

Capacitors Not critical unless noted

	Value	Note
C1	100pF	
C2	220pF	Must be stable. I use Mica.
C3	100nF	Not critical, but use a good capacitor
C4, C12	100nF	
C5, C45	100nF (0805 chip) 6V or more.	
C6	82pF	
C10, C11	22pF	
C16	22pF	Depends on antenna coupling you use. Use high volage cap in an AC/DC set
C20, C21, C22	150nF - 470nF	
C40	2200uF 16V	
C42, C44	22uF - 47uF 6V or more	I used tantalum, but aluminum is OK too.
C46, C47	22uF - 47uF 15V or more	I used aluminum, but tantalum is OK too.

Standard 5% resistors. 0.1 watt or more

	Value	Note
R1	1k	
R2	18k	
R5	47k	
R7, R21, R27	100k	
R8	220k	
R9	560k	
R15, R16, R19	1.8k - 2.2k	15, R16 not needed for Si4825
R20	270k	
R22, R23	18k - 22k	Not needed for Si4825
R24	3.3k	
R25, R40, R41	10k	

Precision 1% resistors 0.1 watt or more

	Value	Note
R11	750 ohm	
R12	3k	
R13	51k	
R14	330k	

Trim Potentiometers

	Value	Note
RV2	20k or 22k	
RV10	5k or 4.7k	

Semiconductors

	Part #	Note
D10, D11, D12	3mm LED	D10, D11 not needed with Si4825
D40	1N5817	1N4001 or 1N4148 can be used if there is enough voltage
D41	1N5344A	ONLY for series string. DO NOT POPULATE for parallel string
D43	1N914	
Q20	2N3904 (TO92)	
U1	74HCT9046 (SOIC-16)	
U2	LM358 (8 pin DIP)	
U10	Si4826 or Si4835 (SOIC-16)	
U11	MCP100-300D (TO92)	
U40	5V regulator LP2950-50 (TO92)	
U41	3.3V regulator 78L33 (TO92)	

Misc

J10	6-pin male header
J11	4-pin male header (not needed for Si4825)
Y1	32768Hz Crystal
	Circuit board

Parts Not Used

R3	DNI	For other phase detector
R4	0 ohm junper	For other phase detector
R26	DNI	Treble boost
C17, C18	DNI	Filter for reference voltage
C23	DNI	Treble boost
C41, C43	DNI	Supply filtering
C14, C15	DNI	Alternative antenna matching
D42	DNI	Overvoltage protection
FB1	0 ohm jumper	EMI control

DNI = Do Not Install