

# Solid Metal

**Based on:**

Amptweaker Tight Metal™

**Effect type:**

High Gain Distortion

**Build difficult:**

Advanced

**Amount of parts:**

High, total 80 components

**Technology:**

OpAmp Gain stages

**Power consumption:**

9V(22mA) 18V(24mA)

**Enclosure type:**

1590bb

**Get your board at:**

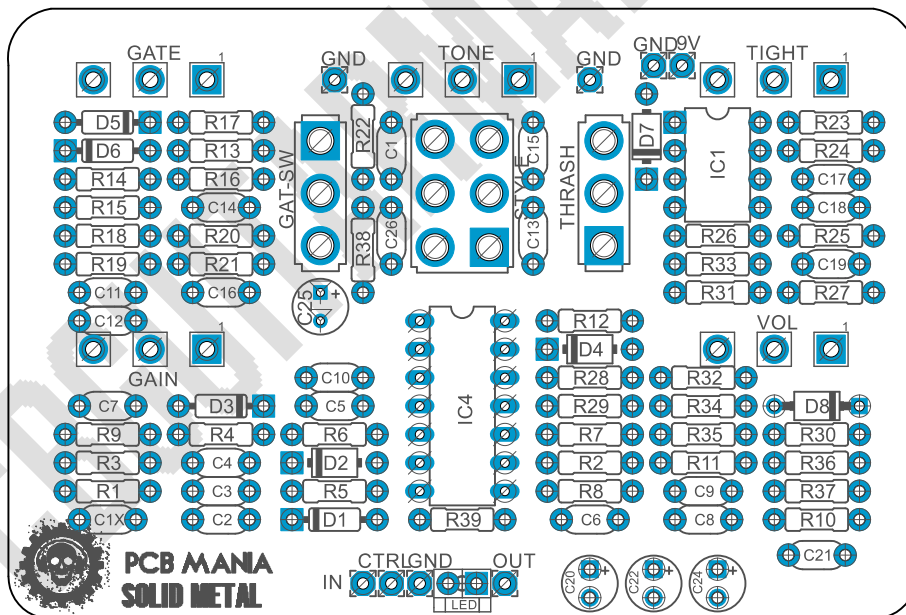
[Solid Metal PCB](#)

**Get your kit at:**

[Das Musikding \(Europe\)](#)

**Project overview:**

Based on Amptweaker Tight metal. High gain drive, includes an internal noise gate, Tight control and two switches to select different voice modes such as Thrash mode and our mod on the original model that allows you select in between the stock Tight metal, or the “more crunchy less gainy” Tight Rock.



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## Introduction

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Right in the face is probably the way to describe this 1590BB project based on the Amptweaker Tight Metal™ a high gain distortion that quickly gained fans way beyond the trash metal players with its tweakability, the fat chords and the leads that cut straight through a mix. It also comes with a switchable build in noise gate. Another Switch to change the mid response and last but not least, we included an additional switch to mod in between the stock Tight Metal and the mod Tight Rock.

You thought we are done yet after all that switches, didn't you? Nope, the five Potentiometer do not only take care of the amount of gain, volume, tone and the gate. There is one left to dial in the amount of tightness. This knob is handy when you're down tuning your instruments.

With a lot of components, many pots and toggles this is definitely not a beginner project. Even if we try to keep the documents as easy to follow as possible.

We proudly can say the Solid Metal PCB is something you're not getting everywhere. So if you build some pedals before, you should grab one of this while they are hot.

## Controls

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- Gain
- Volume
- Tone
- Gate
- Tight

### Switches

- Gate On-Off
- Thrash Mode
- Tight Metal-Tight rock Mode

# Bill of materials

Resistors	
Part	Value
R1	1M
R2	100k
R3	470k
R4	1M
R5	47k
R6	1M
R7	470k
R8	47k
R9	1k5/15k*
R10	1k5
R11	22k
R12	10k
R13	10k
R14	10k
R15	470k
R16	4k7
R17	1k5
R18	10k
R19	3k3
R20	3k3
R21	3k3
R22	330r
R23	220k
R24	100k
R25	47k
R26	1k
R27	47k
R28	100k
R29	150k
R30	6k8
R31	100k
R32	18k
R33	150k
R34	47k
R35	47r
R36	100k
R37	150k
R38	3k3
R39	4k7

Diodes	
Part	Value
D1	1n4148
D2	1n4733
D3	1n4148
D4	1n4733
D5	1n4148
D6	1n4148
D7	1n4733
D8	1n4007
LED	3mm Led

Potentiometers	
Part	Value
TIGHT	100k B
TONE	10k B
VOL	10k B
GAIN	500k A
GATE	500k B

Switches	
Part	Value
STYLE	Rock-Metal DPDT ON-ON
THRASH	SPDT ON-ON
GAT-SW	SPDT ON-ON

Ics	
Part	Value
IC1	TL072
IC4	TL074P

Capacitors	
Part	Value
C1	100n
C1X	470p
C2	33n
C3	100n
C4	4n7
C5	100n
C6	100p
C7	33n
C8	47n
C9	100n
C10	220n
C11	100n
C12	100n
C13	22n
C14	22n
C15	100n
C16	220n
C17	1n2
C18	100n
C19	220n
C20	100u
C21	100n
C22	22u
C24	22u
C25	22u
C26	47n

# Shopping list

Resistors		
Qty	Value	Device
3	1M	R1, R4, R6
2	1k5	R10, R17
1	22k	R11
4	10k	R12, R13, R14, R18
2	4k7	R16, R39
4	3k3	R19, R20, R21, R38
5	100k	R2, R24, R28, R31, R36
1	330r	R22
1	220k	R23
1	1k	R26
3	150k	R29, R33, R37
3	470k	R3, R7, R15
1	6k8	R30
1	18k	R32
1	47r	R35
5	47k	R5, R8, R25, R27, R34
1	1k5/15k	R9*

Capacitors		
Qty	Value	Device
9	100n	C1, C3, C5, C9, C11, C12, C15, C18, C21
3	220n	C10, C16, C19
2	22n	C13, C14
1	1n2	C17
1	470p	C1X
2	33n	C2, C7
1	100u electro	C20
3	22u electro	C22, C24, C25
1	4n7	C4
1	100p	C6
2	47n	C8, C26

Potentiometers		
Qty	Value	Device
1	500k A	GAIN
1	500k B	GATE
1	100k B	TIGHT
2	10k B	TONE, VOL

Semiconductors		
Qty	Value	Device
1	TL072	IC1
1	TL074P	IC4
1	3mm LED	LED
4	1n4148	D1, D3, D5, D6
3	1n4733	D2, D4, D7
1	1n4007	D8

Switches		
Qty	Value	Device
2	SPDT ON-ON	GAT-SW, THRASH
1	DPDT ON-ON	STYLE

# Components Recommendations

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As many people like to experiment some pedals with higher voltage, always ensure the max tolerance of your **electrolytic capacitors** is over 25v.

This board has been tested using Film box capacitors for most of the values over 1nf, and ceramics discs for the ones under 1nf. However, high quality components such as Wima's Capacitors and Panasonic's electrolytics can deliver a better performance.

All the resistors used for testing this project are 1/4W Metal Film.

The BOM and Shopping list are exclusively regarding this project. It doesn't include all the hardware like the 3PDT bypass switch, audio/dc jacks, enclosure, etc.

**R9\* looking across many schematics online we've found that this resistor could be either 1k5 or 15k depending the version of the Tight Metal. We have tested both resistors on our boards with successful results. Socket and try which one sounds better for you.**

## Build Notes

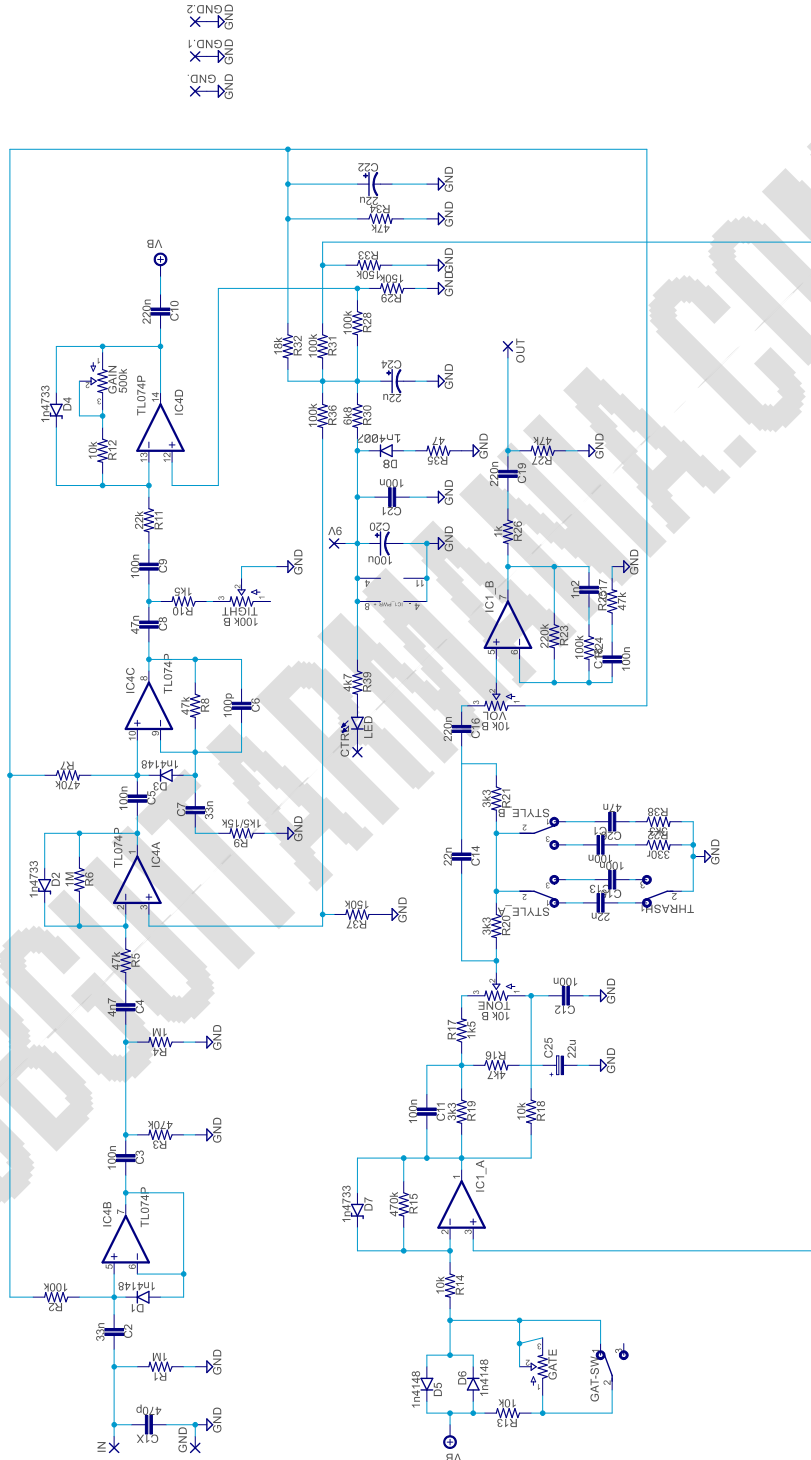
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If this is one of your first projects I recommend you to take a look on our [Pedal Building Guide](#)

For a successful and tidy build it's recommended the following order:

1. Resistors & diodes
2. Capacitors, starting with the smaller ones and the ceramic ones.
3. Electrolytic capacitors (always check the polarity)
4. Transistors
5. Wires
6. Potentiometers and switches
7. Off board wiring

# Schematic



# Wiring Diagram

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All our projects include a free 3PDT Board to make the wiring easier and tidier. Also all of our PCBs feature the status LED on board.

The pad named “Ctrl” or “LED” is the one that controls the status of the led, wire it to the “LED”pad on the 3PDT board, or in control slug of your 3PDT.

This board has been designed to match our EZ 3PDT PCB check it [here](#) to access to our [Pedal Wiring Guide](#)

# Drill Template

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This Project has been planned to fit into a 1590b enclosure type.

Check the Attached “Drilling templates” to drill the box properly. The files are on Scale 1:1, ready to print in an A4 page.

# Licensing and Usage

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We really appreciate your trust and support buying this PCB, as well as your will to dive into the DIY electronics world. That’s why for us is really important that you can make this project work properly and to enjoy not only the building process, but also to experiment and play with it on your rig.

We try to reply to every question we receive on our email or in our social media, but we try to encourage all our customers to join our [PCB Guitar Mania – Builders Group](#) on Facebook, in order to post all your doubts, issues, suggestions or request, as well to share your builds and have some feedback from us and other fellow builders!

All of our projects have been tested following this same guide on their standard configurations. Although, not all of the variations and mods have necessarily been tested. These are suggestions based on the schematic analysis, and on the experiences and opinions of others. Feel free to share with us your opinions and suggestions regarding the mods your own personal experimentation.

These boards may be used for commercial endeavors in any quantity unless specifically noted. No attribution is necessary, though accreditation or a link back is always greatly appreciated.

If you are a builder planning to make your own run of pedals we also offer the service of custom made boards with your brand and logo, design according your specifications.

The only usage restrictions are that, first, you cannot resell the PCB as part of a kit without prior arrangement with us, and second, you cannot scratch off the silk screen, or other way of trying to hide our logos and the source of the PCBs. Like it’s written above, if you want to have your own designs, with your brand and logo we could certainly reach an agreement.

Follow us on [Instagram](#) and [Facebook](#) to stay in tune with the latest projects!