

Series II - Bill of Materials

revision: H
date: 2-Dec-04

Optional part depending on power level of TV or FM

Item	Qty	Components	Description	Tolerance	Package	Equivalency
1	1	BZ1	BUZZER, magnetic, 5V, single tone		Through hole	Challenge Electronics TDB05; Global Components TDB05, Transducers USA TRIE-1205P
2	2	C1 (solder side), C5 (solder side)	CAPACITOR, electrolytic, 100uF, 63V	<=20%	SMT (Panasonic VS "G" size)	Panasonic ECE-V1JA101P, NIC NACEW101M63V10x10.5
3	2	C2 (electrolytic), C6 (solder side)	CAPACITOR, electrolytic, 330uF, 35V	<=20%	SMT (Panasonic VS "G" size)	Panasonic ECE-V1VA331P, NIC NACEW331M35V10x10.5
4	22	C1 (0805 comp. side), C2 (0805 near U8), C3 (0805 PSU filter), C4 (0805 near buzzer), C5 (0805 RFL I/P), C6 (0805 comp. side), C7 (0805 near FWD I/P), C8 (0805 near U8), C9 (solder side), C10 (solder side), C11, C12, C13, C14, C15, C16, C17, C18 (0805 beside uPC), C19, C20, C21	CAPACITOR, ceramic, 0.01uF, 63V	<=20%	SMT 0805	
5	7	C7 (1206 near pow. conn.), C10 (1206 solder side), C45, C46, C47, C48, C49	CAPACITOR, ceramic, 0.1uF, 25V	<=20%	SMT 1206	Utech GMC31X7R104K50NT
6	2	C8 (electrolytic), C9 (electrolytic comp. side)	CAPACITOR, electrolytic, 100uF, 25V	<=20%	SMT (Panasonic VS "E" size)	Panasonic ECE-V1EA101UP
7	2	C15, C18 (1210 tantalum)	CAPACITOR, tantalum, 1uF, 16V	<=20%	SMT 3216	KOA TMC1CA105KLRH
8	5	C25, C28, C31, C34, C3 (electrolytic)	CAPACITOR, electrolytic, 1uF, 16V	<=20%	Through hole, radial, 5mm diameter	Nichicon LB/VX/USA/SA; Panasonic KA/KS/SU; Sprague 501D/513D
9	1	CR1	CLOCK, ceramic resonator, 4.000 MHz, w/caps	f <= 0.5% C <= 20%	Through hole, 3-position, 0.1" spacing	ECS Inc. ZTT-4.00MG
10	1	D1	DIODE, TVS, 600 watts, Vwm=30V, Vbr min=33.3 (for TV power amplifier)		SMB	Crydom SMBJ30A; GI SMBJ30A
11	1	D1	DIODE, TVS, 600 watts, Vwm=48V, Vbr min=53.3 (for FM power amplifier)		SMB	Crydom SMBJ48A; GI SMBJ48A
12	2	D2, D3	DIODE, schottky, If=3A, Vr=60V		SMC	International Rectifier 30BQ060
13	1	D4	DIODE, rectifier, If=1A, Vr=400V		DO-41	Micro Commercial 1N4004, ON Semiconductor 1N4004RL, General Semiconductor 1N4004
14	2	D9, D10	DIODE, TVS, 600 watts, Vwm=5.0V, Vbr min=6.4		SMB	Crydom SMBJ5.0A; GI SMBJ5.0A
15	1	D12	DIODE, LED, RED, clear or diffused		SMT 1206	Lumex SML-LX1206IW
16	1	F1	FUSE, resettable, Ihold=0.75A, Itrip=1.5A, Vmax=72V		0.23" lead spacing, 20AWG leads	Raychem RXE075; Boums MF-R075
17	3	F6, F7, F8	FUSE, resettable, Ihold=0.14A, Itrip=0.34A, Vmax=60V		miniSMD	Raychem miniSMDC014-2
18	2	J1, J8	CONNECTOR, 4-position plug, 180 degree wire entry, 90 degree screw access, 5.08mm		-	Wieland 25.340.3453, Weco 10.808.104
19	2	J1, J8	CONNECTOR, 4-position header, pluggable, vertical, closed, 5.08mm		Through hole, 0.2" spacing	Wieland 25.350.3453, Weco 20.806.128
20	3	J2, J5, J6	CONNECTOR, breakaway header strip, 3- and 2-position required		Through hole, 0.1" spacing	Molex 22-28-4300; Samtec TSW-130-05-T-S
21	3	J2, J5, J6	CONNECTOR, 2-position post shunts		0.1" spacing	AMP 382811-6; Samtec SNT-100-BK-T
22	1	J3	CONNECTOR, 5-position plug, 90 degree wire entry, 180 degree screw access, 5.08mm		-	Wieland 25.340.3553
23	1	J3	CONNECTOR, 5-position header, pluggable, vertical, closed, 5.08mm		Through hole, 0.2" spacing	Wieland 25.350.3553
24	1	J7	CONNECTOR, 3-position plug, 180 degree wire entry, 90 degree screw access, 5.08mm		-	Wieland 25.340.3353, Weco 10.808.103
25	1	J7	CONNECTOR, 3-position header, pluggable, vertical, closed, 5.08mm		Through hole, 0.2" spacing	Wieland 25.350.3353, Weco 20.806.127
26	1	J9	CONNECTOR, terminal strip, 16-position		Through hole, 0.1" spacing	Samtec TSW-116-18-T-S
27	1	J9	CONNECTOR, socket strip, 16-position		Through hole, 0.1" spacing	Samtec SSW-116-03-T-S
28	1	L1	INDUCTOR, 680uH, Irms=0.4A, DCR=2.02 ohms		SMT	JW Miller 3316-681M
29	11	L2, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13	INDUCTOR, 0.01uH, Imax=0.45A, DCR=0.13 ohms	+/- 10%	SMT 1210	KOA KL32TE010K
30	1	L3	INDUCTOR, 680uH, Irms=1.3A, DCR=0.2 ohms		SMT (Talema S5)	Talema SWS-0.85-680
31	1	LCD1	20 X 4 character liquid crystal display, LED backlight		4-40 pem mount (4)	Varitronix 20464K
32	1	PCB1	Series II, revision H printed circuit board, soldermask, silkscreen, FR4			Alberta Printed Circuits, MPC, GRM, Enigma, ... Fairchild MMBT2222A; Zetex FMMT2222A; Diodes Inc MMBT2222A-7
33	2	Q1, Q2	TRANSISTOR, NPN, Ic=1A, Vce=40V		SMT SOT-23	
34	1	R1	RESISTOR, 4.7 ohm, 1/4 watt, carbon film	5%	Through hole, axial 0.4	Yageo CFR-25JB-4R7 (4.7QBK-ND)
35	1	R2	RESISTOR, 15.0 ohm, 1/10 watt, thick film	1%	SMD 0805	Panasonic ERJ-6ENF15R0V
36	1	R3	RESISTOR, 75.0 ohm, 1/10 watt, thick film	1%	SMD 0805	Panasonic ERJ-6ENF75R0V
37	12	R4, R5, R6, R7, R10, R11, R12, R13, R16, R32, R34, R36	RESISTOR, 1.00 kohm, 1/10 watt, thick film	1%	SMD 0805	Panasonic ERJ-6ENF1001V
38	4	R8, R9, R14, R15	RESISTOR, 10.0 kohm, 1/10 watt, thick film	1%	SMD 0805	Panasonic ERJ-6ENF1002V

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39	1	R17	RESISTOR, 4.99 kohm, 1/10 watt, thick film	1%	SMD 0805	Panasonic ERJ-6ENF4991V
40	1	R26 (next to VR2)	RESISTOR, 2.7 KOHM, 1/10 watt, thick film	1%	SMD 0805	
41	1	R26 (next to VR2)	RESISTOR, 680 OHM, 1/10 watt, thick film	1%	SMD 0805	
42	1	R31	RESISTOR, 37.4 kohm, 1/10 watt, thick film (for TV amplifier)	1%	SMD 0805	Panasonic ERJ-6ENF3742V
43	1	R31	RESISTOR, 15 kohm, 1/10 watt, thick film (for FM amplifier)	1%	SMD 0805	Panasonic ERJ-6ENF4991V
44	2	R28, R30	RESISTOR, 121 kohm, 1/10 watt, thick film	1%	SMD 0805	Panasonic ERJ-6ENF1213V
45	1	R33	RES, 120 ohm, 1/10 watt, thick film	1%	SMD 0805	Panasonic ERJ-6ENF1200V
46	1	RLY1	RELAY, SPDT, 5Vdc coil, 5A@30Vdc/10A@125Vac contact			Aromat JS1-5V; P&B T7CS5D-05
47	1	U1	REGULATOR, switching, 5Vdc, 3A, fosc=52kHz		SMD TO-263-5	National LM2576HVS-5.0
48	1	U2	REGULATOR, switching, 5Vdc, 1A, fosc=150kHz		Through hole TO-220-5	National LM2595T-5.0
49	1	U3	REGULATOR, linear, 5V, 1A		Through hole TO-220	7805CT
50	1	U4	REGULATOR, inverter, 100mA		SMD SOIC-8	National LM2660M; Analog Devices ADM8660, Maxxim MAX660
51	2	U5, U6	OPTOISOLATOR, dual, Viso=2500V, Vce=30V		Through hole, DIP-8	Fairchild MCT6
52	1	U8	OP AMP, quad, low voltage		SMD SOIC-14	National LMV324M
53	1	U9	REFERENCE, 2.50V (for TV PA >= 250Wpk)	+/-0.2%	SMD SOT-23	National LM4040BIM3-2.5
54	1	U10	ADC, 10-bit, 10-channel		SMD SOIC-20	Analog Devices AD7812YR
55	2	U11, U12	LOGIC, 8-bit shift register with latches		SMD SOIC-16	Fairchild MM74HC595M; On Semi MC74HC595AD; Phillips 74HC595D
56	1	U13	SUPERVISOR, n-channel, open drain, internal pullup resistor		SMD SOT-23	MCP130T-450I
57	1	U14	MICROCONTROLLER, OTP, 4k, 22 I/O lines		Through hole DIP-28	Microchip PIC16C63A-04/SP
58	1	J10	Connector, socket, 28-position, DIP, 0.3" spacing		Through hole DIP-28	Jameco 112299CL or equivalent
59	1	U15	MEMORY, 8k X 8, EEPROM, SPI		SMD SOIC-8	Microchip 25LC640I/SN
60	3	VR2, VR3, VR4	RES, variable, 2 kohm, 11 turn		SMD	Murata PVG5A202A01R00