



15 Cabot Road
Woburn, MA 01801

Tel: 781-935-1200
Fax: 781-935-2040
info@agiltron.com
www.agiltron.com

Application Note: Design a Driver for LB Series Fiber Optical Switch

Agiltron, Inc.

1. Description

The LightBend (LB) Series fiber optical switch connects optical channels by redirecting an incoming optical signal into a selected output fiber. This is achieved using patented non-mechanical configurations and activated via an electrical control signal. Latching operation preserves the selected optical path after the drive signal has been removed. The all solid state LB fiber optic switch features low insertion loss, high extinction ratio, high channel isolation, and extremely high reliability and repeatability. It is designed to meet the most demanding switching requirements of continuous operation without failure, longevity, operation under shock/vibration environment and large temperature variations, and fast response time. . This note is about how to design electronic driver for LB series fiber optical switch, example LB Dual full 2X2 Fiberoptic Switch (Single Mode, Latching Type).

2. Operation

The switch is actuated by applying a voltage pulse. Applying one polarity pulse, one light path will be connected and latched to the position. Applying a reversed polarity pulse, another light path will be connected and latched to the position after pulse removed. The driving signal must meet the following electrical requirements.

Parameter	Minimum	Typical	Maximum	Unit
Operating Voltage	5	5	7	V
Operating Current		30	60	mA
Pulse Duration		20		ms

2. Driver Example

Fig. 1 shows a typical +5VDC powered driving circuits. The resistor network R20-R21 is to suppress the driving signal's voltage level to meet the "switch voltage" requirements.

The Q1-Q2 is the control signal from either a function generator or a microcontroller general purpose I/O. The Q1-Q2 switching speed must meet the specific MOSFET switching requirement.

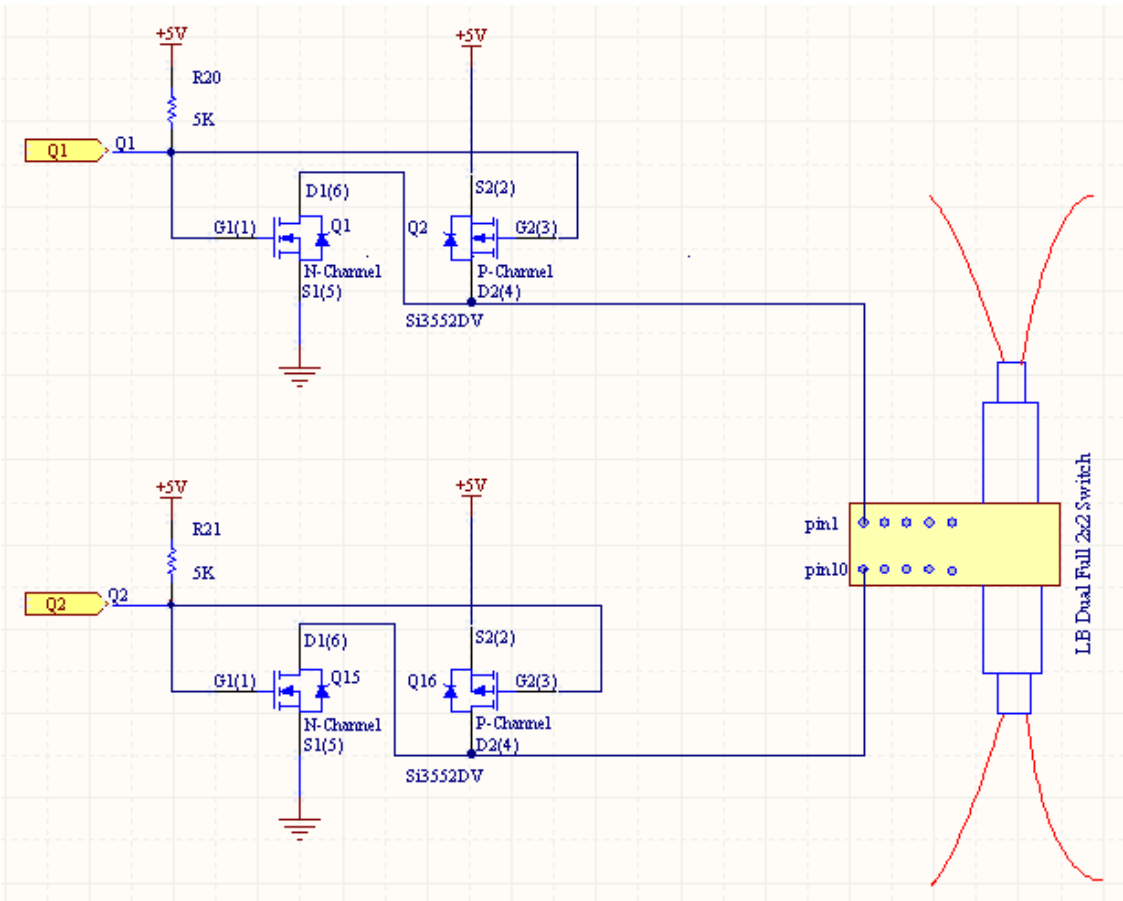


Fig. 1

3. PCB layout recommendations

Usually a clean power supply source will be sufficient. However, decoupling capacitors for the transistor supply rail are recommended depending on different applications. Minimum the current loop on the switching circuits will minimize the switching noise. For other layout recommendations please refer to books or application notes from the IC manufacturer.