

### Dazatronyx THD Bill of Materials

Parts	Qty	Value	Markings / notes
<b>Resistors</b>			
R18	1	22Ω	Metal film, 1/4W, <b>RED, RED, BLK, GLD, BRN</b>
R28	1	120Ω	Metal film, 1/4W, <b>RED, RED, BLK, BLK, BRN</b>
R49	1	150Ω	Metal film, 1/4W, <b>RED, GRN, BLK, BLK, BRN</b>
R4, R11, R13	3	330Ω	Metal film, 1/4W, <b>ORG, ORG, BLK, BLK, BRN</b>
R10, R14	2	1K	Metal film, 1/4W, <b>BRN, BLK, BLK, BRN, BRN</b>
R2, R52, R54	3	3K3	Metal film, 1/4W, <b>ORG, ORG, BLK, BRN, BRN</b>
R9	1	3K9	Metal film, 1/4W, <b>ORG, <del>WHT</del>, BLK, BRN, BRN</b>
R3	1	5K1	Metal film, 1/4W, <b>GRN, BRN, BLK, BRN, BRN</b>
R1, R5, R6, R7, R17, R23, R27, R30	8	10K	Metal film, 1/4W, <b>BRN, BLK, BLK, RED, BRN</b>
R19, R22	2	22K	Metal film, 1/4W, <b>RED, RED, BLK, RED, BRN</b>
R42	1	47K	Metal film, 1/4W, <b>YLW, VIO, BLK, RED, BRN</b>
R24, R25, R32	3	68K	Metal film, 1/4W, <b>BLU, GRY, BLK, RED, BRN</b>
R43	1	82K	Metal film, 1/4W, <b>GRY, BRN, BLK, RED, BRN</b>
R21, R26, R44, R51	4	100K	Metal film, 1/4W, <b>BRN, BLK, BLK, ORG, BRN</b>
R20	1	220K	Metal film, 1/4W, <b>RED, RED, BLK, ORG, BRN</b>
R16, R29	2	470K	Metal film, 1/4W, <b>YLW, VIO, BLK, ORG, BRN</b>
R8	1	510K	Metal film, 1/4W, <b>GRN, BRN, BLK, ORG, BRN</b>
R15	1	2M2	Metal or carbon film, 1/4W, <b>RED, RED, YLW / GRN...</b>
R31	1	LED current limiter	33K for high intensity clear LED, or as per requirement.
L1	1	6800μ / 0.0068H	Axial inductor/choke (install standing upright). Alternative: 22Ω resistor
<b>Diodes</b>			
D3, D4, D5, D8, D9	5	1N4148	Alternative: 1N914, 1N4004
D10	1	1N5819	
D6, D7	2	Germanium	Prefer low forward voltage drop. Alternative: 1N5819
D2	1	3mm LED	(part number not marked on board)
<b>Capacitors</b>			
C3, C10, C14	3	100p	101, ceramic, 5.08mm pitch
C33	1	470p	471, ceramic, 5.08mm pitch
C4	1	100n / 0.1μ	104, ceramic, 5.08mm pitch
C13, C16	1	1n / 0.001μ	102, Polyester film (greencap), 3.5mm pitch
C26	1	4n7 / 0.0047μ	472, Polyester film (greencap), 4mm pitch
C27	1	6n8 / 0.0068μ	682, Polyester film (greencap), 4mm pitch
C7, C22	2	22n / 0.022μ	223, Polyester film (greencap) or MKT, 5.08mm pitch
C1, C6, C8, C9, C11	5	47n / 0.047μ	473, Polyester film (greencap) or MKT, 5.08mm pitch
C30	1	68n / 0.068μ	683, Polyester film (greencap) or MKT, 5.08mm pitch
C28, C29	2	100n / 0.1μ	104, Polyester film (greencap) or MKT, 5.08mm pitch
C12, C15, C34	3	1μ	105, MKT / polyester / polypropylene, 5.08mm pitch
C35	1	1μ5	Electrolytic, 16V minimum, 5mm width. 2mm pitch
C31	1	10μ	Electrolytic, 16V minimum, 5mm width. 2mm pitch
C2, C5, C25	3	220μ	Electrolytic, 16V minimum, 6.3mm width. 3.5mm pitch
<b>Semiconductors</b>			
Q1, Q6	2	2N5088	NPN transistor
Q2	1	2N5087	PNP transsitor
Q7	1	Germanium PNP or low gain silicon	3-way screw terminal block as socket, 3.5mm spacing. Or solder directly.
IC1, IC2, IC3	3	NJM4580L	
<b>Potentiometers (do not solder to PCB until all potentiometers and switches are tightly assembled in enclosure)</b>			
HIGH, LOW	2	5KB	Single gang, linear, 16mm
LEVEL	1	10KA	Single gang, log, 16mm
DIST	1	100KA	Dual gang, log, 16mm

**Switches (do not solder to PCB until all potentiometers and switches are tightly assembled in enclosure)**

FOCUS	1	DPDT toggle, ON-OFF-ON	Alternative: put in two link wires to not use switch
SI/GE	1	DPDT toggle, ON-ON	Alternative: put in two link wires to not use switch
BYPASS	1	3PDT foot switch	Latching type, off-board.

**Further notes:**

- When drilling enclosures by hand, there will *always* be some margin of error in alignment, at least due to drill bit drift. I suggest to over-drill the toggle switch holes slightly to 7mm. They will naturally find their correct centred position as you slowly tighten the nut, thereby avoiding alignment stress between the PCB pads and switch terminals. **This is why it is important not to solder any hardware to the board until all of the hardware is mounted in its final position**, with nuts fully tightened.
- This layout was designed for the Hammond 1590BS enclosure, with two Switchcraft #11 open frame mono sockets. The circuit board will fit snug, with barely any gap between the enclosure wall. A compatible drill layout is also available for 1590N1, and 125B enclosures, which have a little more space.
- Most small signal type diodes will work for the germanium and silicon clipping diodes (D3, D4, D5, D6, D7, D8, D9). Extra space is given for larger old-stock devices.
- An additional nut is optionally suggested to be installed on every potentiometer, as a spacer on the inside of the enclosure. This moves the pots closer to the circuit board, and pushes the legs a little deeper into the donuts. In that instance, the pot washer is not used, due to not having much thread left. Most knobs will then sit lower, very close to the enclosure. The additional nut is not recommended for split-shaft pots (push-on knobs).
- Be careful to trim all component legs very short near the dual pot, so that they don't short-circuit to the pot body. Make sure that the toggle switches hold the PCB far enough away from the pot to avoid shorting out, or otherwise use insulation on the dual pot. A standard plastic pot cover can be modified to fit a dual pot.
- The classic model used 10KG pots for the *LOW* and *HIGH* EQ controls. The range of these controls has been reduced, and common type 5KB pots have been used. To use 10K pots, replace resistors R3, R9, and R14 with 0Ω resistors, or link wires.
- Q2/Q7 are the main clipping transistors for the fuzz element of the circuit. This stage is well supported by prior transistors Q1, Q6, acting as buffer and volume boost, and is followed by a soft-clipping op amp compression stage. This controlled environment gives lots of room for experimentation of PNP type transistors. I used a low-leakage germanium transistor for Q7 in testing, around 118hFE. The *SI/GE* switch could be repurposed into a low/high gain mode, using a lower gain silicon transistor for Q7.
- The *SI/GE* switch can be removed. The stock silicon mode works great, anyway. For the stock setting, connect jumpers from both the left switch pads to the middle pads. Q7 and the socket are then not required.
- The *FOCUS* switch can similarly be removed. For a stock setting, connect jumpers from both the left switch pads to the middle pads. R32 and C8 are then (optionally) not required.
- The high parts count and parts density adds to the difficulty of this build, and is only recommended for experienced builders. Care is particularly required when soldering the hardware, to not melt neighbouring parts. Otherwise, there's nothing particularly tricky about the circuit, and it performs consistently using parts which aren't too difficult to source (except for the germanium transistor, which can be experimented with at any time).
- C3, C10, C14, C33 can be upgraded to axial polystyrene capacitors, installed standing upright.

**Debugging and feedback**

Unfortunately, I don't have the resources to help you to debug any circuits which are not working, as this will almost always be a soldering or assembly fault. I'm happy to chat about general advice and feedback about the circuit. Most of the part numbers match the original BOSS schematic to help with signal tracing.

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