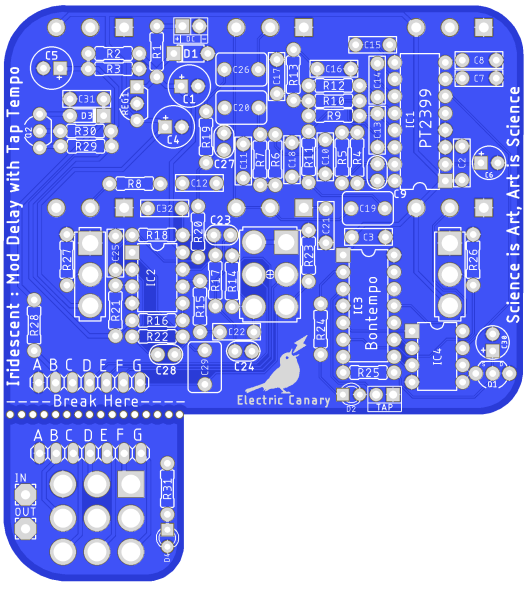
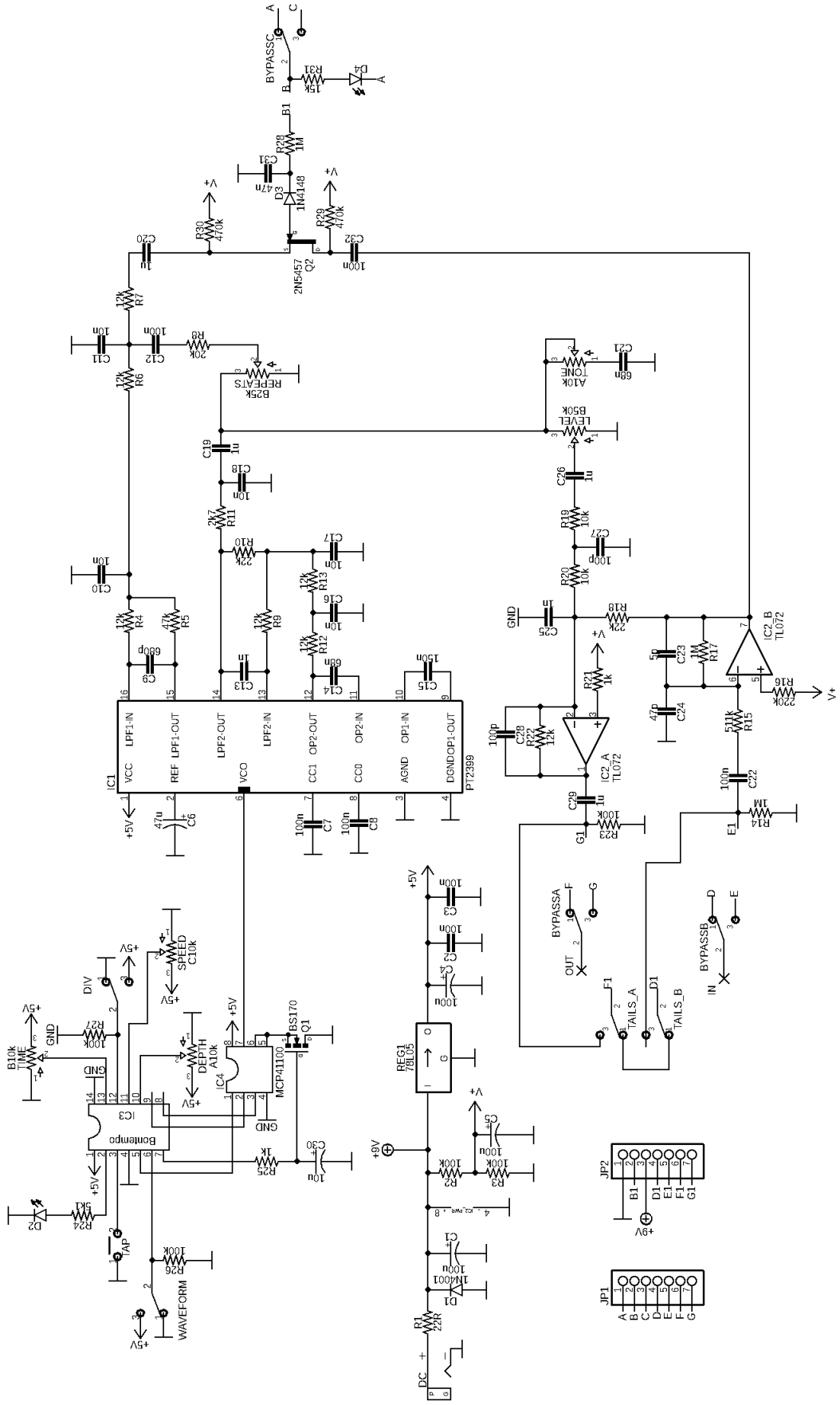
Iridescent - Build Documentation

Iridescent is an intuitive Lo-Fi Tape Delay with Tap Tempo & Modulation. The circuit is powered by the Bontempo project. It includes 2 user presets, 6 tempo divisions, 6 modulation waveforms, a Clean Mode and Tempo Save. **It needs a calibrated Bontempo chip to be fully operational.** For complete information about operating the Bontempo please refer to the datasheet.



1 Schematic


BYPASSC
R31
15k
D4
R28
1M
C31
47n
D3
1N4148
R30
470k
R29
470k
C32
100n
C20
1u
2N5457
Q2
V+
12k
R7
10n
C11
100n
C12
R8
20k
REPEATS
B25K
12k
R6
A10K
TONE
C21
68n
B50K
LEVEL
C19
1u
C18
10n
2k7
R11
R10
22k
C17
10n
C10
10n
12k
R4
47k
R5
680p
C9
12k
R13
C16
10n
12k
R12
68n
C14
12k
R9
1n
C13
150n
C15
IC1
PT2399
LPF1-IN
LPF1-OUT
LPF2-OUT
LPF2-IN
OP2-OUT
OP2-IN
OP1-IN
VCC
REF
VCO
CC1
CC0
AGND
DGND
OP1-OUT
+5V
47u
C6
100n
C7
100n
C8
C26
1u
R19
10k
C27
100p
R20
10k
GND
C25
1n
R18
22k
IC2_B
TL072
R16
220k
V+
5p
C23
1M
R17
47p
C24
R21
1k
100p
C28
R22
12k
IC2_A
TL072
511k
R15
C29
1u
100k
R23
100n
C22
1M
R14
G1
E1
BYPASSA
OUT
F
G
BYPASSB
IN
D
E
F1
TAILS_A
D1
TAILS_B
+5V
100n
C3
100n
C2
100u
C4
REG1
78L05
I
O
G
+9V
C5
100u
R2
100k
R3
100k
C1
100u
1N4001
D1
R1
22R
DC
JP2
B1
D1
E1
F1
G1
+9V
JP1
A
B
C
D
E
F
G
+5V
SPEED
C10k
DIV
B10k
TIME
R27
100k
GND
DEPTH
A10k
IC4
MCP41100
BS170
Q1
IC3
Bontempo
R25
1k
C30
10u
D2
R24
5k1
TAP
R26
100k
WAVEFORM

2 Bill of Materials

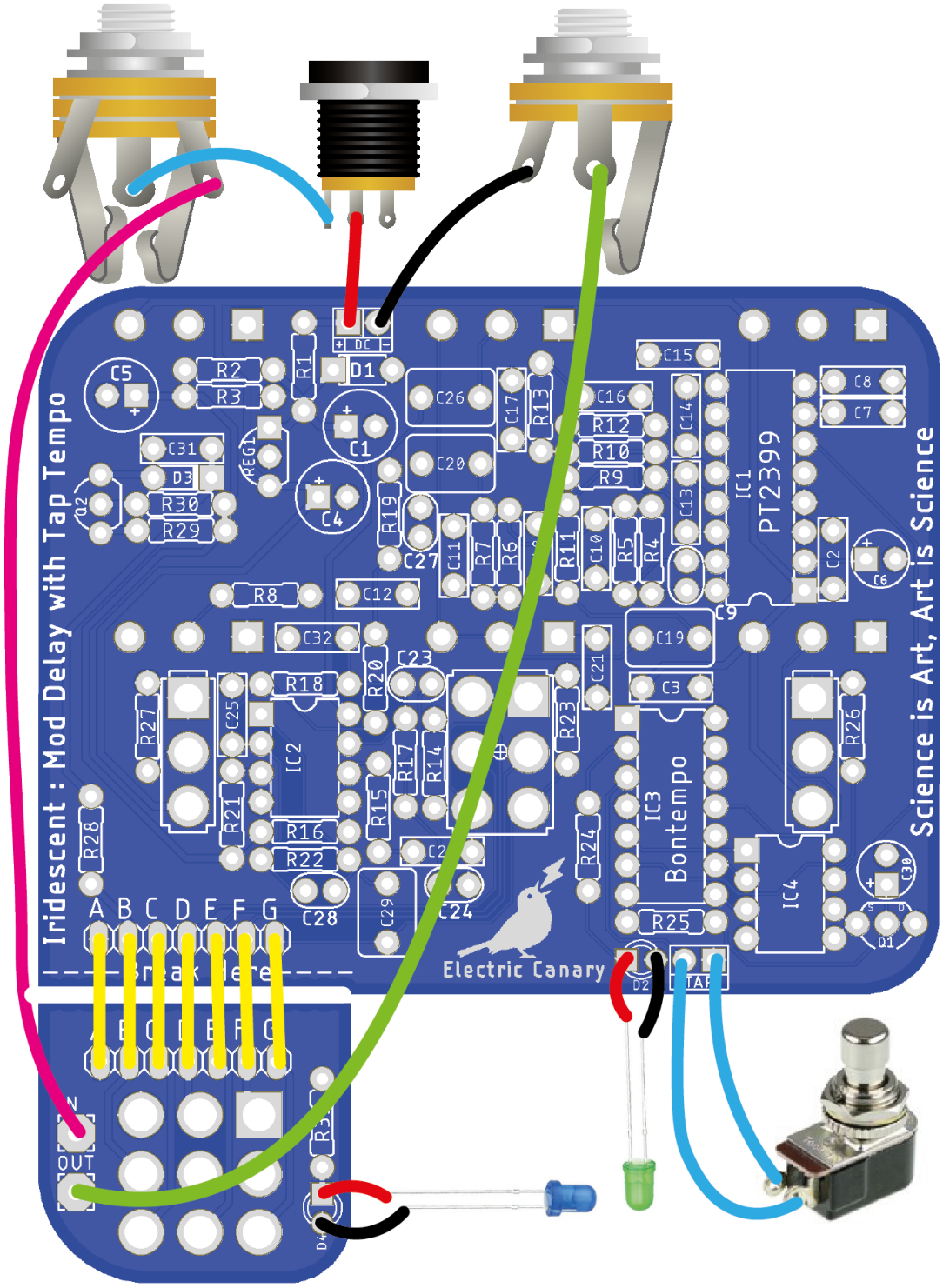
Name	Value
R1	22Ω
R21, R25	1kΩ
R11	2k7Ω
R24	5k1Ω
R19, R20	10kΩ
R4, R6, R7, R9 R12, R13, R22	12kΩ
R31	15kΩ
R8	20kΩ
R10, R18	22kΩ
R5	47kΩ
R2, R3, R23, R26 R27	100kΩ
R16	220kΩ
R29, R30	470kΩ
R15	511kΩ
R14, R17, R28	1MΩ

Name	Value
C23	5pF
C24	47pF
C27, C28	100pF
C9	680pF
C13, C25	1nF
C10, C11, C16, C17 C18	10nF
C31	47nF
C14, C21	68nF
C2, C3, C7, C8 C12, C22, C32	100nF
C15	150nF
C19, C20, C26, C29	1μF (NP)
C30	10μF
C6	47μF
C1, C4, C5	100μF

Name	Value
D1	1N4001
D2, D4	LED
D3	1N4148
Q1	BS170
Q2	2N5457
REG1	78L05
IC1	PT2399
IC2	TL072
IC3	Bontempo
IC4	MCP41100

Name	Value
Time	B10k
Speed	C10k
Depth	A10k
Repeats	B25k
Level	B50k
Tone	A10k
DIV	SPDT On-Off-On
Waveform	SPDT On-Off-On
Tails	DPDT On-On
Tap	SPST Momentary
Bypass	3PDT

3 Wiring Diagram



4 Build Notes

- Solder preferably in this order: resistors, diodes, small ceramic caps, transistors & regulators, ICs, film caps, electrolytics, switches, pots.
- The pots and switches are meant to be placed on the solder side (and soldered from the component side).
- This board is designed for right-angled PCB-mounted pots. Be careful not to create short circuits with the body of the pots against the pads. Some tape or adhesive foam can prevent that.
- A bypass switch daughter board is included. You just need to break the PCB following the line of small holes. Be careful not to damage the PCB in the process. This isn't a standard True Bypass wiring, so another daughter board wont work.
- You have to connect the 7 pads between the daughter board and the main board. Just connect the identical letters.
- Don't forget to calibrate the Tap Tempo once you're finished ! (Datasheet Section 9.)
- Higher values for the Time, Speed & Depth pots could be used. Lower values are not recommended. Maybe don't exceed 250k since a higher value means a less precise control.
- If the LEDs are too bright you can augment R24 & R31 values. The contrary is possible too, just don't go under 1kΩ.
- Square pads represent pin 1 of pots & ICs, + for LEDs & polarized capacitors.
- This circuit could operate with a power voltage between 7 and 30V. However a standard 9V is recommended since most of the circuit operates at 5V internally.
- The standard power consumption of the Iridescent is around 50mA.

5 Drill Template