

TIDA-00538 Test Report

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BMS/HPC

Abstract

TI design TIDA-00538 is suitable for portable devices and incorporates MaxCharge technology. It supports Adjustable High Voltage Adaptor for fast charging. The included application circuits illustrate how this device can be easily implemented.

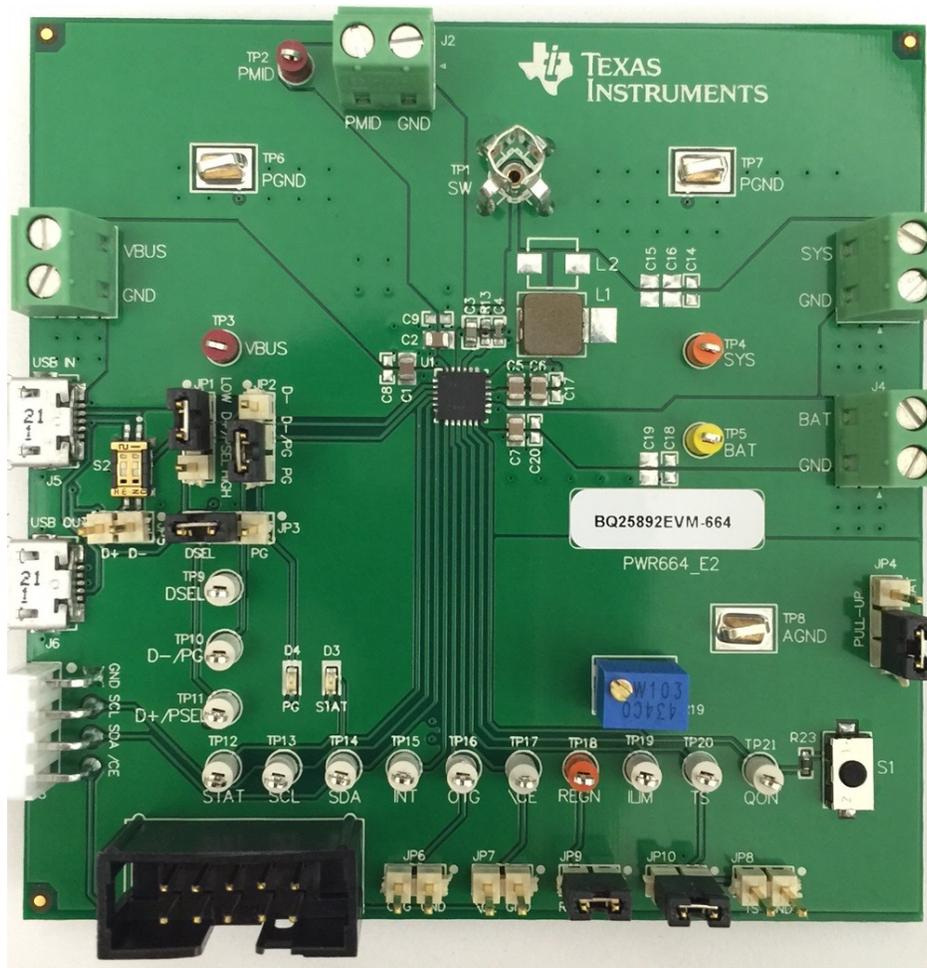


Figure 1. Board Photo

Document History

Version	Date	Author	Notes
1.0	March 23, 2015	Ming Yu	First release

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Bench Set up

- TIDA-00538 was tested on a bench setup using PWR664A EVM. The test equipment is as follows:
 - Oscilloscope: Tektronix DPO 4050
 - Passive Voltage Probes: Tektronix P6139A – 500 Mhz, 8 pF, 10 MΩ, 10x
 - Current Probe: Tektronix TCP202A Current Probe
 - Power Supply: HP 6654A DC, KEPCO BOP20-5D
 - Electronic Load: HP 6060B
 - Multi-meter: HP 34401A

Application Circuits

- The application circuits shown in Figure 2 illustrates the implementation of Adjustable High Voltage Adaptor.

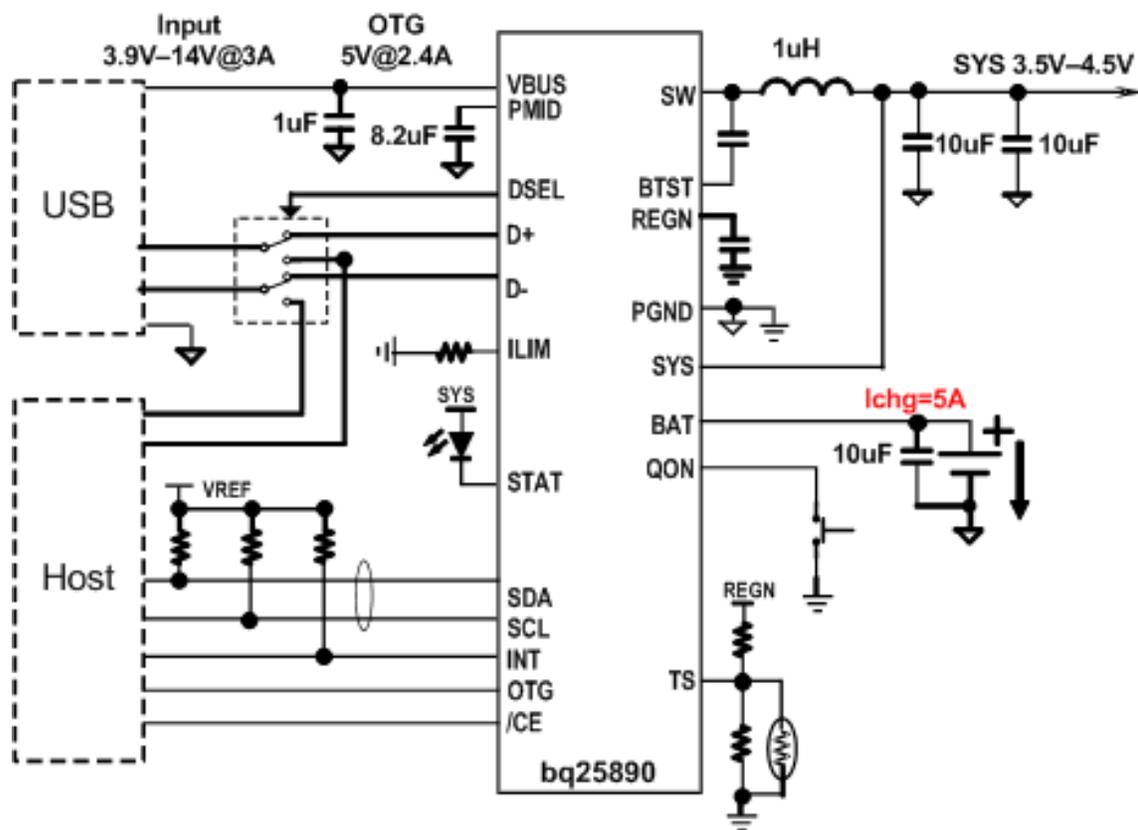


Figure 2. bq25892 Application Circuits

Efficiency

- Figure 3 shows the charging efficiency across the charge current range with the bq25892. At 4A charging current, the overall charging efficiency is greater than 89%.

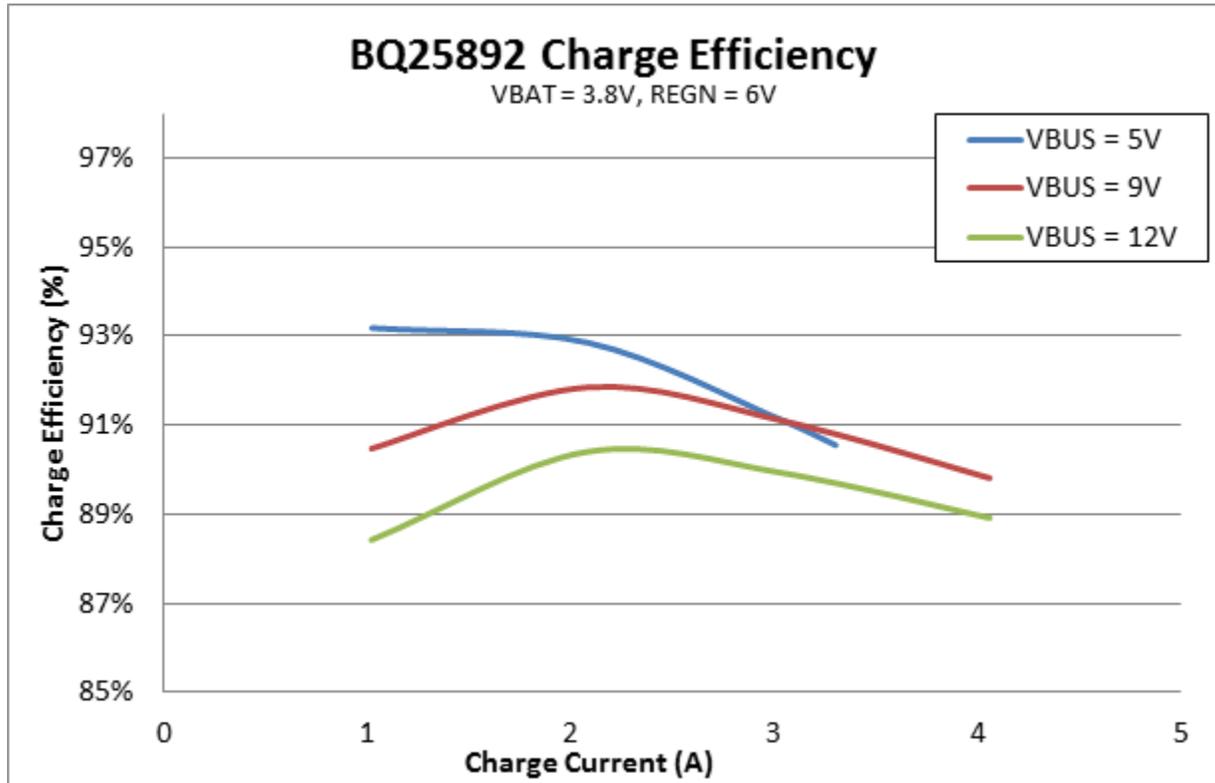


Figure 3. TIDA-00538 Charging Efficiency

Thermal Measurements

- The following figures show thermal images of the bq25892 operating at different power levels. Ambient temperature is 25C. Table-1 has the device temperature rising range at various input and charging condition.

Table -1 Device Temperature at Different Power Level

Test Condition	Min	Avg	Max
$V_{IN} = 5V$ $V_{BAT} = 3.8V$ $I_{CHG} = 3.5A$	35.7C	38.3C	42.5C
$V_{IN} = 9V$ $V_{BAT} = 3.8V$ $I_{CHG} = 4A$	36.6C	42.8C	47.6C

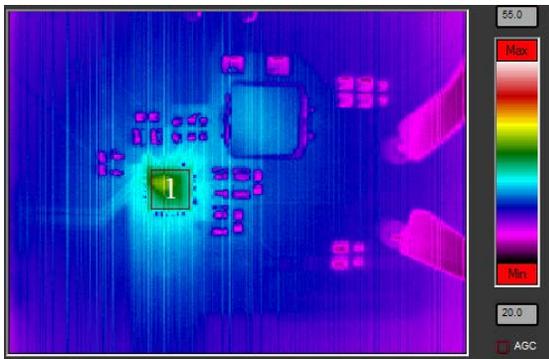


Figure 4a. $V_{IN}=5V$, $I_{CHG} =3.5A$

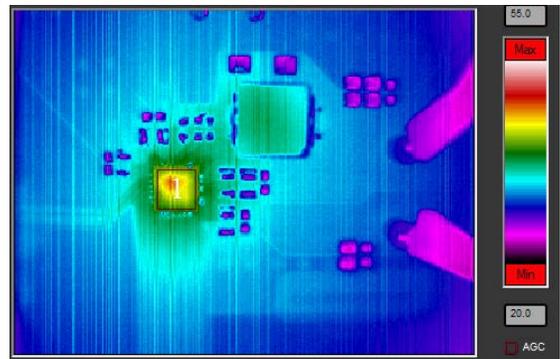


Figure 4b. $V_{IN} = 9V$, $I_{CHG} = 4A$

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