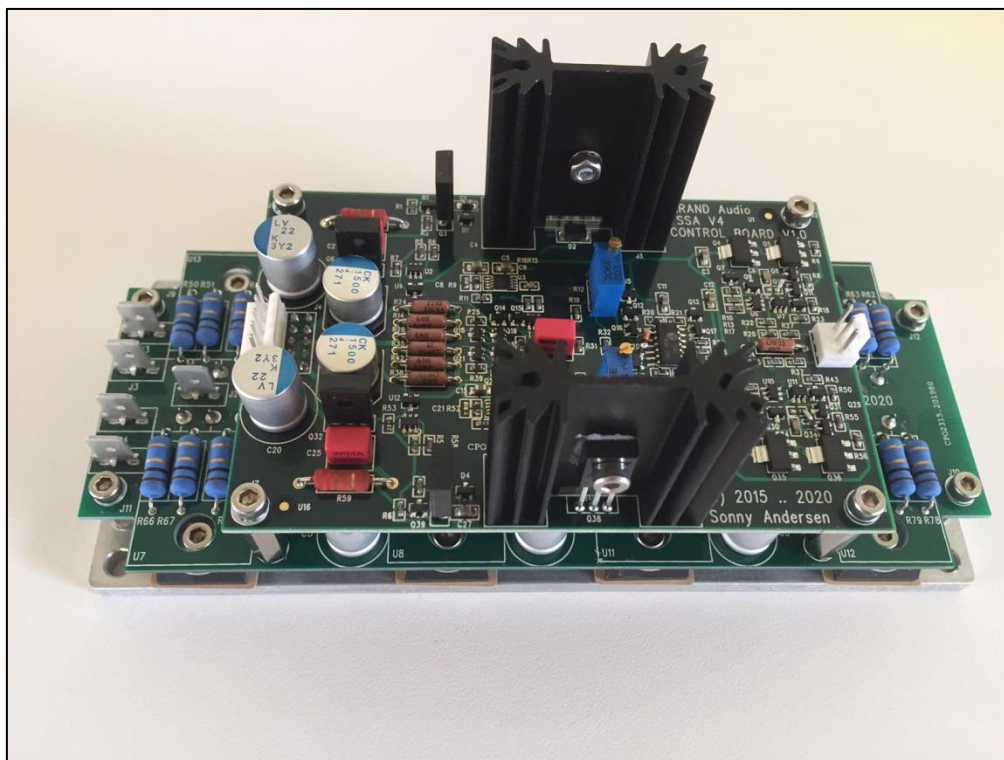


TSSA V4 & V8 Class AB/A current feedback amplifier



MIRAND Audio TSSA V4 and V8 User Manual.

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General description

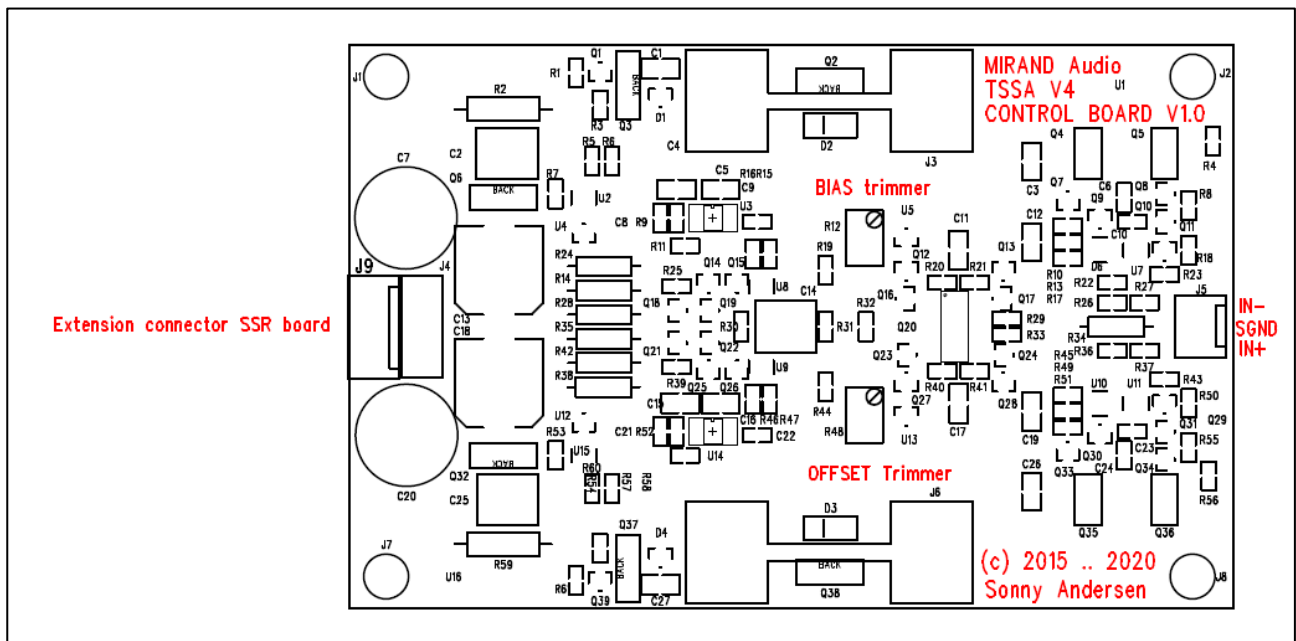
The TSSA V4 and V8 is a revised version of TSSA V1.7/V1.8.

The benefit from this is a highly stable design without the use of servo, wide bandwidth, huge soundstage, with lot of details without getting harsh. In other words, an amplifier we could listen to for hours without listen fatigue.

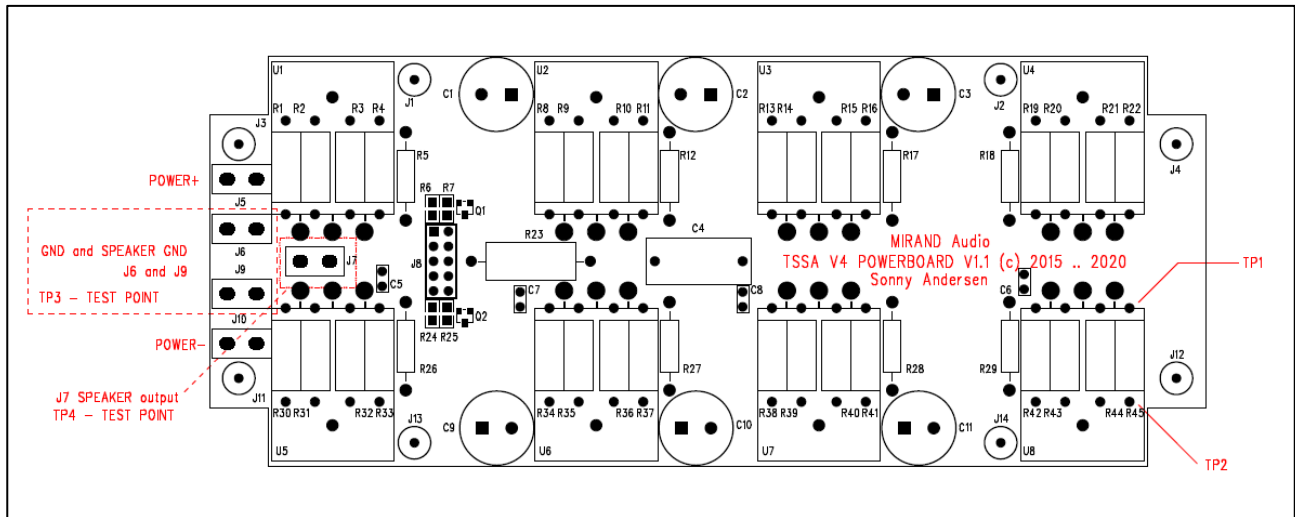
Key specifications

- Supply voltage : $\pm 30\text{VDC} \leftrightarrow \pm 75\text{VDC}$
- Bandwidth : $2\text{Hz} \leftrightarrow 1\text{MHz}$
- Slewrate : $53\text{V}/\mu\text{s}$
- Z_{in} : $10\text{K}\Omega$.
- Z_{out} : $71\text{m}\Omega @ 1\text{KHz}$.
- Peakcurrent continous out : 38A_{peak} for TSSA V4
- Stable into $7\Omega + 2.2\mu\text{F}$
- Softclipping
- Size (WxLxH): $170 \times 70 \times 85\text{mm}$

Connection diagram.



TSSA Control board



POWER input – Power board

Type: Blade Faston 6.3mmx0.8mm			
PIN	Function	Description	Type
J5	POWER+ (+30VDC - +75VDC)	V+ Terminal from Power Supply	Input
J6 or J9	GND	GND Terminal from Power Supply	Input
J10	POWER- (-30VDC - -75VDC)	V- Terminal from Power Supply	Input

Table 1: Power input connector Specification

POWER output – Power board

Type: Blade Faston 6.3mmx0.8mm			
PIN	Function	Description	Type
J7	SPK OUT	Output Terminal to Speaker	Output
J6 or J9	GND	GND Terminal to Speaker	Output

Table 2: Speaker output connector Specification

Signal input – TSSA V4 & V8 control board

Type: Molex KK grid 2.54mm header mates with Molex 0022012025 Crimp housing			
PIN	Function	Description	Type
J5-1	Signal in-	Inverting Signal input for amp.	Input
J5-2	Signal GND	Signal GND input for amp.	Input
J5-3	Signal in+	NON - Inverting Signal input for amp.	Input

Table 3: Signal input connector Specification

To use the TSSA with a non-balanced signal source (RCA).

Connect J5-1 (IN-) and J5-2 (SGND) to shield (GND) on RCA connector. If both source types are needed just add a switch between J5-1 (IN-) and shield (GND) on RCA connector. When the switch is open the input is configured as balanced source

Trimmers – TSSA Control board

Type: 25 Turn trimmers			
Trimmer	Function	Description	Type
R12	Offset trim	Offset trimming	Input
R48	Bias Trim	Bias Trim	Input

Table 4: Trimmer Specification

Test points

Test points	Function	Description	Type
TP1,TP2	Bias adjust	Adjustment of bias with trimmer R12, 16mA/mV	Input
TP3,TP4	Offset adjust	Adjustment of offset with trimmer R48.	Input

Table 5: Test point Specification

Absolute Maximum Ratings.

Power Input (Table 1)

Symbol	Parameter	Value	Units
DC In min	Minimum input working voltage	+/-30	V DC
DC In max	Maximum input working voltage	+/-75	V DC
Bias Current	Bias Current (Max 130 Watt per module, and 0.2K/W heatsink per module) running at +/-65VDC	1A	A DC

Table 6: Absolute Maximum ratings

Signal Input (Table 3)

Symbol	Parameter	Value	Units
AC in max	Maximum Signal input	4	Vrms

Table 7: Absolute Maximum ratings

Speaker (Table 3)

Symbol	Parameter	Value	Units
Rload	Minimum Load	2	Ohm
CL	Maximum Capacitive load in Parallel with 8R	2.2	uF

Table 8: Absolute Maximum ratings

General Specifications

Unless otherwise specified $f=1\text{KHz}$, $P_o=1\text{W}$, $T_a=25^\circ\text{C}$, $\pm 63\text{VDC}$, $\text{Bias}=0.25\text{A}$

Symbol	Parameter	Typ	Units
P_o	Output power into 8R @1%THD+N	180	W
THD+N	8R, 27W	0.065	%
THD+N	8R, 1W	0.016	%
Hum level	50Hz, input shorted, 120.000uF, 0.5A total current draw	91	dBu
Z_{in}	Input resistance	10K	Ohm
Z_{out}	Output impedance into 8R, 1KHz	71m	Ohm
f_l	Lower bandwidth limit	2	Hz
f_u	Upper bandwidth limit	1M	Hz
Z_{Lmin}	Minimum load impedance	2	Ohm

Table 9: General Specification

Heatsink size notes.

When running at an bias of 0.4A and $\pm 63\text{VDC}$ (Hypex 1200/400) the module gets enough cooling from one 0.4K/W heatsink. In general, there should be a good airflow around the heatsink.

Remember to apply thermal grease between baseplate and heatsink.

Cabling notes.

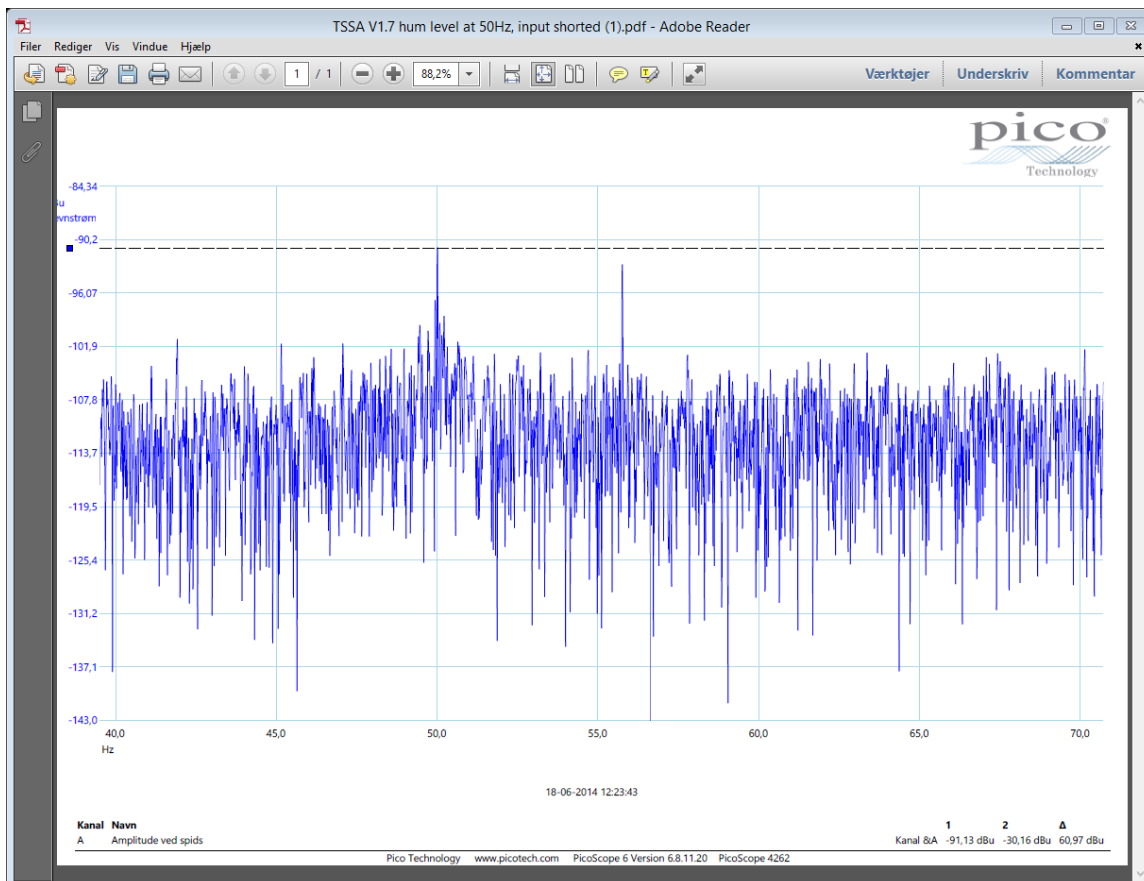
Always use shielded or at least twist the cables to reduce coupling as much as possible between the wires.

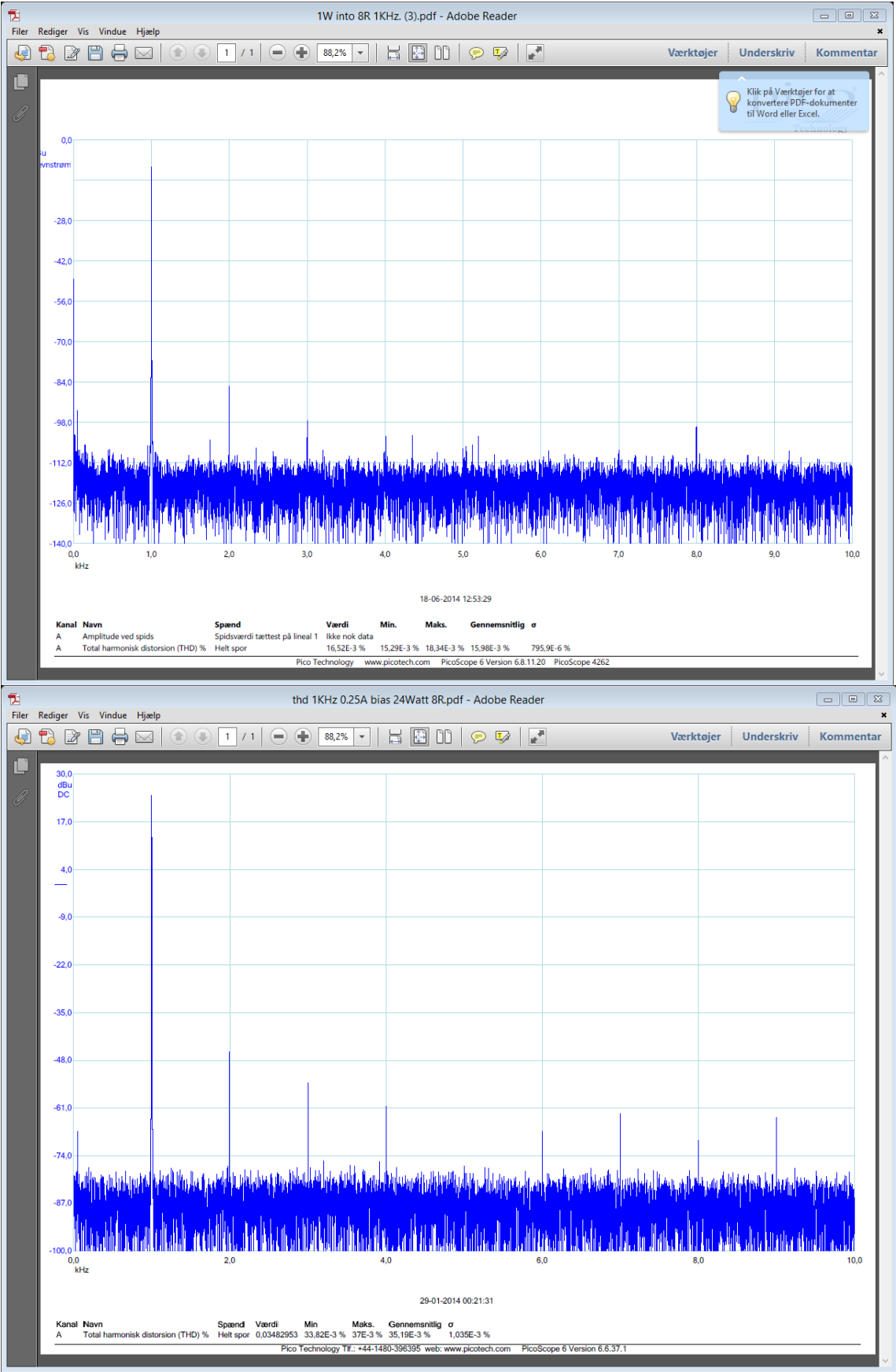
Trim procedure.

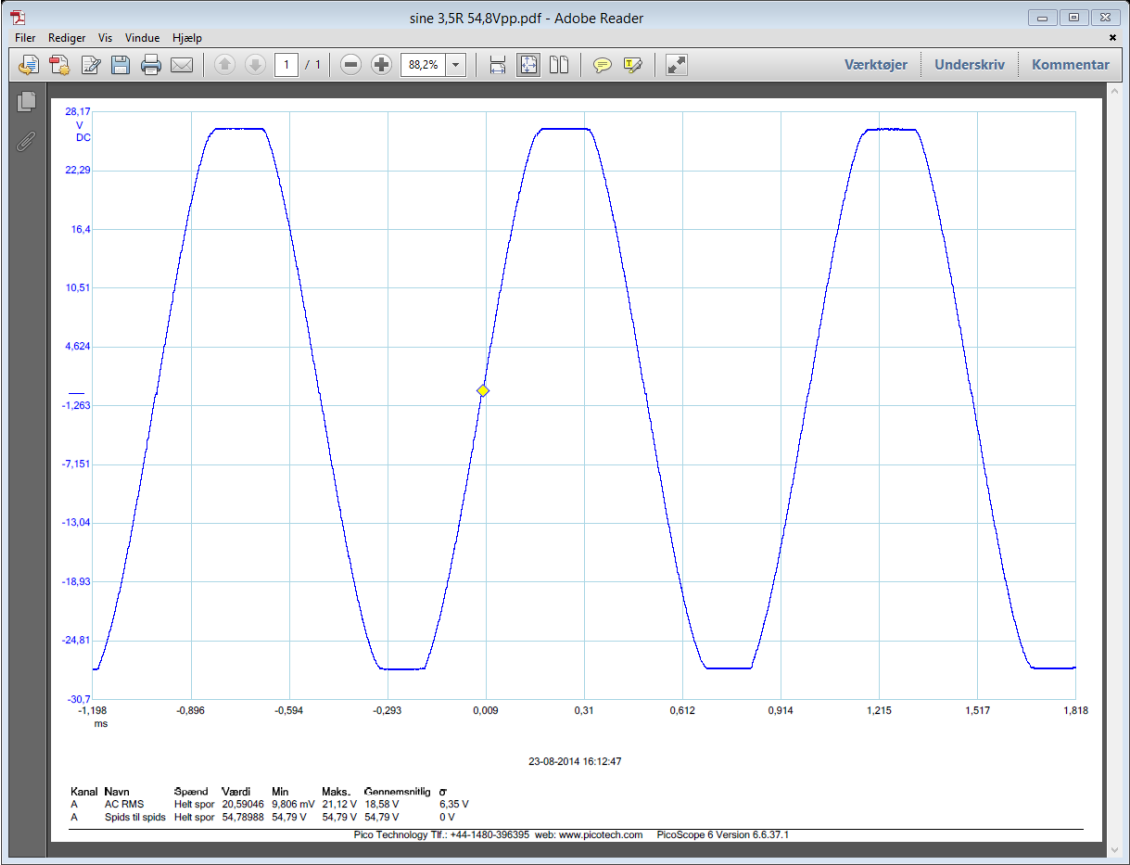
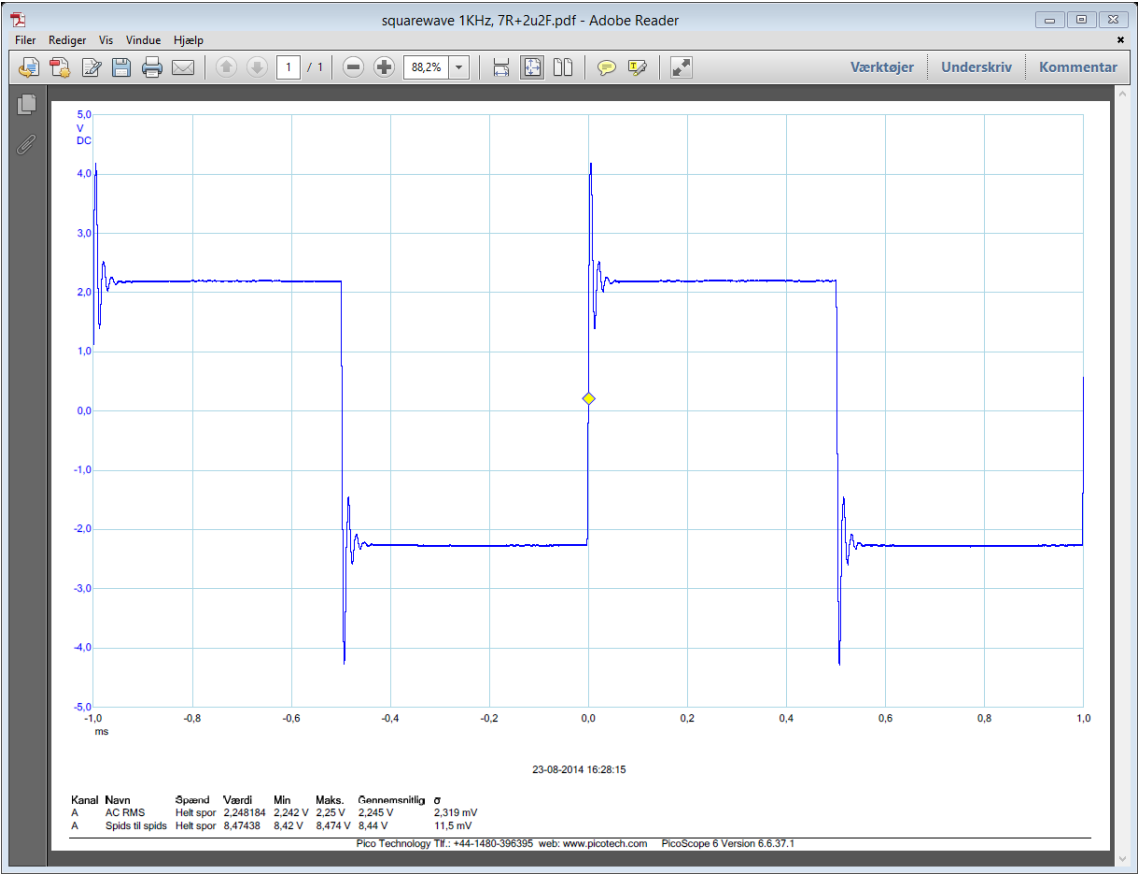
Before powering up Trimmer R12 and R48 should be turned 25 turns CCW. Afterwards R48 should be turned 12 turns CW,

1. Turn on the amp.
2. Wait 120 seconds.
3. Measure across TP1 and TP2
4. Turn R12 CW until TP1 and TP2 are 10mVDC
5. Measure between TP3 and TP4
6. Adjust R48 until offset voltage is within $\pm 5\text{mV}$
7. Measure across TP1 and TP2
8. Turn R12 CW until TP1 and TP2 are at the desired voltage (10mVDC = 160mA bias)
9. Measure between TP3 and TP4
10. Check the offset is still within $\pm 5\text{mV}$ and go back to adjustment procedure number 5 if necessary.

Measurements







Ordering information

Part number: TSSA V4

Contact information

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