

TWTTB Vacuum tube line buffer



Vacuum tube line buffer suitable to be used as impedance adapter for voltage output DAC..

Features:

Buffer type: common cathode with interstage transformer

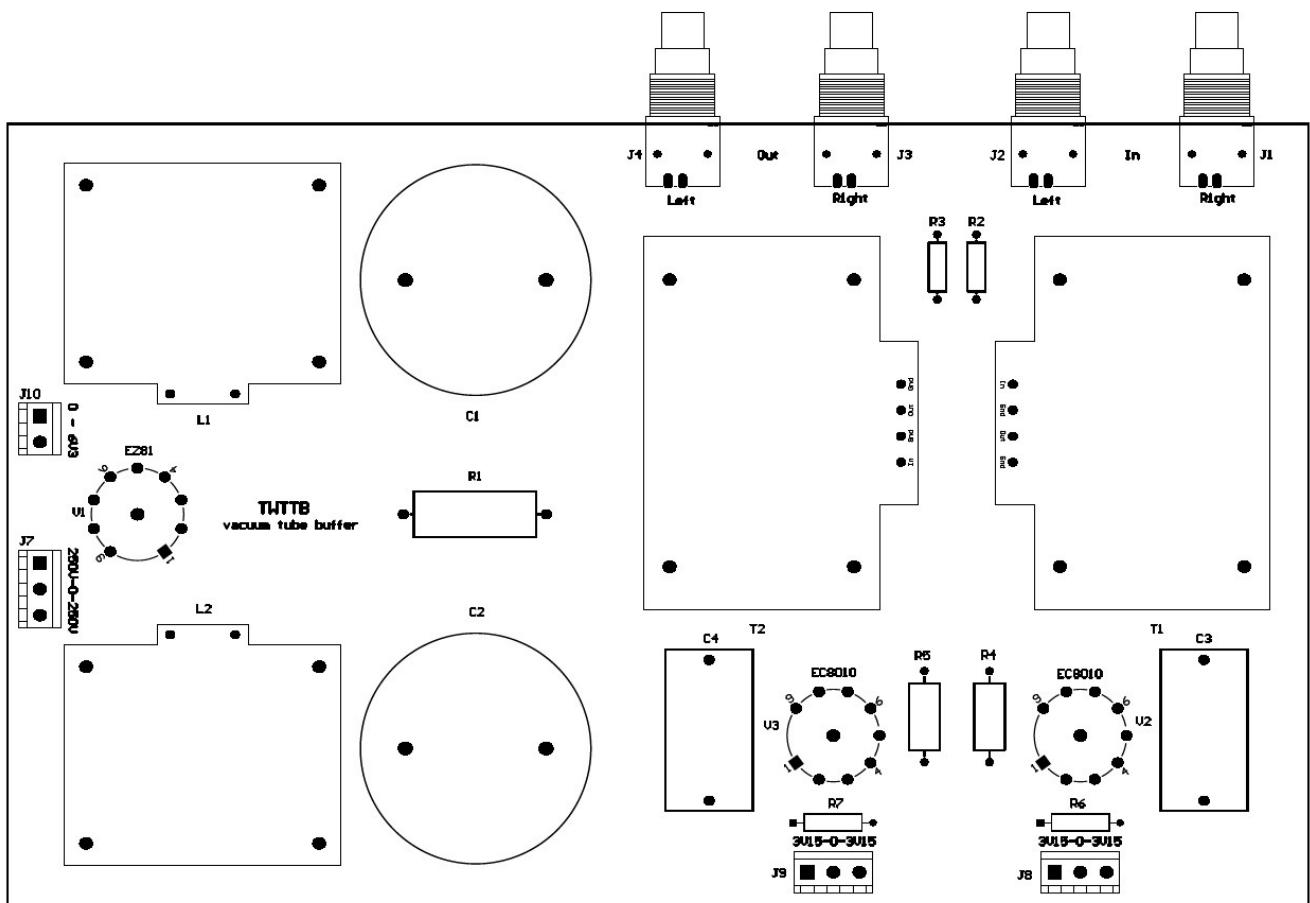
Output: as input

Board size: 254mm x 153mm (excluding RCA connectors)

Power supply: vacuum tube rectifier and LC filter

Board options: bare board only

PCB layout



Connectors

J1: Input Right channel

J2: Input Left channel

J3: Output Right channel

J4: Output Left channel

J7: 250-0-250 VAC input. Suitable transformer is the Lite R80-17 R-Core transformer (250-0-250)X2(75mA).(3.15-0-3.15) X2(1.5A),0-6.3X2(1.5A)

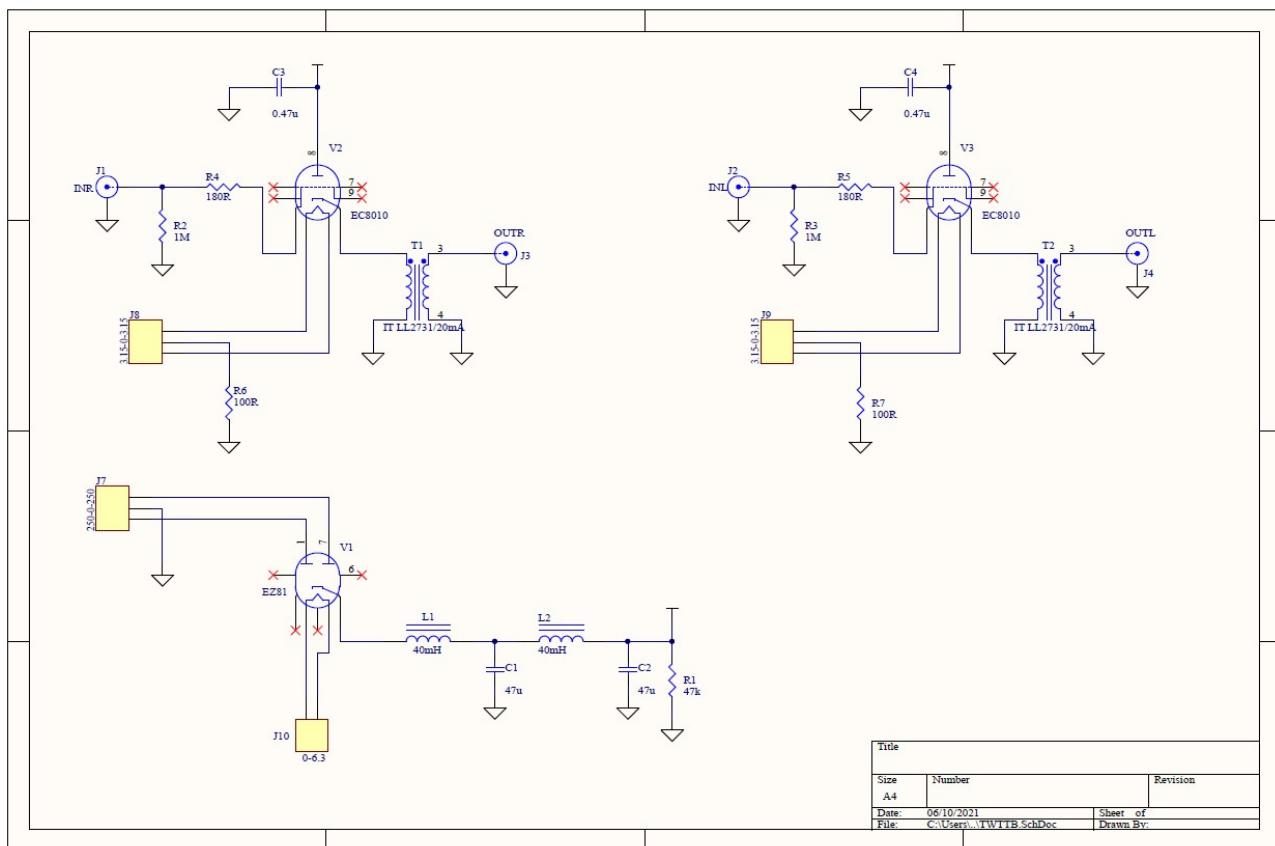
J8-J9: 3.15-0-3.15 VAC input. Suitable transformer is the Lite R80-17 R-Core transformer (250-0-250)X2(75mA).(3.15-0-3.15) X2(1.5A),0-6.3X2(1.5A)

J10: 0-6.3 VAC input. Suitable transformer is the Lite R80-17 R-Core transformer (250-0-250)X2(75mA).(3.15-0-3.15) X2(1.5A),0-6.3X2(1.5A)

There is 1 available option for this board:

- bare PCB (all parts are through hole)

Schematic



High Voltage Safety

- Work on un-energized circuits if at all possible.
- Be very careful around live 50/60 Hz electricity, since it requires very little current to injure. Your power supply can kill you!
- Be very careful around live 250VDC electricity, since it requires very little current to injure. Your power supply can kill you!
- Keep your distance from live high voltage circuits. Since high voltages can breakdown air to connect you to a circuit, keep high voltage circuits in enclosures and behind barricades when in operation.
- Be sure to properly ground your experiment and your enclosure. Take special care to safely de-energize and ground a circuit before working on it. Know when and how you can end up in the ground path in a circuit and put safeguards in place to eliminate this eventuality.
- Never work alone, always have a partner who knows your equipment and the risks and hazards involved. That way, you have a second set of eyes to insure safety, and someone who can shut off the power and get help if you are injured.

Notes on bare board

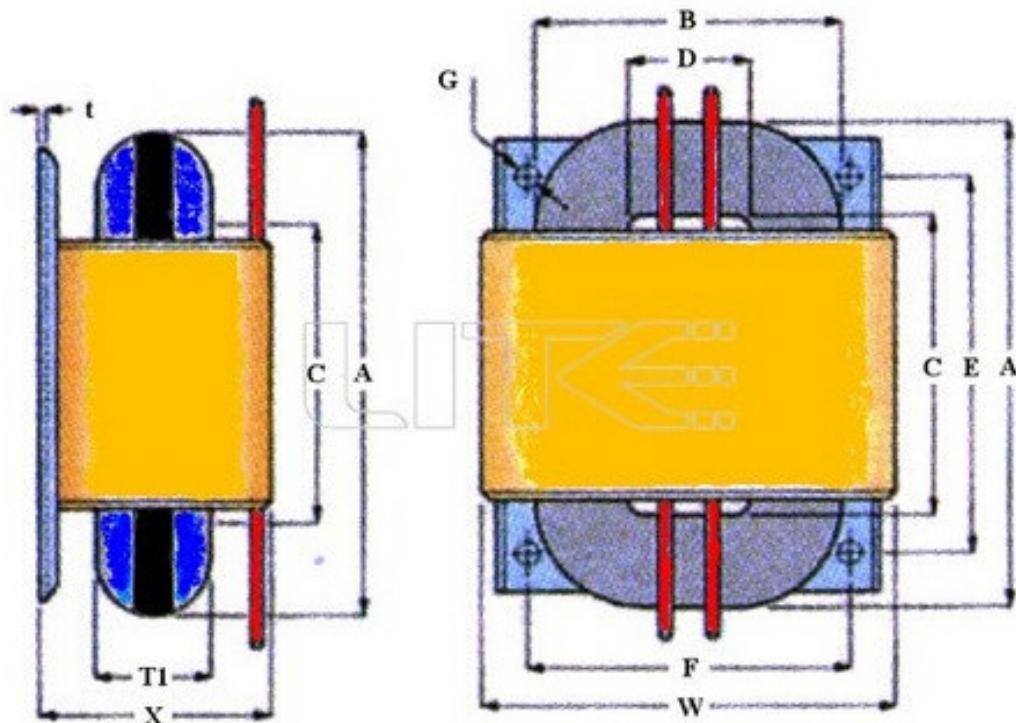
The bare board option needs all the parts to be soldered (through hole parts only).

There are a few things to pay the maximum attention:

- be careful installing connectors and polarized parts with the right orientation, the component orientation is clearly visible on the PCB overlay
- solder the two small boards to the Lundahl LL2731/20mA interstage transformers and then solder to the main board using the suitable headers
- suitable transformer is the Lite R80-17 R-Core transformer (250-0-250)X2(75mA).(3.15-0-3.15) X2(1.5A),0-6.3X2(1.5A). It provides all the voltages required.
- suitable enclosure is the HIFI 2000 02-280 Alu Silver 10 (1NSLA02280B)

R-Core Transformer R80-17

LITE R80 TYPE R CORE Transformer (100W)



A=120mm
G=Φ5mm

B=66mm
W=93mm

C=73mm

D=25mm

E=90mm

F=70mm

T1=24mm

T=1mm

X=55mm



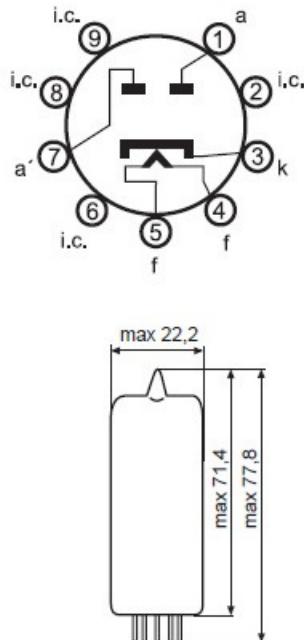
HIFI 2000 02-280 Alu Silver 10 (1NSLA02280B)



EZ81 Double Anode Rectifying tube

EZ81

DOUBLE ANODE RECTIFYING TUBE



Base: NOVAL

$U_f = 6,3 \text{ V}$
 $I_f = 1 \text{ A}$

Typical Characteristics:

Capacitor Input

$f = 50 \text{ Hz}$	$U_{\text{treff}} = 2x250$	$2x350$	$2x450$	V
	$R_t = 2x150$	$2x230$	$2x310$	Ω
	$I_{D.C.} = 160$	150	100	mA
	$C = 50$	50	50	μF
	$U_{D.C.} = 245$	352	497	V

Choke Input

$f = 50 \text{ Hz}$	$U_{\text{treff}} = 2x250$	$2x350$	$2x450$	V
	$I_{D.C.} = 180$	180	150	mA
	$L = 10$	10	10	H
	$U_{D.C.} = 199$	288	378	V

Limiting Values:

$U_{a \text{ invp}} = 1300$	V
$I_p = 500$	mA
$U_{kf} = 500$	V
$C_{\text{filt max.}} = 50$	μF
$L_{\text{min.}} = 1$	H



EC8010 Triode

$S=28\text{mA/V}$

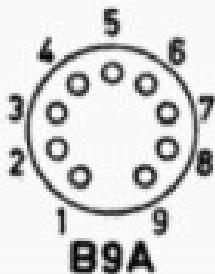
$\mu=50$

$R_i =$

$P_a = \text{max. } 4,5\text{W}$

$R_{eq.} =$

EC8010



B9A

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