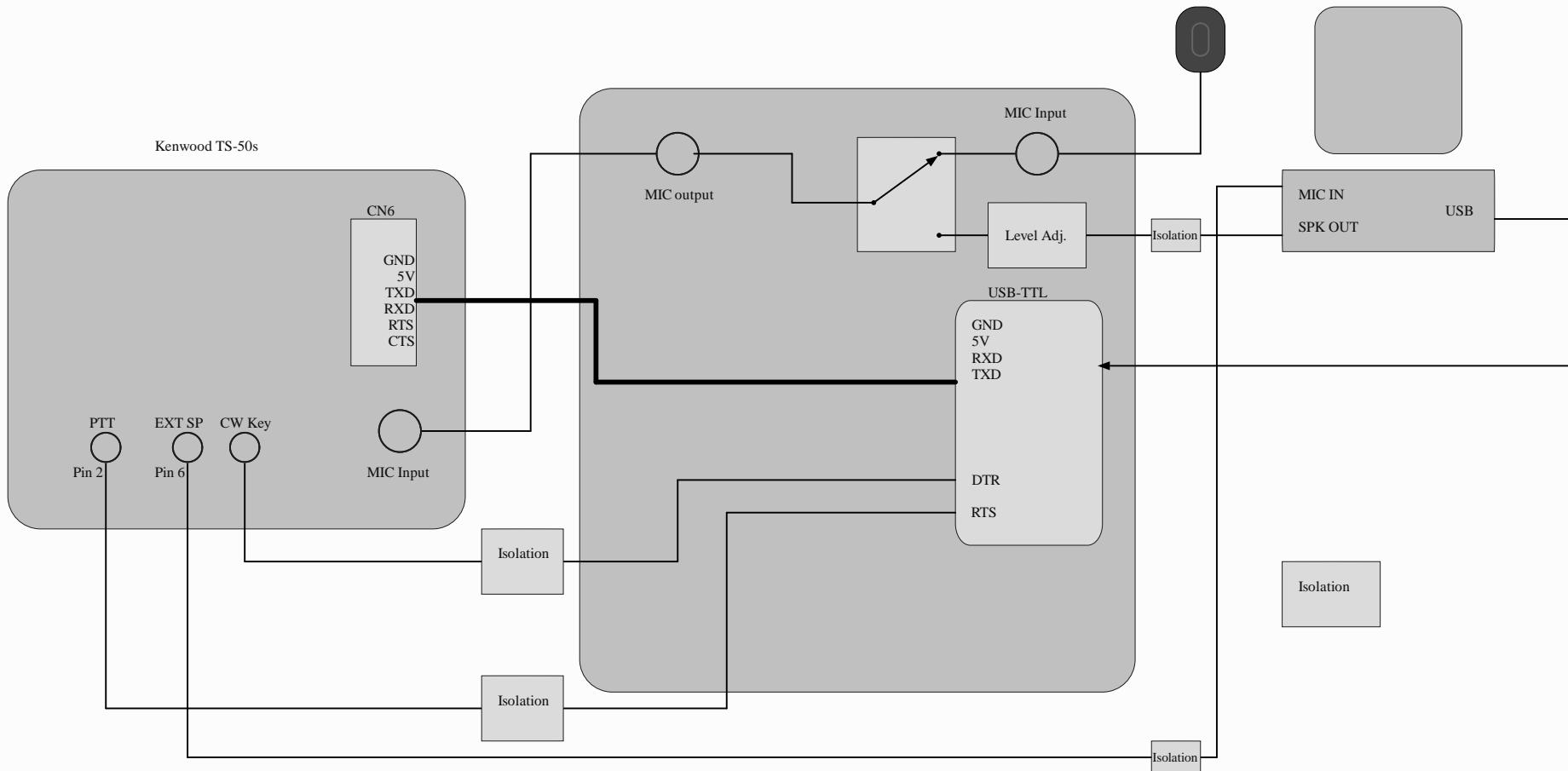


A

A

Title **Block Diagram**

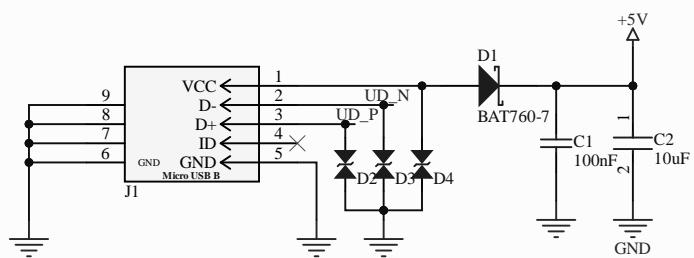
Size: A4 Number: 1 Revision: 1

Date: 01/02/2022 Time: 10:43:47 Sheet 1 of 4

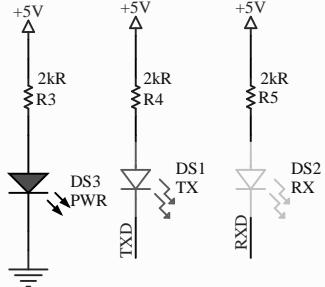
File: C:\Users\tmadu\Documents\Amateur Radio\Kenwood-TS50s-Digi-Interface\Kenwood-TS50s-Digi-Interface\Block Diagram.S

**4S6TMP**  
[www.4s6tmp.com](http://www.4s6tmp.com)

A

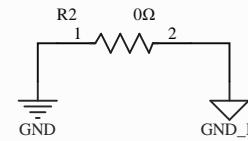
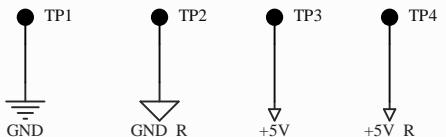
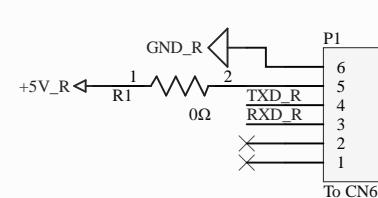
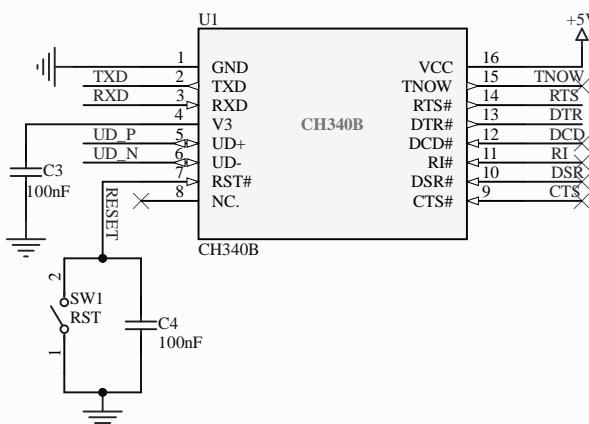


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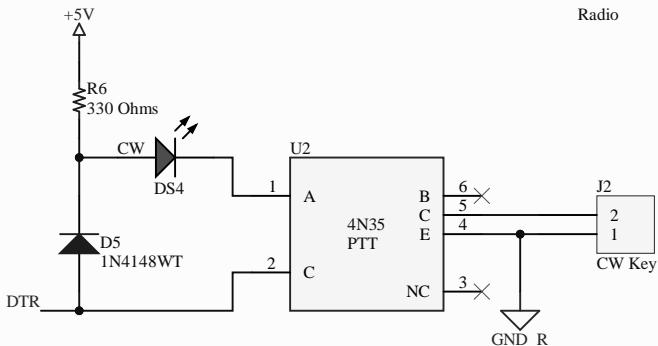


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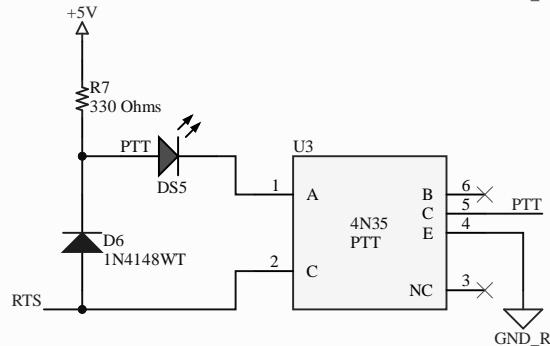
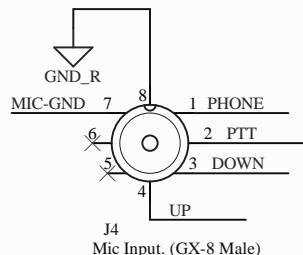
△ CW--DTR  
PTT-RTS  
+5V from Computer  
+5V\_R from Radio  
  
Check if TXD/RXD is Active low/high  
Add POT for SPK OUT  
Add Hardware & TPs



Computer

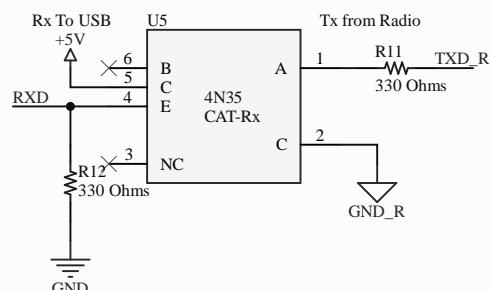
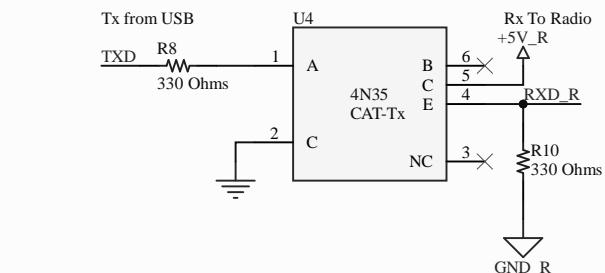


Radio

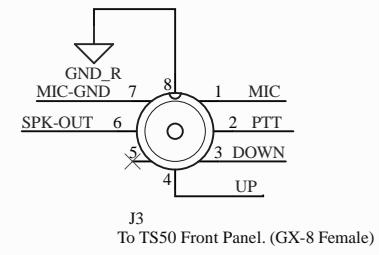


PHONE 1 SW2  
DIGI 3

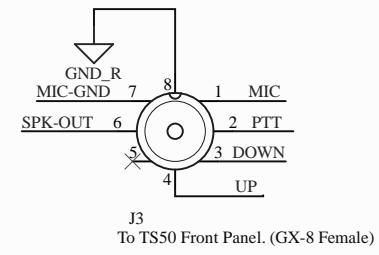
Voice <--> Digital, CW



TP5  
DIGI  
TP6  
SPK-OUT



J4 Mic Input. (GX-8 Male)



J3 To TS50 Front Panel. (GX-8 Female)

Title **Kenwood TS50s Digital Interface**

4S6TMP  
Sri Lanka

Size: A4 Number: 3 Revision: 1.0

Date: 01/02/2022 Time: 10:43:47 Sheet 3 of 4

File: C:\Users\tmadu\Documents\Amateur Radio\Kenwood-TS50s-Digi-Interface\Kenwood-TS50s-Digi-Interface\ts-50s-digi-interf

**4S6TMP**  
www.4s6tmp.com

A

A

B

B

C

C

D

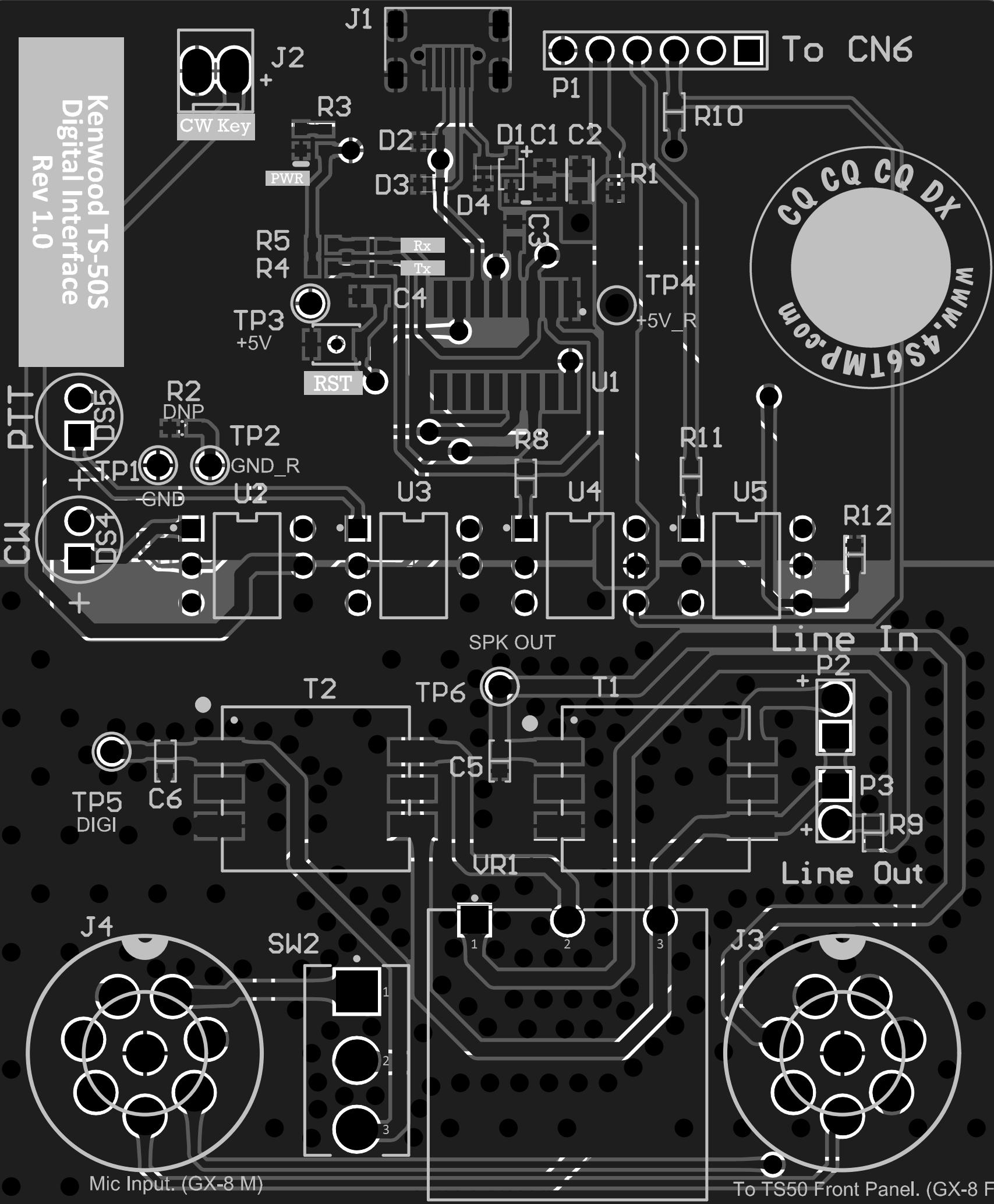
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Logo1  
PCB Logo  
*4S6TMP*

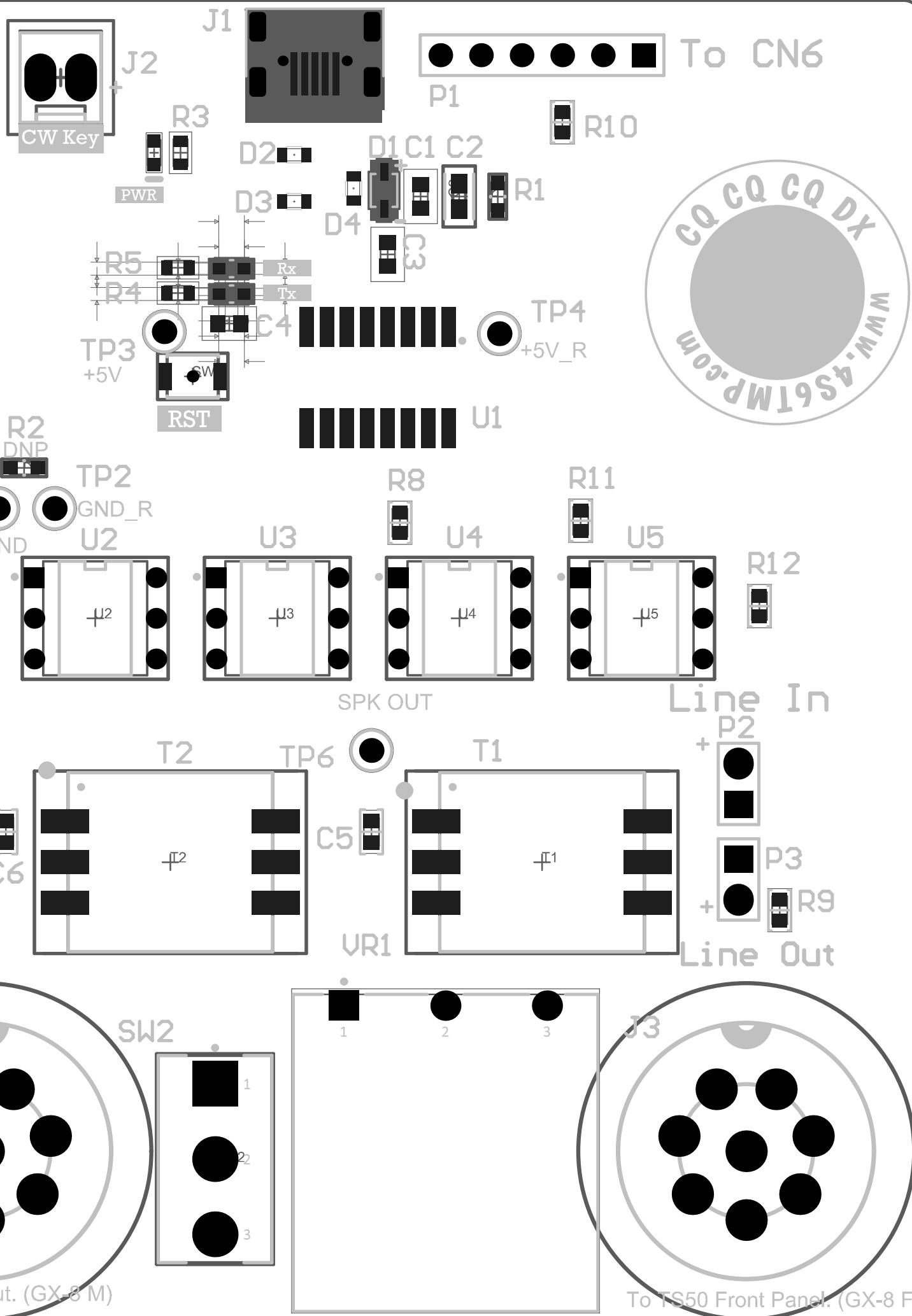
Title <b>Hardware</b>		
Size: A4	Number:4	Revision: 1
Date: 01/02/2022	Time: 10:43:47	Sheet 4 of 4
File: C:\Users\tmadu\Documents\Amateur Radio\Kenwood-TS50s-Digi-Interface\Kenwood-TS50s-Digi-Interface\Hardware.SchDoc		



Kenwood TS-50S  
Digital Interface  
Rev 1.0

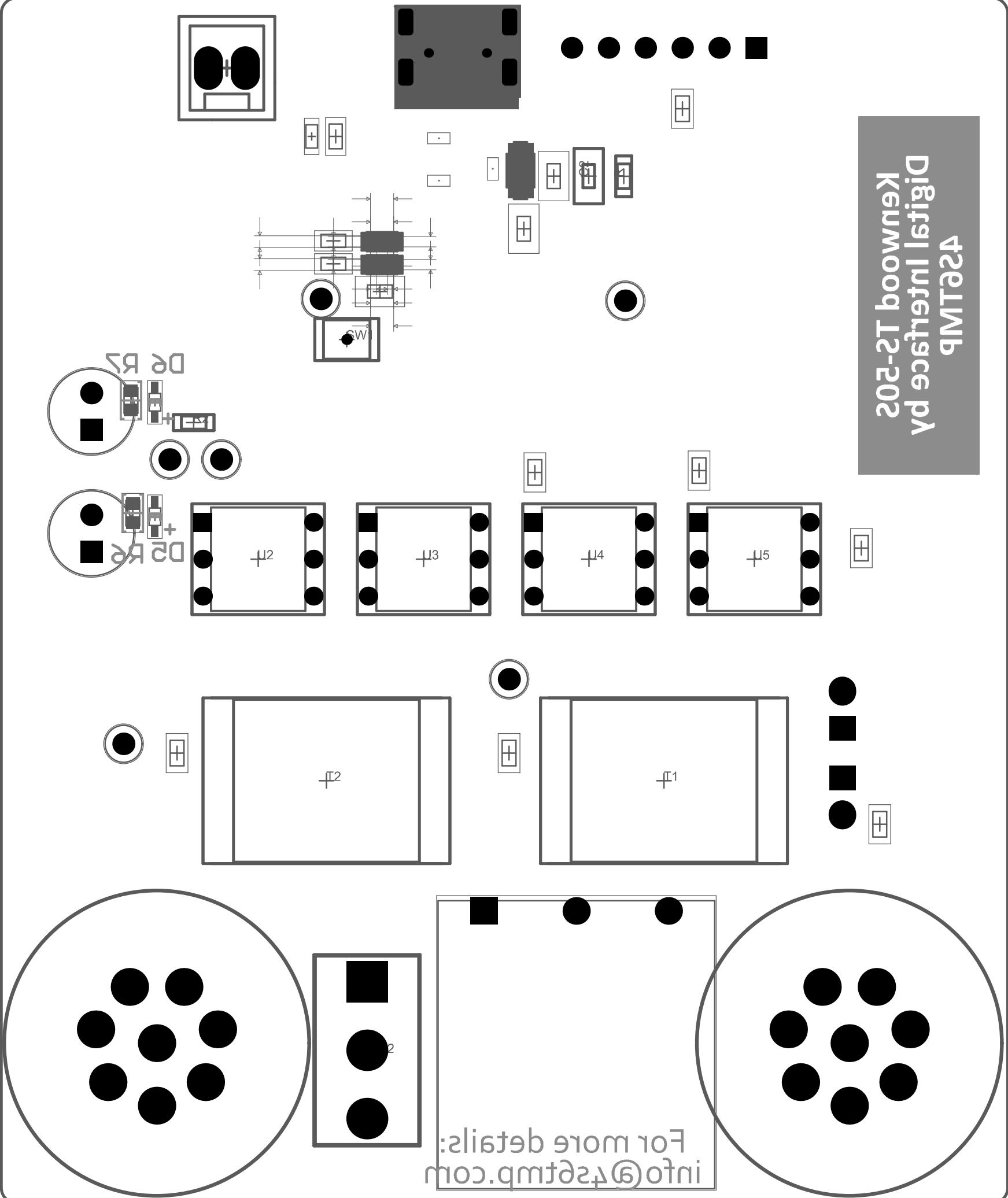


**Kenwood TS-50S  
Digital Interface  
Rev 1.0**

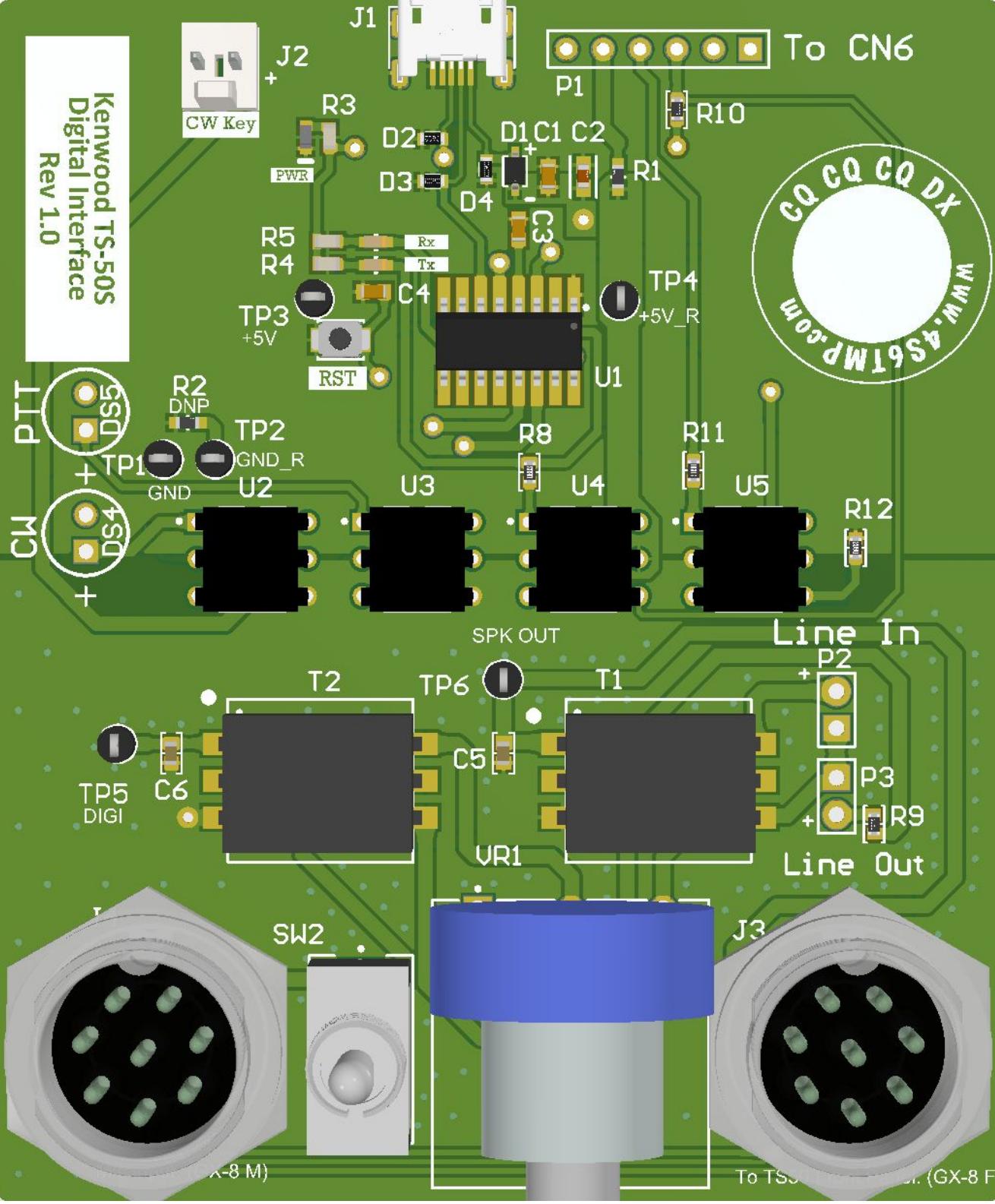


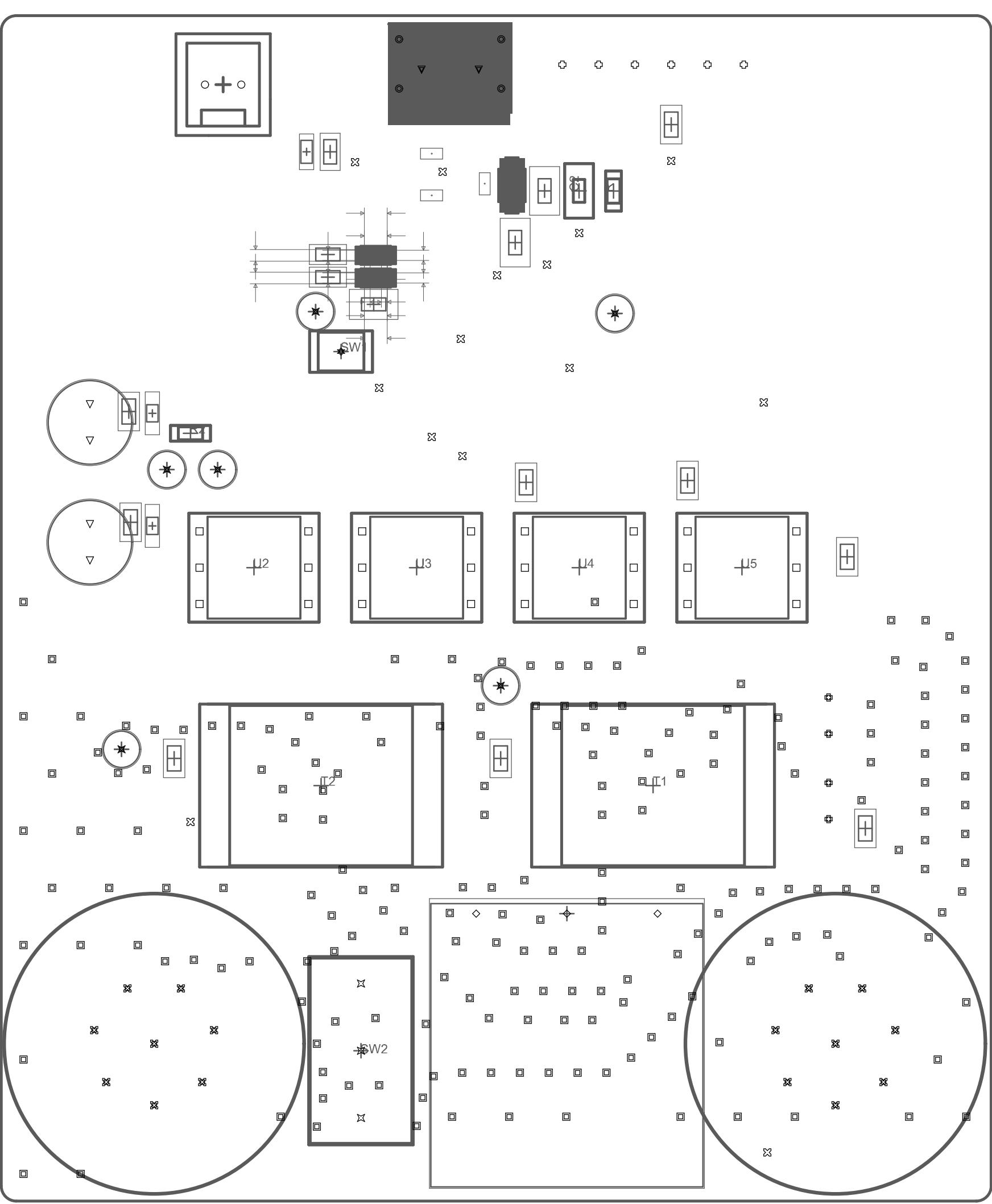
# Digital Interface Keumwoon LS-205

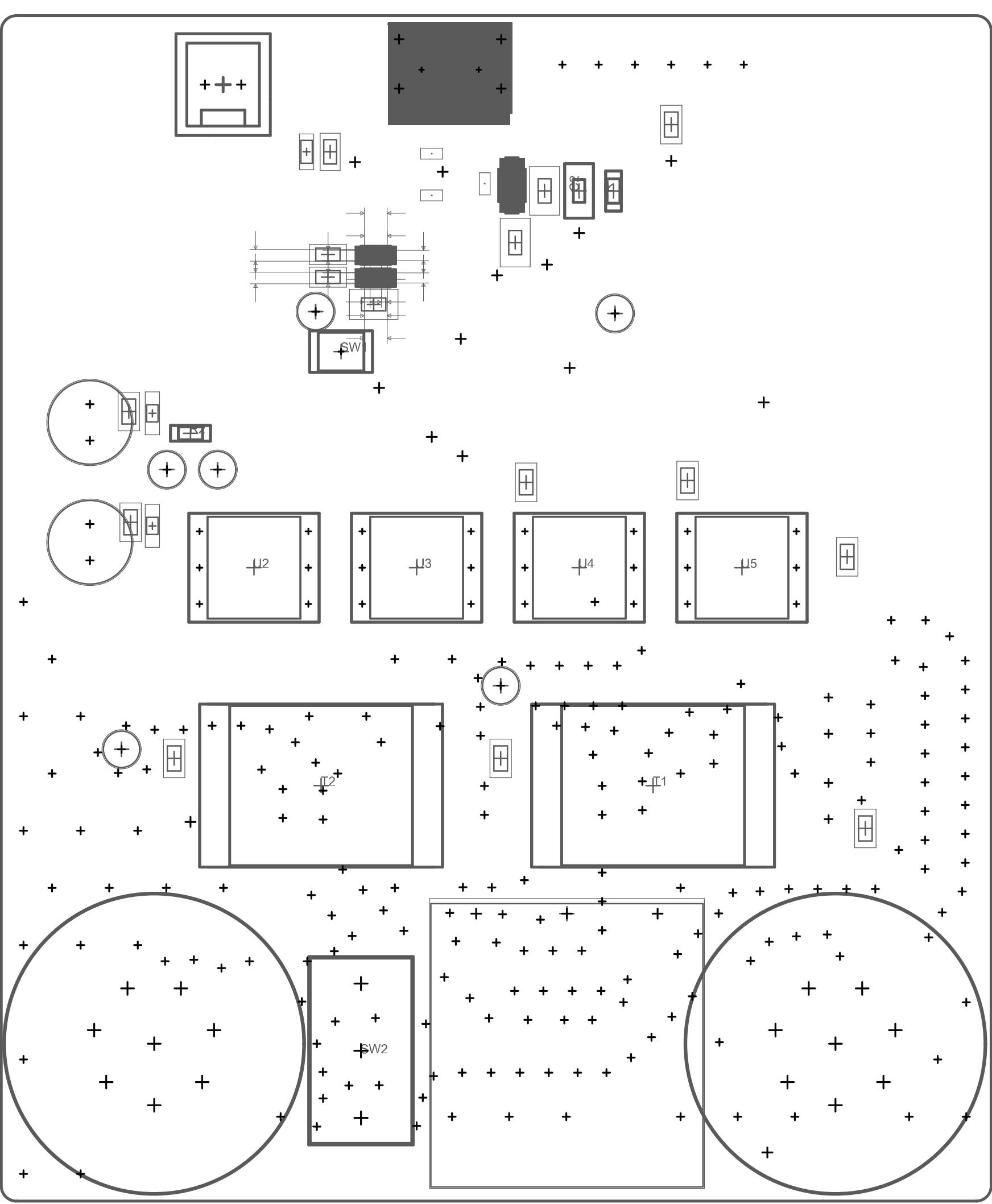
For more details:  
[info@tseflwp.com](mailto:info@tseflwp.com)



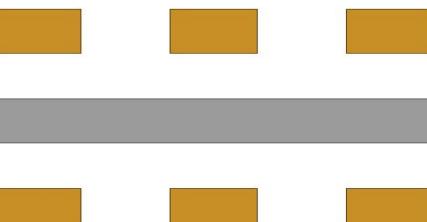








# Board Stack Report

Stack Up		Layer Stack			
Layer	Board Layer Stack	Name	Material	Thickness	Constant
1		Top Paste			
2		Top Overlay			
3		Top Solder	Solder Resist	0.40mil	3.5
4		Top Layer	Copper	1.40mil	
5		Dielectric 1	FR-4	12.60mil	4.8
6		Bottom Layer	Copper	1.40mil	
7		Bottom Solder	Solder Resist	0.40mil	3.5
8		Bottom Overlay			
9		Bottom Paste			
Height : 16.20mil					

## Design Rules Verification Report

Filename : C:\Users\lmadu\Documents\Amateur Radio\Kenwood-TS50s-Digi-Interface\Kenwood-TS50s-Digi-Interface\ts-50s-digi-interface.PcbDoc

Warnings 0

Rule Violations 0

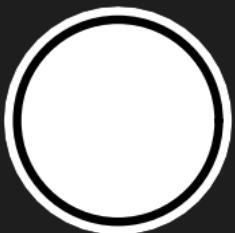
Warnings	
Total	0
Rule Violations	
Clearance Constraint (Gap=0.254mm) (All), (All)	0
Short-Circuit Constraint (Allowed=No) (All), (All)	0
Un-Routed Net Constraint ( All) )	0
Modified Polygon (Allow modified: No), (Allow shelved: No)	0
Width Constraint (Min=0.254mm) (Max=1mm) (Preferred=0.45mm) (All)	0
Power Plane Connect Rule(Relief Connect )(Expansion=0.508mm) (Conductor Width=0.254mm) (Air Gap=0.254mm)	0
Hole Size Constraint (Min=0.025mm) (Max=2.54mm) (All)	0
Hole To Hole Clearance (Gap=0.254mm) (All), (All)	0
Minimum Solder Mask Sliver (Gap=0.05mm) (Disabled)(All), (All)	0
Silk To Solder Mask (Clearance=0.01mm) (Disabled)(IsPad), (All)	0
Silk to Silk (Clearance=0.1mm) (Disabled)(All), (All)	0
Net Antennae (Tolerance=0mm) (All)	0
Room Hardware (Bounding Region = (166.497mm, 472.694mm, 222.885mm, 497.078mm)	0
Room ts-50s-digi-interface (Bounding Region = (38.735mm, 314.579mm, 108.077mm, 374.015mm)	0
Room CAT-PTT (Bounding Region = (39.141mm, 314.706mm, 108.61mm, 396.748mm)	0
Height Constraint (Min=0mm) (Max=25.4mm) (Preferred=12.7mm) (All)	0
Total	0

## Electrical Rules Check Report

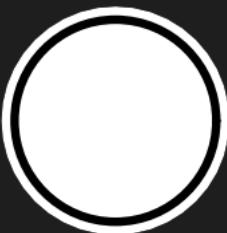
Class	Document	Message
Warning	CAT-PTT.SchDoc	Net RESET has no driving source (Pin C4-2, Pin SW1-2, Pin U1-7)
Warning	CAT-PTT.SchDoc	Net RXD has no driving source (Pin DS2-1, Pin R12-1, Pin U1-3, Pin U5-4)
Warning	ts-50s-digi-interface.SchDoc	Off grid J3 at 9723.071mil,6162.122mil
Warning	Hardware.SchDoc	Off grid Logo1 at 69.23mm,86.23mm
Warning	ts-50s-digi-interface.SchDoc	Off grid Net Label DOWN at 6722.047mil,5942.52mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Net Label DOWN at 10023.859mil,6004.642mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Net Label MIC at 10105.748mil,6319.602mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Net Label MIC-GND at 5677.953mil,6257.48mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Net Label MIC-GND at 9001.024mil,6319.602mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Net Label PHONE at 6700mil,6257.48mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Net Label PTT at 10123.071mil,6162.122mil
Warning	CAT-PTT.SchDoc	Off grid Net Label RESET at 6200mil,5673.677mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Net Label SPK-OUT at 8923.071mil,6162.122mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Net Label UP at 10038.032mil,5822.752mil
Warning	ts-50s-digi-interface.SchDoc	Off grid No ERC at 6177.953mil,5942.52mil
Warning	ts-50s-digi-interface.SchDoc	Off grid No ERC at 9501.024mil,6004.642mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Pin J3-1 at 9945.118mil,6319.602mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Pin J3-2 at 10023.071mil,6162.122mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Pin J3-3 at 9945.118mil,6004.642mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Pin J3-4 at 9723.071mil,5862.122mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Pin J3-5 at 9501.024mil,6004.642mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Pin J3-6 at 9423.071mil,6162.122mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Pin J3-7 at 9501.024mil,6319.602mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Pin J3-8 at 9723.071mil,6462.122mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Pin J4-1 at 6622.047mil,6257.48mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Pin J4-3 at 6622.047mil,5942.52mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Pin J4-5 at 6177.953mil,5942.52mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Pin J4-7 at 6177.953mil,6257.48mil
Warning	ts-50s-digi-interface.SchDoc	Off grid Power Object GND_R at 9300mil,6717.083mil

Comment	Description	Designator	Footprint	LibRef	Quantity	Capacitance	Resistance (Ohms)	Resistance	Value	Manufacturer Part Number	Manufacturer Part Number 1	Manufacturer Part Number 2	Part Number	PartNumber
100nF	Chip Capacitor, 100 nF, +/- 10%, 50V, .55 to 125 degC, 0603 (1608 Metric), RoHS, Tape and Reel	C1, C3, C4	CAPC1608X90X35ML10T15	CMP-2006-02375-5		3 100nF				GCM188R71H104K A57D				
10uF	Chip Multilayer Ceramic Capacitors for General Purpose, 0603, 10uF, X5R, 15%, 20%, 6.3V	C2	FP-GRM188-0_1-e0_2_0_55-IPC_A	CMP-2006-02792-2		1 10uF								
100pF	CAP CER 100PF 50V COG/NPO 0603	C5, C6	CAP 0603_1608	500R14N101J4T		2 100pF			100pF					500R14N101J4T
BAT760-7	30V 1A 550mW @ 1A SOD-323 Schottky Barrier Diodes (SBD) RoHS	D1	SOD323_DIO	BAT760-7		1				BAT760-7				
ESD Diode	Bidirectional - 50V - 5V 0603 ESD Protection Devices RoHS	D2, D3, D4	0603ESDA-05N	0603ESDA-05N		3								
IN4148WT	High Conductance Fast Switching Diode 75V, .55 to 150 degC, 2-Pin SOD523F, RoHS	D5, D6	FAIR-SOD-523F-2_V	CMP-0881-00001-1		2								IN4148WT
TX	No Description Available	D51	LED_19-217/GHC-YR1S2/3T_EVE	19-217/GHC-YR1S2/3T		1								
RX	Yellow 590nm LED Indication - Discrete 2V 0603 (1608 Metric)	DS2	LED_19-217/GHC-YR1S2/3T_EVE	19-217/Y5C-AP1Q2/3T		1								
PWR	Chip LED, Red, 5V, .25 mA, .40 to 85 degC, 2-Pin SMD (0603), RoHS, Tape and Reel	DS3	EVRL-0603-2_V	CMP-2100-03578-1		1								
CW	E-1 3/4 (5mm) Diffused LED Lamp, 1.9V, .40 to 100 degC, 2-Pin THD, RoHS, Bulk	DS4	AVAG-HLMP-3301-2	CMP-2000-06411-1		1								
PTT	E-1 3/4 (5mm) Diffused LED Lamp, 1.9V, .40 to 100 degC, 2-Pin THD, RoHS, Bulk	DS5	AVAG-HLMP-3301-2	CMP-2000-06411-1		1								
U254-051N-4BH806	USB - Micro B Female USB 2 SMD USB Connectors RoHS	J1	CONN_10103594-0001LF_AMP	U254-051N-4BH806		1								
CW Key	CONN HEADER VERT ZPOS 2.54MM	J2	MOLEX KK 0022272021	0022272021		1								0022272021
To T550 Front Panel, (GX-B Female)	8 Position Circular Connector Receptacle, Male Pins Solder	J3	GX-8	GX-8		1								
Mic Input. (GX-8 Male)	8 Position Circular Connector Receptacle, Male Pins Solder	J4	GX-8	GX-8		1								
To CN6	1x6 4-Pin	P1	HDR1X6	Header 6		1								
Line In	3.5mm Mono	P2	HDR1X2	Header 2		1								
Line Out	3.5mm Mono	P3	HDR1X2	Header 2		1								
0Ω	RES SMD 0 OHM JUMPER 1/10W 0603, DNP	R1, R2	FP-RC0603-MFG	CMP-2000-06925-2		2			0Ω	0Ω	RC0603FR-070RL			
2kR		R3, R4, R5	RESC1608X55X25NL10T15	CMP-2000-04259-1		3			2kR		RC0603JR-072KL			RC0603JR-072KL
330 Ohms	RES SMD 330 OHM 1% 1/10W 0603	R6, R7, R8, R10, R11, R12	RES 0603_1608	AC0603FR-07330RL		6			330 Ohms	330 Ohms				AC0603FR-07330RL
1kOhms	RES SMD 1K OHM 1% 1/10W 0603	R9	RES 0603_1608	AT0603FR071KL		1			1kOhms	1kOhms				AT0603FR071KL
RST	SWITCH TACTILE SPST NO 0.05A 12V	SW1	FP-B3U-1000P-B-MFG	CMP-08834-00005-1		1								
Voice <-> Digital, CW	SWITCH TOGGLE SPDT BA 120V	SW2	FP-A1015DC004-MFG	CMP-03408-00002-1		1								
SM-LP-5001	TRANSFORMER LINE MATCHING SMA	T1, T2	SM-LP-5001	CMP-07264-00002-1		2								
GND	Test Point, Black, 1-Pin THD, RoHS, Bulk	TP1	KSTN-5001	CMP-2000-05181-1		1								
GND_R	Test Point, Black, 1-Pin THD, RoHS, Bulk	TP2	KSTN-5001	CMP-2000-05181-1		1								
+5V	Test Point, Black, 1-Pin THD, RoHS, Bulk	TP3	KSTN-5001	CMP-2000-05181-1		1								
+5V_R	Test Point, Black, 1-Pin THD, RoHS, Bulk	TP4	KSTN-5001	CMP-2000-05181-1		1								
DIGI	Test Point, Black, 1-Pin THD, RoHS, Bulk	TP5	KSTN-5001	CMP-2000-05181-1		1								
SPK OUT	Test Point, Black, 1-Pin THD, RoHS, Bulk	TP6	KSTN-5001	CMP-2000-05181-1		1								
CH340B	Transceiver USB 2.0 2Mbps SOF 16_150mil USB ICs Rev A	U1	SOIC-16	CH340B		1								
PTT	IC_CPT0105 5KV TRANS/W/RAST 60IP	U2, U3	Vishay_4N35_0	IC_Vishay_4N35_eec		2								4N35
CAT-Tx	IC_CPT0105 5KV TRANS/W/RAST 60IP	U4	Vishay_4N35_0	IC_Vishay_4N35_eec		1								4N35
CAT-Rx	IC_CPT0105 5KV TRANS/W/RAST 60IP	U5	Vishay_4N35_0	IC_Vishay_4N35_eec		1								4N35
3852A-282-103AL	Giantmeter Panel Control, 100 Kohm, +/- 10%, 2.2W, 1 to 125 degC, 3-Pin THD, RoHS, Bulk	VR1	BOUR-3852A-282-103AL-3_V	CMP-2000-05079-1		1		100k						

To PC



Line In



Line Out



To Radio

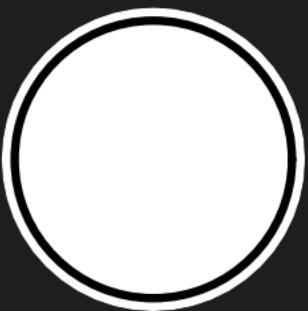


CW Key

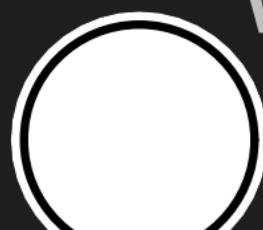


TS-50S CN6

# Kenwood TS-50S Computer Interface with CAT Control

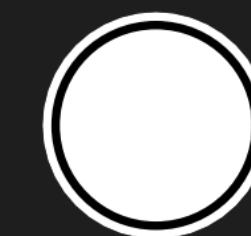


CW

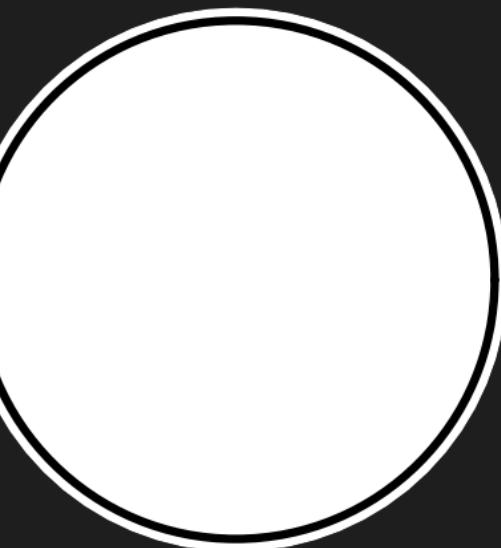


DIGITAL & CW

PHONE



MIC IN



[www.4s6tmp.com](http://www.4s6tmp.com)