

2008

160708 Preliminary ONLY

180708 updated note, all 100nF caps are either 0.1" or 0.2" pitch

110808 released for web page

020908 some Farnell part numbers added & pitch of 100nF caps clarified.

check any part numbers BEFORE you buy !

MAIN RELAY / L1 SECTION OF THE PCB

| Part Type | Designator | Footprint | Description |
|----------------------|------------|-----------|--|
| RELAY_DPST | RL1 | | The relay as described in original documents is a DPDT, and needs to be modified as per the original PICATUNE information. |
| RELAY_DPST | RL10 | | |
| RELAY_DPST | RL11 | | |
| RELAY_DPST | RL12 | | |
| RELAY_DPST | RL13 | | For VK's, Rockby have #32528 which does NOT need mods. |
| RELAY_DPST | RL14 | | |
| RELAY_DPST | RL15 | | |
| RELAY_DPST | RL16 | | |
| RELAY_DPST | RL17 | | |
| RELAY_DPST | RL18 | | |
| RELAY_DPST | RL19 | | |
| RELAY_DPST | RL2 | | |
| RELAY_DPST | RL3 | | |
| RELAY_DPST | RL4 | | |
| RELAY_DPST | RL5 | | |
| RELAY_DPST | RL6 | | |
| RELAY_DPST | RL7 | | |
| RELAY_DPST | RL8 | | |
| RELAY_DPST | RL9 | | |
| DUAL ROW HEADER 0.1" | SK1 | | 11 x 2 =22pin 0.1" pitch, dual row type |



vk3pe & cs September 2008

2008

INDUCTOR

L1

2mm enam. Wire refer to original information for winding of L1

RF-DECK section of main PCE

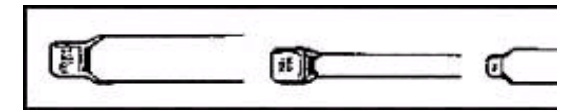
check any part number

For Vk's

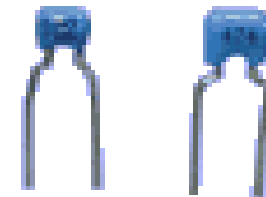
| Part Type | Designator | Footprint | Description | Rockby # |
|------------|------------|------------------|---|----------------------------------|
| 100nF 500v | C12 | axial0.2 | Capacitor, possibly X2 mini, Farnell 975-1386 ? | |
| 10pF 500v | C13 | axial0.4 | Capacitor, Mica, 500v | |
| 2200uF/16V | C14 | RB.2/.4 | polarized cap | 13358 \$ 1.65 or 24481 2200uF/16 |
| 220uF/16V | C15 | RB.2/.4 | polarized cap | |
| 100nF | C16 | axial0.1 or 0.2" | Capacitor, Monolythic type or Disc ceramic | 13289 0.07 |
| 100nF | C17 | axial0.1 or 0.2" | Capacitor, Monolythic type or Disc ceramic | |
| 100nF | C18 | axial0.1 or 0.2" | Capacitor, Monolythic type or Disc ceramic | |
| 100nF | C19 | axial0.1 or 0.2" | Capacitor, Monolythic type or Disc ceramic | |
| 100nF | C20 | axial0.1 or 0.2" | Capacitor, Monolythic type or Disc ceramic | |
| 100nF | C21 | axial0.1 or 0.2" | Capacitor, Monolythic type or Disc ceramic | |
| 100nF | C22 | axial0.1 or 0.2" | Capacitor, Monolythic type or Disc ceramic | |
| 100nF | C23 | axial0.1 or 0.2" | Capacitor, Monolythic type or Disc ceramic | |
| 1N4007 | D20 | axial0.5 | Diode | |
| 1N4007 | D21 | axial0.5 | Diode | |
| 1N4007 | D22 | axial0.5 | Diode | |
| 1N4007 | D23 | axial0.5 | Diode | |
| OA95 | D24 | axial0.5 | Diode | |
| 100R 2W | R2 | axial0.7 | Resistor | |
| 100R 2W | R3 | axial0.7 | Resistor | |
| 100R 2W | R4 | axial0.7 | Resistor | |
| 100R 2W | R5 | axial0.7 | Resistor | |

suitability of this type of cap ca

13289 0.07



type below is best as le
can be formed for 0.1"



vk3pe & cs September 2008

| | | | | |
|---------------------------|------|----------|--|----------------------------|
| 680R 2W | R6 | axial0.7 | Resistor | |
| 470R | R7 | axial0.5 | Resistor | |
| 1K | R8 | axial0.4 | Resistor | |
| hand wound on ferrite rod | RFC1 | | Refer to original documents for details. | |
| RELAY_DPDT | RL20 | | Refer to original documents for details. | 36556 should be OK |
| RELAY_DPDT | RL21 | | Relay DPDT type to suit pcb. | 36556 should be OK |
| 5V1 ZENER | ZD1 | AXIAL0.4 | Zener diode 400mW or 500mW | 15078 \$0.132 min qty = 10 |

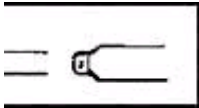


rs BEFORE you buy !

not be confirmed

1 \$ 1.94

| | |
|---------|---------|
| Farnell | |
| | |
| | |
| | |
| 1220669 | \$ 0.75 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |



leads
pitch easily.



Farnell 120-8636 AU\$1.63 (min 5)

| | |
|--|--|
| | |
| | |
| | |
| | |
| | |



| | |
|----------|-----------|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| 984-4600 | 11c min 5 |

LOGIC BOARD

AXIAL.3 etc means axial part with leads bent to pitch of 0.3" etc

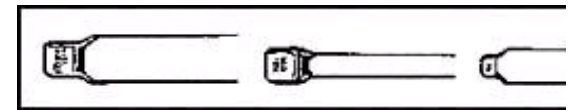
always check part numbers !

| Part Type | Designator | Footprint | Description |
|---------------------|------------|------------------|--|
| 4094 | IC4 | DIP16 | eg CD4094 |
| 4094 | IC5 | DIP16 | eg CD4094 |
| 4094 | IC6 | DIP16 | eg CD4094 |
| 1nF FEEDTHROUGH CAP | C55 | | feedthru cap for Ref input |
| 100nF | C24 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C25 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C26 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C27 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C28 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C29 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C30 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C31 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C32 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C33 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C34 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C35 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C36 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C37 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C38 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C39 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C40 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C41 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C42 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C43 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C44 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C45 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C46 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic |

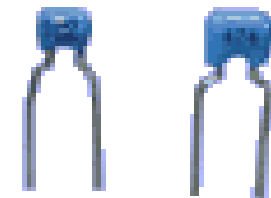
For VK's

Rockby info

| | |
|--------------|--------|
| Rockby 12544 | \$1.32 |
| Rockby 12544 | \$1.32 |
| Rockby 12544 | \$1.32 |



type below is best as leads can be formed for 0.1" pitch easily.



vk3pe & cs September 2008

| | | | | | | | |
|----------|------|------------------|--|-------------------------------|-------|---------------------|---------|
| 100nF | C47 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic | | | | |
| 100nF | C48 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic | | | | |
| 100nF | C49 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic | | | | |
| 100nF | C50 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic | | | | |
| 100nF | C51 | Axial 0.1" pitch | Capacitor, Monolythic type or Disc ceramic | | | | |
| 10k | R26 | axial0.3 | Resistor | | | | 15289 |
| 10k | R10 | axial0.3 | Resistor | | | | |
| 10k | R27 | axial0.3 | Resistor | | | | |
| 10k | R28 | axial0.3 | Resistor | | | | |
| 10k | R29 | axial0.3 | Resistor | | | | |
| 10k | R30 | axial0.3 | Resistor | | | | |
| 10k | R31 | axial0.3 | Resistor | | | | |
| 10k | R32 | axial0.3 | Resistor | | | | |
| 10k | R33 | axial0.3 | Resistor | | | | |
| 10k | R34 | axial0.3 | Resistor | | | | |
| 10k | R35 | axial0.3 | Resistor | | | | |
| 10k | R36 | axial0.3 | Resistor | | | | |
| 10k | R37 | axial0.3 | Resistor | | | | |
| 10k | R38 | axial0.3 | Resistor | | | | |
| 10k | R39 | axial0.3 | Resistor | | | | |
| 10k | R40 | axial0.3 | Resistor | | | | |
| 10k | R41 | axial0.3 | Resistor | | | | |
| 10k | R42 | axial0.3 | Resistor | | | | |
| 10k | R43 | axial0.3 | Resistor | | | | |
| 10k | R44 | axial0.3 | Resistor | | | | |
| 10k | R9 | axial0.3 | Resistor | | | | |
| 10uF/16V | C100 | RB.1/.2 | polarized cap | | 24468 | 10uF radial 105 deg | \$ 0.24 |
| 150R | R11 | axial0.3 | Resistor | | | | |
| 150R | R12 | axial0.3 | Resistor | | | | |
| 15pF | C53 | AXIAL0.1 | Capacitor | was shown as 22pF (incorrect) | | | |
| 15pF | C54 | AXIAL0.1 | Capacitor | was shown as 22pF (incorrect) | | | |
| 15uH | RFC3 | AXIAL0.5 | Inductor | RF choke | 24432 | | |
| 15uH | RFC4 | AXIAL0.5 | Inductor | RF choke | 24432 | | |
| 1K | R21 | axial0.3 | Resistor | | | | |
| 1K | R22 | axial0.3 | Resistor | | | | |
| 1K | R45 | axial0.3 | Resistor | | | | |

vk3pe & cs September 2008

| | | | |
|----------|------|----------|--|
| 1N4148 | D25 | AXIAL0.4 | Diode |
| 1N4148 | D26 | AXIAL0.4 | Diode |
| 1N4148 | D27 | AXIAL0.4 | Diode |
| 1N4148 | D28 | AXIAL0.4 | Diode |
| 1N4148 | D29 | AXIAL0.4 | Diode |
| 22uF/16V | C52 | RB.1/.2 | polarized cap (can also fit axial part as per original) |
| 24LC32 | IC3 | DIP8 | not sure but the 24LC256 might be ok ?? This is NOT confirmed ! |
| 2k2 | R24 | axial0.3 | Resistor |
| 33R | R19 | axial0.3 | Resistor |
| 33R | R20 | axial0.3 | Resistor |
| 470R | R23 | axial0.3 | Resistor |
| 470R | R25 | axial0.3 | Resistor |
| 4K7 | R15 | axial0.3 | Resistor |
| 4K7 | R16 | axial0.3 | Resistor |
| 4K7 | R17 | axial0.3 | Resistor |
| 4K7 | R18 | axial0.3 | Resistor |
| 4MHz | X1 | XTAL1 | Crystal 4MHz |
| 56K | R14 | axial0.3 | Resistor |
| 78L05 | U9 | TO-92 | 5V regulator |
| 8K2 | R13 | axial0.3 | Resistor |
| BC517 | TR1 | TO-92 | NPN darlington |
| BC517 | TR10 | TO-92 | NPN darlington |
| BC517 | TR11 | TO-92 | NPN darlington |
| BC517 | TR12 | TO-92 | NPN darlington |
| BC517 | TR13 | TO-92 | NPN darlington |
| BC517 | TR14 | TO-92 | NPN darlington |
| BC517 | TR15 | TO-92 | NPN darlington |
| BC517 | TR16 | TO-92 | NPN darlington |
| BC517 | TR17 | TO-92 | NPN darlington |
| BC517 | TR18 | TO-92 | NPN darlington |
| BC517 | TR19 | TO-92 | NPN darlington |
| BC517 | TR2 | TO-92 | NPN darlington |
| BC517 | TR20 | TO-92 | NPN darlington |
| BC517 | TR21 | TO-92 | NPN darlington |
| BC517 | TR3 | TO-92 | NPN darlington |
| BC517 | TR4 | TO-92 | NPN darlington |

vk3pe & cs September 2008

| | | | | |
|---------------------------------|-----|-------|--|---|
| BC517 | TR5 | TO-92 | NPN darlington | |
| BC517 | TR6 | TO-92 | NPN darlington | |
| BC517 | TR7 | TO-92 | NPN darlington | |
| BC517 | TR8 | TO-92 | NPN darlington | |
| BC517 | TR9 | TO-92 | NPN darlington | |
| LED | D30 | LED | LED, colour as required | |
| PIC16F84 | IC2 | DIP18 | PIC programmed with Picatune software | NB PIC16F627 can be used with correct software also |
| HEADER SINGLE ROW, 0.1" PITCH X | | | refer to original documents for picatune solders on the edge of the PCB More info to follow ! (see my web pages) | |

Farnell

| | |
|---------|---------|
| 1106118 | \$ 0.76 |
| 1106118 | \$ 0.76 |
| 1106118 | \$ 0.76 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

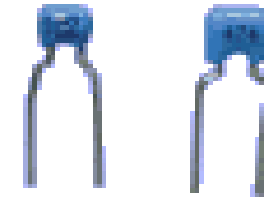


COMMAND BOARD (UNPROVEN!)

| Part Type | Designator | Footprint | Description |
|------------|------------|------------------|--|
| 100K | R47 | AXIAL0.5 | Resistor |
| 100nF | C57 | AXIAL0.1 or 0.2" | Capacitor, Monolythic type or Disc ceramic |
| 100nF | C58 | AXIAL0.1 or 0.2" | Capacitor, Monolythic type or Disc ceramic |
| 100nF/500V | C56 | AXIAL0.5 | Capacitor, possibly type X2 mini, Farnell 975-1386 ? |
| 1N4007 | D31 | AXIAL0.7 | Diode |
| 2K2 | R48 | AXIAL0.4 | Resistor |
| 470R | R46 | AXIAL0.5 | Resistor |
| BC516 | TR22 | TO-92 | PNP darlington |
| IND1 | RFC2 | ferrite rod | Inductor, see original documents |
| LED RED | D32 | LED_1 | LED, COLOUR AS REQUIRED |

Farnell #101-7670

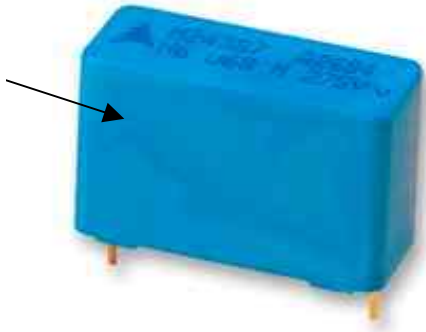
note is PNP type



check any part numbers BEFORE

suitability of this type of cap cannot be confirmed

you buy!



Miscellaneous Parts (This list may not be complete !)

| DESCRIPTION | QTY |
|--|-----------------------------|
| M3 x 12 nylon screws | 25 approx |
| M3 nylon nuts | 25 approx |
| Tesco large freezer bags | 1 bag |
| DC4 grease | 1 tube |
| Brass shim | 10" x 4" x 5 thou, 3 sheets |
| 2mm enamel wire for L1 | see text |
| Ferrite rods | see text |
| 24swg enamel wire | see text |
| Fair-rite 61001101 ring cores for T1, T2 | 2 |
| Choke balun Refer to article for details and use | see text |
| Optional SO-239 output socket with PTFE insulation | see text |
| 47R 100W non inductive | R1 |
| SPCO break before make 1.5A non latching click action push button switch | S1 |
| 30A terminal posts | TP1, TP2 |
| RG58 coax | 0.5m approx |
| Mini coax | 0.5m approx |
| Mini audio screened lead | 0.5m approx |
| Screened box and connector for Command unit | see text |
| Heatsinkfor R1, 0.7degC/W | 1 |
| 8 pin DIP turned pin socket | 1 |
| 16 pin turned pin socket | 3 |
| 18 pine turned pin socket | 1 |
| Some DS pcb material for screening, preferably not fibreglass | as required |
| Polystyrene sheet for casing and capacitor clamps, 4mm thick | see text |
| Polystyrene cement | 1 tube |
| Heat transfer compound for R1 | as required |
| Silicon bath sealant, silica gel etc for sealed casing | as required |

vk3pe & cs September 2008

check any part numbers BEFORE you buy !

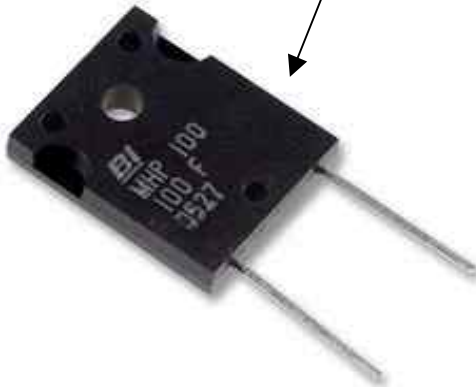
eg Farnell 707-0603. For VK's Altronics, Jaycar etc

eg Farnell 537019
(3 shts. approx. 250mm x 100mm)

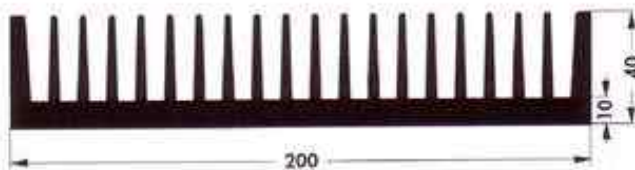


see text Possibly 2 x Farnell 1141523 ??

or the "large" TO220 style
in 50R/100w part #1114422



In VK3, George White and Co (Clayton) have 0.12mm thick brass shim
a piece 300 x 300mm is about \$7.70



this meets the 0.7degC/W

heatsink eg Farnell 4621890

length 100mm

