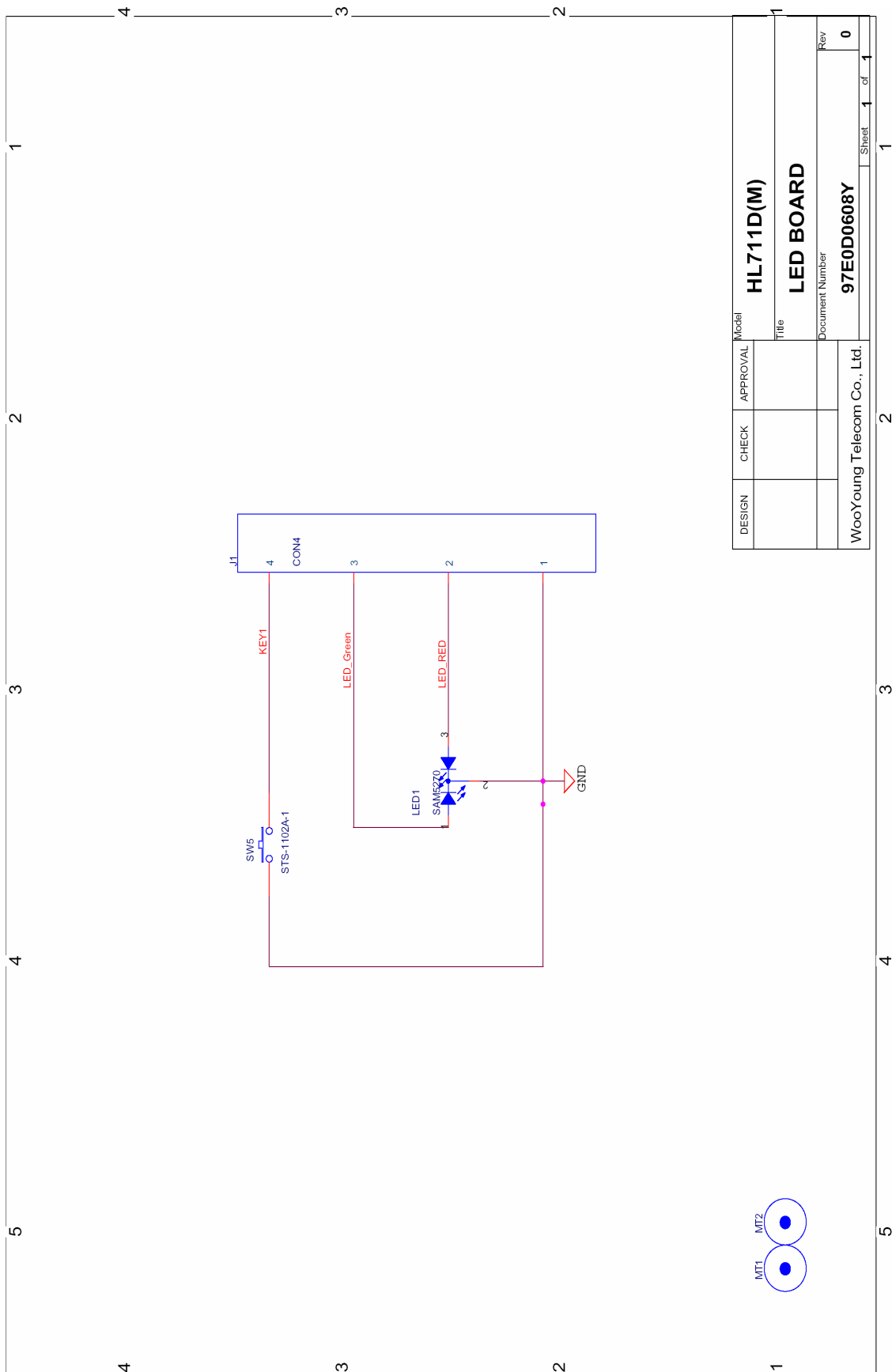


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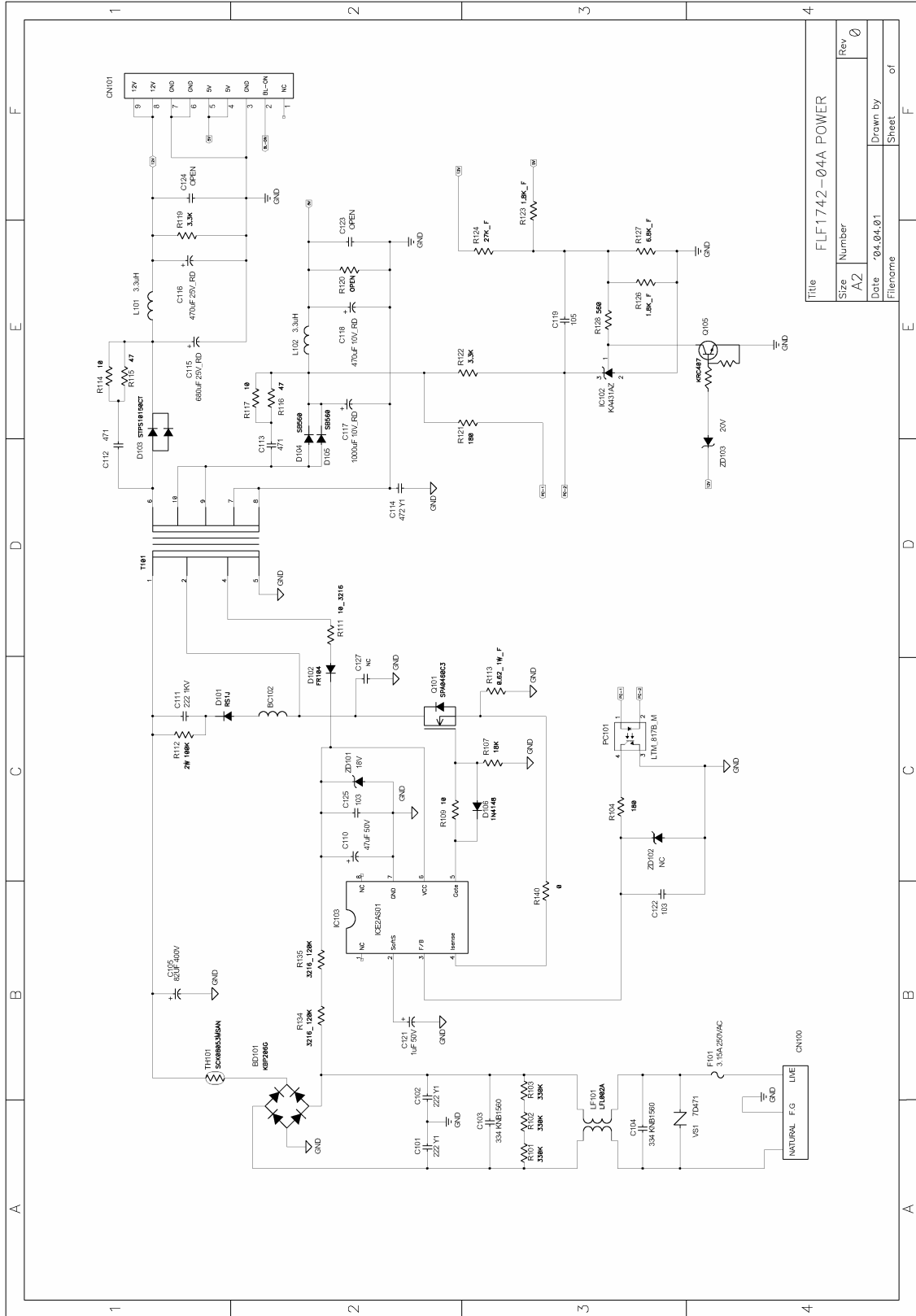
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WooYoung Telecom Co., Ltd.			Sheet 1 of 1

FUNCTION LED B/D(HL711D)

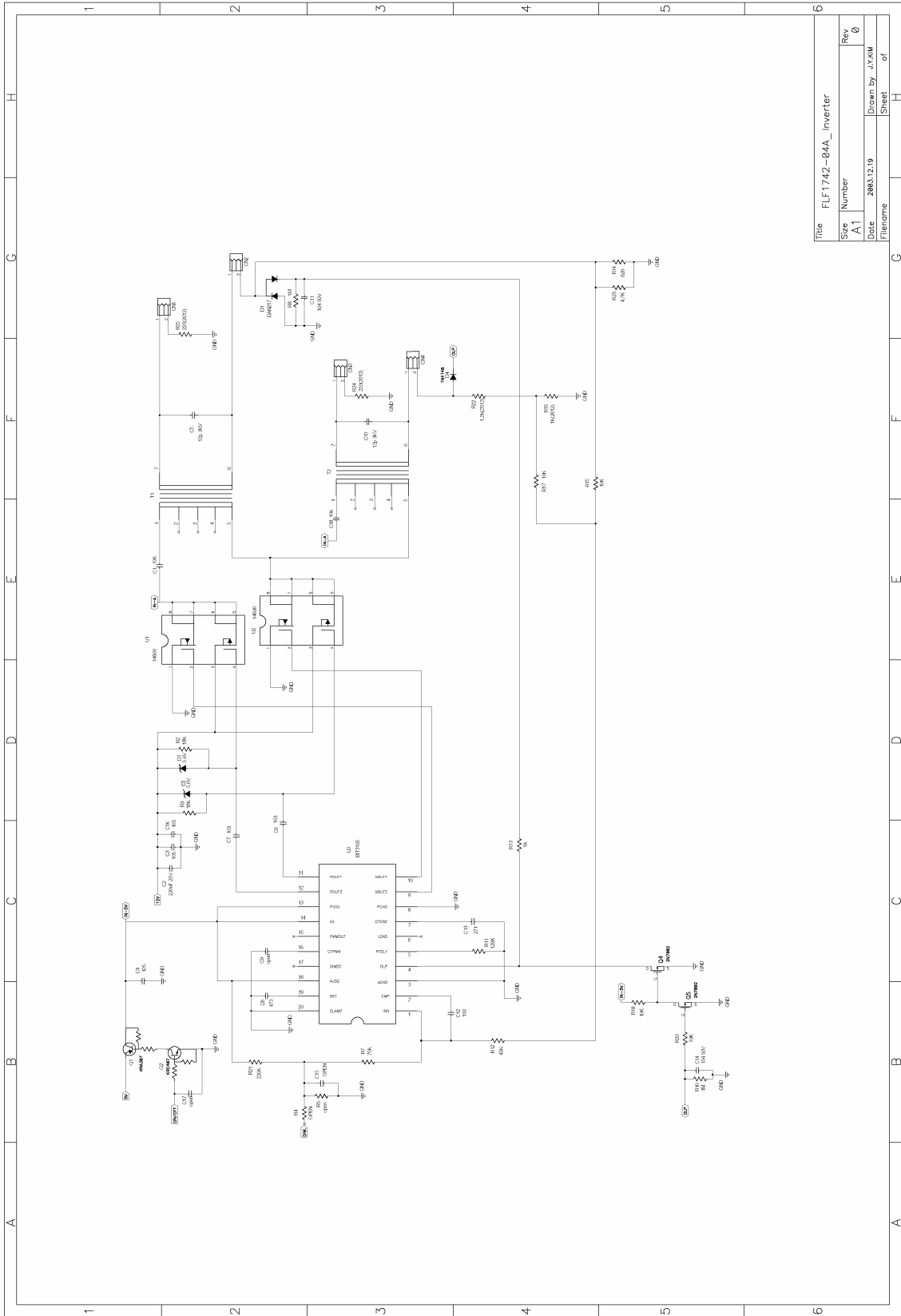


## Inverter & POWER B/D(FLF1742-04A)

### -Adapter Circuit



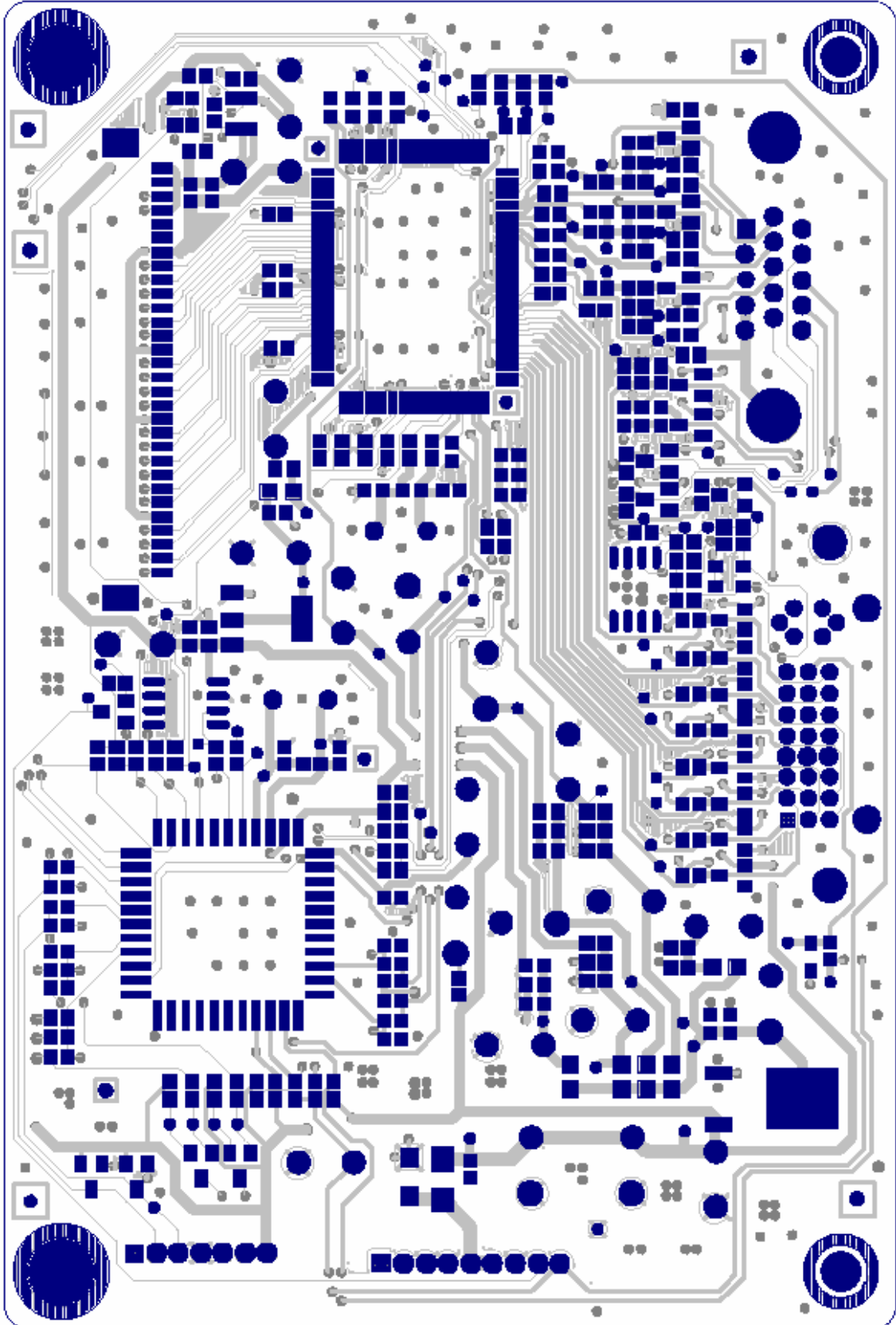
## -Inverter Circuit



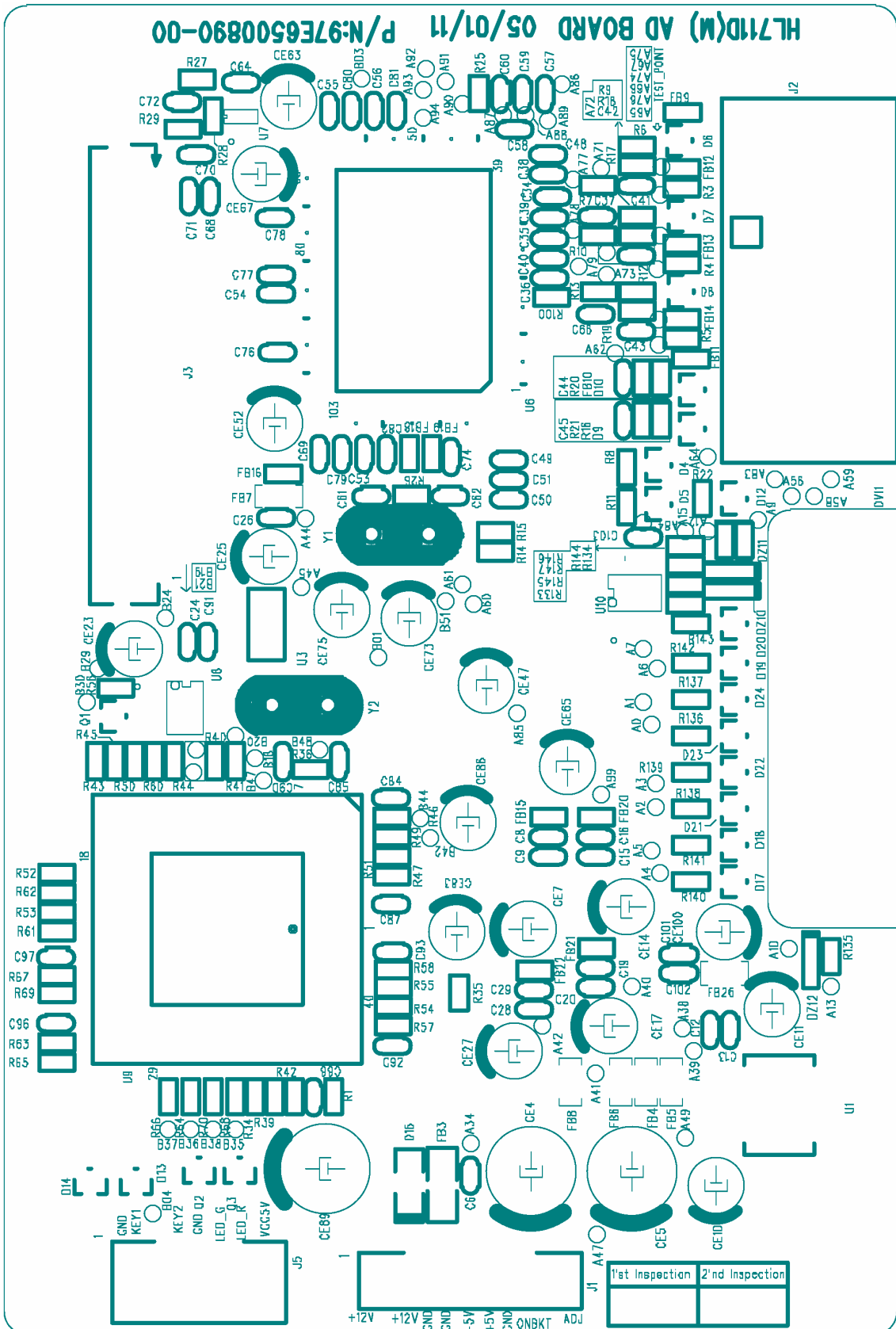
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Size	Number
A1	Rev 0
Date	2003.12.19
Drawn By	LYAM
Sheet	of

**PCB Layout**

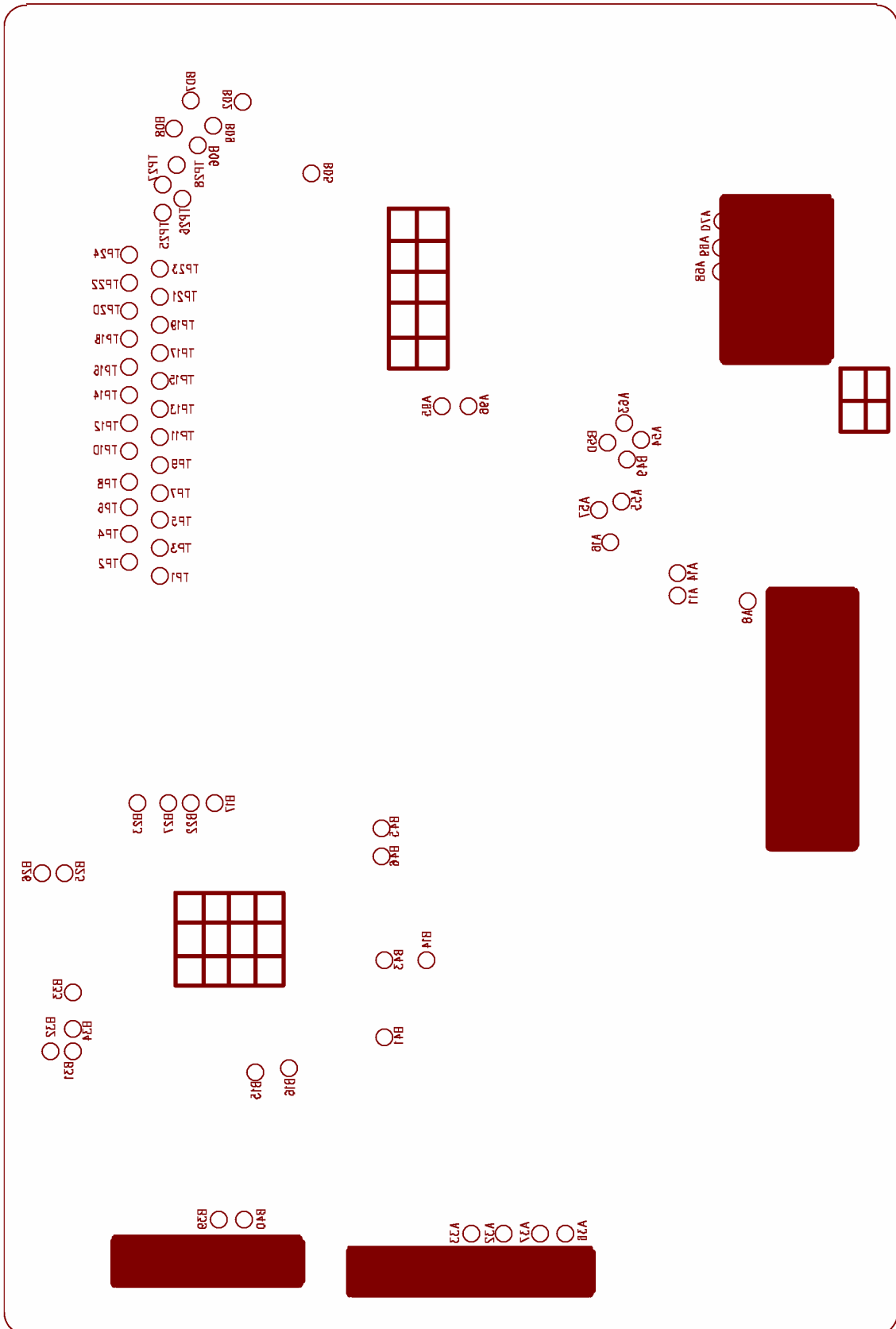
**AD B/D TOP PATTERN (HL711S/HL711D)**



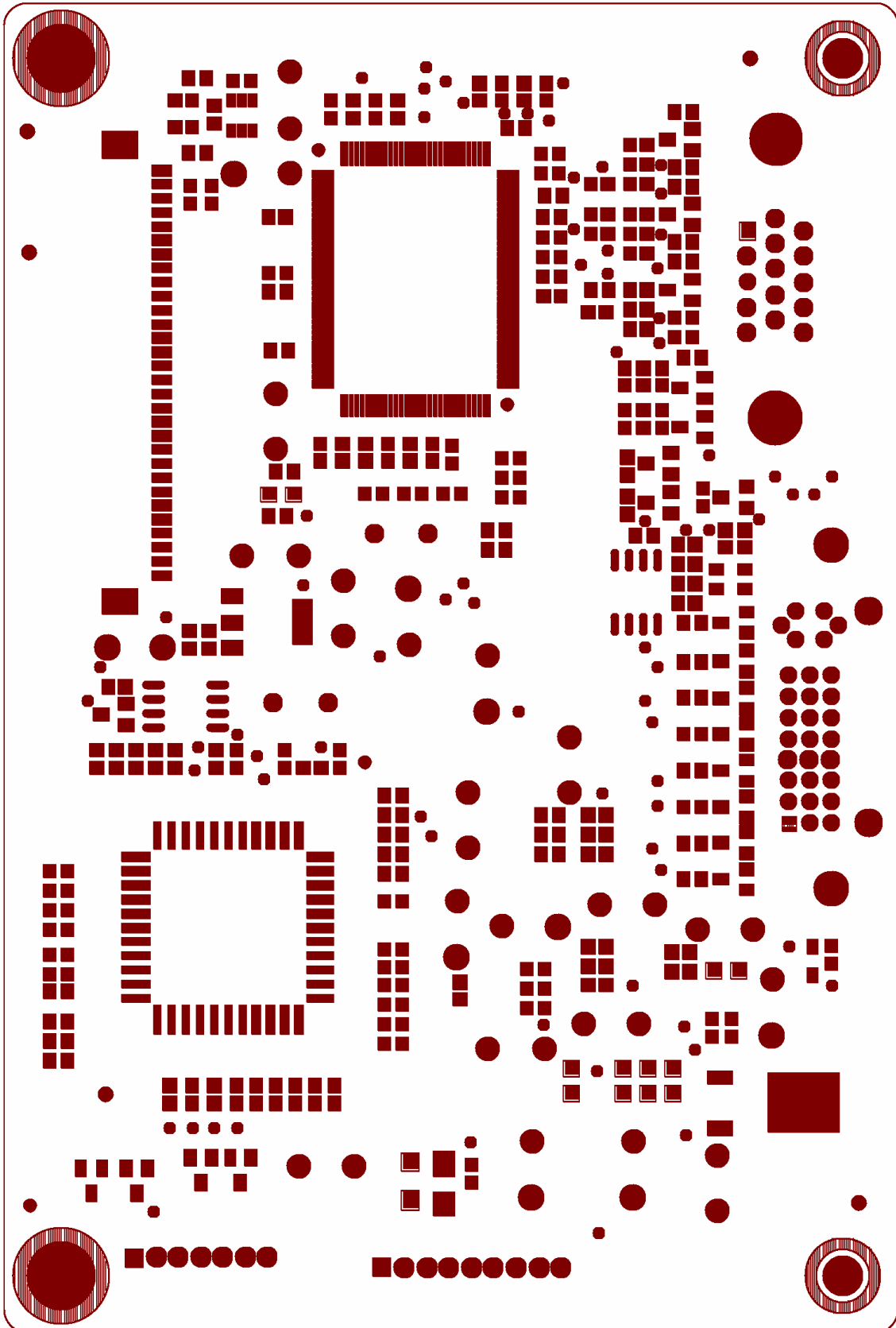
AD B/D TOP SILK(HL711S/HL711D)



AD B/D BOTTOM SILK (HL711S/HL711D)

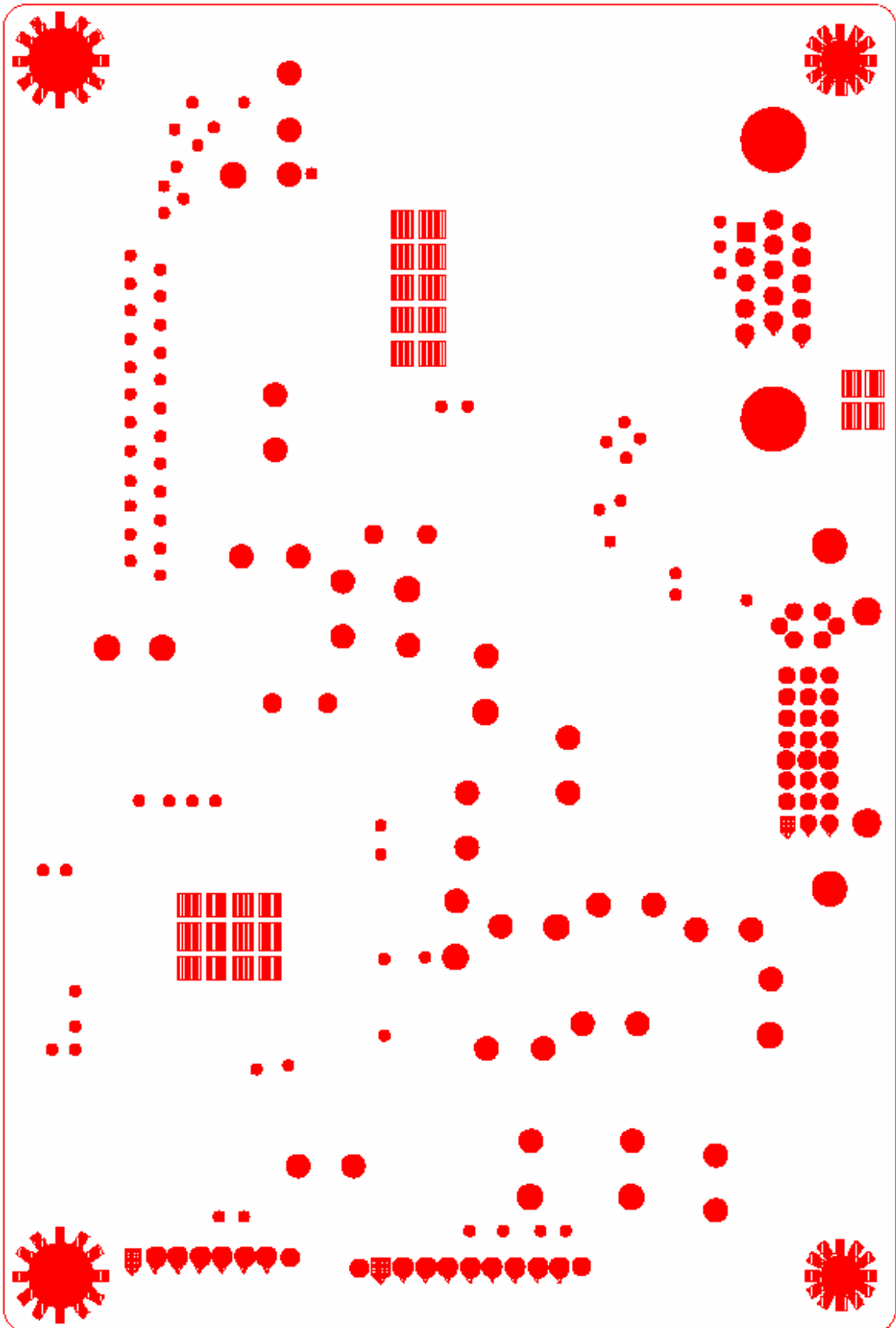


AD B/D MASK TOP (HL711S/HL711D)

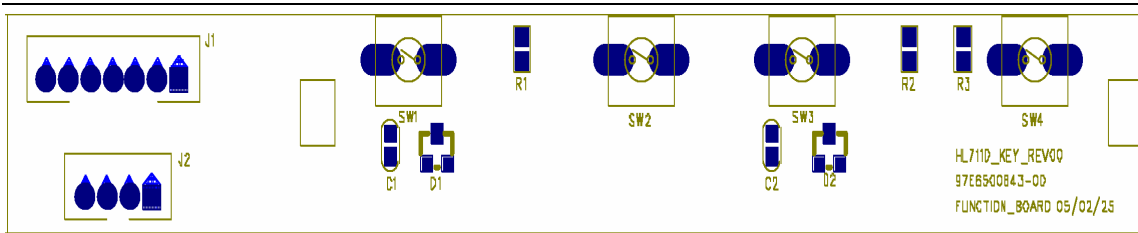




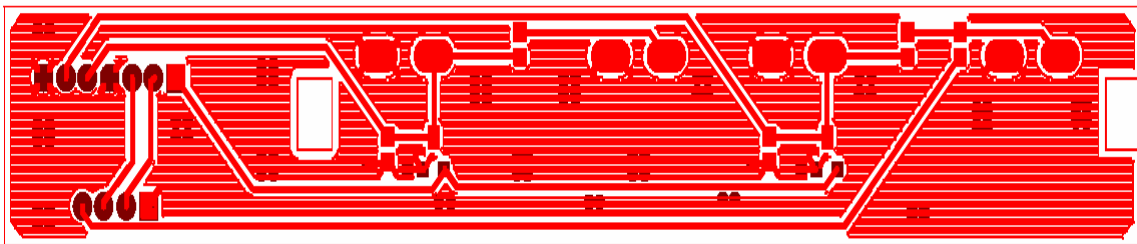
AD B/D MASK BOTTOM (HL711S/HL711D)



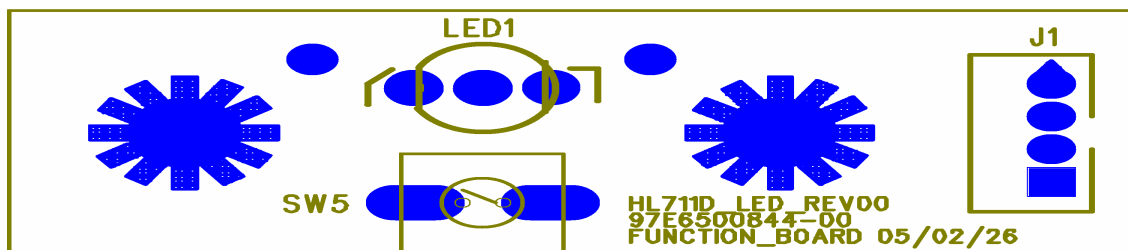
**FUNC KEY B/D TOP SILK (HL711S/HL711D)**



**FUNC KEY B/D BOTTOM PATTERN (HL711S/HL711D)**



**FUNC LED B/D TOP SILK (HL711S/HL711D)**



**FUNC LED B/D BOTTOM PATTERN (HL711S/HL711D)**

