

A True 150nA I<sub>Q</sub>, 0.9-3.6V<sub>IN</sub>, Selectable 1.8-5V<sub>OUT</sub> Instant-On™ Boost Converter

## FEATURES

- Input Voltage Range: 0.9V- 3.6V
- Jumper Selectable Output Voltages: 1.8V, 2.1V, 2.5V, 2.85V, 3V, 3.3V, 4.1V, and 5V
- OUT Enable/Disable Jumper
- Taiyo Yuden 10μH Inductor (CBC3225T100KR)

## COMPONENT LIST

DESIGNATION	QTY	DESCRIPTION
L1	1	10μH ±10% Wire-wound (1210), CBC3225T100KR
C4, C5	2	0.1μF ±20% capacitor (0402) EMK105B7104KV-F
C1	1	0.1μF ±20% capacitor (0805) 08055C104KAT2A
C2, C3	2	10μF ±20% capacitor (0805) C2012Y5V1A106Z
R1	1	3.3MΩ ± 1% (0805) CRCW08053M30FKEA
U1	1	TS3310
IN, STORE, OUT, PG, GND (4)	8	Test points
S0, S1, S2, OUT_ON,	4	Jumper

## DESCRIPTION

The TS3310 is a low power boost converter with an industry leading low quiescent current of 150nA, enabling ultra long battery life in systems running from a variety of battery sources. The TS3310 steps up input voltages from 0.9V to 3.6V to eight selectable output voltages ranging from 1.8V to 5.0V. The TS3310 includes two output options, one being an always-on storage output while the additional output is an output load switch that is designed to burst-on loads in a low duty cycle manner.

The TS3310 output voltage can be set via jumpers S0, S1, and S2. Both the STORE output and the OUT output can be monitored along with the power good output VGOOD. Jumper OUT\_ON is available to disable or enable the OUT output.

Product datasheet and additional documentation can be found on the factory web site at [www.touchstonesemi.com](http://www.touchstonesemi.com).

## ORDERING INFORMATION

Order Number	Description
TS3310DB	TS3310 Demo Board

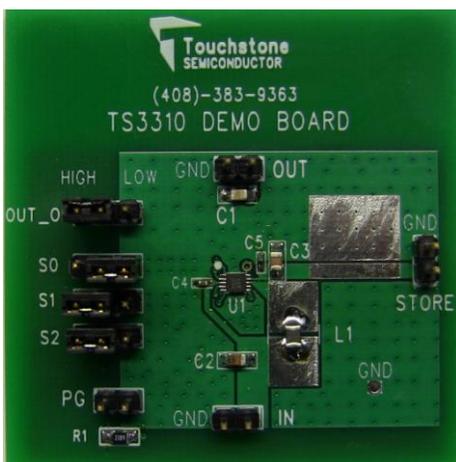


Figure 1. TS3310 Demo Board (Top View)

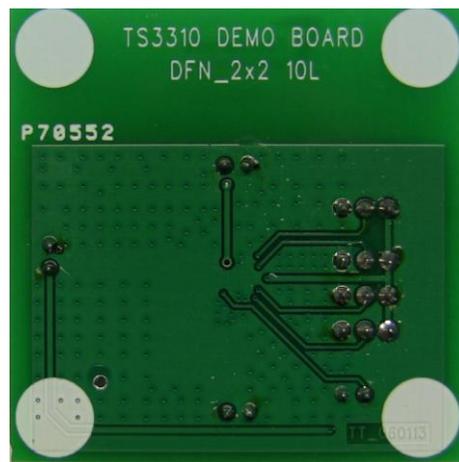


Figure 2. TS3310 Demo Board (Bottom View)

## DESCRIPTION

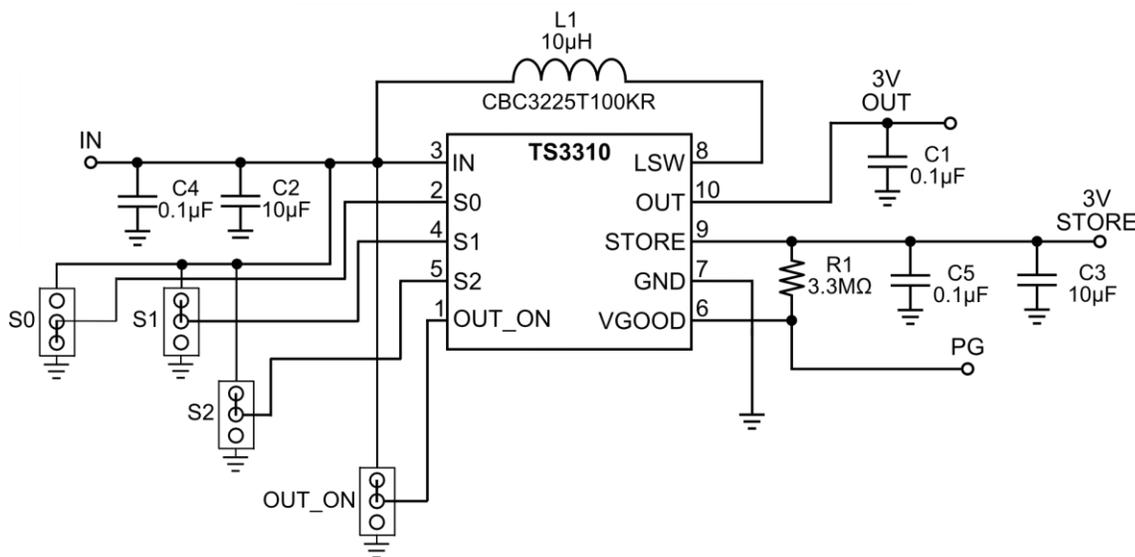
The TS3310 demo board provides test points to monitor the output voltage STORE and OUT. The power good pin VGOOD is pulled to the STORE output via a 3.3MΩ pull-up resistor R1 and can be monitored via test point PG. To enable or disable the OUT output voltage, a jumper for the OUT\_ON pin is available. The STORE and OUT output voltage can be set via jumpers S2, S1, and S0.

Table 1 shows the S2, S1, and S0 combinations along with the corresponding output voltage.

S2	S1	S0	OUT_ON	STORE OUT (V)
0	0	0	HIGH	1.8
0	0	1		2.5
0	1	0		3.3
0	1	1		5
1	0	0		2.1
1	0	1		2.85
1	1	0		3
1	1	1		4.1
Same as above			LOW	STORE OUTPUT ONLY

**Table 1. STORE and OUT Voltage Settings**

Figure 3 shows the TS3310 demo board circuit. This is the default configuration of the demo board where the output voltage is set to 3V.



**Figure 3. TS3310 Demo Board Circuit**

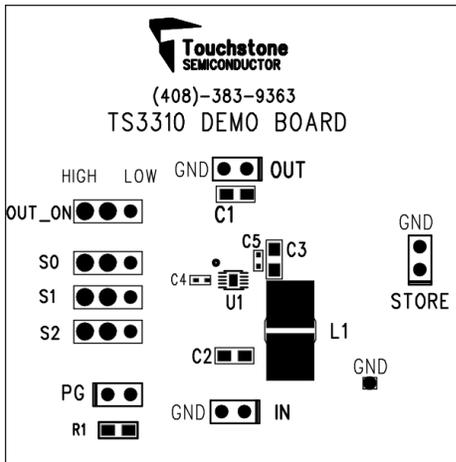
## QUICK START PROCEDURE

### Required Equipment

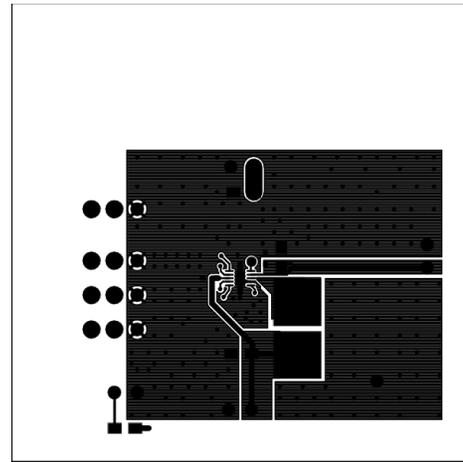
- TS3310 Demo Board
- 1.2V Battery or 1.2V Power Supply
- Two Digital Multimeters

To evaluate the TS3310 the following steps are to be performed:

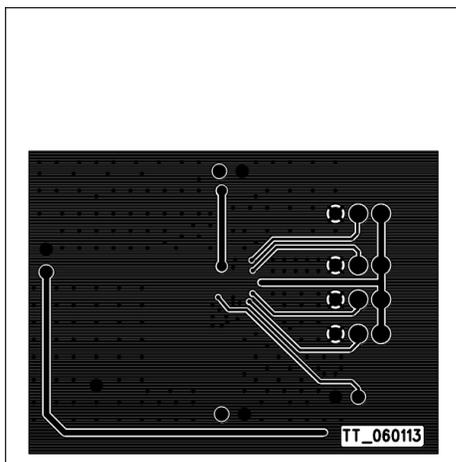
- 1) Connect the battery positive terminal to the test point labeled IN. Connect the negative terminal of the battery to the test point labeled GND.
- 2) To monitor the STORE output voltage, connect the positive terminal of the voltmeter to the test point labeled STORE. Connect the negative terminal of the voltmeter to the test point labeled GND. The output voltage should be approximately 3V.
- 3) To monitor the OUT output voltage, connect the positive terminal of the second voltmeter to the test point labeled OUT. Connect the negative terminal of the voltmeter to the test point labeled GND. The output voltage should be approximately 3V. To disable the OUT output voltage, set jumper OUT\_ON to LOW.
- 4) To select a different output voltage setting, refer to Table 1. Note that the input voltage range is 0.9V to 3.6V.



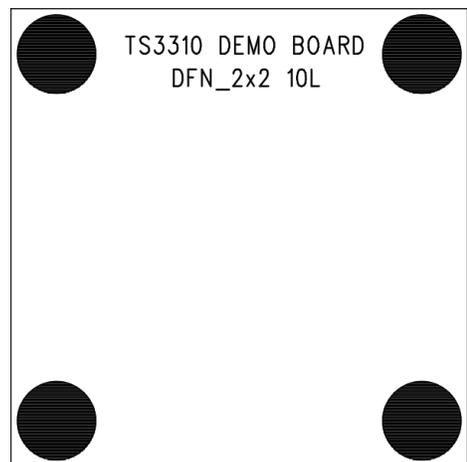
**Figure 4. Top Layer View #1**



**Figure 5. Top Layer View #2**



**Figure 6. Bottom Layer (GND) #1**



**Figure 7. Bottom Layer (GND) #2**