Description

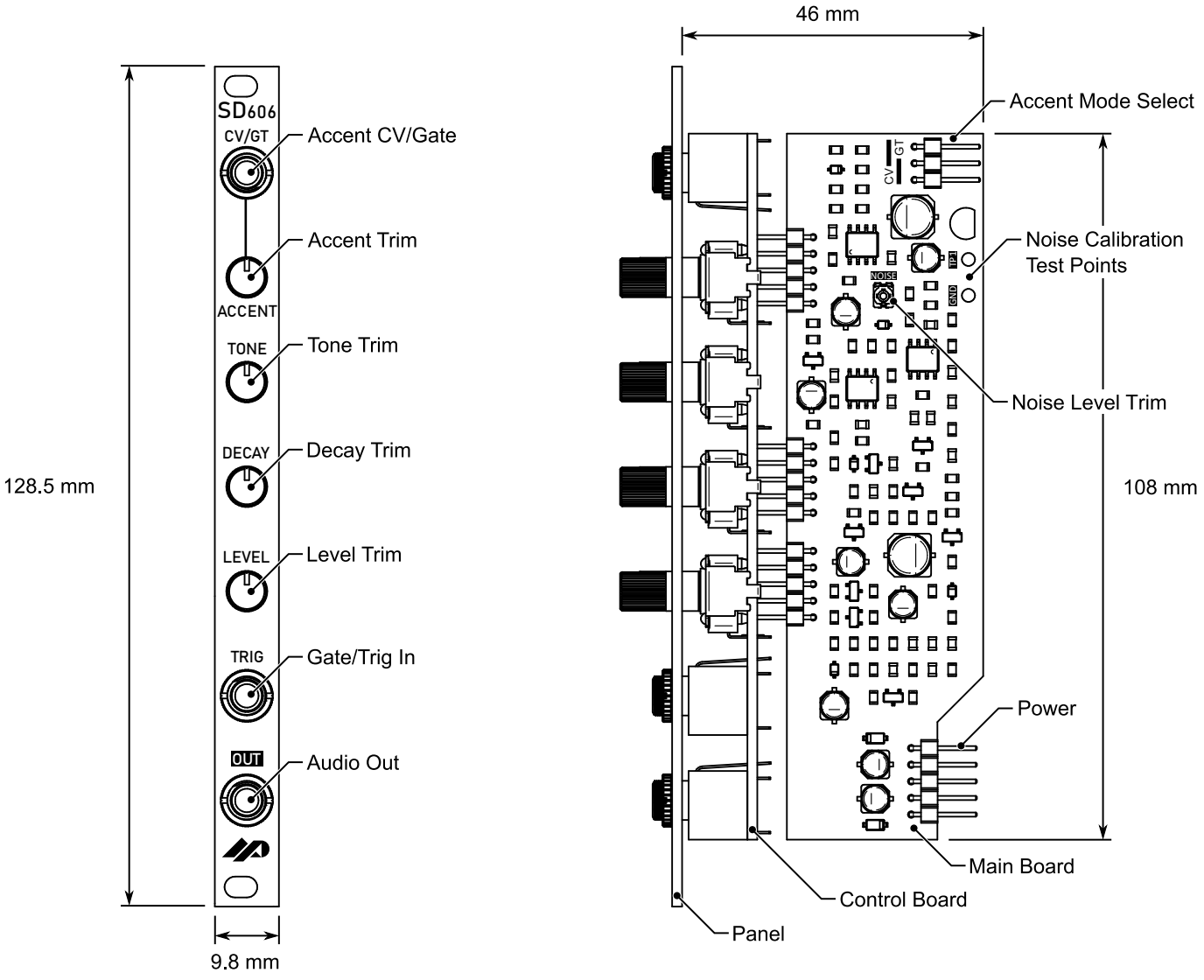
The SD-606 is a clone of the TR-606 Snare drum, modified to fit the Eurorack size format and voltage requirements. It supports additional functionality not available in the original TR-606 drum machine, including features that make it more suited to the modular synthesizer format.

The SD-606 module fits in a compact 2hp form factor to minimize used rack space and has a max depth of 46 mm with recessed power header to fit almost any rack size. All inputs are robust with overvoltage and reverse-voltage protection.

Features

- Compact 2hp form factor
- Internal gate to trigger conversion
- Dual selectable Accent (AC) input modes
  - AC CV mode
  - AC Gate (GT) mode
- Accent trim
- Drum Tone trim
- Noise Decay trim
- Output Level trim
- Input overvoltage and reverse-polarity protection
- Power input reverse-polarity protection

Module Layout



Functionality

Gate/Trig

The Gate/Trig input takes gate inputs longer than 1ms in duration and converts them into 1ms timed pulses. This avoids any need for an external gate to trigger converter and prevents double-triggering on the falling edge of longer gate inputs. Note that input pulses shorter than 1ms are not altered. Gate/Trig inputs can be any voltage between 5V and 12V.

Tone

The Tone trim sets the pitch of the drum sound. A wide range of snare tones are selectable from deep to very high pitched.

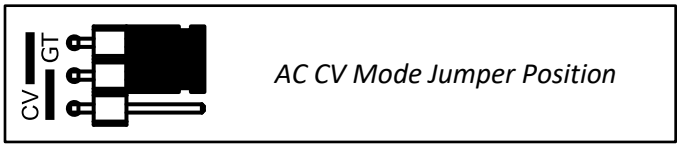
Noise Decay

The Noise Decay trim sets the decay length of the snare noise generator. This can be short and snappy like the original TR-606

Accent

The Accent (AC) effect adds a dynamic feel to a drum sequence by modifying the strength of the drum hit (i.e. volume). The Accent effect can be set by the Accent trim alone (with no physical inputs to the AC CV/GT jack), or with external voltages. The SD-606 has two accent modes for external voltages, selectable with a jumper and 3-pin mode-select header: AC CV Mode and AC GT Mode.

AC CV Mode

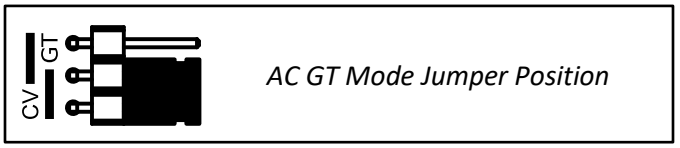


AC CV Mode Jumper Position

AC CV Mode allows the Accent setting to be modified by an external analog CV input. This input can range from 0V to 6V, with 0V being a 'light' drum hit and 6V being a 'hard' hit. CV input voltages larger than 6V will not damage the module, however they will also not further increase the accent setting.

In AC CV mode the Accent trim acts as an offset for the CV input. The Accent trim setting will always be active and applied to every beat, regardless of the presence of a CV input.

AC GT Mode



AC GT Mode Jumper Position

AC GT mode allows the Accent effect to be gated (On/Off) rather than continuously variable, similar to the functionality of the original TR-606. To gate the Accent effect (i.e., turn it On), any voltage between 5V and 12V (High) can be used. A voltage input less than 2V (Low) will turn the Accent effect Off.

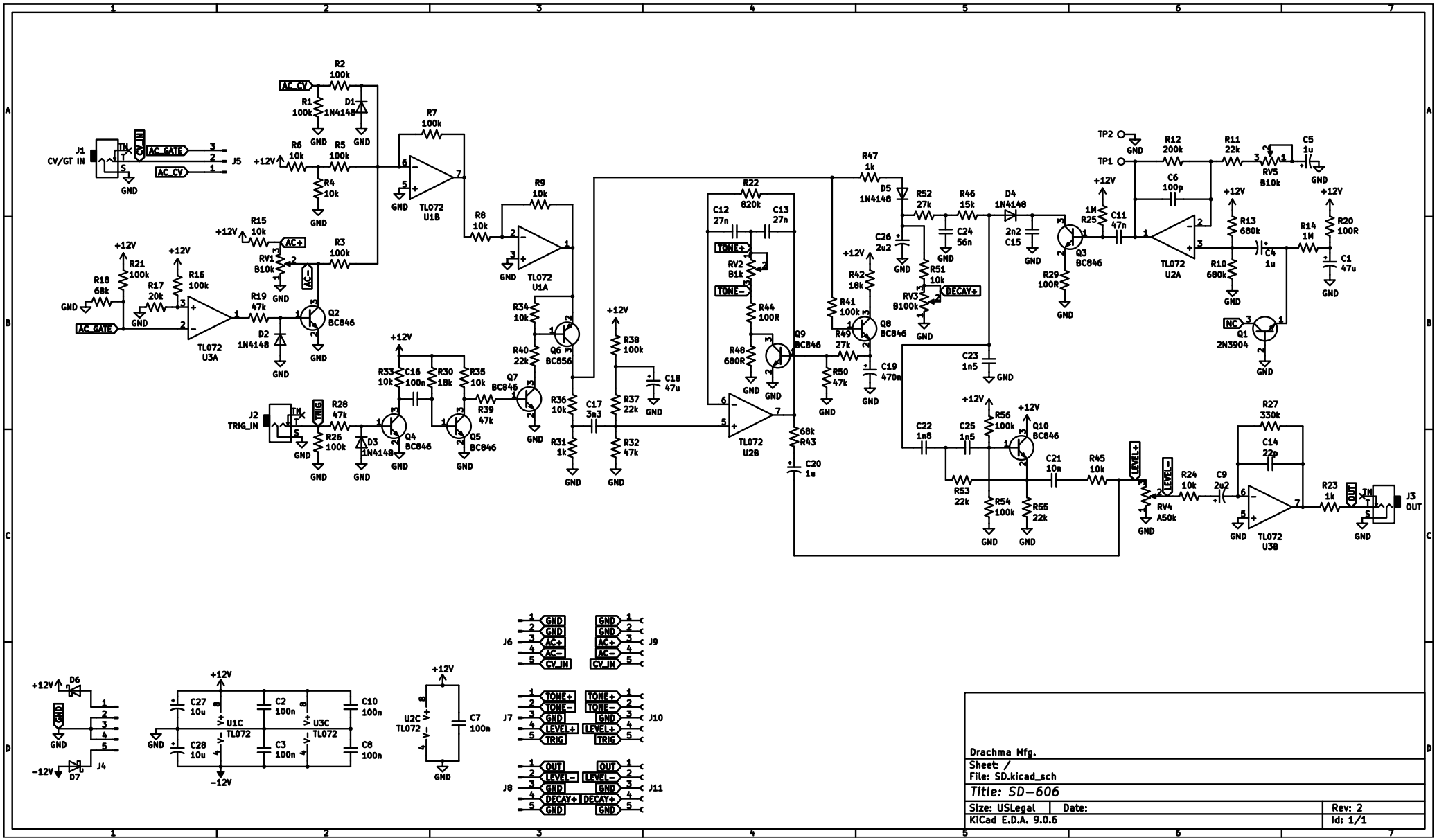
Thought the AC GT input should be treated like any other digital gate input, note that it is internally pulled up to +5V. Floating input signals will be treated as a High input, allowing for the use of the Accent trim with no physical inputs to the AC CV/GT jack. In order to leave beats un-accented in AC GT Mode, the AC GT input must be pulled down to GND.

Bill of Materials

Value	Qty.	Name on Board	Description	Footprint
100Ω	3	R20, R29, R44	100Ω 1% 0.125W Resistor	0805
680Ω	1	R48	680Ω 1% 0.125W Resistor	0805
1kΩ	3	R23, R31, R47	1kΩ 1% 0.125W Resistor	0805
10kΩ	12	R4, R6, R8, R9, R15, R24, R33, R34, R35, R36, R45, R51	10kΩ 1% 0.125W Resistor	0805
15kΩ	1	R46	15kΩ 1% 0.125W Resistor	0805
18kΩ	2	R30, R42	18kΩ 1% 0.125W Resistor	0805
20kΩ	1	R17	20kΩ 1% 0.125W Resistor	0805
22kΩ	5	R11, R37, R40, R53, R55	22kΩ 1% 0.125W Resistor	0805
27kΩ	2	R49, R52	27kΩ 1% 0.125W Resistor	0805
47kΩ	5	R19, R28, R32, R39, R50	47kΩ 1% 0.125W Resistor	0805
68kΩ	2	R18, R43	68kΩ 1% 0.125W Resistor	0805
100kΩ	12	R1, R2, R3, R5, R7, R16, R21, R26, R38, R41, R54, R56	100kΩ 1% 0.125W Resistor	0805
200kΩ	1	R12	200kΩ 1% 0.125W Resistor	0805
330kΩ	1	R27	330kΩ 1% 0.125W Resistor	0805
680kΩ	2	R10, R13	680kΩ 1% 0.125W Resistor	0805
820kΩ	1	R22	820kΩ 1% 0.125W Resistor	0805
1MΩ	2	R14, R25	1MΩ 1% 0.125W Resistor	0805
22pF	1	C14	22pF 50V C0G MLCC	0805
100pF	1	C6	100pF 50V C0G MLCC	0805
1.5nF	2	C23, C25	1.5nF 50V C0G MLCC	0805
1.8nF	1	C22	1.8nF 50V C0G MLCC	0805
2.2nF	1	C15	2.2nF 50V C0G MLCC	0805
3.3nF	1	C17	3.3nF 50V C0G MLCC	0805
10nF	1	C21	10nF 50V C0G MLCC	0805
27nF	2	C12, C13	27nF 50V C0G MLCC	0805
47nF	1	C11	47nF 25V C0G MLCC	0805
56nF	1	C24	56nF 50V X7R MLCC	0805
100nF	6	C2, C3, C7, C8, C10, C16	100nF 50V X7R MLCC	0805
470nF	1	C19	470nF 50V Elec. Capacitor	4x5.4mm SMD
1uF	3	C4, C5, C20	1uF 50V Elec. Capacitor	4x5.4mm SMD
2.2uF	2	C9, C26	2.2uF 50V Elec. Capacitor	4x5.4mm SMD
10uF	2	C27, C28	10uF 25V Elec. Capacitor	4x5.3mm SMD
47uF	2	C1, C18	47uF 25V Elec. Capacitor	6.3x5.5mm SMD
BC846 NPN	8	Q2, Q3, Q4, Q5, Q7, Q8, Q9, Q10	BC846 NPN Transistor	SOT-23
BC856 PNP	1	Q6	BC856 PNP Transistor	SOT-23
2N3904 NPN	1	Q1	2N3904 NPN Transistor	TO-92-3
1N4148 Diode	5	D1, D2, D3, D4, D5	1N4148 Gen. Purp. Diode	SOD-323
Schottky Diode	2	D6, D7	Schottky Diode 40V	SOD-123
TL072	3	U1, U2, U3	TL072 Dual Op Amp	SOIC-8 150mil

Bill of Materials (cont.)

Value	Qty.	Name on Board	Description	Footprint
B1kΩ Pot Lin	1	RV2	1k Lin. Potentiometer	Alpha 9mm vertical
B10kΩ Pot Lin	1	RV1	10k Lin. Potentiometer	Alpha 9mm vertical
B10kΩ Trim Pot Lin	1	RV5	10k Lin. Potentiometer	Bourns TC33X Vertical
B100kΩ Pot Lin	1	RV3	100k Lin. Potentiometer	Alpha 9mm vertical
A50kΩ Pot Log	1	RV4	50k Log. Potentiometer	Alpha 9mm vertical
3.5mm Jack	3	J1, J2, J3	3.5mm Mono Jack	PJ-3001F
5-Pin Header	4	J4, J6/9, J7/10, J8/11	2.54mm Header 5x1	2.54mm 5-pin right angle
3-Pin Header	1	J5	2.54mm Header 3x1	2.54mm 3-pin right angle
2-Position Jumper	1	N/A (For use on J5)	2.54mm 2-Pos. Jumper	N/A



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