RF Power Meter AD8307

I originally set up this board to work with the circuitry in QEX article May /June 2013 by Loftur Jónasson TF33LJ/VE2LJX, “Squeeze Every Last Drop Out of the AD8307 Log Amp” pp. 29 -34.

I wanted a board that could be mounted in a remote enclosure or could be put in a self contained box with the rest of the QEX article parts. I also thought it would be convenient to be able to use the Amp with PSHNA or other circuitry.

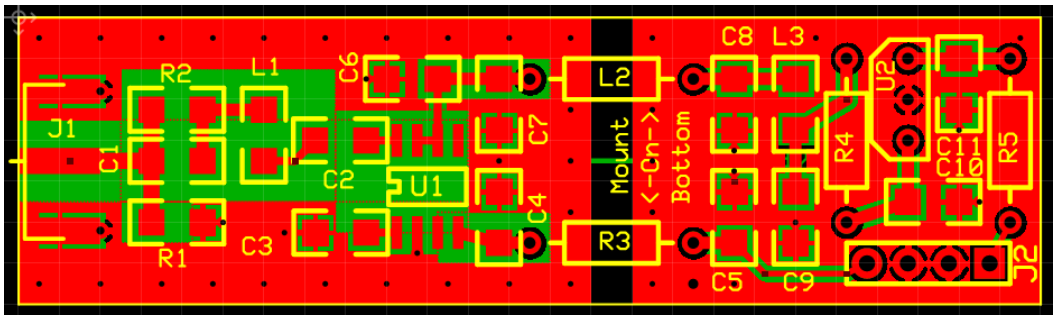
The primary differences from the PSHNA circuit are the PCB size, a slightly different output circuit, an End Launch SMA RF Connector that can support the whole PCB assembly, and the lack of the post amp amplifier to raise the output to 5V.

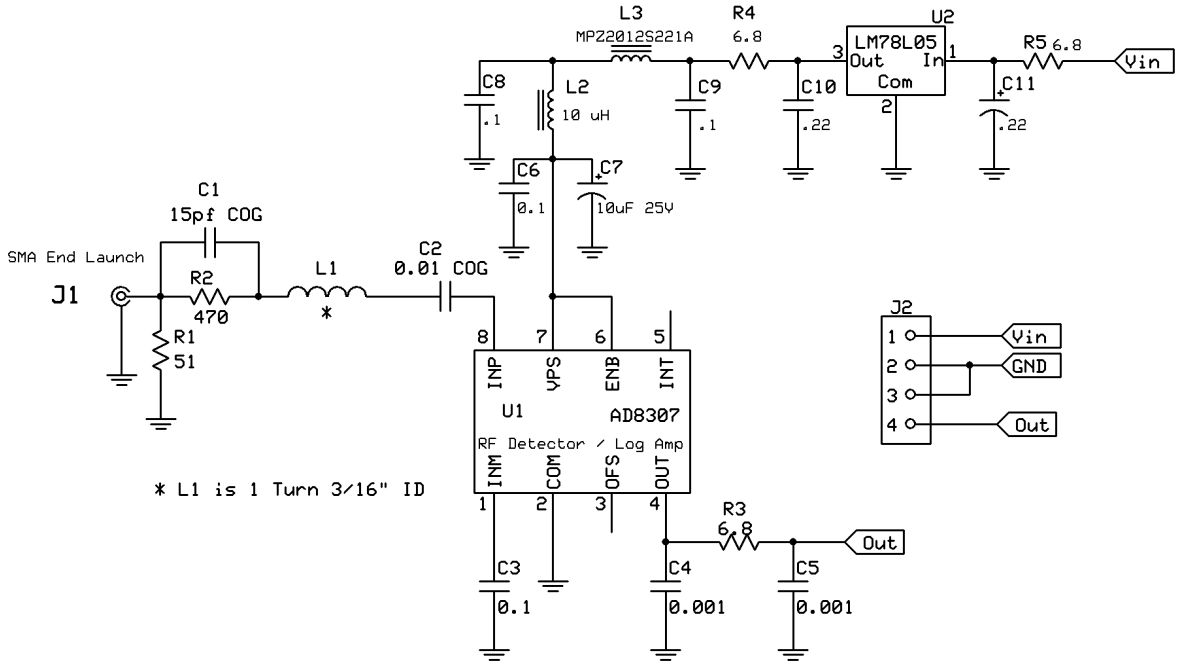
The Schematic and BOM appear on the following pages.

Gerbers are available on my Website: http://www.k9ivb.net/RF_Power_Meter

Or from OSH Park where you can also order PCB’s
https://oshpark.com/shared_projects/qHCjVjbK

K9IVB 10/15/2014





Stand Alone Circuit		
RF Power Meter AD8307		
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Power Meter AD8307 BOM

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REF Des	Value	Description	Mfg	Mfg #	Pkg	Mouser	Qty
The following are surface mount components							
C1	15pF 50volts C0G 5%	Multilayer Ceramic Capacitors MLCC - SMD/SMT 1206 15pF 50volts C0G 5%	Vishay	VJ1206A150JXACBC	1206	77-VJ1206A150JXACBC	1
C2	.01UF 50V 5% C0G	Multilayer Ceramic Capacitors MLCC - SMD/SMT .01UF 50V 5% C0G	Vishay	VJ1206A103JXAAT [COG/NPO]	1206	77-VJ1206A103JXAAT	1
C3, 6, 8, 9	50volts 0.1uF X7R 10%	Multilayer Ceramic Capacitors MLCC - SMD/SMT 50volts 0.1uF X7R 10%	Kemet	C1206C104K5RACTU	1206	80-C1206C104K5R	4
C4, 5	0.001uF	Multilayer Ceramic Capacitors MLCC - SMD/SMT 50volts 1000pF C0G 5% [0.001uF]	Kemet	C0805C102J5GACTU	[0805]	80-C0805C102J5G	2
C7	10uF 16volts 10% A case	Tantalum Capacitors - Solid SMD 10uF 16volts 10% A case Molded	Vishay	593D106X9016A2TE3	1206	74-593D106X9016A2TE3	1
C10, 11	.22uF	Multilayer Ceramic Capacitors MLCC - SMD/SMT 50volts 0.22uF X7R 10%]	Kemet	C0805C224K5RACTU	[0805]	80-C0805C224K5R	2
R1	1/4watt 51ohms 5%	Thick Film Resistors - SMD 1/4watt 51ohms 5%	Vishay	CRCW120651R0JNEA	1206	71-CRCW120651R0JNEA	1
R2	1/4watt 470ohms 5%	Thick Film Resistors - SMD 1/4watt 470ohms 5%	Vishay	CRCW1206470RJNEA	1206	71-CRCW1206J-470-E3	1
L3	MPZ2012S221A	FERRITE CHIP 220 OHM 3A	TDK	MPZ2012S221A	[0805]	810-MPZ2012S221A	1
U1	AD8307	AD8307 log amp RF power detector SOIC8	Analog Devices	AD8307	SOIC-8	584-AD8307AR	1

The following are conventional leaded, through-hole components

J1	SMA end launch	RF Connectors / Coaxial Connectors PC END BLKHD JCK GLD .062" BOARDS	Johnson / Emmerson	42-0701-871 [With Hardware]	End Launch SMA	530-142-0701-871	1
J2		4 pin, 0.1" spaced male header, cut from breakaway strip				571-41033210	1
	Note: If you use the optional enclosure it is suggested that J2 be eliminated and solder wires to PCB						
L1		1 turn 3/16" inside diameter using discarded resistor lead				n/a	1
L2	10uH 5%	Fixed Inductors 10uH 5%	J W Miller			542-78F100-RC	1
R3, 4, 5	6.8 ohm 5% 1/4 W	Carbon Film Resistors - Through Hole 6.8ohms 0.05	Xicon	291-6.8-RC		291-6.8-RC	3
U2	78L05	Linear Voltage Regulators 0.1A Pos Volt Reg	Fairchild	LM78L05ACZ	TO-92	512-LM78L05ACZ	1
PCB		RF Power Meter	OSH Park	https://oshpark.com/shared_projects/qHCjVjbK			
Optional		Enclosures, Boxes, & Cases 3.5 x 1.38 x 1.02 UNPAINTED	Hammond	1550A		546-1550A	