Sand Device

Based on:
EQD Dunes

Effect type:
Transparent Overdrive

Build difficult:
Intermediate

Number of parts:
Average, total 51 components

Technology:
Low noise transistors

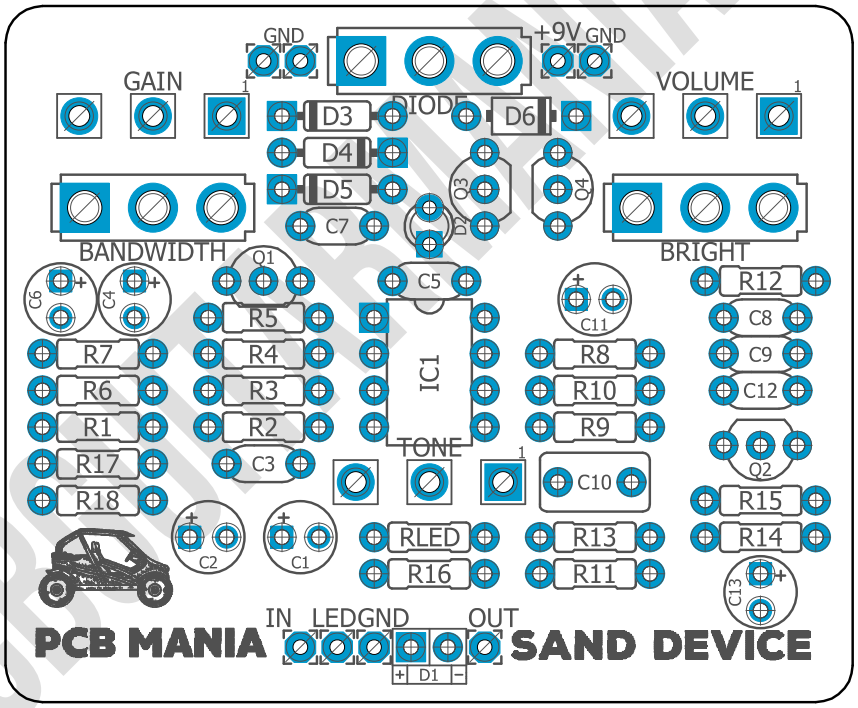
Power consumption:
9V

Enclosure type:
125b

Get your board at:
Sand Device

Get your kit at:
Das Musikding (Europe)

Project overview:
Inspired by EQD Dunes, Sand Device is the perfect pedal for the modern player who wants the purest mid-boosting transparent overdrive tones without unnecessary distractions. Basically, this board is a condensed, straightforward take on the highly popular Palisades “808-style” overdrive.



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Introduction

Imagine grabbing an EQD Palisades and stripping away all its extra glitz and glamour till you get to the pure core. The result? The Sand Device, an awesome board that has all the great tones of the grown-up Palisades but with a simplified interface and a smaller footprint!

Sand Device has the same features as the Palasides: Gain, Tone, and Level controls, along with the classical voice and bandwidth settings, as well as the Normal/Bright toggle.

You can choose selectable clipping voices. Try the MOSFET for a tight, crunchy sound. Switch to Silicon clipping for tighter light gain. Select None to go from clean boost to gritty, pure op-amp distortion with a massive volume boost.

The two Bandwidth settings are Stock for the classic tone and Full Range for lower end.

Gain: Adjusts distortion, dirtier clockwise, cleaner counter-clockwise.

Tone: Brighter clockwise, warmer counterclockwise.

Volume: Adjusts the output level.

Normal / Bright: Normal is a warm sound, Bright is a more vivid sound.

Bandwidth: To the left is brighter with more emphasis on the mids, to the right is the full range for more low frequencies.

Diode: MF-MOSFET (Mosfet diode clipping), N-No (diodeless clipping), Si-Silicon (silicon diode clipping).

Controls

Potentiometers

- Gain
- Tone
- Volume

Switches

- Bright
- Bandwidth
- Diode

Bill of materials

Resistors	
Part	**Value**
R1	1M
R2	1K
R3	560K
R4	10K
R5	22K
R6	22K
R7	1K
R8	1K
R9	10K
R10	1K
R11	330R
R12	1K
R13	560K
R14	10K
R15	100R
R16	1M
R17	10K
R18	10K
RLED	4K7

Capacitors	
Part	**Value**
C3	100n
C5	47p
C7	220n
C8	150n
C9	68n
C10	330n
C12	100n

Electrolytic Capacitors	
Part	**Value**
C1	47u
C2	47u
C4	1u
C6	10u
C11	1u
C13	10u

Potentiometers	
Part	**Value**
GAIN	500K A
TONE	B5K
VOLUME	B100K

IC	
Part	**Value**
IC1	LM833N

Transistors	
Part	**Value**
Q1	MPSA18
Q2	MPSA18
Q3	2N7000
Q4	2N7000

Switches	
Part	**Value**
-	3PDT Stomp foot
Bright	SPDT (On/On)
BANDWIDTH	SPDT (On/On)
Diode	SPDT (On/Off/On)

Diodes	
Part	**Value**
D1	3mm red LED
D2	3mm red LED
D3	1N4148
D4	1N4148
D5	1n4148
D6	1N5817

Jacks	
Part	**Value**
-	DC JACK
-	AUDIO JACK
-	AUDIO JACK

Shopping list

Resistors		
Qty	**Value**	**Parts**
1	100R	R15
5	10K	R4, R9, R14, R17, R18
5	1K	R2, R7, R8, R10, R12
2	1M	R1, R16
2	22K	R5, R6
1	330R	R11
1	4K7	RLED
2	560K	R3, R13

Capacitors		
Qty	**Value**	**Parts**
2	100n	C3, C12
1	150n	C8
1	220n	C7
1	330n	C10
1	47p	C5
1	68n	C9

Electrolytic Capacitors		
Qty	**Value**	**Parts**
2	10u	C6, C13
2	1u	C4, C11
2	47u	C1, C2

Potentiometers		
Qty	**Value**	**Parts**
1	500K A	GAIN
1	B100K	VOLUME
1	B5K	TONE

IC		
Qty	**Value**	**Parts**
1	LM833N	IC1

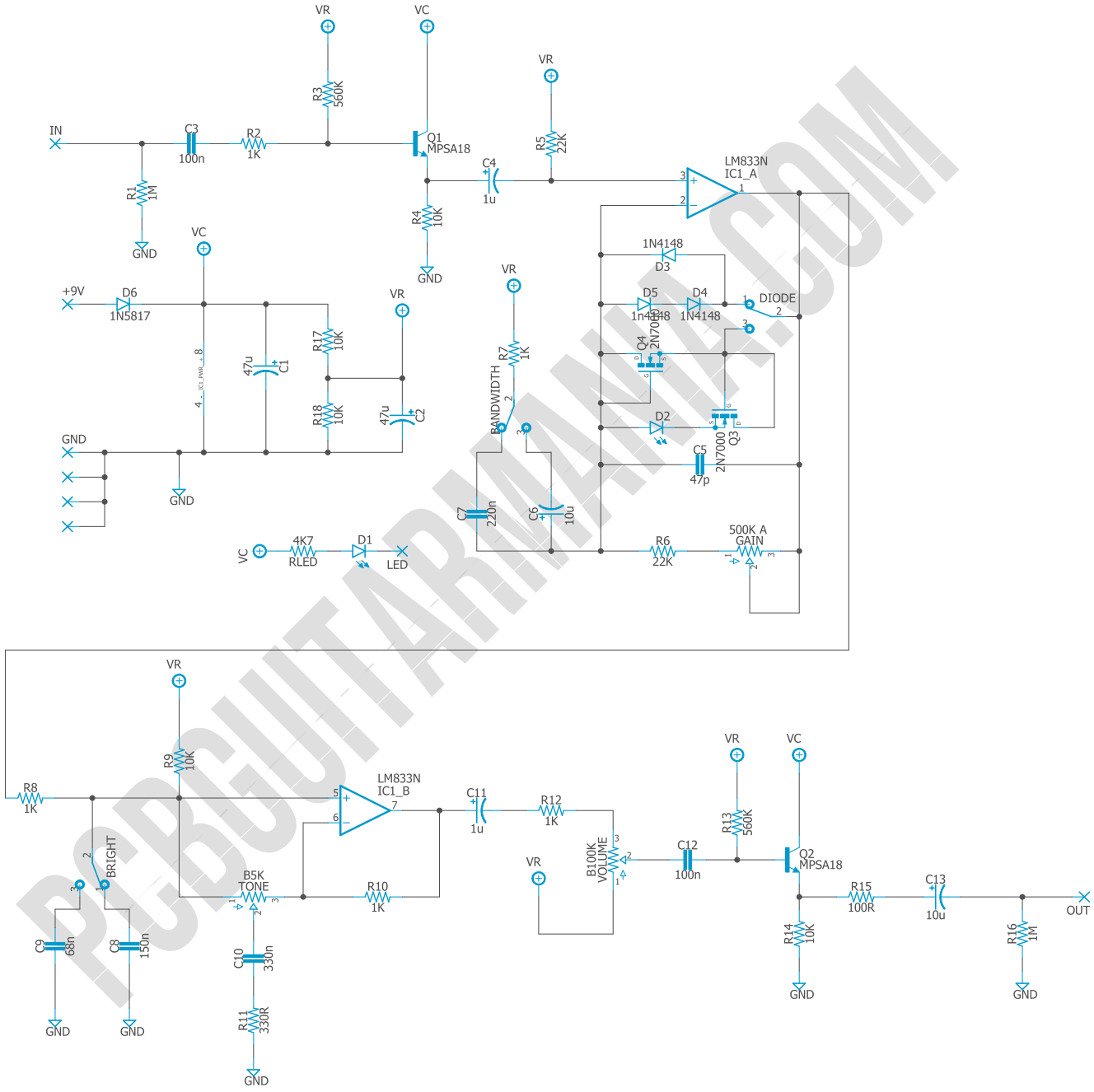
Transistors		
Qty	**Value**	**Parts**
2	2N7000	Q3, Q4
2	MPSA18	Q1, Q2

Switches		
Qty	**Value**	**Parts**
1	3PDT Stomp foot	-
1	SPDT (On(Off/On)	Diode
2	SPDT (On/On)	Bright, BANDWIDTH

Diodes		
Qty	**Value**	**Parts**
2	1N4148	D3, D4
1	1N5817	D6
1	1n4148	D5
2	3mm red LED	D1, D2

Jacks		
Qty	**Value**	**Parts**
1	DC JACK	-
2	AUDIO JACK	-

Schematic



Components Recommendations

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

This board has been tested using Film box capacitors for most of the values over 1nf and ceramics discs for those 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 exclusive regarding this project. It doesn't include all the hardware like the 3PDT bypass switch, audio/dc jacks, enclosure, etc.

Build Notes

If this is one of your first projects, I recommend you take a look at 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

Wiring Diagram

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 the control slug of your 3PDT.

This board has been designed to match our EZ 3PDT PCB; check it here to access our Pedal Wiring Guide.

Drill Template

This Project has been planned to fit into a 125b enclosure type.

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

Licensing and Usage

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

We try to reply to every question we receive on our email or our social media. Still, we try to encourage all our customers to join our PCB Guitar Mania – Builders Group on Facebook to post all your doubts, issues, suggestions, or requests, share your builds, and have some feedback from other fellow builders and us!

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

These boards may be used for commercial endeavors in any quantity unless expressly noted. No attribution is necessary, though accreditation or a link back is always much 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 to 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 silkscreen 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 designs with your brand and logo, we could undoubtedly reach an agreement.

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