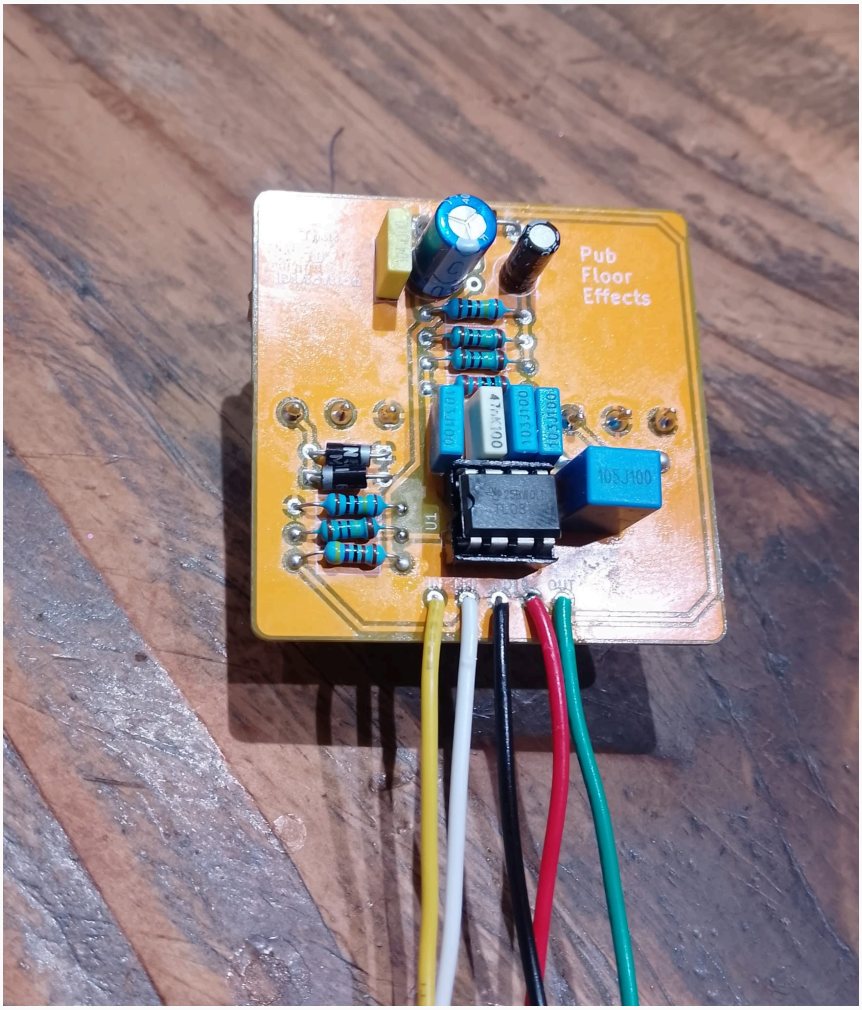
That 70′s Distortion

Classic 70's/80's hard clipping distortion

Assembled PCB Overview



Overview

Fancy a bit of proper 70s grit? That 70′s Distortion is our take on the classic Distortion Plus, the sound a lot of players reach for when they want a dirty, punchy tone without overthinking it. If you've ever loved the original MXR Distortion Plus, this one's worth a look. It's aimed at anyone who likes their distortion with a bit of character, whether you're chasing vintage crunch for rock riffs, blues leads or just messing about at home. It's a straightforward sound that sits nicely on a board or works well on its own. Here's what you can expect: Our own take on the classic Distortion Plus tone. Gritty, retro-flavoured distortion with plenty of bite. Simple to use, so you can get straight to playing. Plug in, turn it up and see what it does to your sound. Classic vibe, our twist.

- **Enclosure Size:** 1590B
- **Power Supply:** 9V DC Center-Negative (Standard 2.1mm barrel jack)
- **Current Draw:** 0.2 mA

Tools & Workshop Accessories

Building guitar pedals cleanly and reliably requires a standard set of electronics workbench tools. Having the right accessories on hand prevents damaged PCB traces and cold solder joints.

Essential Soldering Gear

Tool / Equipment	Specification & Purpose
Soldering Station	Temperature-controlled iron (set to 350°C / 660°F) with a chisel or conical tip.
Solder Wire	63/37 Tin/Lead rosin-core solder (0.8mm diameter recommended for through-hole work).
Solder Sucker / Wick	Desoldering pump or braided copper wick for cleaning up solder bridges or mistakes.
Flux Pen	Rosin flux pen to improve solder flow on stubborn component pads and ground planes.

Hand Tools & Hardware Assembly

Tool / Equipment	Specification & Purpose
Flush Cutters	Precision diagonal cutters for trimming component leads close to the PCB solder joints.
Needle-Nose Pliers	For bending component leads, holding parts, and tightening pot/jack nuts.
Wire Strippers	For stripping 24 AWG hook-up wire for off-board wiring connections.
Digital Multimeter	Essential for checking resistor values, continuity, and measuring power supply voltages before testing.

Enclosure & Mechanical Work

Tool / Equipment	Specification & Purpose
Step Drill Bit	Titanium-coated step bit (or 3mm, 1/4″, 3/8″, 1/2″ twist bits) for drilling aluminum enclosures.

Center Punch	Spring-loaded punch to mark drill locations on enclosures so drill bits do not slip.

PCB Layout & Silkscreen Reference

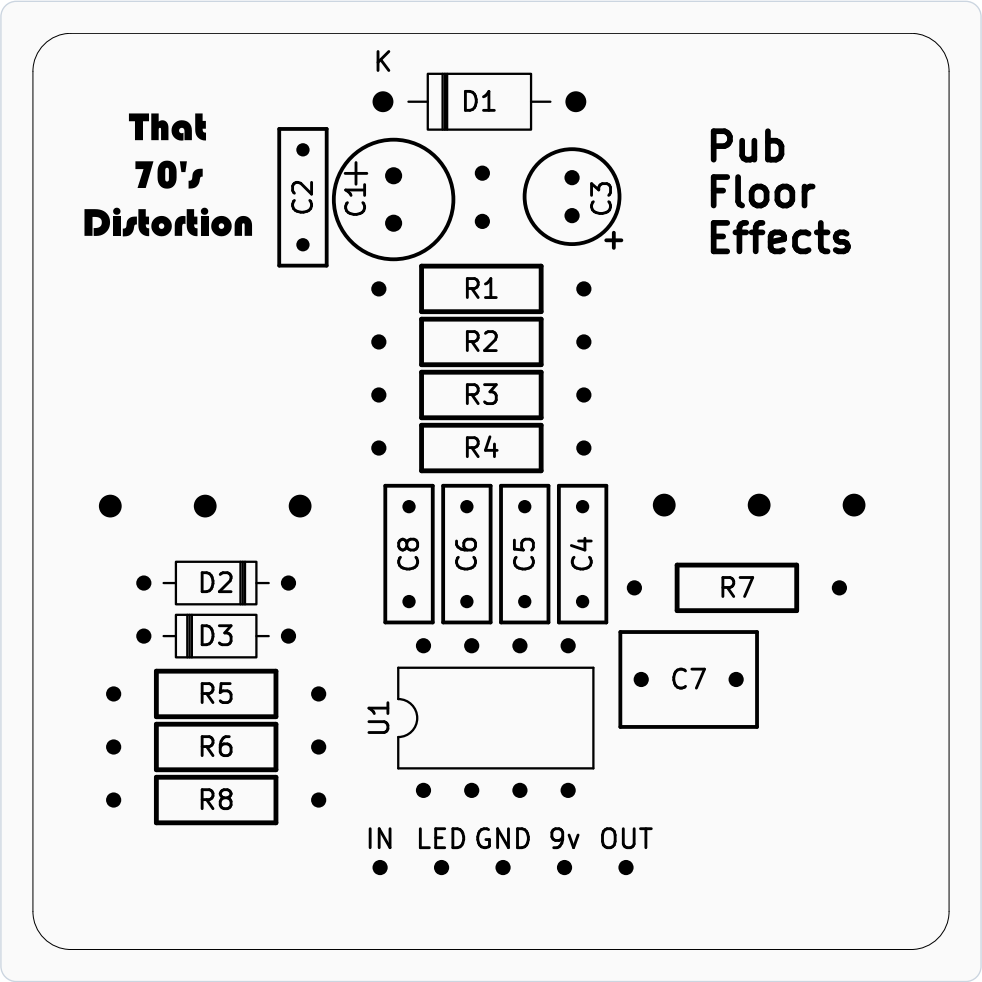


Figure 2: *PCB Top Silkscreen and Component Placement Overlay. Ensure electrolytic capacitors and diode bands match the silkscreen markings.*

PCB Bottom Layer & Trace View

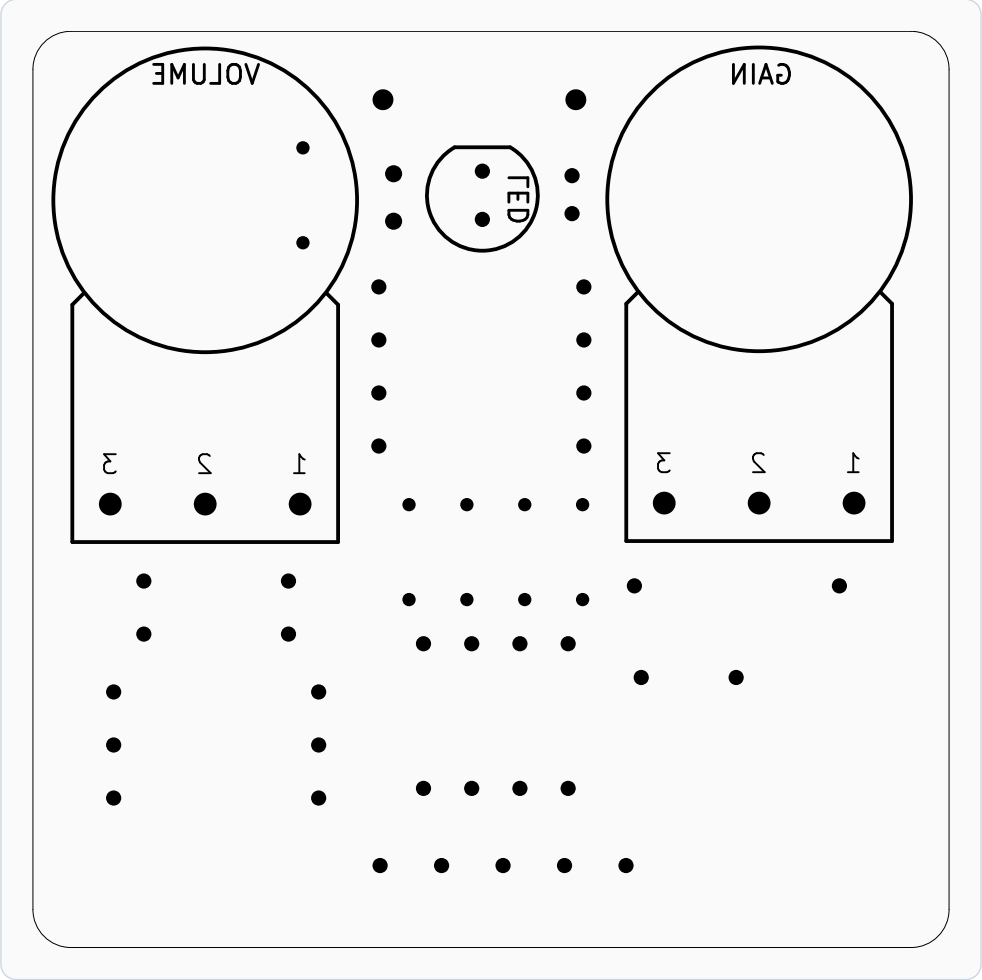


Figure 3: *PCB Bottom Copper Trace Layer. Use this view to verify trace continuity, inspect for solder bridges, and check pin connections during assembly.*

Bill of Materials (BOM)

Resistors (1/4W Metal Film, 1% Tolerance Recommended)

Ref	Value	Note
R1, R2, R3, R5, R6	1M	
R4	10k	
R7, R8	4.7k	

Capacitors

Ref	Value	Type	Voltage	Note
C1	100uF	Electrolytic	25v	
C2	100nF	Film / Box		
C3	47uF	Electrolytic	25v	
C4	10nF	Film / Box		

C5, C8	1nF	Film / Box		
C6	47nF	Film / Box		
C7	1uF	Film / Box		Non Polarised

Semiconductors & Active Components

Ref	Value / Part	Package	Note
IC1	TL081	DIP-8	Single Low-Noise JFET Op-Amp (Use 8-pin Socket)
D2, D3	1N4148		
D1	1N4001		Reverse Polarity Protection (Mind Cathode Band)
D4	RED LED		

Potentiometers & Switches

Ref	Value	Taper	Mount Type
GAIN	1Meg B	Linear	16mm Right-Angle PCB Mount
VOL	10kA	Logarithmic	16mm Right-Angle PCB Mount
SW1	3PDT	Latching	True Bypass Footswitch

Component Placement & Assembly Sequence

Assemble components in order of physical height to simplify soldering:

1. **Diodes & Resistors:** Lay flat to board. Double-check cathode bands for D1, D2, and D3.
2. **IC Socket:** Align notch on socket with silkscreen outline. Solder socket; do not insert TL081 chip until off-board wiring is complete.
3. **Box & Ceramic Capacitors:** Seat flush to PCB.
4. **Electrolytic Capacitors:** Ensure long leg (+) goes into the square pad (indicated by + on silkscreen).
5. **Off-Board Wiring Leads:** Pre-tin pads for IN, OUT, LED, 9V, and GND.
6. **Potentiometers:** Fit pots onto PCB but **do not solder immediately**. Insert the assembled board with pots into your pre-drilled enclosure to align shaft centers, tighten pot nuts, then solder the pins to avoid mechanical strain on pads.

Circuit Schematic

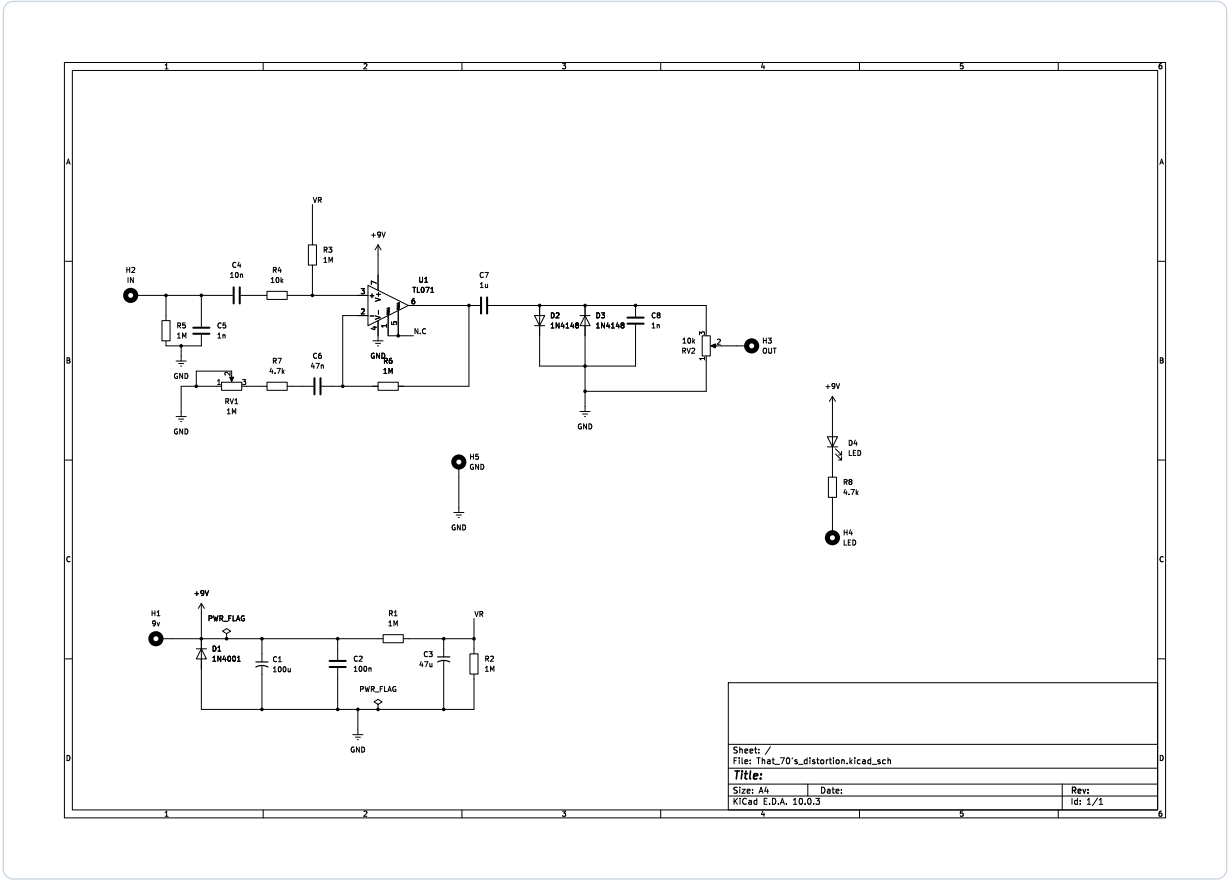


Figure 1: That 70's Distortion Complete Circuit Diagram