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4-Digit Stopwatch [EELKSW] by TRONIC.LK

The IC CD4026 used in this project has both a counter and 7-segment decoder in one package. This IC has a full static counter which is ideal for low power decade counting seven segment displays, frequency division seven segment decimal displays, clocks, watches, timers, counter/display driver for meter applications. One push button is used to stop /start the stopwatch and one push button is used to reset the stopwatch.

Working Principle

This stopwatch is designed to measure the amount of time that elapses between its activation and deactivation. Pin 1 which is the Clock pin is connected to the output of a 555 Timer Astable configuration. Free running pulse generated by 555 Timer IC is connected to the first CD4026 ICs whereas the carry out of each CD4026 IC is connected to the next CD4026 IC. When a given CD4026 counts up to 9, then becomes zero with the next pulse, the carry out pin is clocked for the next IC to step up and so on.

CD4026 is a 5 stage johnson decade counter belonging to a CD4000 series. It has many distinctive features than other decade counters. Firstly, it is ideal for applications having low power consumption requirement. Secondly, CD4026 counts from 0 to 9 and then resets to 0.

The L7805 used in this circuit is a widely used linear voltage regulator that reduces voltage to 5V given any voltage between 7V to 12V.

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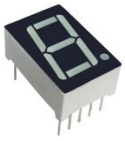
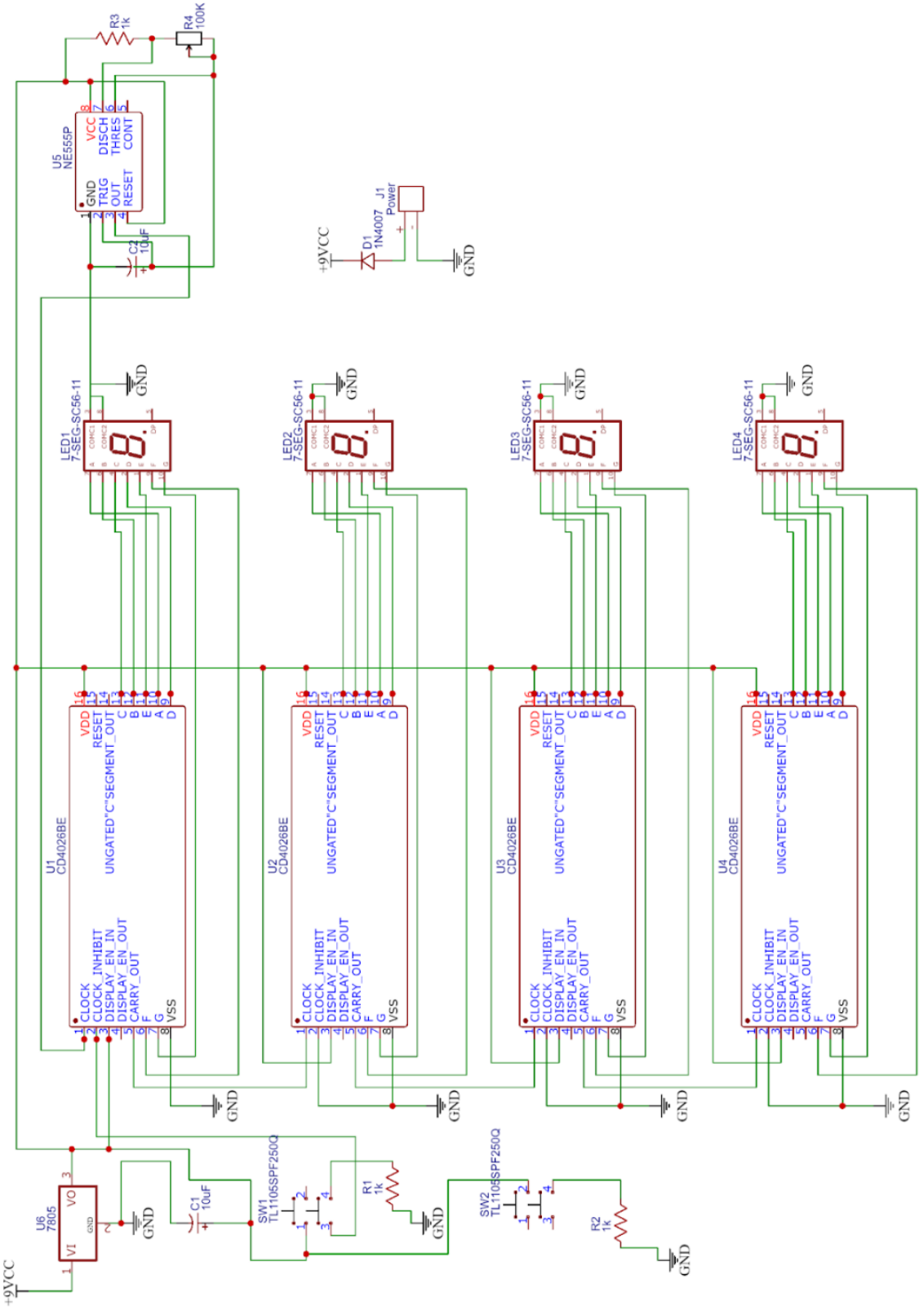
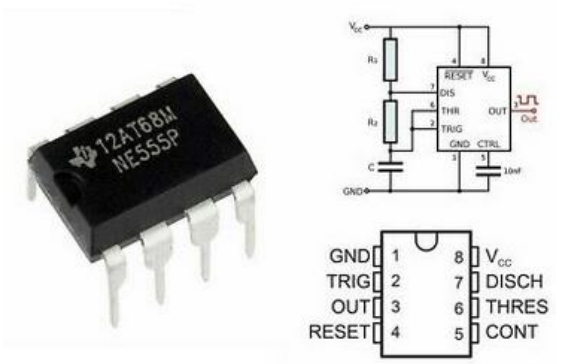
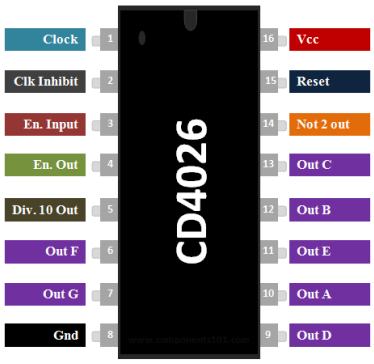
ITEM CODE	VALUE	DESIGNATOR	QUANTITY	IMAGE
CA0066	10uf	C1, C2	2	
DI0002	1N4007	D1	1	
TA0443	Header	H1	1	
RP0035	1K	R1 -R3	3	
RE0091	100K V/R	R4	1	
IC0011	CD4026BE	U1 - U4	4	
HE0016	16 Pin IC Base	U1 - U4	4	
IC0018	NE555	U5	1	
HE0014	8 pin IC Base	U5	1	
IC0124	L7805	U6	1	
BU0007	Tactile Switch	SW1, SW2	2	
DM0020	7 Segment C/C	LED1 - LED4	4	

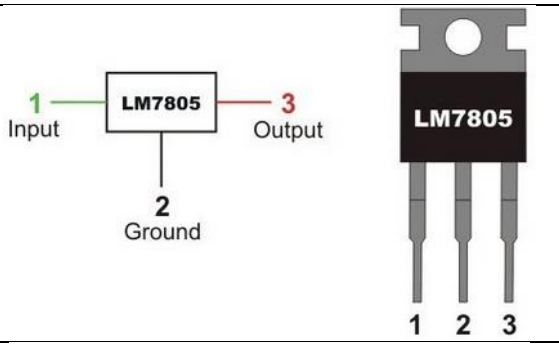
Supply Voltage: 7V to 12V

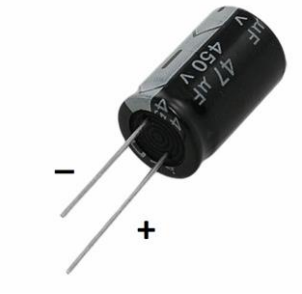


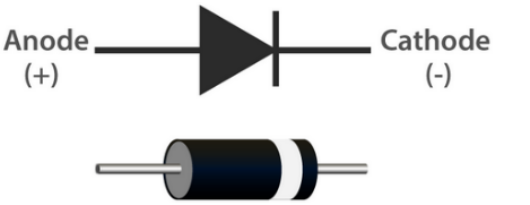
PIN DESCRIPTION OF SPECIAL COMPONENTS











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COMPONENTS & FINAL ASSEMBLY