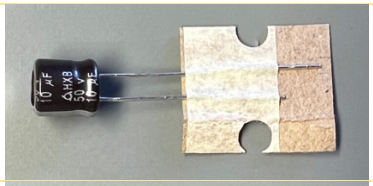
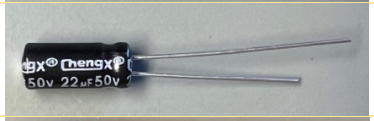
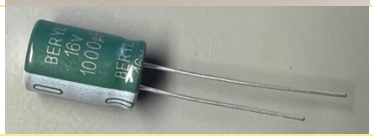
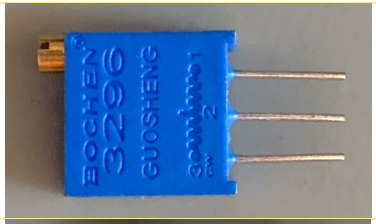
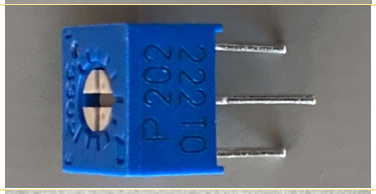
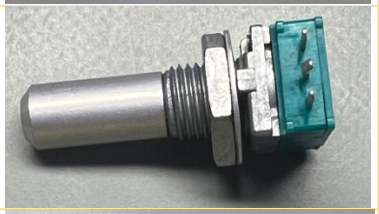
RFBitBanger – Batch 2 January 2024

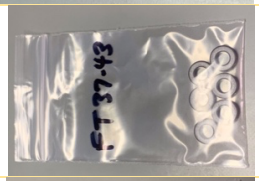
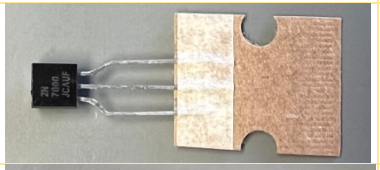
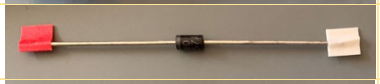
Kit Inventory[1]

	Description	Qty	Ref Des	Value	LCSC Part Number[2]	Notes
(Pictures not to scale)	**Electrolytic Capacitors**					
		2	C50 C52	10uF	C2835646	Observe polarity. Put the long lead in the hole marked +, and align the light-colored stripe to the filled-in semicircle. These capacitors are NOT all oriented in the same direction on the RFBitBanger main board.
		1	C49	22uF	C43346	
		2	C6 C40	100uF	C47891	
		1	C19	220uF	C12450	
		2	C3 C53	1000uF	C2987887	

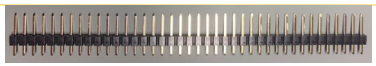
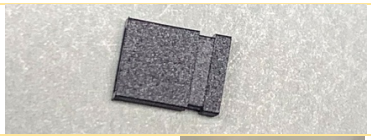
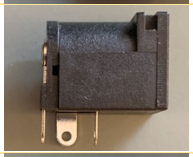
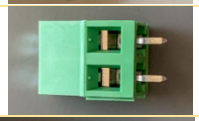
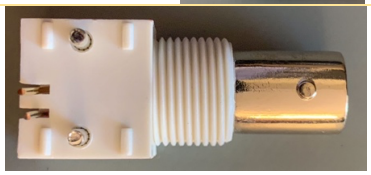
[1] This inventory does not include the parts already soldered onto the main board at the factory. A complete parts list is available in the repository at https://github.com/profdc9/RFBitBanger

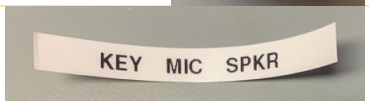
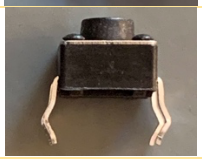
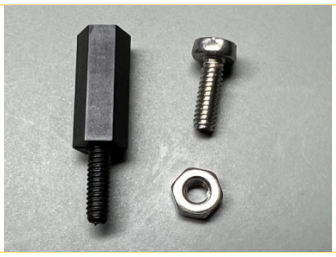
[2] For devices we obtained from LCSC (https://www.lcsc.com) we supply the LCSC part number so you can look up the exact data sheet on the device. Some devices were obtained elsewhere for convenience.

	Resistors					
	trim pot (pins in a line)	1	RV4	2k	C118206	
	trim pot (pins in a triangle)	1	RV3	10k	C58159	This pot doesn't quite match the layout on the circuit board. You'll need to bend the center pin out horizontally to reach the hole.
	mini pot with shaft	2	RV1 RV2	10k	C470577	Each pot includes a washer and a nut. These may be useful if the RFBitBanger is to be installed in a case.
	2W film resistor	1	R41	150	C1364849	

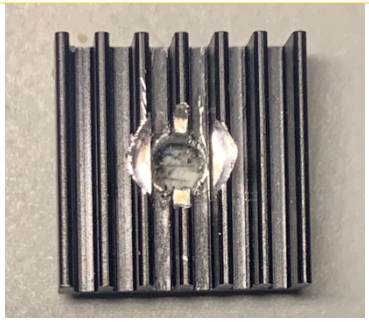
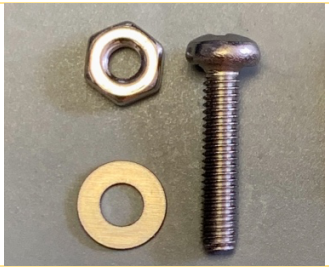
	Inductors					
	axial lead inductor	1	L10	100uH	C2971911	
	ferrite toroid core	6	L4 L6 T1 T2 T3 T4	FT37-43		
	ferrite toroid core	18	Filter-L2 Filter-L3	T50-6		
	magnet wire	20’		26AWG		
	Semiconductors					
	TO-92 MOSFET	4	Q3 Q6 Q7 Q9	2N7000	C900717	2N7000
	TO-92 bipolar transistor	1	Q8	SS8550	C8541	SS8550 Bend the leads out to fit the holes.
	zener diode	1	D6	51V	C284080	1N4757A
	zener diode	1	D1	16V	C261301	1N4745ATA

Connectors, Etc.

	pin headers	2	DS1 J3-J7 J13-J18 J20-J23 JP1-JP10		C429959	Cut to length between pins. You may also populate J9 for ICSP. The single-pin connection points are all optional.
	header sockets	3	Display module, Filter-J1 Filter-J2		C47940	When cutting these to length, you must cut on a pin, not between pins, sacrificing that pin.
	shunts for header pins	10			C100114	Check the manual for which jumpers should have shunts installed. You should have some extra shunts.
	PS/2 keyboard connector	1	P1		C77848	
	DC power receptacle	1	J2		C319132	You can install either or both of the two supplied DC power connectors.
	DC power screw terminals	1	J1		C2915639	
	BNC antenna connector	1	J12		C2837587	Be sure to solder the two small pins to the board. The two sturdy posts are not connected to anything, they are just mechanical. Put a nice round blob of solder on each of the posts for strength.

	3.5mm TRS jack	3	J8 J11 J19		C145814	
	labels for TRS jacks	1				Optional. Cut the labels, peel and stick to the tops of the TRS jacks to help you see which jack is which.
	Switches & Relays					
	DIP power relay	1	RLY1		C42803	
	pushbutton switch	6	SW1 SW2 SW3 SW4 SW5 SW6		C255811	
	Display and Mounting Hardware					
	LCD display module	1	DS1	LCD1602 with HD44780		Mount the display on the standoff hardware before soldering either 16-pin header. If you solder first, you might have trouble getting the standoffs to line up with the holes.
	standoff	4		M2x10		
	machine screw	4		M2x6		
	nut	4		M2		The nuts are in a separate little bag with the heatsink mounting hardware.

Heatsink and Mounting Hardware

	heatsink					Theoretically you might not need a heatsink at all, if the final amplifier is tweaked properly for Class E operation. Safer to use one. We picked a standard (very inexpensive) heatsink and modified it to fit. IMPORTANT: inspect the heatsink carefully for any loose bits of metal. Peel off the blue film to expose the adhesive on the bottom, insert screw from top, align assembly on the screw hole between Q3, Q6, Q7, and the empty spot for Q5, and press down on the rounded backs of the transistors. Washer and nut from below the PCB, tighten gently.
	machine screw	1		M2.5x12		Screw head fits in recess machined in the top of the heatsink. Washer and nut go on the bottom of the board, clamping Q3, Q6, and Q7 to the circuit board.
	flat washer	1		M2.5		
	nut	1		M2.5		

Bag of SMT Capacitors for Band Filters

These are NP0/C0G 5% multilayer ceramic capacitors in 1206 surface mount packages. See instructions for tips on soldering these parts. The filter boards are designed to accommodate both SMT and through-hole capacitors, but be sure you have equivalent NP0/C0G capacitors before substituting.

These values are chosen to enable you to build one filter for each of the nine HF bands. See Winding the Toroids for values. If you build all the filters, you will have very few extra capacitors. If you expect to experiment with different capacitor values to tweak the RFBitBanger for maximum performance, you may want to build the filter for your favorite band first, in case you need to use some of the other supplied capacitors instead of or in addition to the ones we recommended. In that case you'll very likely need to obtain some additional capacitors before you can build all nine filters.

		4		33	C85570	Values in pF
		4		47	C107176	
		4		68	C326652	
		4		100	C107173	
		8		150	C326703	
		4		220	C107175	
		4		270	C113874	
		8		330	C282792	
		4		390	C326659	
		4		470	C107177	
		4		560	C527290	
		4		680	C106004	
		4		820	C527310	
		4		1000	C113872	
		4		1500	C326591	
		4		2200	C396811	