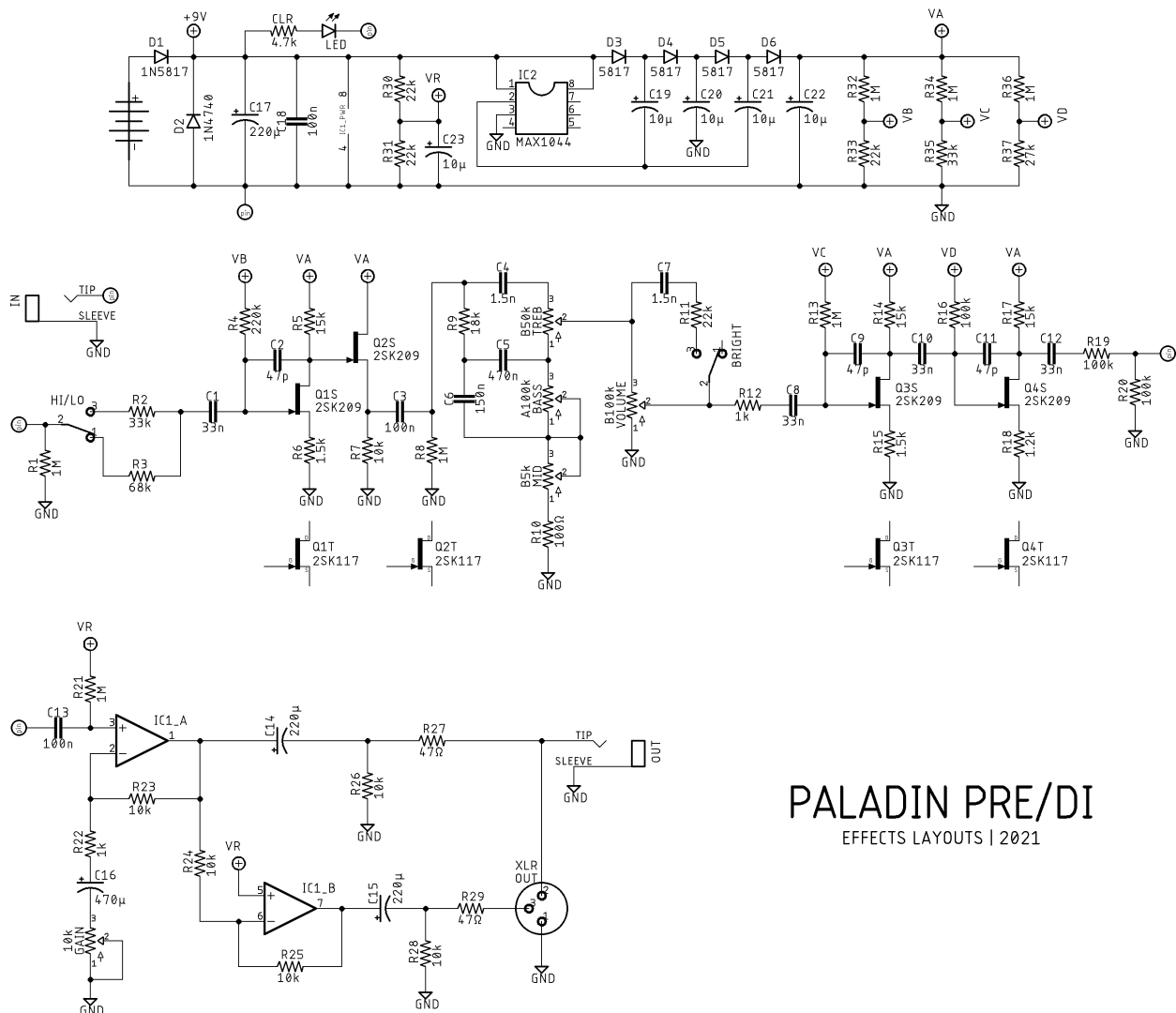


Paladin Pre/DI

DESCRIPTION

The PALADIN came about from my own personal need to have a direct out from my pedal board, but having some amp-like controls before my signal hit the PA. The concept is much the same as the SUNDERING, but with a guitar tuned preamp section. The preamp is based off the clean channel of the classic Roland JC-120, and features a charge pump to increase the internal voltage to 27 volts.

SCHEMATIC



PALADIN PRE/DI
EFFECTS LAYOUTS | 2021

BOM

Resistors

R1	1M
R2	33k
R3	68k
R4	220k
R5	15k
R6	1.5k
R7	10k
R8	1M
R9	18k
R10	100Ω
R11	22k
R12	1k
R13	1M
R14	15k
R15	1.5k
R16	100k
R17	15k
R18	1.2k
R19	100k
R20	100k
R21	1M
R22	1k
R23	10k
R24	10k
R25	10k
R26	10k
R27	47Ω
R28	10k
R29	47Ω
R30	22k
R31	22k
R32	1M
R33	22k
R34	1M
R35	33k
R36	1M
R37	27k
CLR	4.7k

Capacitors

C1	33n
C2	47p
C3	100n

C4	1.5n
C5	470n
C6	150n
C7	1.5n
C8	33n
C9	47p
C10	33n
C11	47p
C12	33n
C13	100n
C14	220μ
C15	220μ
C16	470μ
C17	220μ
C18	100n
C19	10μ
C20	10μ
C21	10μ
C22	10μ
C23	10μ

Semiconductors

D1	1N5817
D2	1N4740
D3	1N5817
D4	1N5817
D5	1N5817
D6	1N5817
IC1	TL072
IC2	MAX1044
LED	3 or 5mm
Q1	2SK117 or 2SK209
Q2	2SK117 or 2SK209
Q3	2SK117 or 2SK209
Q4	2SK117 or 2SK209

Electromechanical

Bass	A100k
Bright	SPDT on/on
Gain	10k trimmer
Hi/Lo	SPDT on/on
Mid	B5k
Treble	B50k
Volume	B100k

Notes

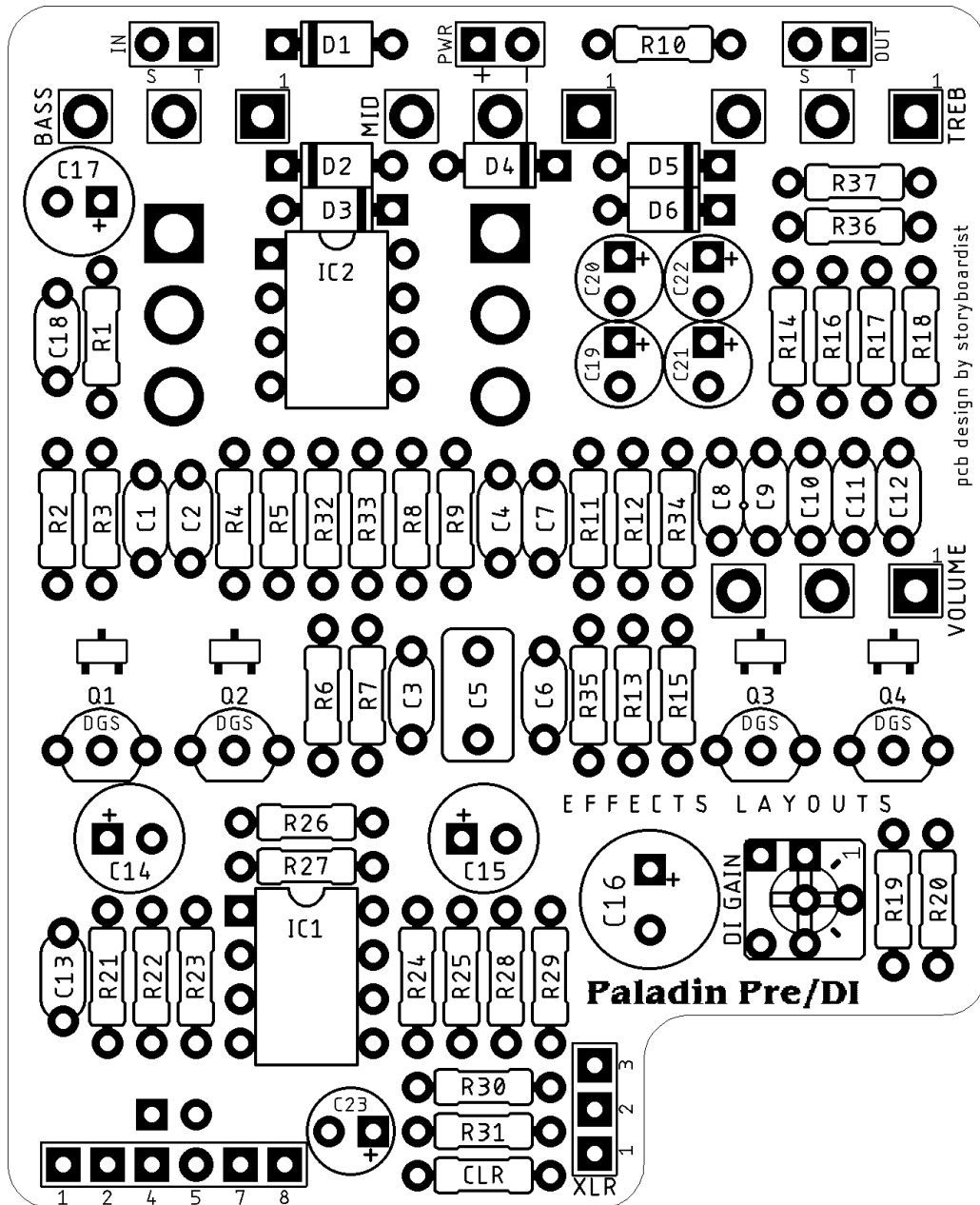
As in-spec through-hole 2SK117s are difficult to source, pads are provided for the 2SK209, the SMD equivalent. The Gain trim controls the gain of the active DI portion of the circuit. Adjust as needed.

SHOPPING LIST

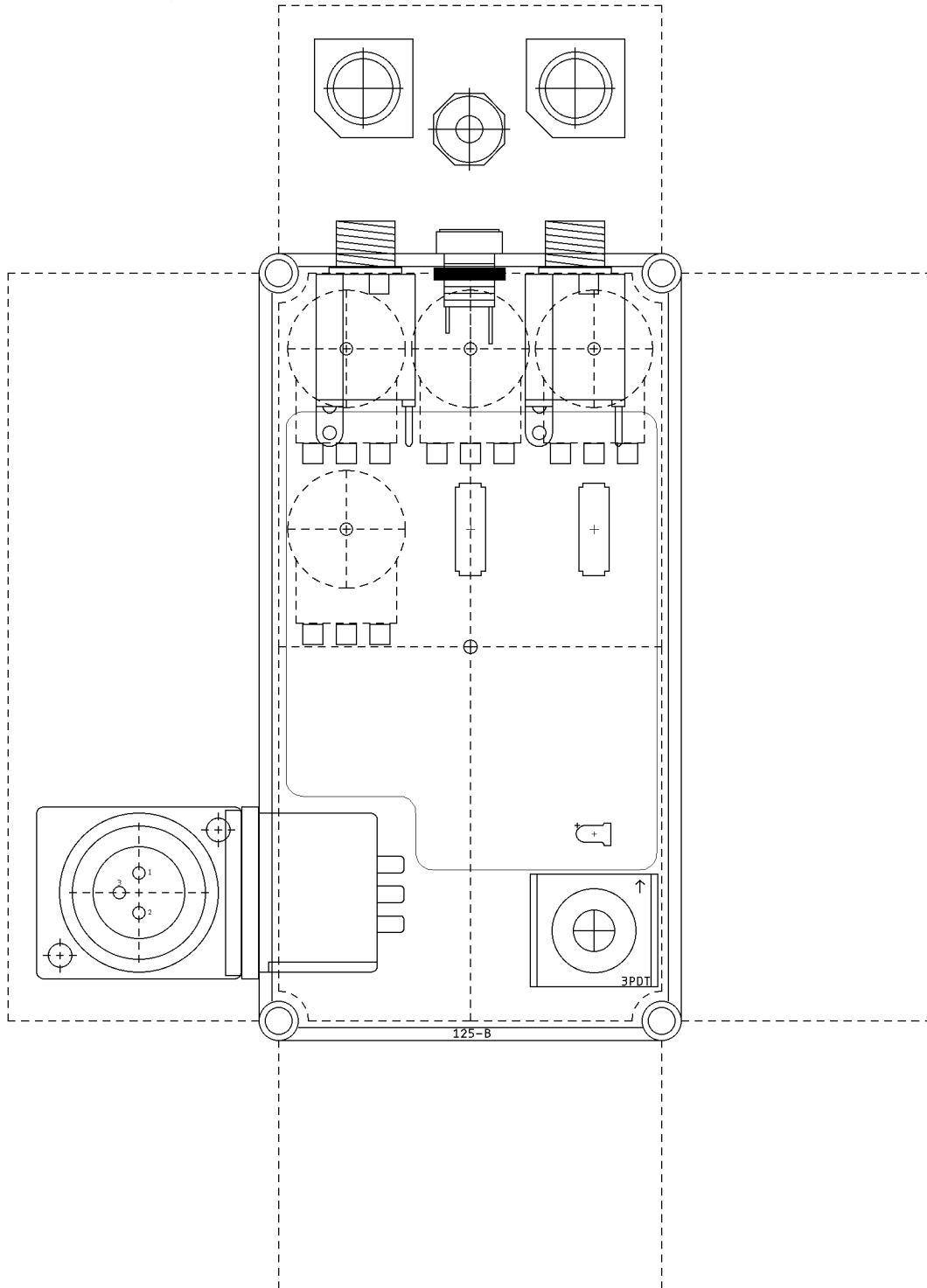
Value	Type (suggested)	Quantity
47Ω	¼ watt metal or carbon film	2
100Ω	¼ watt metal or carbon film	1
1k	¼ watt metal or carbon film	2
1.2k	¼ watt metal or carbon film	1
1.5k	¼ watt metal or carbon film	2
4.7k	¼ watt metal or carbon film	1
10k	¼ watt metal or carbon film	6
15k	¼ watt metal or carbon film	3
18k	¼ watt metal or carbon film	1
22k	¼ watt metal or carbon film	4
27k	¼ watt metal or carbon film	1
33k	¼ watt metal or carbon film	2
68k	¼ watt metal or carbon film	1
100k	¼ watt metal or carbon film	3
220k	¼ watt metal or carbon film	1
1M	¼ watt metal or carbon film	7
47p	Ceramic	3
1.5n	Film	2
33n	Film	4
100n	Film	3
150n	Film	1
470n	Film	1
10μ	Electrolytic (35v+)	5
220μ	Electrolytic (25v+)	3
470μ	Electrolytic (25v+)	1
1N4740	10v Zener diode	1
1N5817	Schottky rectifier diode	5
2SK117/2SK209	JFET	4
LED	3 or 5mm	1
MAX1044	Voltage converter	1
TL072	Dual opamp	1
10k	Trim pot	1
A100k	16mm right angle PC mount	1
B5k	16mm right angle PC mount	1
B50k	16mm right angle PC mount	1
B100k	16mm right angle PC mount	1

The PCB is designed with these caps in mind: 220µF caps - <https://bit.ly/38GkhT8> 470µ cap - <https://bit.ly/30VHqOs>

LAYOUT



DRILL TEMPLATE (125B)



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Not for non-peer to peer resale.