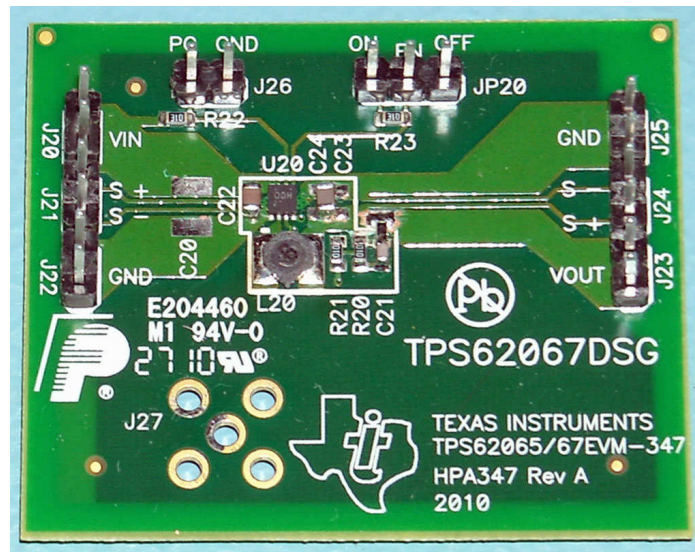


## Synchronous Buck Converter – 1.2V @ 400mA

- Input 3.2 .. 3.4V DC
- Output 1.2V @ 400mA
- Converter TPS62067
- Free-Running switching frequency of 3000 kHz
- Modified TPS62065/67EVM-347



## 1 Efficiency

The efficiency and load regulation for 3.3V input voltage is shown in Figure 1 and Figure 2.

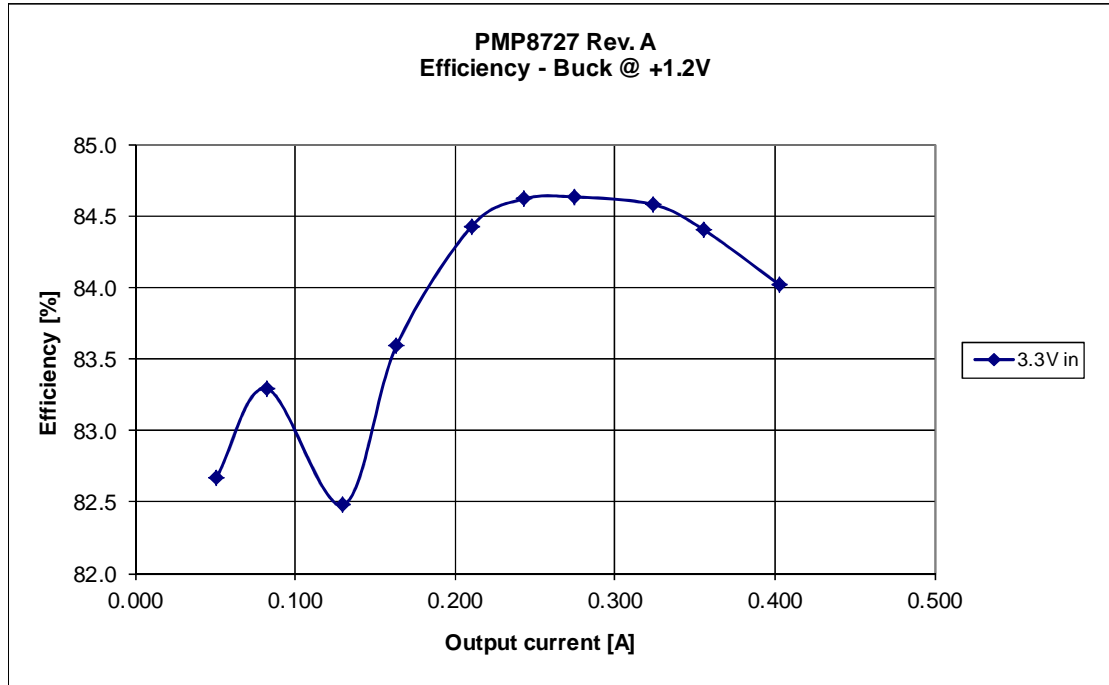


Figure 1

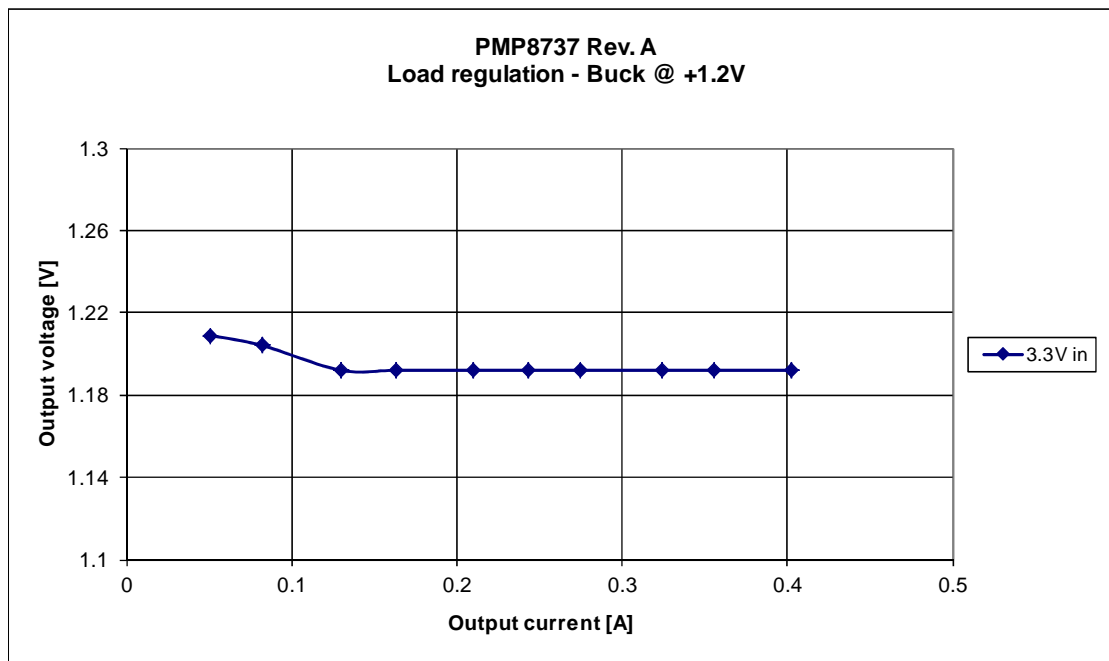


Figure 2

## 2 Load step

The response to a load step and a load dump for the 1.2V output at an input voltage of 3.V is shown in Figure 3.

Channel C2: **Output voltage**, -7mV undershoot, 12mV overshoot  
20mV/div, 1ms/div, AC coupled

Channel C1: **Load current**, load step **200mA to 400mA** and vice versa  
200mA/div, 1ms/div

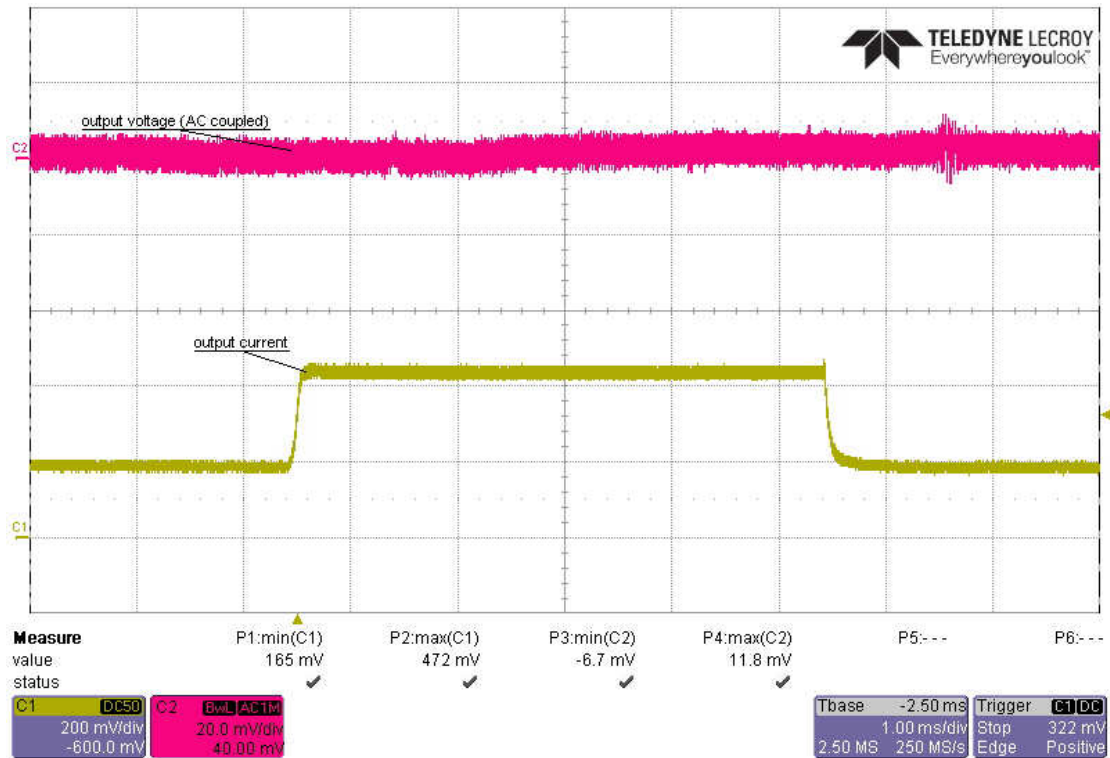


Figure 3

### 3 Frequency response

Figure 4 shows the loop response at 3.3V input voltage and a load of 400mA.

#### 3.3V input

- 58 deg phase margin @ crossover frequency 192 kHz
- -17 db gain margin

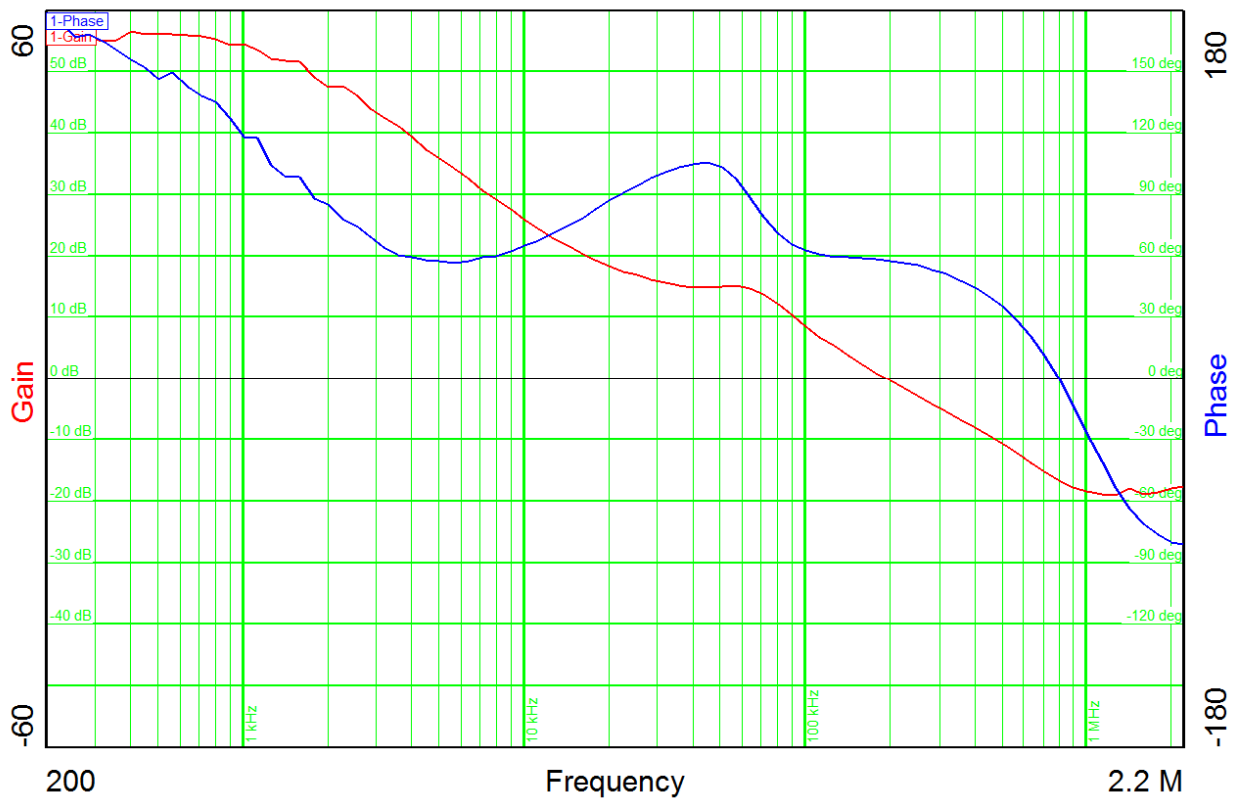


Figure 4

## 4 Switching Node

The drain-source voltage on the switching node is shown in Figure 5. The image was captured with 3.3V input and 400mA load.

Channel C2: **Drain-source voltage**, -0.8V minimum voltage, 3.4V maximum voltage  
1V/div, 200ns/div

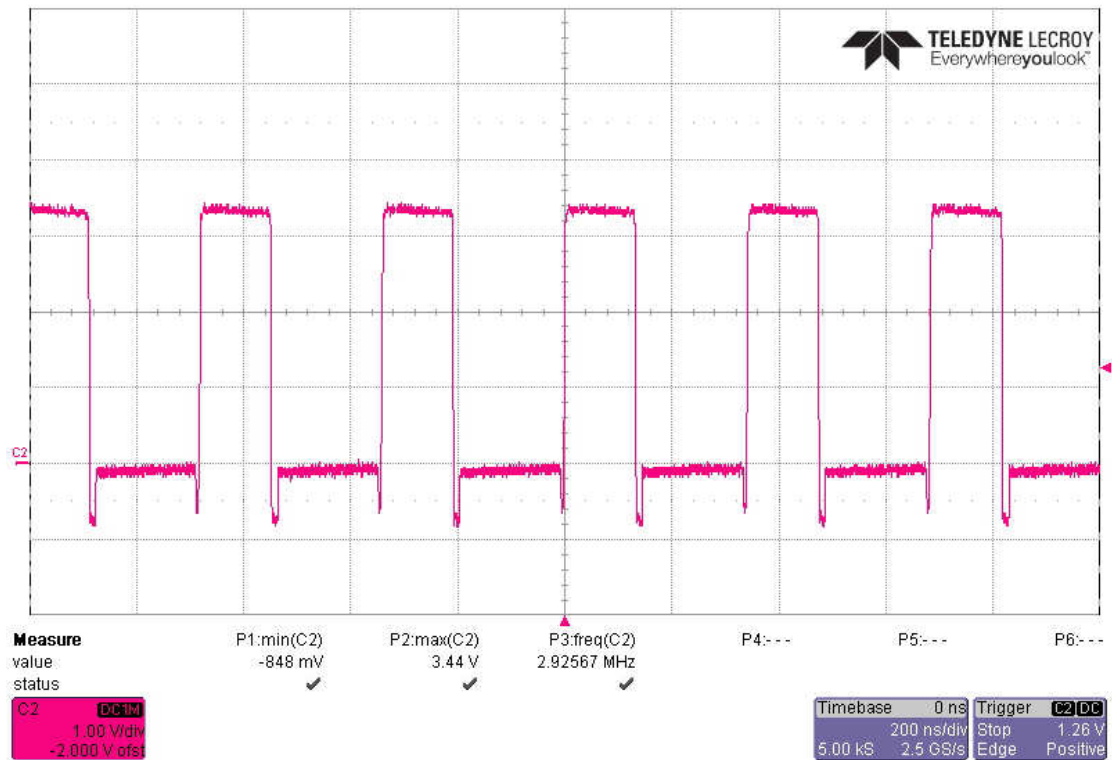


Figure 5

## 5 Thermal measurement

The thermal image (Figure 6) shows the circuit at an ambient temperature of 21 °C with an input voltage of 3.3V and a load of 400mA.

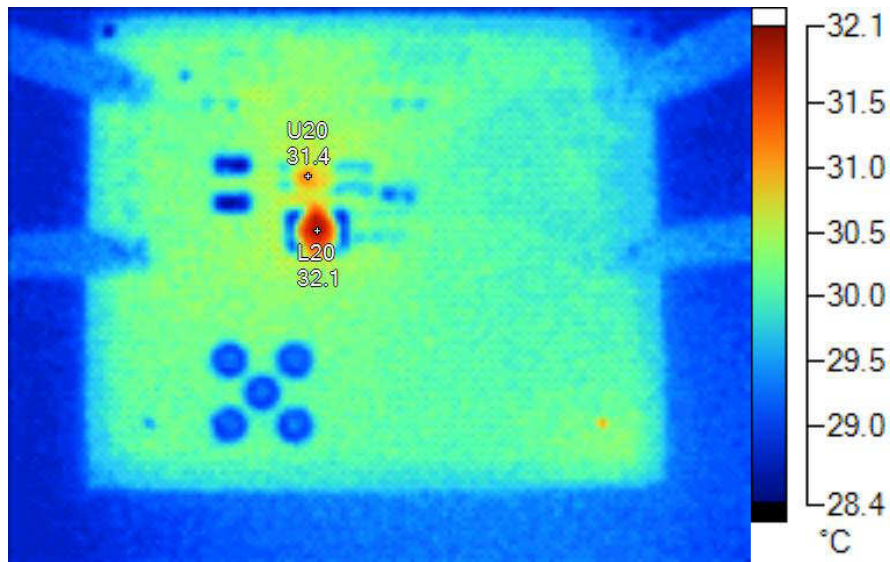


Figure 6

### Markers

Label	Temperature	Emissivity	Background
L20	32.1 °C	0.95	21.0 °C
U20	31.4 °C	0.95	21.0 °C

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