LSI/CSI

APPLICATION NOTE 305

A3800

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ADAPTING THE LS7339, LS7340 TO SINGLE-PUSHBUTTON CONTROL

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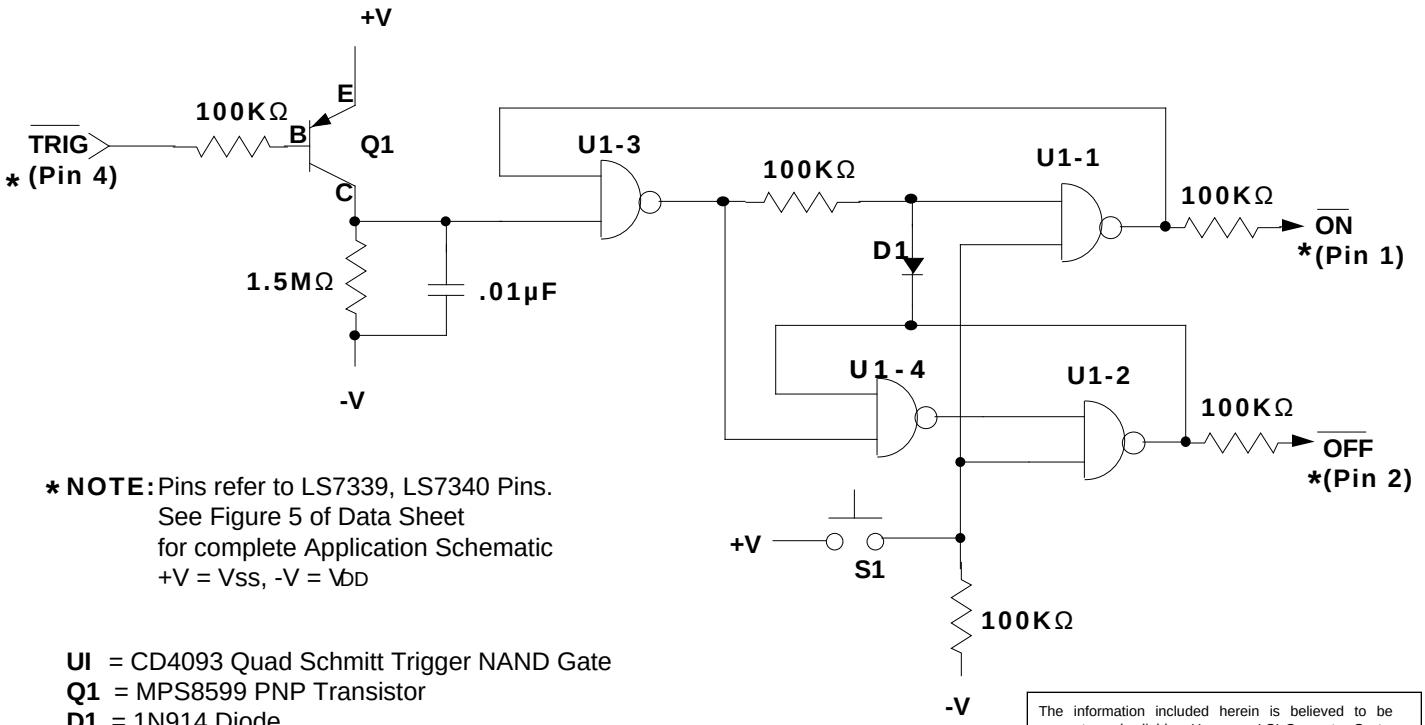
The IC normally requires two push-button switches to completely control its functions (See Data Sheet). One switch always turns the Output On and begins Timed Operation, while the other switch always turns the Output Off. Some applications require that a single push-button switch control its functions. If the Output is Off the switch will turn it On and start Timed Operation. If the Output is On, the switch will turn it Off. For high volume applications, a minor change can be made to the IC to allow this type of functionality. An alternative to modifying the IC is illustrated in Figure 1.

Figure 1 shows how to control the IC functions with a single push-button switch so that the $\overline{TRIG}$ output changes state whenever the switch is depressed.

When S1 is open, the outputs of U1-1 and U1-2 are both high, keeping $\overline{ON}$ and $\overline{OFF}$ inputs deactivated through 100KΩ current-limiting resistors. When $\overline{TRIG}$ produces pulses, Q1-C is high and when $\overline{TRIG}$ does not produce pulses, Q1-C is low. The feedback paths from U1-1 to U1-3 and U1-2 to U1-4 effectively serve as latches which steer the activating signal generated by the closure of S1 to the proper input based upon the prior state of $\overline{TRIG}$.



***NOTE:** Pins refer to LS7339, LS7340 Pins.
See Figure 5 of Data Sheet
for complete Application Schematic
+V = Vss, -V = V_{DD}

UI = CD4093 Quad Schmitt Trigger NAND Gate
Q1 = MPS8599 PNP Transistor
D1 = 1N914 Diode
All Resistors 1/4W, Capacitor 25V

FIGURE 1. Single Pushbutton Control of the LS7339, LS7340