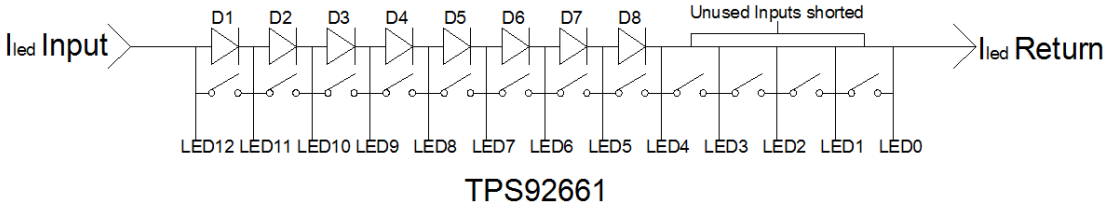
Dear Mike,

Thanks for your reply.

Mike: I would also suggest, based on your schematic, that you shift your 8 LEDs to be located on the lower 8 switches or the upper 8 switches. This will make your firmware much easier to code and improve your bandwidth based on the register mapping.

Jarod: According to your answer, I improve the schematics firstly and make sure the 8 LEDs are driven with upper switches.

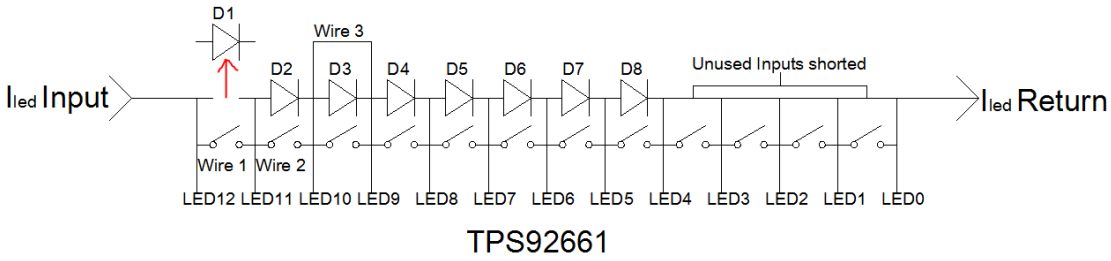


Mike: And just to be clear, your test presently shows a triple system fault (2 broken connections to the LEDs and a shorted LED. Was this the intent of your test?

Jarod: Actually, we want to simulate two faults that D1 OPEN and D3 SHORT at same time and read the fault register corresponding bits are correct or not.

And I still have some questions to confirm with you.

1. All about OPEN and SHORT detection schematic are based on LED OPEN threshold voltage and LED short threshold voltage between the LED_{n+1} and LED_n as datasheet mentioned, right?
2. If I want to simulate the D1 for open fault, only remove the D1 from PCB but NOT break the connections and maintain the wire 1 and wire 2 still connect from IC to the LED anode/cathode. The Vds of D1 is detected by IC whether over 6V typical threshold, right?



3. When we simulated the LED D3 SHORT via connecting Pin LED 10 and LED 9 with wire 3, fault register corresponding bit shold be set 1, but it was still not correct. And I think the Vds of D3 cannot be over 1.4V maximum threshold. Is something wrong with our simulation?
4. When the faults are detected, what's difference between whether utilizing phase shifting or not?
5. The 4 LED drivers (LED4, LED3, LED2, LED1, LED0) were unused, should the corresponding bits of **Enable Register** be set, keep the driven MOSFET always be ON?