

# Bill Of Materials for 63V3.sch - Part list exclude XO section

Update 12-Nov-07

| Item | Ref Des  | Qty | Manufacturer  | Part Number                               | Description                                    | Value        | Voltage | Price   | Total    |
|------|--|-----|---------------|---|--|--------------|---------|---------|----------|
| 1    | Q23-24 Q29-30  | 4   | TOSHIBA       | 2SA970BL                                  | PNP LOW NOISE TRANSISTOR                       | BL           |         | \$ 0.20 | \$ 0.80  |
| 2    | Q21-22 Q27-28  | 4   | TOSHIBA       | 2SC2240BL                                 | LOW NOISE NPN SILICON TRANSISTOR               | BL           |         | \$ 0.20 | \$ 0.80  |
| 3    | Q20  | 8   | TOSHIBA       | 2SJ74                                     | P-CHANNEL, LOW NOISE JFET                      | BL/V         | Matched | \$ 1.00 | \$ 8.00  |
| 4    | Q41 Q43 Q45 Q46  | 4   | TOSHIBA       | 2SJ74                                     | Optional, not included                         | BL           | Matched | \$ 1.00 |          |
| 5    | Q50  | 1   | TOSHIBA       | 2SJ148                                    | MOSFET P CHAN TO-92                            |              |         | \$ 1.00 | \$ 1.00  |
| 6    | Q1 Q3-4 Q6 Q8-9 Q11 Q13-14<br>Q16 Q18-19 Q25-26 Q31-32   | 16  | TOSHIBA       | 2SK170                                    | N-CHANNEL, LOW NOISE JFET                      | BL           | Matched | \$ 1.00 | \$ 16.00 |
| 7    | Q49  | 1   | TOSHIBA       | 2SK982                                    | MOSFET N CHANN TO-92                           |              |         | \$ 1.00 | \$ 1.00  |
| 8    | T1-2   | 2   | MIDCOM        | 51698-LF3                                 | MIDCOM 51698-LF3 SPDIF PULSE                   |              |         | \$ 2.00 | \$ 4.00  |
| 9    | U4 U11 U17   | 3   | Fairchild     | 74VHC86                                   | QUADRUPLE 2-INPUT EXCLUSIVE-OR GATE            |              |         | \$ 0.75 | \$ 2.25  |
| 10   | D21-27 D29 D11-18  | 16  | PHILIPS       | BYV27-150                                 | SOFT SCHOKY DIODE 150V 2A                      |              |         | \$ 0.45 | \$ 7.20  |
| 11   | C4 C15 C25 C36   | 4   | Rifa          | Use best cap                              | Film capacitor MKP or 100uF E-cap              | 10uF         | 250V    |         |          |
| 12   | C3 C14 C24 C35 C84 C85 C87<br>C88, C89 C90 C223 C229   | 12  | Panasonic FC  |   | ALUMINUM ELECTROLYTIC CAP.                     | 1000uf       | 35V     | \$ 0.45 | \$ 5.40  |
| 13   | C52 C54 C70 C72  | 4   | Panasonic FJ  |   | ALUMINUM ELECTROLYTIC CAP.                     | 100uf        | 50V     | \$ 0.15 | \$ 0.60  |
| 14   | C109 C110 C158-C159  | 4   | Sanyo OS-Con  |   | ALUMINUM ELECTROLYTIC CAP.                     | 180uf        | 16V     | \$ 0.30 | \$ 1.20  |
| 15   | C196 C199 C202 C230 C235<br>C239 C243  | 7   | Panasonic FC  |   | ALUMINUM ELECTROLYTIC CAP.                     | 120uf        | 16V     | \$ 0.15 | \$ 1.05  |
| 16   | C83 C86 C205 C226  | 4   | Panasonic FC  | or Philips                                | ALUMINUM ELECTROLYTIC CAP.                     | 220uf        | 35V     | \$ 0.20 | \$ 0.80  |
| 17   | C6 C10-11 C17 C20-21 C27<br>C31-32 C38 C41-42 C49-50<br>C67-68 C82 C102 C120 C122<br>C130 C136 C138 C142-145<br>C151 C169 C171 C179 C185<br>C187 C191-194 C209-210<br>C222 C233 C241           | 42  | Panasonic FC  |   | ALUMINUM ELECTROLYTIC CAP.                     | 27uf         | 35V     | \$ 0.15 | \$ 6.30  |
| 18   | C45-46 C59-60 C63-64 C77-78  | 8   | Panasonic FC  | Or 390uf when<br>330uf is out of<br>stock | ALUMINUM ELECTROLYTIC CAP.                     | 330uf        | 35V     | \$ 0.30 | \$ 2.40  |
| 19   | C100 C104 C106 C124 C128<br>C132 C134 C140 C149 C153<br>C155 C173 C177 C181 C183<br>C189   | 16  | Panasonic FC  | Or 27uF when<br>47uF is out of<br>stock   | ALUMINUM ELECTROLYTIC CAP.                     | 47uf         | 25V     | \$ 0.15 | \$ 2.40  |
| 20   | C115-116 C164-165  | 4   | Panasonic FC  |   | ALUMINUM ELECTROLYTIC CAP.                     | 470uf        | 16V     | \$ 0.20 | \$ 0.80  |
| 21   | C203-204   | 2   | Feng Hua      | 10%                                       | Leaded ceramic                                 | 0.01uf       | 50V     | \$ 0.10 | \$ 0.20  |
| 22   | C1 C5 C8 C12 C16 C19 C22<br>C26 C29 C33 C37 C40 C43-44<br>C47-48 C51 C53 C55-58  | 108 | Epcos or S+M  | 10%                                       | RADIAL FILM CAPACITOR, MKP                     | 0.1uf        | 63V     | \$ 0.10 | \$ 10.80 |
| 23   | C61-62 C65-66 C69 C71 C73-<br>76 C79-81 C91-94 C97-99<br>C101 C103 C105 C107-108<br>C111-114 C117-119 C121<br>C123 C125-127 C129 C131<br>C133 C135 C137 C139 C141                              |     | Epcos or S+M  | 10%                                       | RADIAL FILM CAPACITOR, MKP                     | 0.1uf        | 63V     | \$ 0.10 | \$ -     |
| 24   | C146-148 C150 C152 C154<br>C156-157 C160-163 C166-168<br>C170 C172 C174-176 C178<br>C180 C182 C184 C186 C188<br>C190 C195 C198 C201 C206<br>C211-213 C218 C220-221<br>C224 C232 C234 C238 C242 |     | Epcos or S+M  | 10%                                       | RADIAL FILM CAPACITOR, MKP                     | 0.1uf        | 63V     | \$ 0.10 | \$ -     |
| 25   | C95-96 C225 C231   | 4   | Epcos         | 5%  | RADIAL FILM CAPACITOR, MKP                     | 0.1uf        | 160v    | \$ 0.25 | \$ 1.00  |
| 26   | C9 C30   | 2   | CDE           | 5%  | Silver Mica                                    | 150pF        | 100V    | \$ 0.45 | \$ 0.90  |
| 27   | C7 C18 C28 C39   | 4   | Nessei        | 5%  | RADIAL FILM CAPACITOR, MKS                     | 10nf         | 50V     | \$ 0.15 | \$ 0.60  |
| 28   | C2 C13 C23 C34   | 4   | CDE           | 5%  | Silver Mica                                    | 2700pf       | 100V    | \$ 0.80 | \$ 3.20  |
| 29   | C197   | 1   | Murata        | 10%                                       | RADIAL FILM CAPACITOR, MKP                     | 330pf        | 50V     | \$ 0.10 | \$ 0.10  |
| 30   | C200   | 1   | Epcos         | 5%  | RADIAL FILM CAPACITOR, MKP                     | 47nf         | 100V    | \$ 0.15 | \$ 0.15  |
| 31   | J12 J13-15 J18 J24   | 6   | China         | CONN-2P 5MM                               | Screw type 5mm connector                       |              |         | \$ 0.10 | \$ 0.60  |
| 32   | J2 J22 J9 J6 J7 J21 J5 J28 J29<br>JMP2 JMP3 JMP5 JMP6  | 2   | China         | 2.5mm pin strip                           | 2.5mm pin strip square gold plated for jumpers |              |         | \$ 0.10 | \$ 0.20  |
| 33   | J10-11 J16   | 3   | China         | CONN-3P 5MM                               | Screw type 5mm connector                       |              |         | \$ 0.15 | \$ 0.45  |
| 34   | U15  | 1   | Crystal       | CS8412                                    | Price for DIR9001 to 8412 converter kit        |              |         |         |          |
| 35   | D20 D31 D45-47   | 5   | GI            | 1N4148                                    | 100V 1A diode or 1N4002                        | 1N4148       |         | \$ 0.05 | \$ 0.25  |
| 36   | H1-13  | 13  | China         | Heatsink                                  | 630 x 600 x 1000 mil (L x W x H)               |              |         | \$ 0.50 | \$ 6.50  |
| 37   | L2 L4-20   | 18  | Murata        |   | Radial inductors 100mA type                    | 47uH         |         | \$ 0.05 | \$ 0.90  |
| 38   | L3   | 1   | Murata        |   | Radial inductors 100mA type                    | 47uH         |         | \$ 0.05 | \$ 0.05  |
| 39   | L21  | 1   | China         |   | Inductor Bead                                  | Bead         |         | \$ 0.10 | \$ 0.10  |
| 40   | Q34 Q36  | 2   | IR            | IRF610                                    | MOSFET N CHANN 200V 1.8A                       | or 510/620   |         | \$ 0.60 | \$ 1.20  |
| 41   | Q33 Q35  | 2   | IR            | IRF9610                                   | MOSFET P CHAN 200V 1.8A                        | or 9510/9620 |         | \$ 0.60 | \$ 1.20  |
| 42   | D9-10 D19 D28 D30 D32 D48  | 7   | Green or Red  | Green x 6, Red x 1                        | LIGHT EMITTING DIODE                           |              |         | \$ 0.10 | \$ 0.70  |
| 43   | D33-36   | 4   | National Semi | LM336-5V                                  | PROGRAMMABLE PRECISION REFERENCE               |              |         | \$ 0.60 | \$ 2.40  |

| Item                | Ref Des  | Qty | Manufacturer    | Part Number  | Description  | Value | Voltage  | Price    | Total            |
|---------------------|--|-----|-----------------|--------------|--|-------|----------|----------|------------------|
| 44                  | U2 U5 U9 U12 U20   | 5   | On Semi or ST   | LM317T       | POSITIVE VOLTAGE REGULATOR; ADJUSTABLE                     |       |          | \$ 0.50  | \$ 2.50          |
| 45                  | U3 U6 U10 U13  | 4   | Fairchild or ST | LM337T       | NEGATIVE VOLTAGE REGULATOR;ADJUSTABLE                      |       |          | \$ 0.70  | \$ 2.80          |
| 46                  | U18 U21-24   | 5   | Fairchild or ST | LT1117-5     | Fixed Regulator 5V   |       |          | \$ 0.50  | \$ 2.50          |
| 47                  | U1 U7-8 U14  | 4   | Burr Brown      | PCM63PK      | 20bit Digital to Analogy Converter                         |       |          | \$ 25.00 |                  |
| 48                  | R6 R15 R26 R36 R57-58 R75-80 R96 R102-104 R110-111 R115-116 R85-87 R91-94 R99-101 R106-108 | 32  | Metal film      |              | Metal film resistor 1/4W 1%                                | 100   |          |          | \$ -             |
| 49                  | R5 R14 R25 R35 R117 R125 R158-159  | 8   | Metal film      |              | Metal film resistor 1/4W 1%                                | 100K  |          |          | \$ -             |
| 50                  | R41-42 R52 R54 R59-60 R70 R72 R51 R53 R69 R71  | 12  | Metal film      |              | Metal film resistor 1/4W 1%                                | 10k   |          |          | \$ -             |
| 51                  | R120   | 1   | Metal film      |              | Metal film resistor 1/4W 1%                                | 120   |          |          | \$ -             |
| 52                  | R128 R160 R123 R157 R121   | 5   | Metal film      |              | Metal film resistor 1/4W 1%                                | 150   |          |          | \$ -             |
| 53                  | R47-48 R65-66  | 4   | metal film      |              | Metal film resistor 1/4W 1%                                | 15k   |          |          | \$ -             |
| 54                  | R153   | 1   | Metal film      |              | Metal film resistor 1/4W 1%                                | 1k3   |          |          | \$ -             |
| 55                  | R148-151   | 4   | Metal film      |              | Metal film resistor 1/4W 1%                                | 33R   | Optional |          | \$ -             |
| 56                  | R55-56 R73-74 R114   | 5   | Metal film      |              | Metal film resistor 1/4W 1%                                | 1k    |          |          | \$ -             |
| 57                  | R4 R13 R24 R34   | 4   | Metal film      |              | Metal film resistor 1/4W 1%                                | 1k5   |          |          | \$ -             |
| 58                  | R7 R16 R27 R37   | 4   | Metal film      |              | Metal film resistor 1/4W 1%                                | 100k  |          |          | \$ -             |
| 59                  | R155-156   | 2   | Metal film      |              | Metal film resistor 1/4W 1%                                | 200k  |          |          | \$ -             |
| 60                  | R19-20 R30 R40   | 4   | Metal film      |              | Metal film resistor 1/4W 1%                                | 22R   |          |          | \$ -             |
| 61                  | R90  | 1   | Metal film      |              | Metal film resistor 3W 5%                                  | 470R  | 3W       |          | \$ -             |
| 62                  | R97-98 R105 R109 R112-113 R126-127   | 8   | Metal film      |              | Metal film resistor 1/4W 1%                                | 300   |          |          | \$ -             |
| 63                  | R3 R12 R23 R33   | 4   | Metal film      |              | Metal film resistor 1/4W 1%                                | 33R   |          |          | \$ -             |
| 64                  | R89 R124   | 2   | Metal film      |              | Metal film resistor 1/4W 1%                                | 3k9   |          |          | \$ -             |
| 65                  | R49-50 R67-68  | 4   | Metal film      |              | Metal film resistor 1/4W 1%                                | 4k7   |          |          | \$ -             |
| 66                  | R141-144   | 4   | Metal film      |              | Metal film resistor 1/4W 1%                                | 10k   | Optional |          | \$ -             |
| 67                  | R81-82   | 2   | Metal film      |              | Metal film resistor 1/4W 1%                                | 5R1   |          |          | \$ -             |
| 68                  | R118-119 R146-147 R161   | 5   | Metal film      |              | Metal film resistor 1/4W 1%                                | 5R1   |          |          | \$ -             |
| 69                  | R45-46 R63-64 R154   | 5   | Metal film      |              | Metal film resistor 1/4W 1%                                | 5k1   |          |          | \$ -             |
| 70                  | R88  | 1   | Metal film      |              | Metal film resistor 1/4W 1%                                | 75R   |          |          | \$ -             |
| 71                  | R145   | 1   | Metal film      |              | Metal film resistor 1/4W 1%                                | 680   |          |          | \$ -             |
| 72                  | R83-84   | 2   | Metal film      |              | Metal film resistor 1/4W 1%                                | 8k2   |          |          | \$ -             |
| 73                  | K1-4   | 4   | Takamisawa      | RY5W-K       | 5V relay 2P2T  | 5Vdc  |          | \$ 1.50  | \$ 6.00          |
| 74                  | U16  | 1   | NPC             | SM5842AP/APT | High Performance Digital Filter                            |       |          | \$ 25.00 |                  |
| 75                  | R8-9 R17-18  | 4   | 20 turns type   | 100k or 50k  | VR (TOP ADJUST TYPE)                                       | 100k  | Optional | \$ 0.40  |                  |
| 76                  | R43-44 R61-62  | 4   | 20 turns type   | 1k           | VR (TOP ADJUST TYPE)                                       | 1k    |          | \$ 0.40  | \$ 1.60          |
| 77                  | R1 R10 R21 R31   | 4   | 20 turns type   | 50R          | VR (TOP ADJUST TYPE)                                       | 50R   |          | \$ 0.40  | \$ 1.60          |
| 78                  | R2 R11 R22 R32   | 4   | 20 turns type   | 5K           | VR (TOP ADJUST TYPE)                                       | 5k    |          | \$ 0.40  | \$ 1.60          |
| 79                  | Jumper 2-pin short female for Jxx and JMPxx  | 12  | China           | Red color    | To short two of the jumper pins 2.54mm                     |       |          | \$ 0.02  | \$ 0.24          |
| 80                  | IC socket 28 pin and 14 pin  | 6   | China           |              | Round type pin strip good for all lcs                      |       |          | \$ 0.50  | \$ 3.00          |
| 81                  | Heatsink kit set   | 13  | China           |              | M3 screw, plastic washer, insulation sheet & spring washer |       |          | \$ 0.15  | \$ 1.95          |
| 82                  | D1 Ver3 PCB  | 1   | DIY Fun         |              | 2mm FR4 gold plated, white mask black text                 |       |          | \$ 32.00 | \$ 32.00         |
| 83                  | Transformer  | 1   | Farnell Part #  | 953-1750     | 9V x 2 30VA 230V input only                                |       |          | \$ 20.00 |                  |
| 84                  | Transformer  | 1   | Farnell Part #  | 953-1793     | 18V x 2 50VA 230V input only                               |       |          | \$ 20.00 |                  |
| 85                  | 8414/5847 converter board  | 1   | DIY Fun         |              | 2 Converter boards set with IC pin & cap                   | \$6   | Optional | \$ 6.00  |                  |
| Sub-Total           |  |     |                 |              |  |       |          |          | \$ 149.29        |
| Shipping & Handling |  |     |                 |              |  |       |          |          | \$ 25.00         |
| Add 4% paypal       |  |     |                 |              |  |       |          |          | \$ 6.97          |
| <b>Total</b>        |  |     |                 |              |  |       |          |          | <b>\$ 181.26</b> |

  Provided but can delete from order  
  Not available  
  Estimated price, will not provide

**Note:** You would need 4 film cap, 4 PCM63P, one SM5842, one receiver IC CS8412, resistors & two transformers to complete the kit.  
 For receiver, DIR9001 converter board in kit form is available for US\$14. Complete and tested unit will charge US\$20.  
 There are also 8414 to 8412 and SM5847 to SM5842 converter board plus accessories available for total US\$6.  
 Note that all components above (Green in column A) has only limited stock and some parts may not be available at the time of order.  
 For resistor package, I shall charge another US\$15 but I do not prefer to provide any resistors in this kit.  
 Shipping is by registered airmail to world wide and there is no insurance for this package.  
 Diyers can order the pcb and selected parts as you may already have some of the parts on hand.  
 Documentation will be provided after order :- Update circuit, BOM, Assembly instruction, PCB silkscreen top, and PCB dimension in pdf format.  
**This is a kit for experienced diyers with some trouble shooting skill and the DAC is quite complicated. Think before you order.**