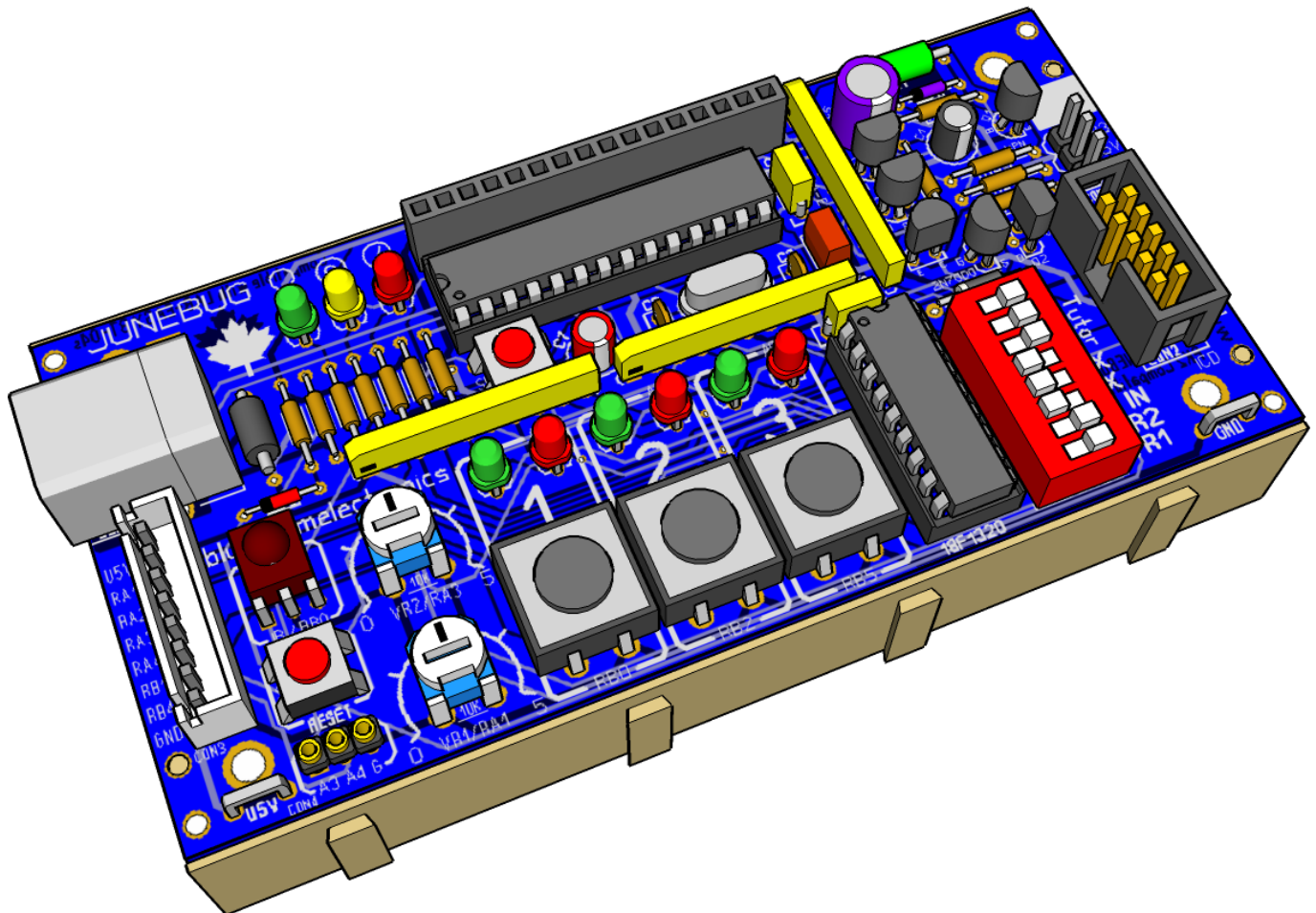


# JUNEBUG PK2SE & 18F1320 Tutor



*The Junebug PIC Lab shown with optional LAB-EASY BT-04 modular base*

## Assembly Instructions

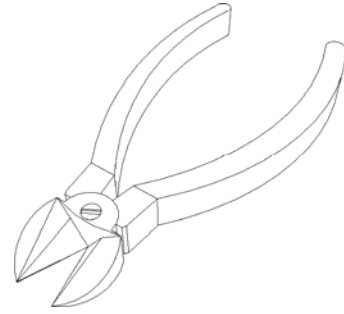
### Introduction

Junebug is the first blueromelectronics kit to be part of the LAB-EASY® prototyping system.

## **Necessary Tools** *(not included in kit)*

As with any electronic kit the following tools are essential:

- Low wattage fine tip soldering iron <50W
- Resin core solder
- Wire cutters or side cutters (small)
- Needle nose pliers (small)
- Slotted screwdriver (small)
- Phillips screwdriver (small)
- Multimeter (this really is a must for any electronics project)

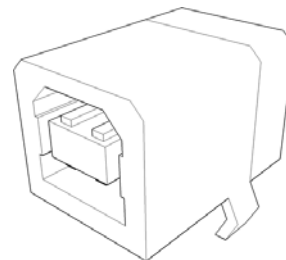


## **Assembly**

## Parts List JUNEBUG

### Capacitors

1	C1	22uF 16V	(must be at least 16V rated)
2	C2, 3	22pF	ceramic (18pF thru 22pF acceptable)
2	C4, 8	0.1uF	
1	C5	100uF	(47uF or greater acceptable)
1	C6	0.47uF	(0.22uF thru 0.47uF acceptable)
1	C7	10uF	(4.7uF thru 47uF acceptable)

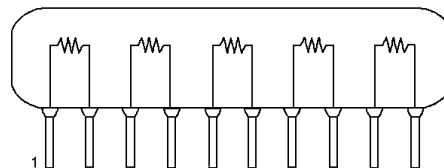


### Resistors ¼W

1	R1	10K x 5	SIP 10pin 5 independent resistors
1	R2	100 x 5	SIP 10pin 5 independent resistors
1	R3	4.7K x 5	SIP 10pin 5 independent resistors
1	R4, 5, 10	1K	Brown, Black, Red, Gold
1	R6	2.7K	Red, Yellow, Red, Gold
4	R8, 13, 14, 16	330	Orange, Orange, Brown, Gold
3	R9, 11, 12	100	Brown, Black, Brown, Gold
2	R15, 16	22K	Red, Red, Orange, Gold
2	VR1, VR2	10K	10K Trimmer potentiometers

### Semiconductors

2	D1, 3	1N4148	Small Signal Diode
1	D2	1N5817	Schottky Diode
6	LED1, 2, 3, 4, 5, 6	3mm or 5mm	RED or GREEN LED
1	LED7	3mm	GREEN LED
1	LED8	3mm	YELLOW LED
1	LED9	3mm	RED LED
1	IR1	TSOP34838	38KHz IR detector
1	Q1, 3, 6	2N3904	NPN (EBC)
1	Q4	2N3906	PNP (EBC)
1	Q5	2N7000	N-Channel 200ma MOSFET
1	Q2	BS250P	P-Channel 230ma MOSFET
1	U1	PIC18F2550	(firmware)
1	U2	PIC18F1320	(Tutor)



### Switches

2	SW3, 4	Small pushbutton	(450-1173-ND)
3	SW1, 2, 3	Pushbutton	(Small or Large 450-1131-ND see text)
1	SW6	DIP Switch	8 position

### Connectors

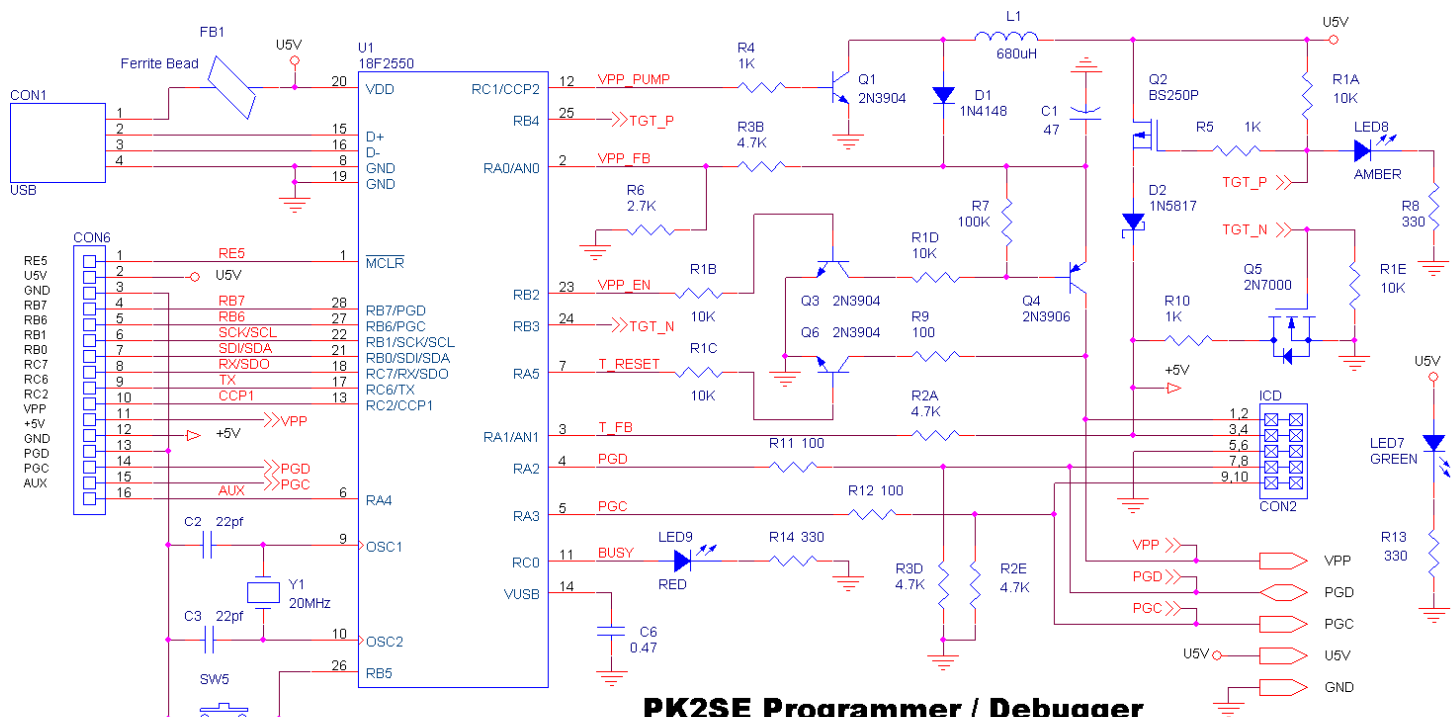
1	CON1	RA	USB B connector
1	CON2	ICD2	ICD 2x5 PCB Male
1	CON4	RA3, RA4, GND	3pin machine socket
1	CON7	RB3, +5V, GND	3pin header
1	CON8	+5V, RA1, RA2, RA3, RA4, RB1/TX, RB4/RX, GND	8pin Molex connector
1	CON6	16pin header for 18F2550 (pins 11 thru 16 are PICkit2 compatible)	
		(RE5, U5V, GND, RB7, RB6, RB1, RB0, RC7, RC6, RC2, VPP, +5V, GND, PGD, PGC, AUX)	

### Miscellaneous

1	FB1	Ferrite Bead
1	L1	680uH inductor

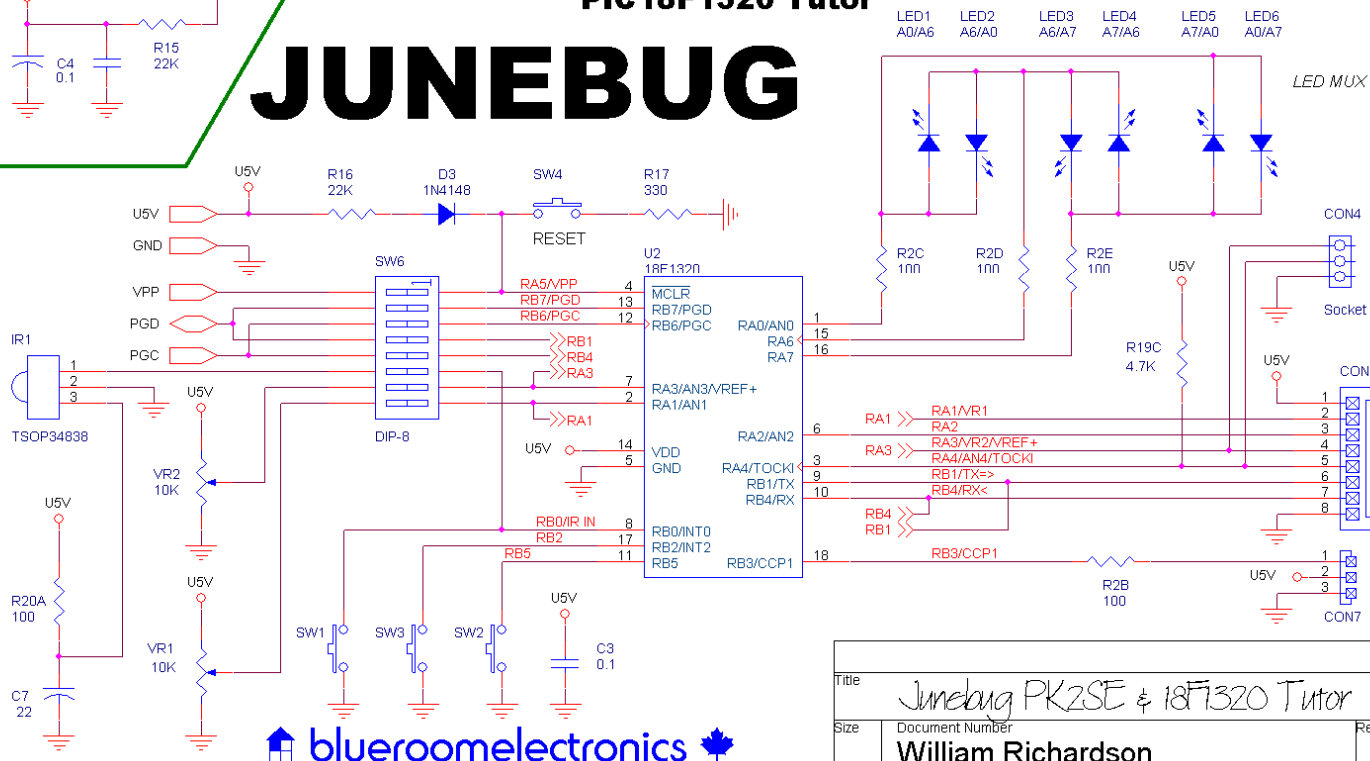
### Optional Accessories

1	Enclosure	Polyview LAB-EASY BT-04
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## PIC18F1320 Tutor

# JUNEBUG



Title <i>Junebug PK2SE &amp; 18F1320 Tutor</i>			
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Complete schematic for Junebug showing both Programmer (top) & Tutor (bottom)



## DIP Switch functions (SW6)

In the upper left corner of the Firefly there is a eight position DIP switch (shown in Tutor default mode)

Functions from 1-6 (left to right) *enable = on / up & disable = off / down*

SW6-1	Tutor	(PK2 controls 18F1320 MCLR), free running mode & <i>SW1 RESET</i>
SW6-2	Tutor	(PK2 controls 18F1320 PGD), & <i>SW1 RESET</i>
SW6-3	Tutor	(PK2 controls 18F1320 PGC), & <i>SW1 RESET</i>
SW6-4	TX	Uses PGD for PICKit 2 UART test mode (PICKit 2 software)
SW6-5	RX	Uses PGC for PICKit 2 UART test mode (PICKit 2 software)
SW6-6	IR IN	(38KHz IR) receiver on RB0 = up, Pushbutton 1 is always enabled
SW6-7	VR2	(0-5V pot) = up, USER port RA3 I/O = down
SW6-8	VR1	(0-5V pot) = left, USER port RA1 I/O = right

Reset switch SW4 will function when SW6-1 is off. Normally when you're working with Junebug you control reset via MPLAB.

***Junebug and other***  **blueromelectronics**  ***projects are available at***

## Retail Sales



255 College St. Toronto

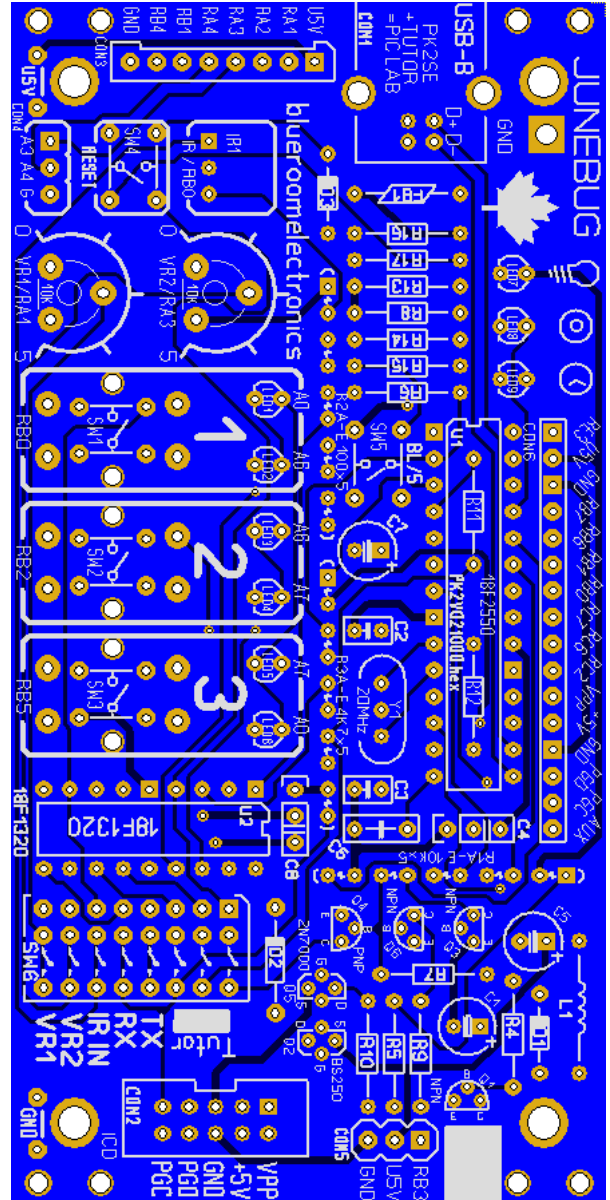
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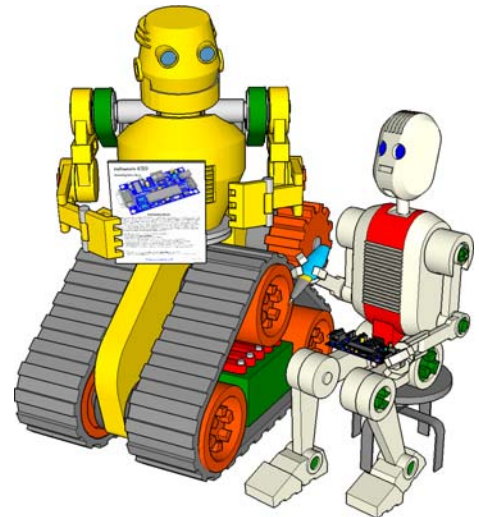
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Smart Kits build Smart People

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