

1Khz to 20Mhz Low Power Oscillator

This is a precision, low power oscillator that occupies very little space. The oscillator frequency is adjustable using an onboard multi-turn trimmer potentiometer. The output of the circuit is very accurate and has a 1.5% frequency error. The project operates with a single 5V power supply and provides a rail-to-rail, 50% duty cycle square wave output. The CMOS output driver of the chip ensures fast rise/fall times and rail-to-rail switching. A multi-turn trimmer provided to adjust the master oscillator frequency between 1Khz to 20Mhz. Jumper provided for the three-state DIV input which determines the master clock is divided by 1, 10,100 before the output, providing three frequency ranges spanning 1Khz to 20Mhz. The output of the project can drive 5 K Ω and/or 10pF loads. The output of the project is limited to 50mA.

Jumper/Sunt J1 Settings

J1 Connected to VCC = Frequency Output 1Khz to 200Khz (Set Pr1)

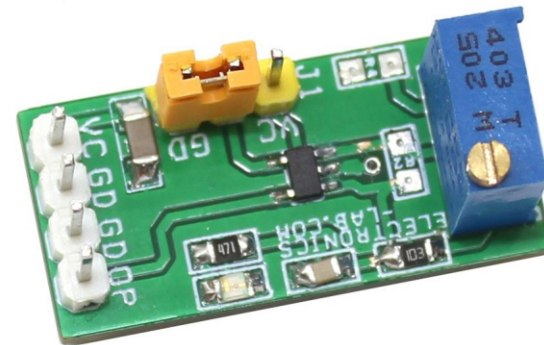
Jumper J1 Open = Frequency output 10Khz to 2Mhz (Set Pr1)

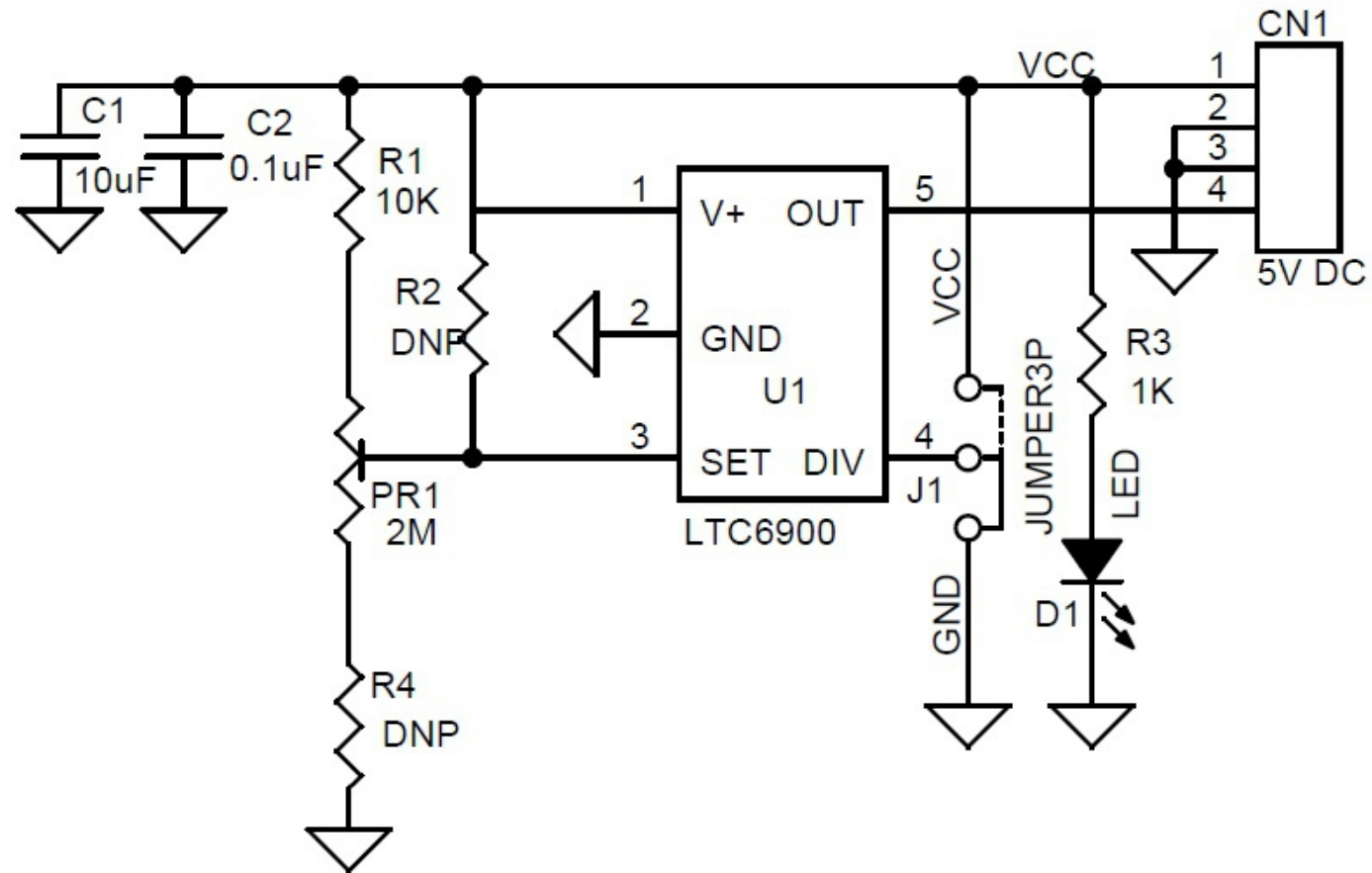
Jumper J1 GND= Frequency Output 100Kz to 20Mhz (Set Pr1)

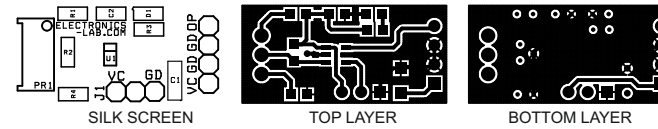
Note: Use a shielded high quality wire on output for high frequency output.

Features

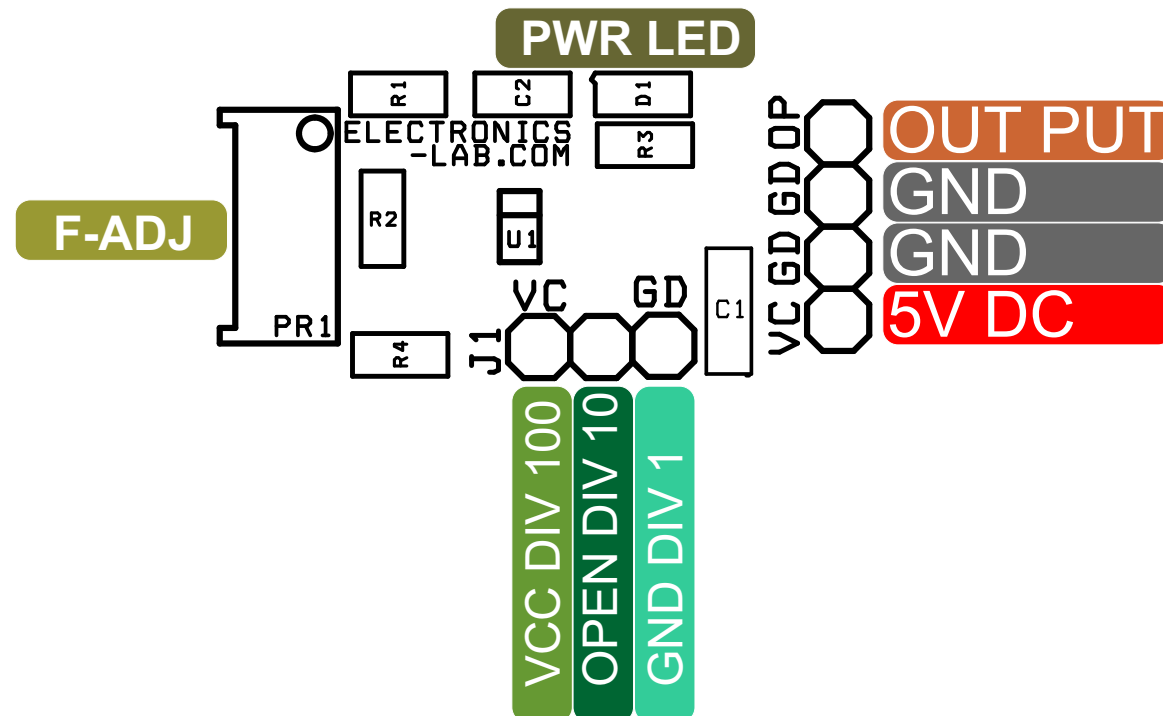
- Operating Power Supply 5V DC (8mA)
- Multi-turn trimmer to sets the frequency
- Output Current 50mA Maximum
- Jumper J1, Master Frequency Divider, 1, 10, 100
- Jumper J1 GND =N1, VCC=N100, Jumper Open N=10
- Output Frequency 1Khz to 20Mhz
- Frequency Error $\leq 1.5\%$ Max, 5kHz to 10MHz
- 50% $\pm 1\%$ Duty Cycle 1kHz to 2MHz
- 50% $\pm 5\%$ Duty Cycle 2MHz to 10MHz
- Fast Start-Up Time: 50 μ s to 1.5ms
- PCB Dimensions 27.31MM X 13.18MM







PCB DIMENSIONS 27.31MM X 13.18MM





BOM				
SR.	QNTY.	REF.	DESC.	VENDOR/DIGIKEY/MOUSER
1	1	CN1	4 PIN MALE HEADER 2.54MM PITCH	DIGIKEY S1011EC-40-ND
2	1	C1	10uF/16V SMD SIZE 1206	DIGIKEY 399-5091-1-ND
3	1	C2	0.1uF/50V SMD SIZE 0805	YAGEO
4	1	D1	LED RED SMD SIZE 0805	DIGIKEY 475-1415-1-ND
5	1	J1	JUMPER 3P/ SHUNT	DIGIKEY S9001-ND
6	1	PR1	2M MULI-TURN POT	DIGIKEY 3296W-205LF-ND
7	1	R1	10K 5% SMD SIZE 0805	YAGEO
8	2	R2,R4	DNP	OMIT
9	1	R3	1K 5% SMD SIZE 0805	YAGEO
10	1	U1	LTC6900	DIGIKEY LTC6900CS5#TRMPBFCT-ND

