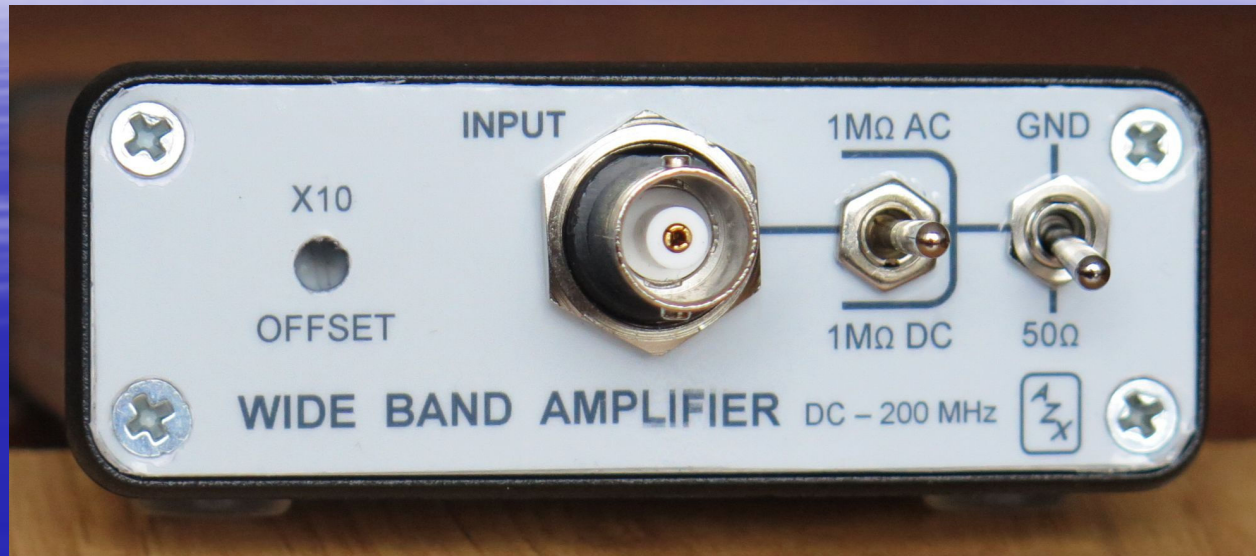


Wideband Amplifier Project

J. Audet VE2AZX
ve2azx.net



INPUT provides:

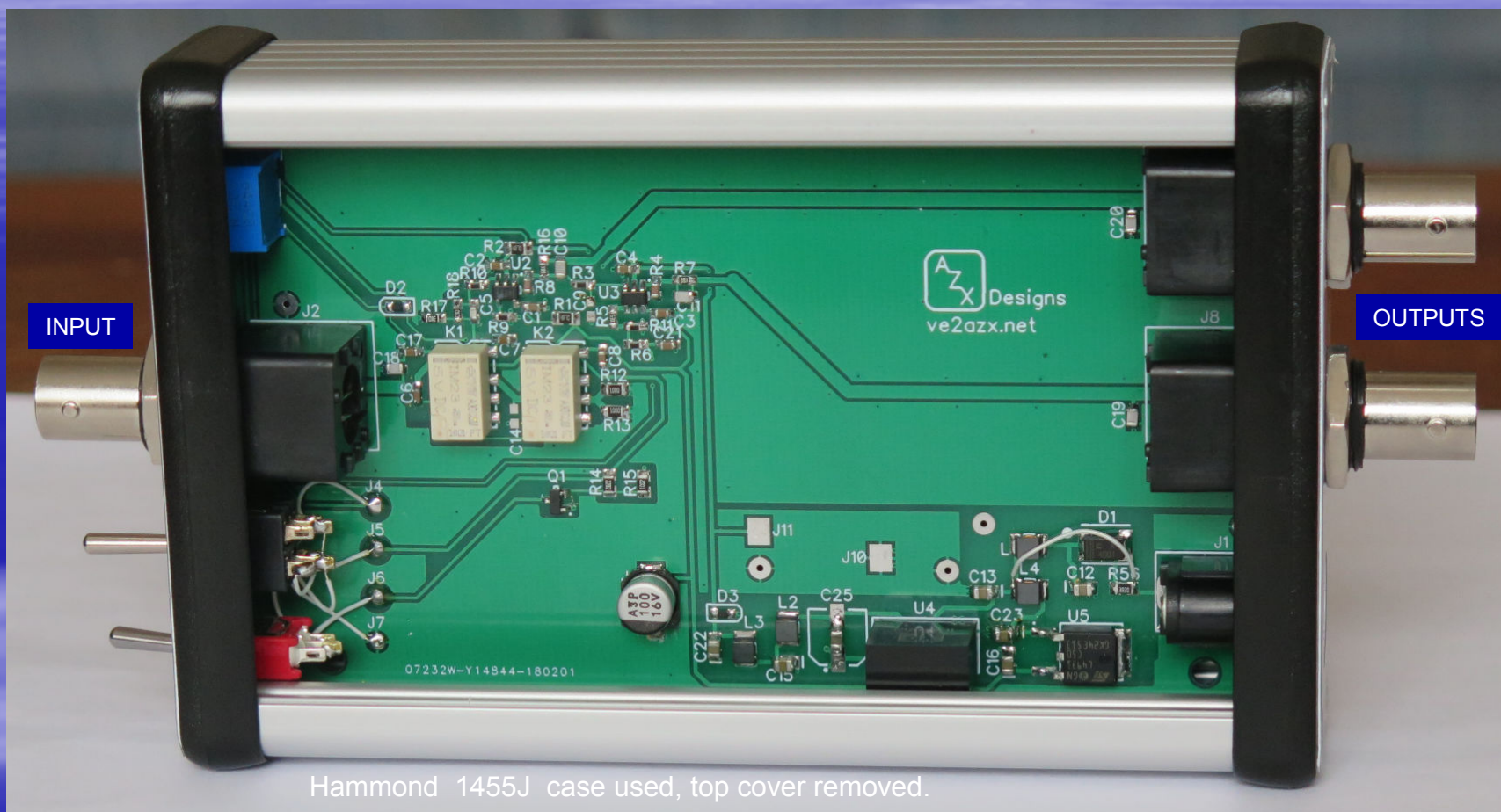
- 1 MΩ AC/DC (14 pF)
- Allows using scope X10 probe
- 50 Ω / GND (input open)
- DC Offset adjustment on X10 output

- 150 mA max @ 12V
- Separate 50 Ω outputs for X1 and X10



View of assembled PCB

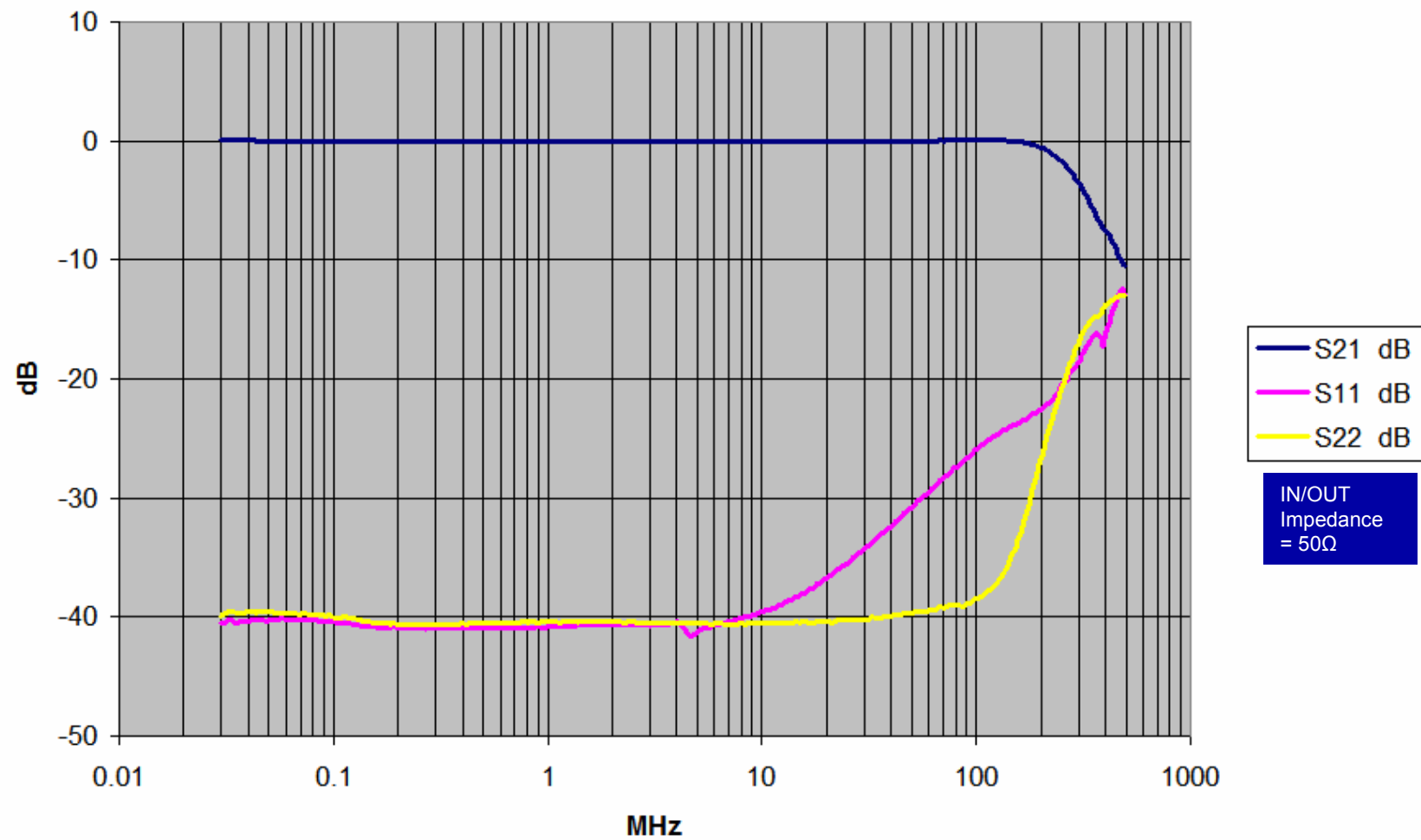
Note the two 50 Ω striplines at the outputs



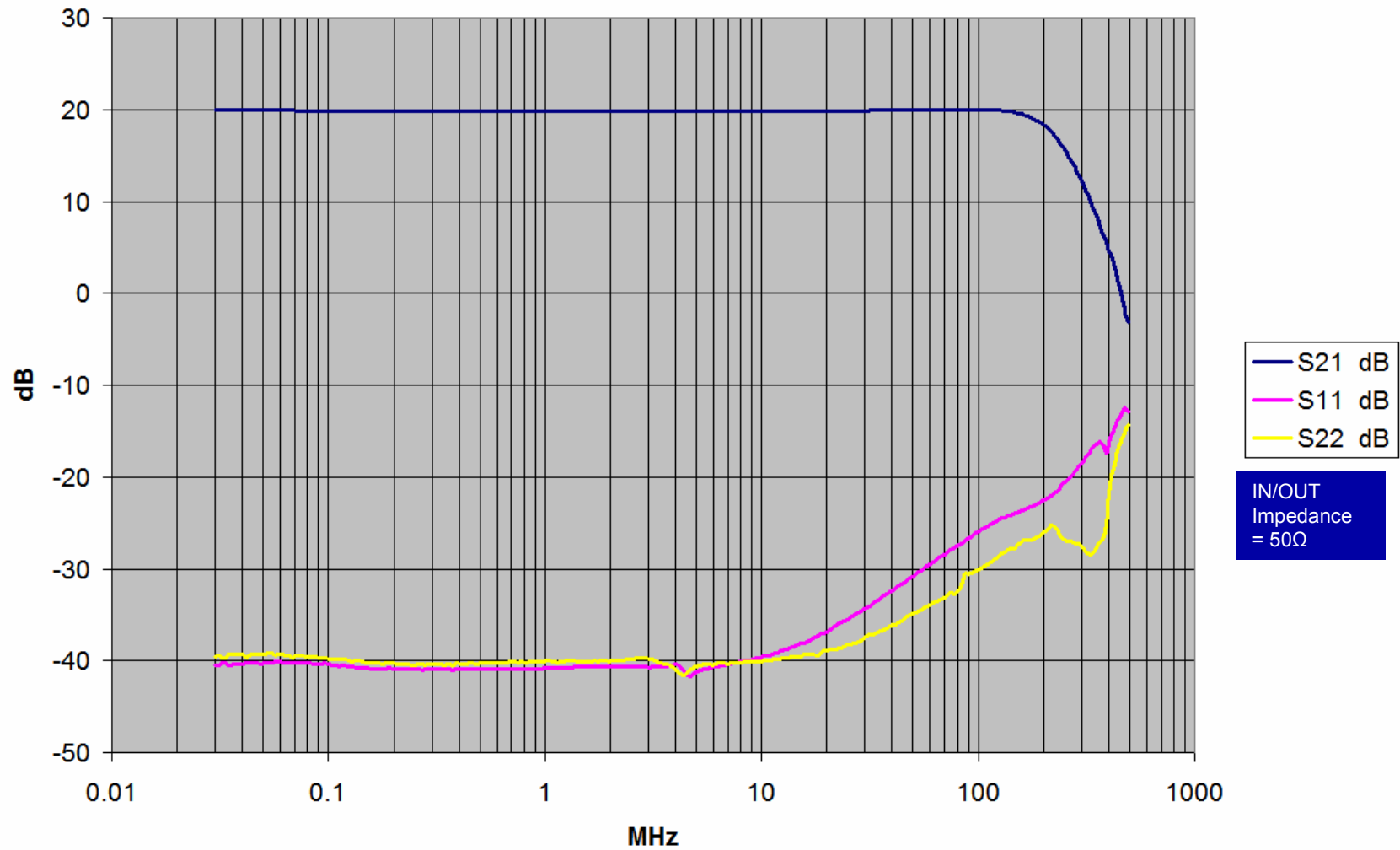
Hammond 1455J case used, top cover removed.

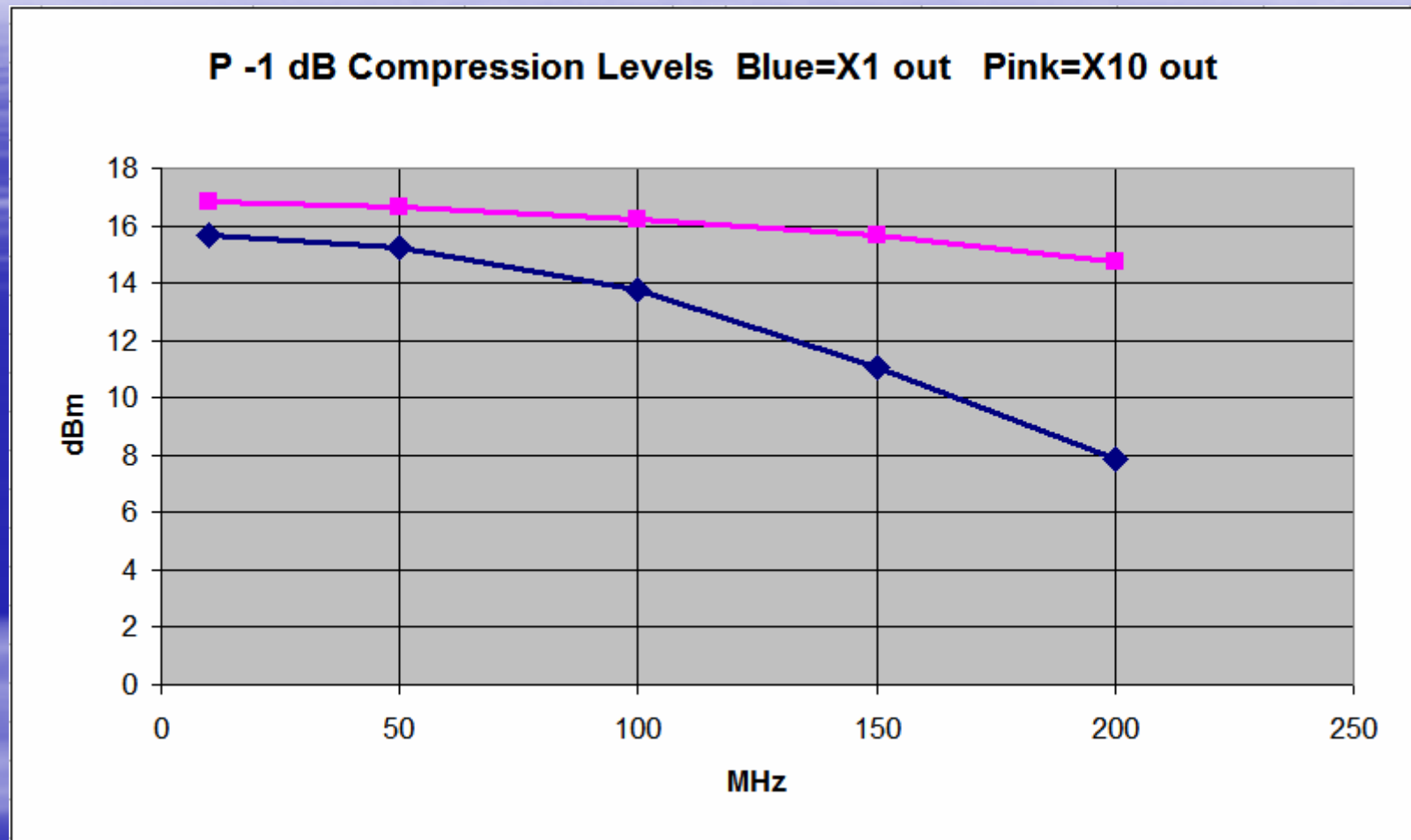
NOTE: I have a few PCBs available for sale, along with decals. \$12 US. Contact me.

Response @X1 Gain



Response @X10 Gain





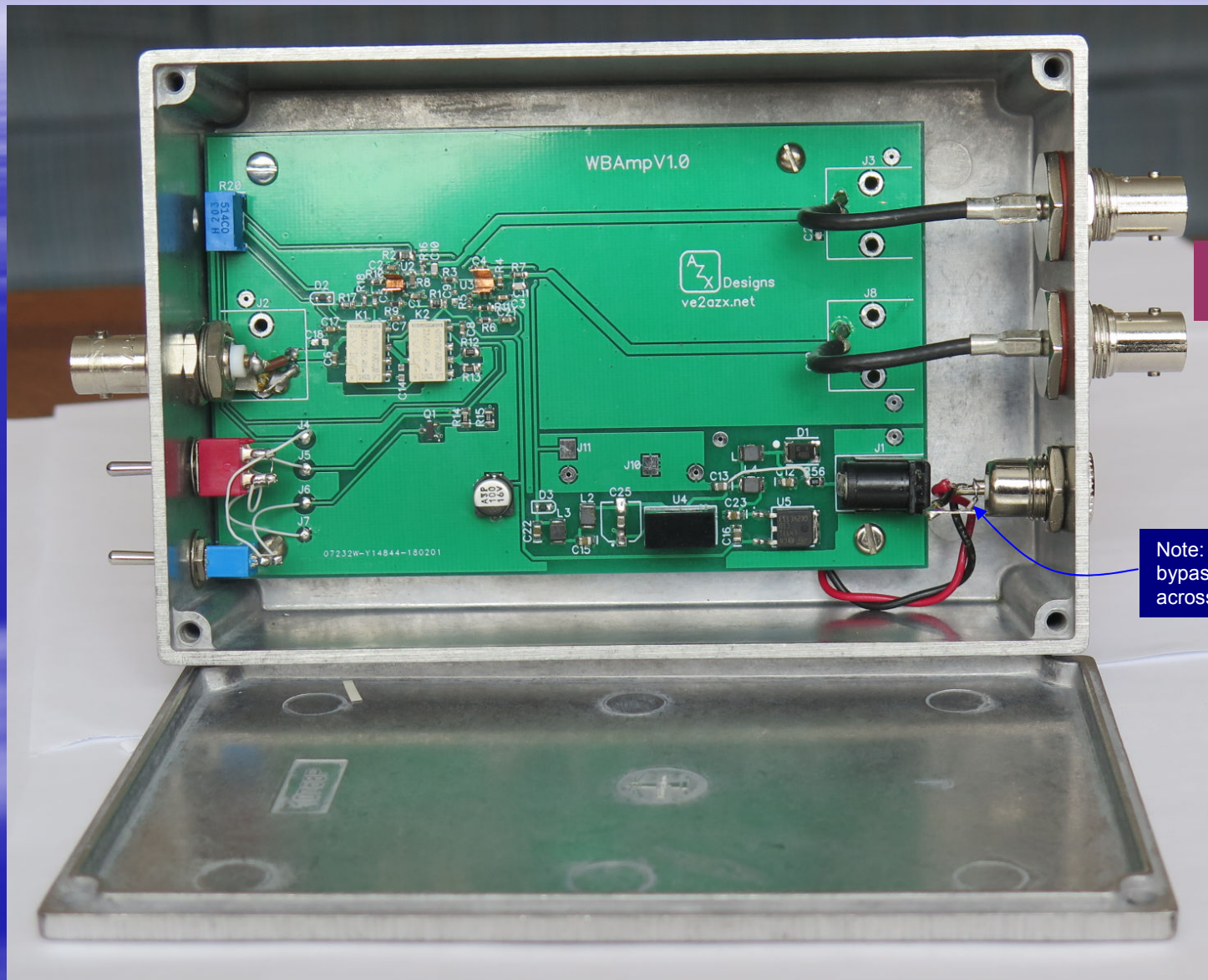
1 dB compression as measured with VNA

Output levels measured with HP468A power meter /HP8481A sensor

Using a fully shielded enclosure to improve immunity to RFI

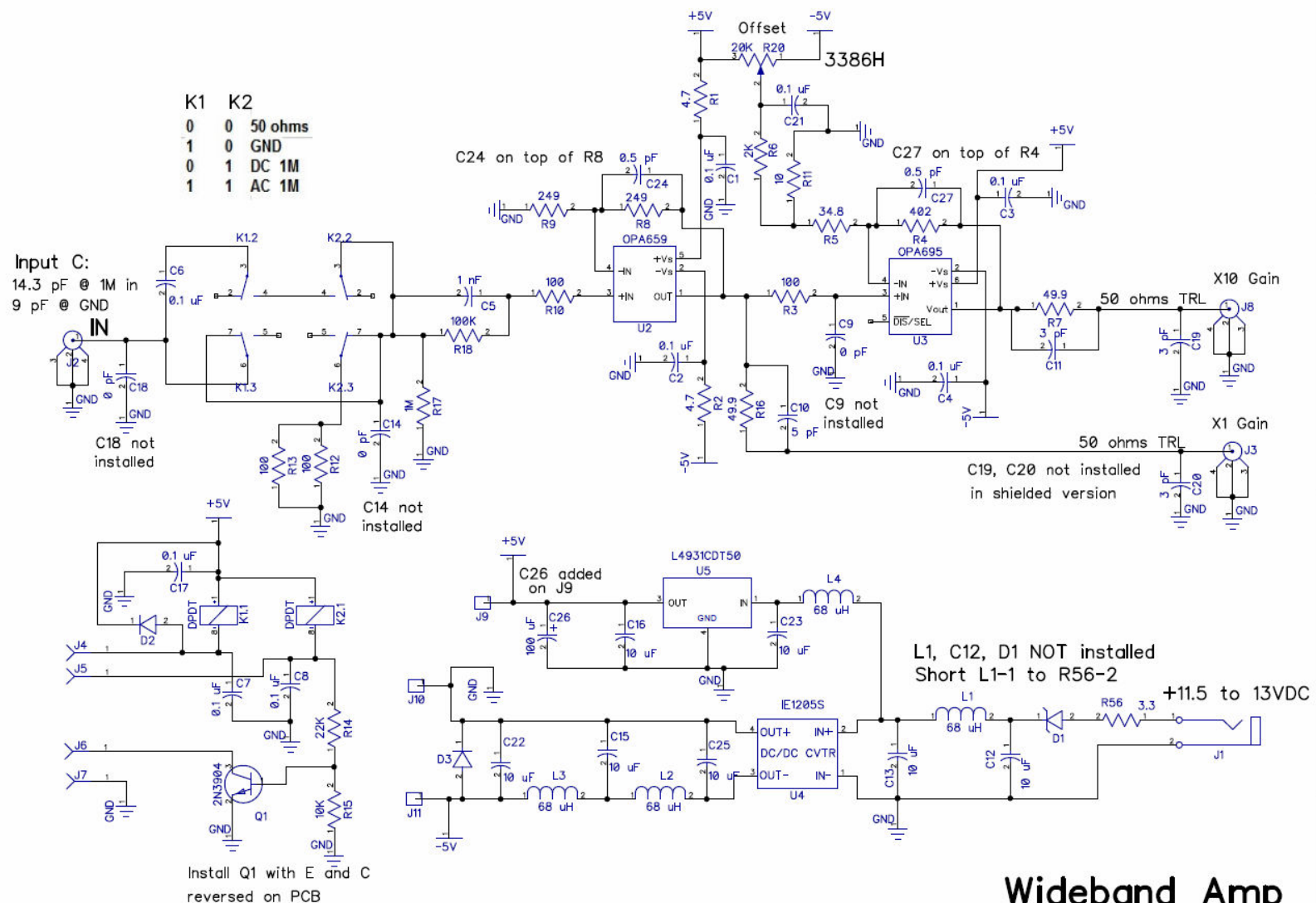


Hammond 1590J case used

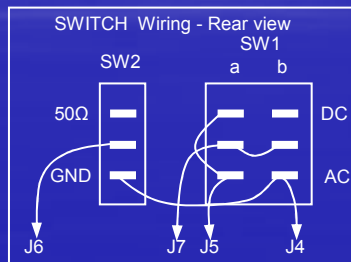


BNC Jacks:
A32231-ND

Note: 330 pF cap 0805
bypass cap installed
across contacts

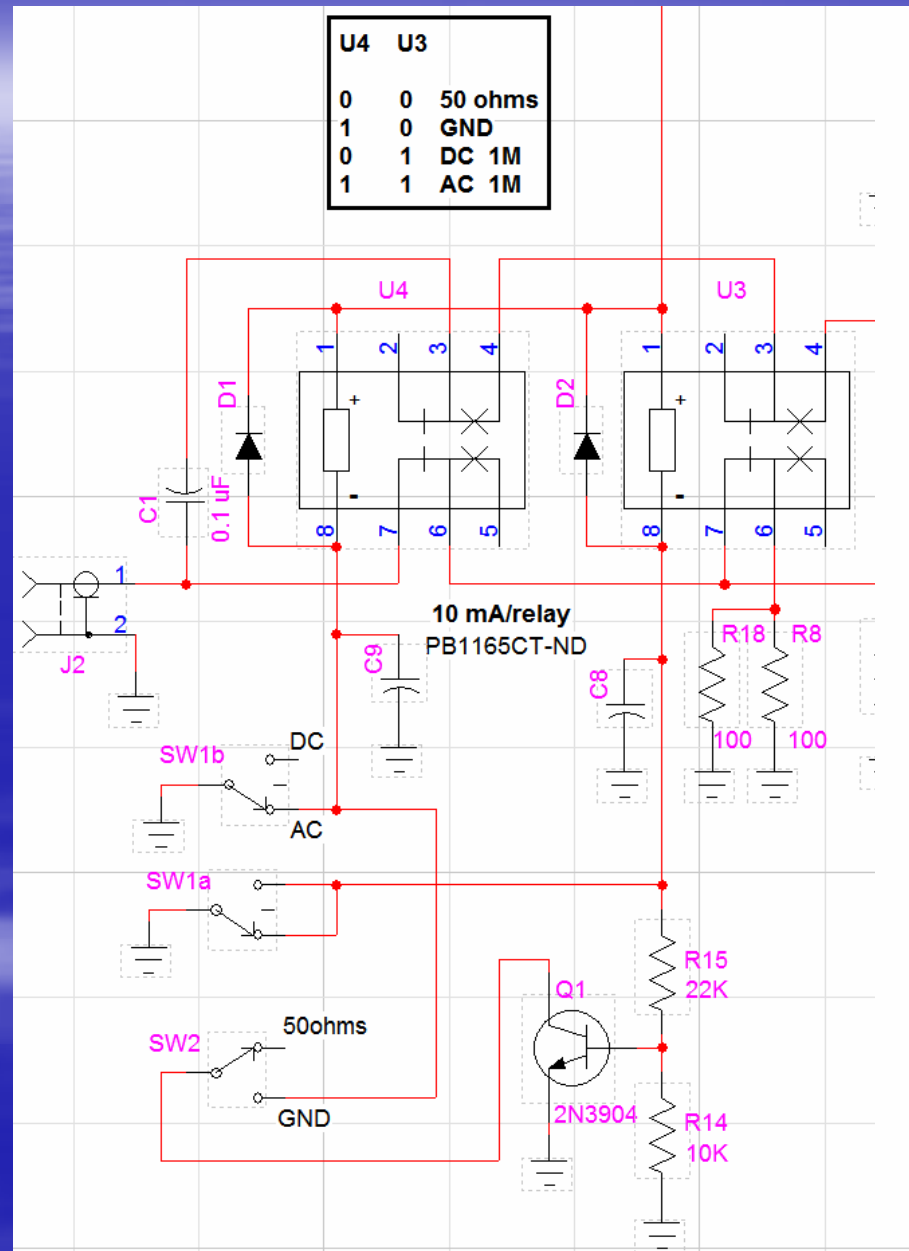


Wiring of the switches



Notes

- Both switches sub-mini type
- S1 type: DPDT center off



Stock List Wide Band Amp PCB V1.0					
RefDes	Value	Description	Digi Key #	Mfg #	QTY
C1, C2, C3, C4, C6, C7, C8, C17, C21	0.1 uF	CAP CER 0.1UF 50V X7R 0603	490-4779-1-ND		9
C5	1 nF	CAP CER 1000PF 25V C0G/NP0 0603	399-7833-1-ND		1
C10	5 pF	CAP CER 5PF 50V C0G/NP0 0402	490-8214-1-ND		1
C11, C19, C20	3 pF	CAP CER 2.7PF 50V C0G/NP0 0402	490-8197-1-ND		3
C13, C15, C16, C22, C23, C25	10 uF	CAP CER 10UF 25V X5R 0805 (C12 not installed)	587-2985-1-ND		6
C9, 14	0 pF	Not used			0
C26	100 uF	CAP ALUM 100UF 20% 16V SMD	493-2177-1-ND		1
C24, C27	0.5 pF	CAP CER 0.5PF 50V C0G/NP0 0603 (installed on top of R8, R4)	490-16339-1-ND		2
D1 (not installed)		DIODE GEN PURPOSE 50V 1A SMA	641-1016-1-ND		0
D2, D3		DIODE SCHOTTKY 30V 100MA SSMINI2 420 mV / 100 mA	DB2S30800LCT-ND		2
J1		CON PWR JCK 2.0 X 6.5MM W/O SW 2.1 mm ID, 5.5 mm OD	CP-037A-ND		1
J2, J3, J8	BNC	CONN SOCKET BNC R/A 50 OHM PCB Tyco EI. 1-1634612-0	A97555-ND		3
K1, K2	DPDT	RELAY TELECOM DPDT 2A 5V	PB1165CT-ND		2
L2, L3, L4 (L1 not installed)	68 uH	FIXED IND 68UH 130MA 2.2 OHM SMD	490-4064-1-ND		3
Q1 (E and C reversed on PCB)	2N3904	TRANS NPN 40V 200MA SOT23	568-4510-1-ND		1
R1, R2	4.7	RES_0805	STOCK		2
R3, R10	100	RES_0603	STOCK		2
R4	402	RES_0603	STOCK		1
R5	34.8	RES SMD 34.8 OHM 1% 1/10W 0603	311-34.8HRCT-ND		1
R6	2K	RES_0603	STOCK		1
R7, R16	49.9	RES SMD 49.9 OHM 1% 1/10W 0603	311-49.9HRCT-ND		2
R8, R9	249	RES_0603	STOCK		2
R11	10	RES_0603	STOCK		1
R12, R13	100	RES SMD 100 OHM 1% 1/8W 0805	311-100CRCT-ND		2
R14	22K	RES SMD 22K OHM 1% 1/8W 0805	311-22.0KCRCT-ND		1
R15	10K	RES SMD 10K OHM 1% 1/8W 0805	311-10.0KCRCT-ND		1
R17	1M	RES SMD 1M OHM 1% 1/10W 0603	311-1.00MHRCT-ND		1
R18	100K	RES SMD 100K OHM 1% 1/10W 0603	311-100KHRCT-ND		1
R20	20K	TRIMMER 20K OHM 0.5W PC PIN	3386H-203LF-ND		1
R56	3.3	RES SMD 3.3 OHM 1% 1/8W 0805			0
U2	OPA659	IC OPAMP JFET 350MHZ SOT23-5 OPA659	296-24971-1-ND		1
U3	OPA695	IC OPAMP CFA 1.7GHZ SOT23-6 OPA695IDBVT	296-16854-1-ND		1
U4	IE1205S	DC/DC CONVERTER 5V 1W IE1205S XP Power	1470-1412-5-ND		1
U5	L4931CDT50	IC REG LINEAR 5V 250MA DPAK	497-4204-1-ND		1
Boitier		Boitier Hammond Mfg	1455J1201	1455J1201	1