

## **Sequential Electretinogram (SERG) Driver Notes and Parts List**

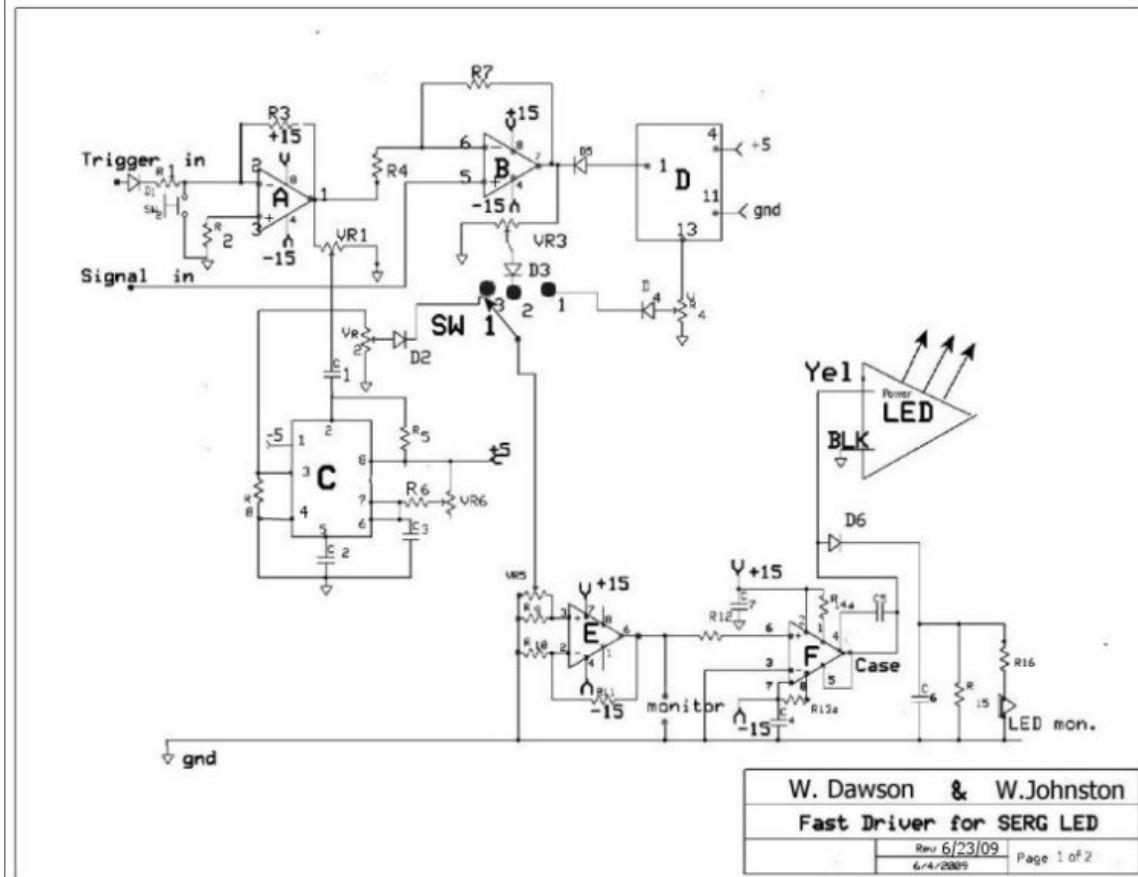
**Notes:** The driver circuit operates a high power LED with resolution of pulses from < 10 microseconds. The visible light can be in excess of 10,000,000 trolands and requires attention to eye safety. Light output and timing may be controlled by the driver or light pulses may be controlled externally by a waveform or pulse generator. The circuit is designed to operate with logic pulses of >3 volts or various shaped positive signals. Light output is independent of repetition rate.

**Circuit Discussion:** Function is controlled by SW 1. In position 3, a positive control pulse is amplified > 5 volts by amplifiers A, B, and with input to timer C. Chosen-time square wave is amplified up to saturation by VR5 and amplifier E and input to power amplifier F. F drives the power LED up to 800 ma, continuous or with time spacing from Trigger In. Switch 1 position 2 leads to no internal timing and sends the B amplified direct signal to the power driver E, F. Switch 1 position 1 positive trigger In is amplified and toggles on-off by flip-flop D. The on-off signal (external timing) drives E and F which control brightness. Internal timing provided by C ranges from 1 msec to 110 msec, time controlled by VR6. Diagram resolution is best after printing.

**Power supplies:** + -15v>1 amp, + 5 v>100 mamp.

### **Parts:**

**IC Devices:** A & B = LM 1458, double opamp amplifier. C = LM555, timer chip. D = 7473 flip-flop. E = AD711, opamp amplifier. F = LH002, power amplifier. Power LED = BWL-3A4A02H. 700 ma continuous; color temperature, 6500K; viewing angle 120 degrees; radiant power = 300 mw. (Bright LED electronics Corporation 3FI#19 Ho Ping Road Panchais, 220 Taipei Hsien, Taiwan; Telephone +886 2 2959 1090; Contact Danny Yee, [service @brtled.com](mailto:service@brtled.com)) or (American Bright, 13815-C Magnolia Ave, Chino, Ca 91710. (telephone 909-628-5050)



Diodes 1-6 = 1N4008 or 1N4148

Resistors: R1 - R16, ¼ watt; VR1 – 6, control potentiometers

R1 = 4.6K	R8 = 1.5M	R15 = 2.7K
R2 = 100K	R9 = 1.2K	R16 = 1K
R3 = 4.6K	R10 = 1K	VR1 = 10K
R4 = 4.6K	R11 = 11K	VR2 = 10K
R5 = 100K	R12 = 1K	VR3 = 5K
R6 = 33K	R13A = 10 + 3.3 parallel	VR4 = 10K
R7 = 4.6K	R14A = 2 + 4.3 parallel	VR5 = 5K brightness
		VR6 = 10K time

Capacitors: C1-C6, voltage ratings > 25 v

C1 = 47MF  
 C2 = .01MF  
 C3 = 47 MF  
 C4 = 4.7 MF  
 C5 = .001 MF  
 C6 = 4.7 MF