

UD2.9 through-hole bill of materials

Note: through-hole design allows for flexible substitution of parts

C1	100 uF 50 V electrolytic polarized radial capacitor
C2	100 uF 50 V electrolytic polarized radial capacitor
C3	100 uF 50 V electrolytic polarized radial capacitor
C4	4.7 uF 50 V ceramic disc capacitor
C5	0.1 uF 50 V ceramic disc capacitor
C6	330 uF 25 V electrolytic polarized radial capacitor
C7	330 uF 25 V electrolytic polarized radial capacitor
C8	150 pF 50 V ceramic disc capacitor
C9	0.1 uF 50 V ceramic disc capacitor
C10	1 uF 50 V ceramic disc capacitor
C11	1 nF 50 V ceramic disc capacitor
C12	0.1 uF 50 V ceramic disc capacitor
C13	0.1 uF 50 V ceramic disc capacitor
C14	0.1 uF 50 V ceramic disc capacitor
C15	0.1 uF 50 V ceramic disc capacitor
C16	0.1 uF 50 V ceramic disc capacitor
C17	1 nF 50 V ceramic disc capacitor
C18	0.1 uF 50 V ceramic disc capacitor
C19	0.1 uF 50 V ceramic disc capacitor
C20	470 pF 50 V ceramic disc capacitor
C21	1 nF 50 V ceramic disc capacitor
C22	0.1 uF 50 V ceramic disc capacitor
C23	1.0 uF 50 V ceramic disc capacitor
C24	4.7 uF 50 V ceramic disc capacitor
C25	0.1 uF 50 V ceramic disc capacitor
C26	0.1 uF 50 V ceramic disc capacitor
C27	1 nF 50 V ceramic disc capacitor
C28	4.7 uF 50 V ceramic disc capacitor
C29	100 uF 50 V electrolytic polarized radial capacitor
C33	2.2 uF 50 V ceramic disc capacitor
C34	1 uF 50 V ceramic disc capacitor
C37	1 nF 50 V ceramic disc capacitor
D1	Inline pin Full-Wave Diode Bridge (100V min / 2A min) e.g. KBL401G Many will work if you bend the pins
D2	1N4007
D3	1N4007
D4	5 mm LED (color of your choice) - bright so you see it from a distance
D5	1N5818 or 1N5819
D6	1N5818 or 1N5819
D7	1N5818 or 1N5819
D8	1N5818 or 1N5819
D9	1N5818 or 1N5819
D10	1N5818 or 1N5819
D11	1N4148

D12	1N4148
D13	1N4148
D14	1N4148
D15	1N4148
D16	5 mm LED (color of your choice) - bright so you see it from a distance
D17	1N4148
D18	1N4148
D19	1N4148
D20	1N4148
D21	1N4007
D22	1N4733A
J1	2 position 5.0/5.04 mm spacing screw terminal block PCB mount
J2	2 position 5.0/5.04 mm spacing screw terminal block PCB mount
J3	2 position 5.0/5.04 mm spacing screw terminal block PCB mount
J4	2 position 5.0/5.04 mm spacing screw terminal block PCB mount
J5	2 position 5.0/5.04 mm spacing screw terminal block PCB mount
J6	2 by 3 pin header, 2.54 mm pin spacing
J7	1 by 2 pin header, 2.54 mm pin spacing
J8	2 position 5.0/5.04 mm spacing screw terminal block PCB mount
J9	1 by 3 pin header, 2.54 mm pin spacing
J14	1 by 2 pin header, 2.54 mm pin spacing
J15	1 by 3 pin header, 2.54 mm pin spacing
J16	1 by 2 pin header, 2.54 mm pin spacing
J17	1 by 2 pin header, 2.54 mm pin spacing
J18	1 by 2 pin header, 2.54 mm pin spacing
J19	2 position 5.0/5.04 mm spacing screw terminal block PCB mount
L1	Coilcraft tunable inductor slot 7
0555-0-15-01-30-27-10-0	Mill-Max Pin receptacles qty 5, solder into the holes to snap in L1
	Suggested Coilcraft slot 7 inductors, available as samples:
	7M3-153: 11 uH min, 15 uH nom, 19 uH max inductance
	7M3-223: 17 uH min, 22 uH nom, 28 uH max inductance
	7M3-333: 25 uH min, 33 uH nom, 41 uH max inductance
	7M3-393: 33 uH min, 39 uH nom, 45 uH max inductance
	7M3-473: 35 uH min, 47 uH nom, 59 uH max inductance
	7M3-563: 42 uH min, 56 uH nom, 70 uH max inductance
OP1	OPF2412T
OP2	IFD95T Industrial Fiber Optics
Q1	IRF9540N
Q2	IRF540N
Q3	IRF9540N
Q4	IRF540N
Q5	2N3906
R1	1R ¼ watt resistor
R2	470R ¼ watt resistor
R3	51R 2 watt resistor metal film
R4	100k ¼ watt resistor
R5	1k ¼ watt resistor
R6	1k ¼ watt resistor
R7	470R ¼ watt resistor

R8	1k ¼ watt resistor
R9	470R ¼ watt resistor
R10	470R ¼ watt resistor
R11	5.1R ½ watt resistor
R12	optional 5.1R ½ watt resistor (second burden resistor)
R13	1.8k ¼ watt resistor
R14	1k ¼ watt resistor
R15	1k ¼ watt resistor
R16	100k ¼ watt resistor
R17	1k ¼ watt resistor
R18	1k ¼ watt resistor
R19	100k ¼ watt resistor
R20	1k ¼ watt resistor
R21	1k ¼ watt resistor
R22	470R ¼ watt resistor
R23	10k ¼ watt resistor
R24	15R ½ watt resistor
R25	1.8k ¼ watt resistor
R26	470R ¼ watt resistor
R27	1k ¼ watt resistor
R28	1k ¼ watt resistor
R29	1k ¼ watt resistor
R30	10k ¼ watt resistor
RV1	10k through-hole PCB mount potentiometer (e.g. Vishay T93YA103KT20)
RV2	5k through-hole PCB mount potentiometer (e.g. Vishay T93YA502KT20)
U1	LM7824 TO220 package
U2	LM7812 TO220 package – put heatsink on this!
U3	LM7805 TO220 package – heatsink is advised
U4	Analog Devices LT1016CN8 Other substitutions: Maxim MAX913CPA+-ND (as of 2018-02). Analog Devices LT1116CN8 (as of 2018-02). Analog Devices AD8561ANZ (as of 2018-02).
U5	74HC08 DIP-14 package
U6	LM311 DIP-8 package
U7	74HC74 DIP-14 package
U8	74HC14 DIP-14 package
U9	UCC27423 Texas Instruments DIP-8 package TC4427 may be used as a cheap substitute.
U15	MC34164P-3G TO-92 On Semiconductor Microchip MCP111-240E may be a good lower power alternative