

## Series II - Bill of Materials

revision: I  
date: 21-Jun-05

Optional part depending on power level of TV or FM

| Item | Qty | Components                                                                                                                   | Description                                                                       | Tolerance             | Package                                | Equivalency                                                  |
|------|-----|------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------|----------------------------------------|--------------------------------------------------------------|
| 1    | 1   | BZ101                                                                                                                        | BUZZER, magnetic, 5V, single tone                                                 |                       | SMD CT-1205C                           | CUI CT-1205C                                                 |
| 2    | 2   | C101, C105                                                                                                                   | CAPACITOR, electrolytic, 100uF, 63V                                               | <=20%                 | SMT (Panasonic VS "G" size)            | Panasonic ECE-V1JA101P, NIC NACEW101M63V10x10.5              |
| 3    | 2   | C102, C106                                                                                                                   | CAPACITOR, electrolytic, 330uF, 35V                                               | <=20%                 | SMT (Panasonic VS "G" size)            | Panasonic ECE-V1VA331P, NIC NACEW331M35V10x10.5              |
| 4    | 21  | C103, C104, C107, C112, C113, C115, C116, C118, C119, C120, C121, C123, C124, C125, C126, C128, C129, C130, C131, C133, C134 | CAPACITOR, ceramic, 0.01uF, 63V                                                   | <=20%                 | SMT 0805                               | Digikey C0805C103K5RACTU                                     |
| 5    | 7   | C108, C111, C140, C143, C144, C145, C146                                                                                     | CAPACITOR, ceramic, 0.1uF, 25V                                                    | <=20%                 | SMT 1206                               | Utech GMC31X7R104K50NT                                       |
| 6    | 2   | C109, C110                                                                                                                   | CAPACITOR, electrolytic, 100uF, 25V                                               | <=20%                 | SMT (Panasonic VS "E" size)            | Panasonic ECE-V1EA101UP                                      |
| 7    | 7   | C114, C117, C122, C127, C132, C135, C147                                                                                     | CAPACITOR, tantalum, 1uF, 16V                                                     | <=20%                 | SMT 3216                               | Sprague 293D105X9035B2T                                      |
| 8    | 1   | CR101                                                                                                                        | CLOCK, ceramic resonator, 4.000 MHz, w/caps                                       | f <= 0.5%<br>C <= 20% | Through hole, 3-position, 0.1" spacing | ECS Inc. ZTT-4.00MG                                          |
| 9    | 1   | D101                                                                                                                         | TV Power Amplifier: DIODE, TVS, 600 watts, Vwm=30V, Vbr min=33.3                  |                       | SMB                                    | Crydom SMBJ30A; GI SMBJ30A                                   |
| 10   | 1   | D101                                                                                                                         | FM Power Amplifier: DIODE, TVS, 600 watts, Vwm=48V, Vbr min=53.3                  |                       | SMB                                    | Crydom SMBJ48A; GI SMBJ48A                                   |
| 11   | 2   | D102, D103                                                                                                                   | DIODE, schottky, If=3A, Vr=60V                                                    |                       | SMC                                    | International Rectifier 30BQ060                              |
| 12   | 1   | D104                                                                                                                         | DIODE, rectifier, If=1A, Vr=200V                                                  |                       | SMA                                    | Diodes Inc S1D-13                                            |
| 13   | 2   | D108, D109                                                                                                                   | DIODE, TVS, 600 watts, Vwm=5.0V, Vbr min=6.4                                      |                       | SMB                                    | Crydom SMBJ5.0A; GI SMBJ5.0A                                 |
| 14   | 1   | D110                                                                                                                         | DIODE, LED, RED, clear or diffused                                                |                       | SMT 1206                               | Lumex SML-LX1206IW                                           |
| 15   | 1   | F101                                                                                                                         | FUSE, resettable, Ihold=0.75A, Itrip=1.5A, Vmax=72V                               |                       | 0.23" lead spacing, 20AWG leads        | Raychem RXE075; Bourns MF-R075                               |
| 16   | 3   | F105, F106, F107                                                                                                             | FUSE, resettable, Ihold=0.14A, Itrip=0.34A, Vmax=60V                              |                       | miniSMD                                | Raychem miniSMDC014-2                                        |
| 17   | 1   | J101                                                                                                                         | CONNECTOR, 4-position plug, 180 degree wire entry, 90 degree screw access, 5.08mm |                       | 0.2" spacing                           | Wieland 25.340.3453, Weco 10.808.104                         |
| 18   | 1   | J101                                                                                                                         | CONNECTOR, 4-position header, pluggable, vertical, closed, 5.08mm                 |                       | Through hole, 0.2" spacing             | Wieland 25.350.3453, Weco 20.806.128                         |
| 19   | 2   | J102, J106                                                                                                                   | CONNECTOR, breakaway header strip, 3-position, 0.1", square post                  |                       | Through hole, 0.1" spacing             | Molex 22-28-4300; Samtec TSW-130-05-T-S                      |
| 20   | 1   | J105                                                                                                                         | CONNECTOR, breakaway header strip, 2-position, 0.1", square post                  |                       | Through hole, 0.1" spacing             | Molex 22-28-4300; Samtec TSW-130-05-T-S                      |
| 21   | 3   | J102, J105, J106                                                                                                             | CONNECTOR, 2-position post shunts                                                 |                       | 0.1" spacing                           | AMP 382811-6; Samtec SNT-100-BK-T                            |
| 22   | 1   | J103                                                                                                                         | CONNECTOR, 5-position plug, 180 degree wire entry, 90 degree screw access, 5.08mm |                       | 0.2" spacing                           | Wieland 25.340.3553.0                                        |
| 23   | 1   | J103                                                                                                                         | CONNECTOR, 5-position header, 0.1", vertical                                      |                       | Through hole 0.2" spacing              | Wieland 25.350.3553.0                                        |
| 24   | 2   | J107, J108                                                                                                                   | CONNECTOR, 3-position plug, 180 degree wire entry, 90 degree screw access, 5.08mm |                       | 0.2" spacing                           | Wieland 25.340.3353, Weco 10.808.103                         |
| 25   | 2   | J107, J108                                                                                                                   | CONNECTOR, 3-position header, pluggable, vertical, closed, 5.08mm                 |                       | Through hole, 0.2" spacing             | Wieland 25.350.3353, Weco 20.806.127                         |
| 26   | 1   | J109                                                                                                                         | CONNECTOR, terminal strip, 16-position                                            |                       | Through hole, 0.1" spacing             | Samtec TSW-116-18-T-S                                        |
| 27   | 1   | J109                                                                                                                         | CONNECTOR, socket strip, 16-position                                              |                       | Through hole, 0.1" spacing             | Samtec SSW-116-03-T-S                                        |
| 28   | 1   | K101                                                                                                                         | RELAY, DPDT, 5V, 2Adc contact, SMD                                                |                       | Relay - Aromat - TX SA                 | Aromat TX2SA-5V                                              |
| 29   | 1   | L101                                                                                                                         | INDUCTOR, 680uH, Irms=0.4A, DCR=2.02 ohms                                         |                       | SMT                                    | JW Miller 3316-681M                                          |
| 30   | 10  | L102, L105, L106, L107, L108, L109, L110, L111, L112, L113                                                                   | INDUCTOR, 0.01uH, Imax=0.45A, DCR=0.13 ohms                                       | +/- 10%               | SMT 1210                               | KOA KL32TE010K                                               |
| 31   | 1   | L103                                                                                                                         | INDUCTOR, 680uH, Irms=1.3A, DCR=0.2 ohms                                          |                       | SMT (Talema S5)                        | Talema SWS-0.85-680                                          |
| 32   | 1   | LCD101                                                                                                                       | 20 X 4 character liquid crystal display, LED backlit                              |                       | 4-40 pem mount (4)                     | Varitronix 20464K                                            |
| 33   | 1   | PCB101                                                                                                                       | Series II, revision H printed circuit board, soldermask, silkscreen, FR4          |                       |                                        | Alberta Printed Circuits, MPC, GRM, Enigma, ...              |
| 34   | 2   | Q101, Q102                                                                                                                   | TRANSISTOR, NPN, Ic=1A, Vce=40V                                                   |                       | SMT SOT-23                             | Fairchild MMBT2222A; Zetex FMMT2222A; Diodes Inc MMBT2222A-7 |
| 35   | 1   | R101                                                                                                                         | RESISTOR, 4.7 ohm, 1/2 watt, carbon film                                          | 5%                    | SMT 2010                               | Panasonic ERJ-12ZYJ4R7U                                      |
| 36   | 1   | R102                                                                                                                         | RESISTOR, 15.0 ohm, 1/10 watt, thick film                                         | 1%                    | SMD 0805                               | Panasonic ERJ-6ENF15R0V                                      |
| 37   | 1   | R103                                                                                                                         | RESISTOR, 75.0 ohm, 1/10 watt, thick film                                         | 1%                    | SMD 0805                               | Digikey MCR10EZHF1001, Panasonic ERJ-6ENF75R0V               |
| 38   | 11  | R104, R105, R106, R109, R110, R111, R112, R115, R116, R132, R134                                                             | RESISTOR, 1.00 kohm, 1/10 watt, thick film                                        | 1%                    | SMD 0805                               | Panasonic ERJ-6ENF1001V                                      |
| 39   | 4   | R107, R108, R113, R114                                                                                                       | RESISTOR, 10.0 kohm, 1/10 watt, thick film                                        | 1%                    | SMD 0805                               | Panasonic ERJ-6ENF1002V                                      |

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| 40 | 1 | R117                       | RESISTOR, 4.99 kohm, 1/10 watt, thick film                     | 1%      | SMD 0805            | Panasonic ERJ-6ENF4991V                                      |
| 41 | 1 | R124                       | RESISTOR, 13 kohm, 1/8 watt                                    | 1%      | SMD 0805            | Rohm MCR10EZHF1302                                           |
| 42 | 4 | R125, R127, R126, R128     | RESISTOR, 1 kohm, 1/8 watt                                     | 1%      | SMD 0805            | Rohm MCR10EZHF1001                                           |
| 43 | 1 | R129                       | RESISTOR, 121 kohm, 1/8 watt                                   | 1%      | SMD 0805            | Rohm MCR10EZHF1213                                           |
| 44 | 1 | R130                       | RES, 2.15 kohm, 1/10 watt, thick film                          | 1%      | SMD 0805            | Rohm MCR10EZHF2151                                           |
| 45 | 1 | R131                       | RES, 120 ohm, 1/10 watt, thick film                            | 1%      | SMD 0805            | Panasonic ERJ-6ENF1200V                                      |
| 46 | 2 | U101, U102                 | TV Power Amplifier: REGULATOR, switching, 5Vdc, 3A, fosc=52kHz |         | SMD TO-263-5        | National LM2576S-5.0                                         |
| 47 | 2 | U101, U102                 | FM Power Amplifier: REGULATOR, switching, 5Vdc, 3A, fosc=52kHz |         | SMD TO-263-5        | National LM2576HVS-5.0                                       |
| 48 | 1 | U104                       | REGULATOR, inverter, 100mA                                     |         | SMD SOIC-8          | National LM2660M; Analog Devices ADM8660, Maxxim MAX660      |
| 49 | 2 | U105, U106                 | OPTOISOLATOR, dual, Viso=5300Vac                               |         | SMD DIP8            | Fairchild MCT6S                                              |
| 50 | 1 | U108                       | OP AMP, quad, low voltage                                      |         | SMD SOIC-14         | National LMV324M                                             |
| 51 | 1 | U109                       | REFERENCE, 2.50V (for TV PA >= 250Wpk)                         | +/-0.2% | SMD SOT-23          | National LM4040BIM3-2.5                                      |
| 52 | 1 | U110                       | ADC, 10-bit, 10-channel                                        |         | SMD SOIC-20         | Analog Devices AD7812YR                                      |
| 53 | 2 | U111, U112                 | LOGIC, 8-bit shift register with latches                       |         | SMD SOIC-16         | Fairchild MM74HC595M; On Semi MC74HC595AD; Phillips 74HC595D |
| 54 | 1 | U113                       | SUPERVISOR, n-channel, open drain, internal pullup resistor    |         | SMD SOT-23          | MCP130T-450I                                                 |
| 55 | 1 | U114                       | MICROCONTROLLER, OTP, 4k, 22 I/O lines                         |         | Through hole DIP-28 | Microchip PIC16C63A-04/SP                                    |
| 56 | 1 | J111                       | Connector, socket, 28-position, DIP, 0.3" spacing              |         | Through hole DIP-28 | Jameco 112299CL or equivalent                                |
| 57 | 1 | U115                       | MEMORY, 8k X 8, EEPROM, SPI                                    |         | SMD SOIC-8          | Microchip 25LC640I/SN                                        |
| 58 | 1 | VR101                      | do not stuff                                                   |         |                     |                                                              |
| 59 | 4 | VR102, VR103, VR104, VR105 | RES, variable, 10 kohm, 1-turn, 3mm                            |         | SMD Bourns TC33     | Bourns TC33X-2-103E                                          |