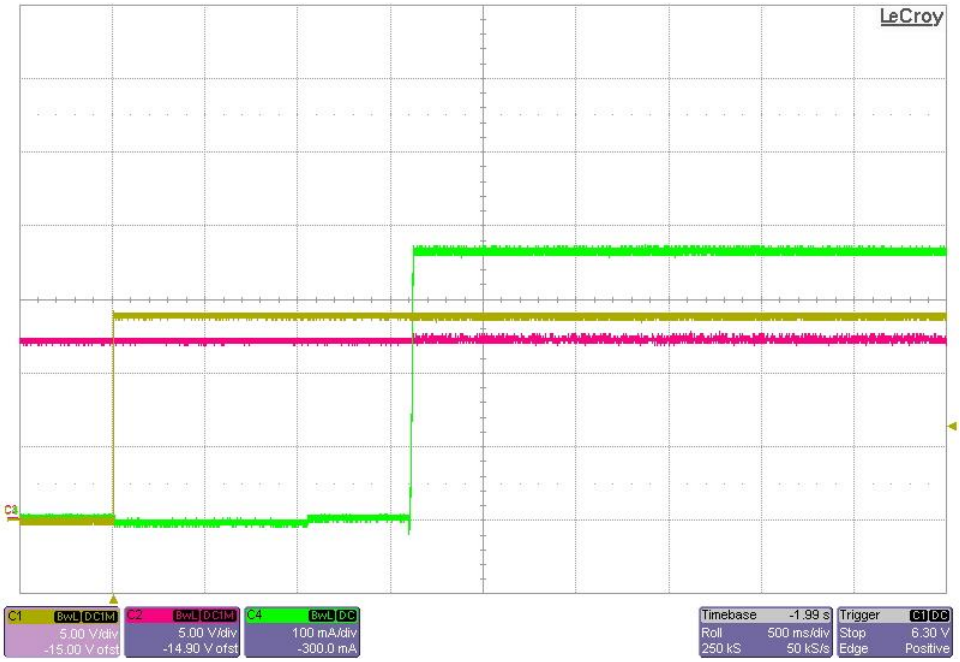
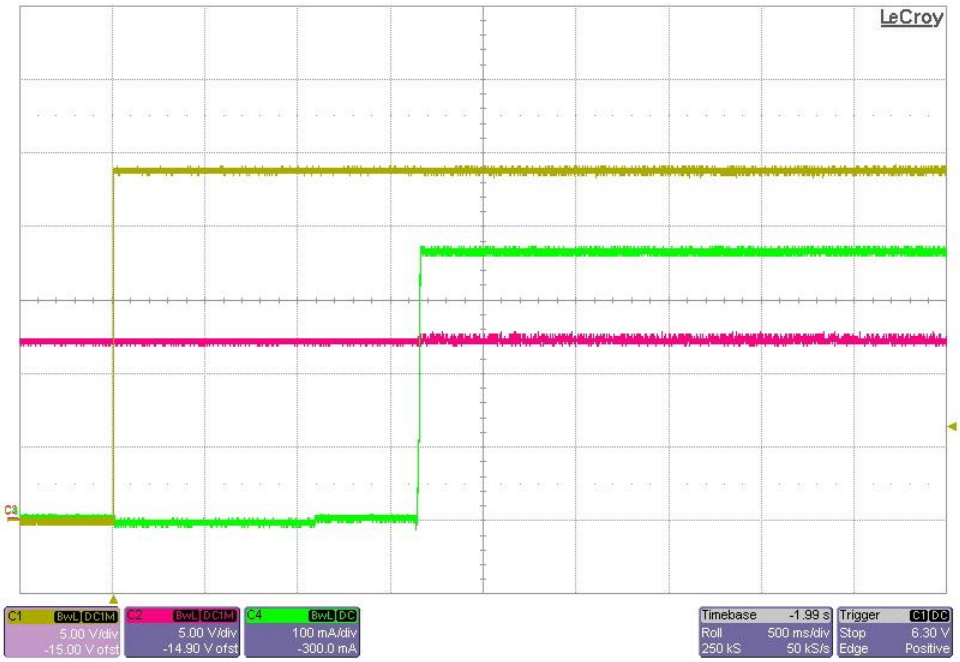
1 Startup

The photo below shows the battery charging current (Green) after the Enable (Yellow) signal is applied.
Vin = 14V, Vbat = 12.2V (5V/DIV, 100mA/DIV, 500mS/DIV)

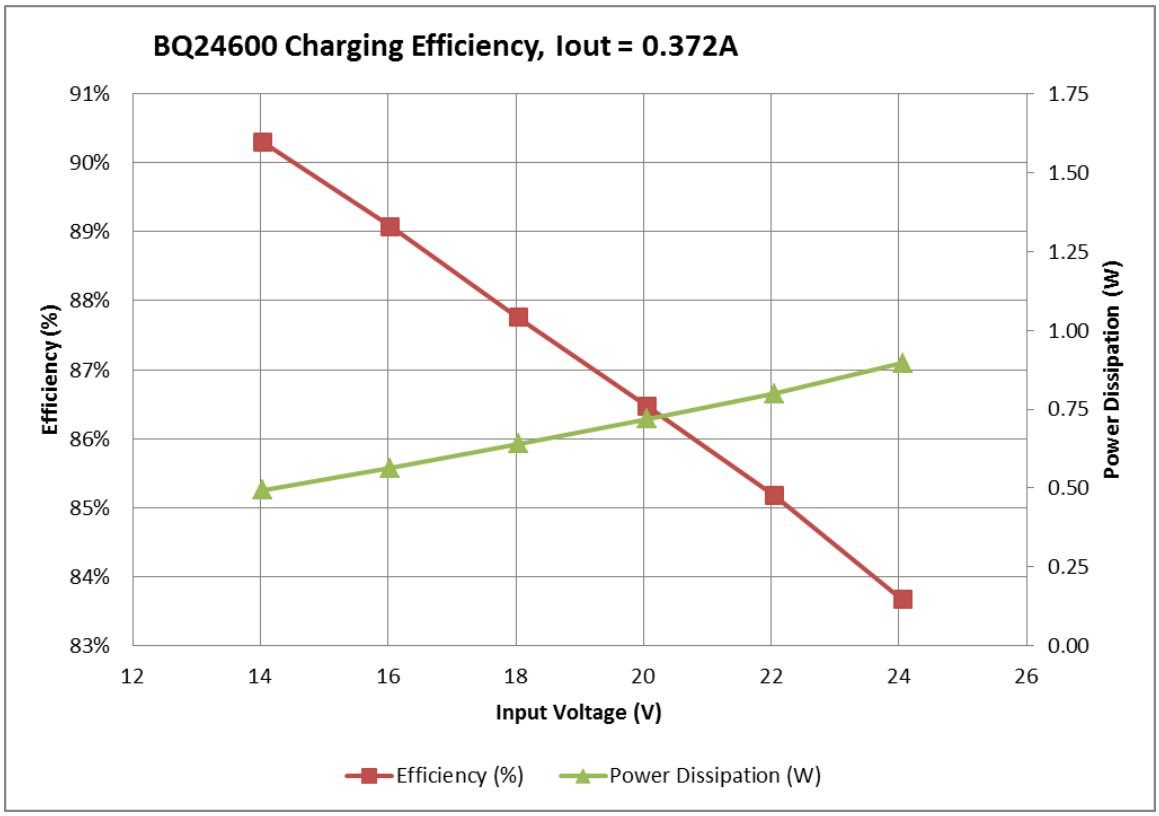


The photo below shows the battery charging current (Green) after the Enable (Yellow) signal is applied.
Vin = 24V, Vbat = 12.2V (5V/DIV, 100mA/DIV, 500mS/DIV)



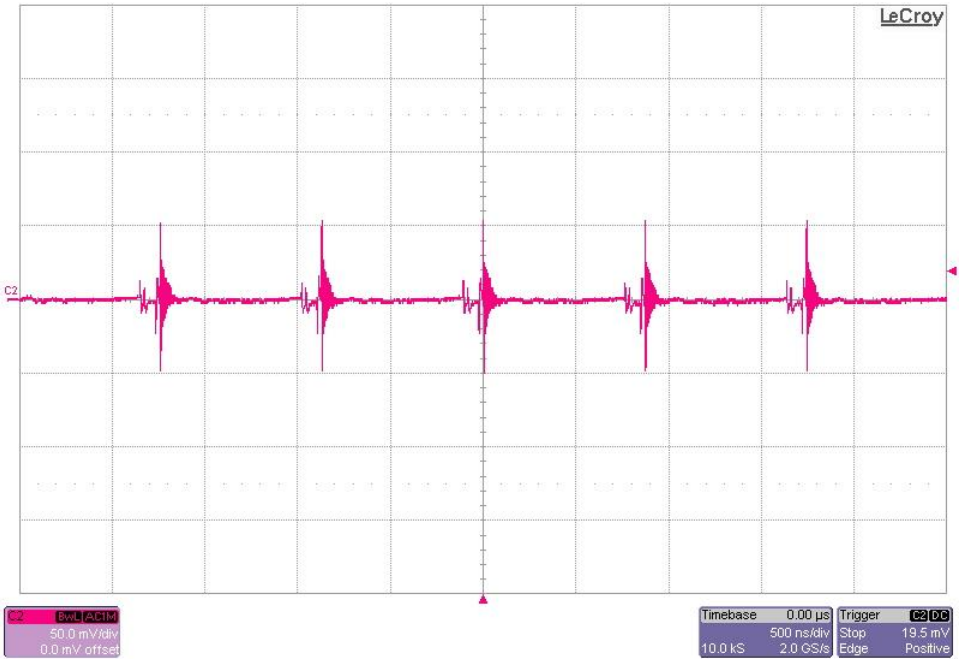
2 Efficiency

The BQ24600 converter efficiency is shown in the figure below.

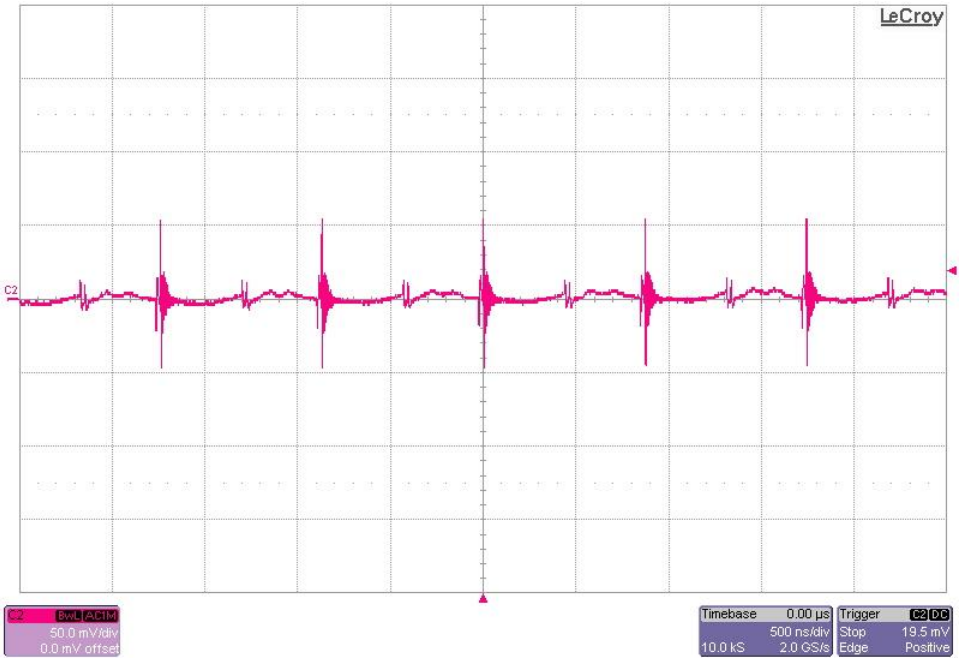


3 Output Ripple Voltage

The output ripple voltage is shown in the figure below. The image was taken with the battery output voltage at 12.2V and charging at 0.372A. Vin = 14V. (50mV/DIV, 500nS/DIV)

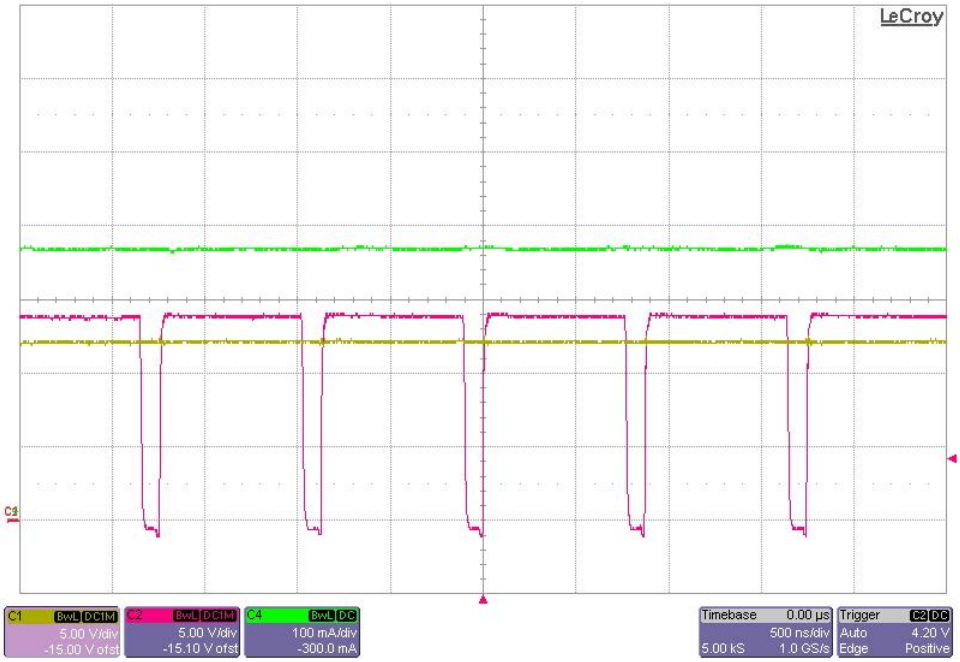


The output ripple voltage is shown in the figure below. The image was taken with the battery output voltage at 12.2V and charging at 0.372A. Vin = 24V. (50mV/DIV, 500nS/DIV)

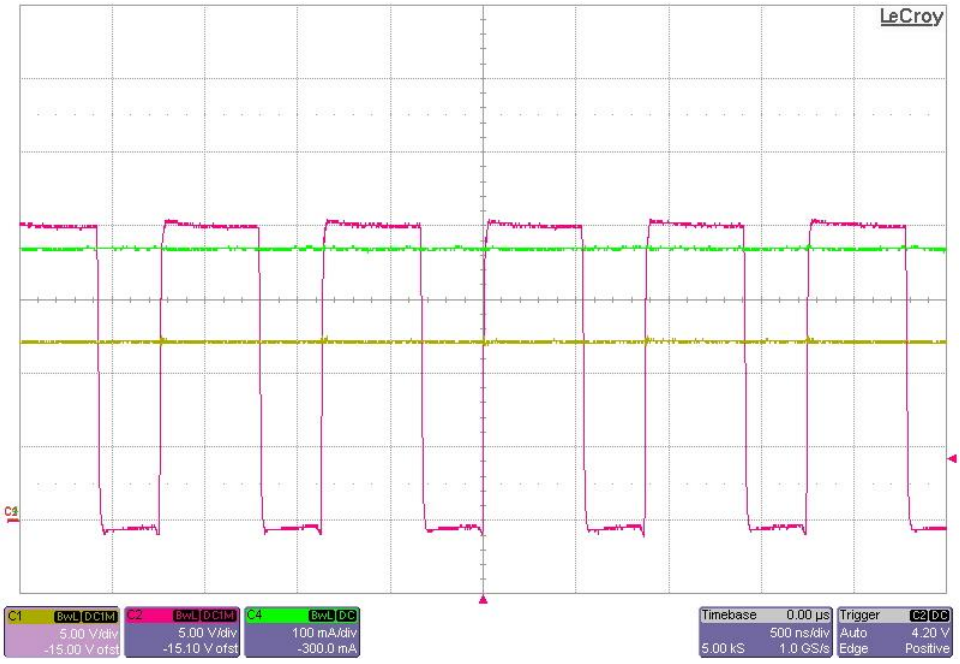


4 Switch Node Waveforms

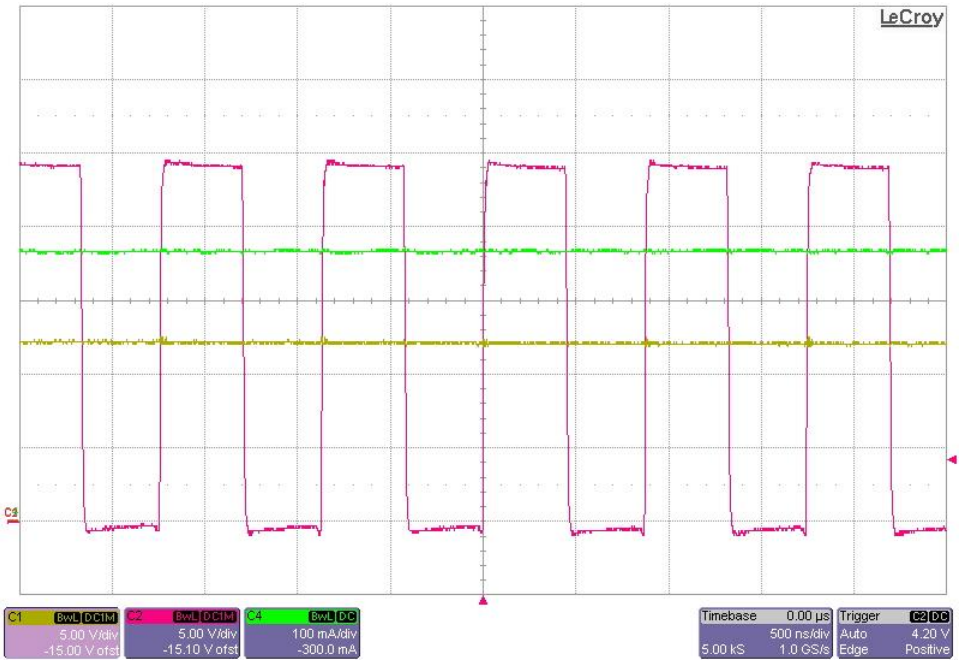
The photo below shows the switch node voltage at TP3 (Red), the charger current (Green) and the battery voltage (Yellow). The input voltage is 14V. (5V/DIV, 100mA/DIV, 500nS/DIV)



The photo below shows the switch node voltage at TP3 (Red), the charger current (Green) and the battery voltage (Yellow). The input voltage is 20V. (5V/DIV, 100mA/DIV, 500nS/DIV)



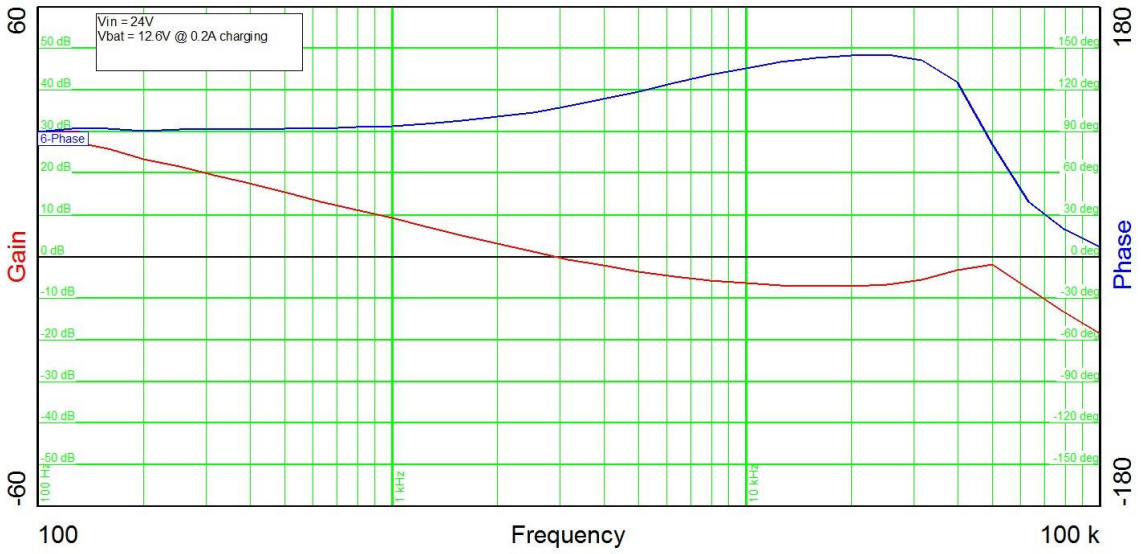
The photo below shows the switch node voltage at TP3 (Red), the charger current (Green) and the battery voltage (Yellow). The input voltage is 24V. (5V/DIV, 100mA/DIV, 500nS/DIV)



5 Control Loop Gain / Stability

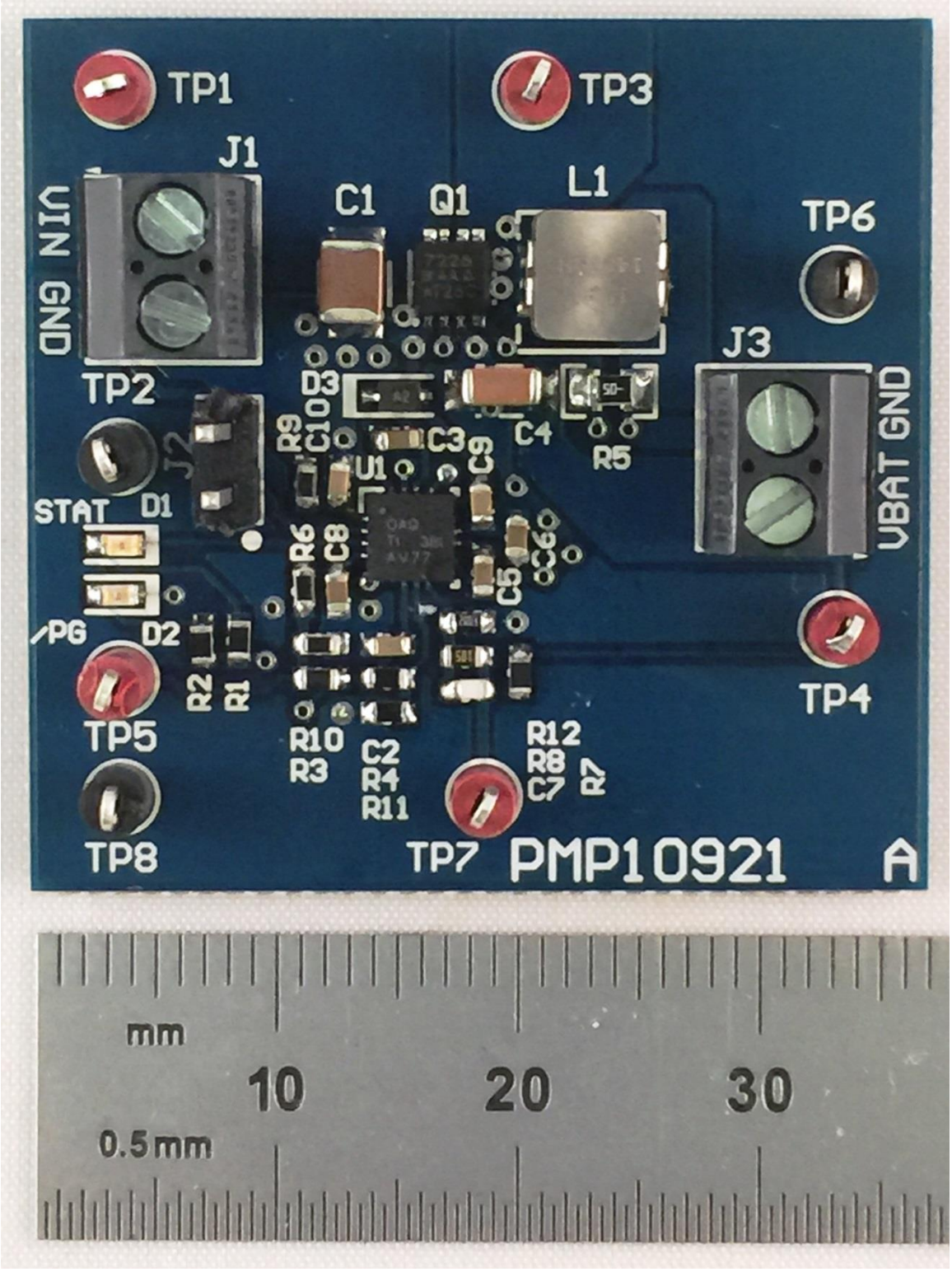
The plot below shows the converter's loop gain and phase margin when the battery is regulated to 12.6V and the charging current decreased to 0.2A.

Vin = 24V Band Width = 2.9KHz Phase Margin = 108 degrees



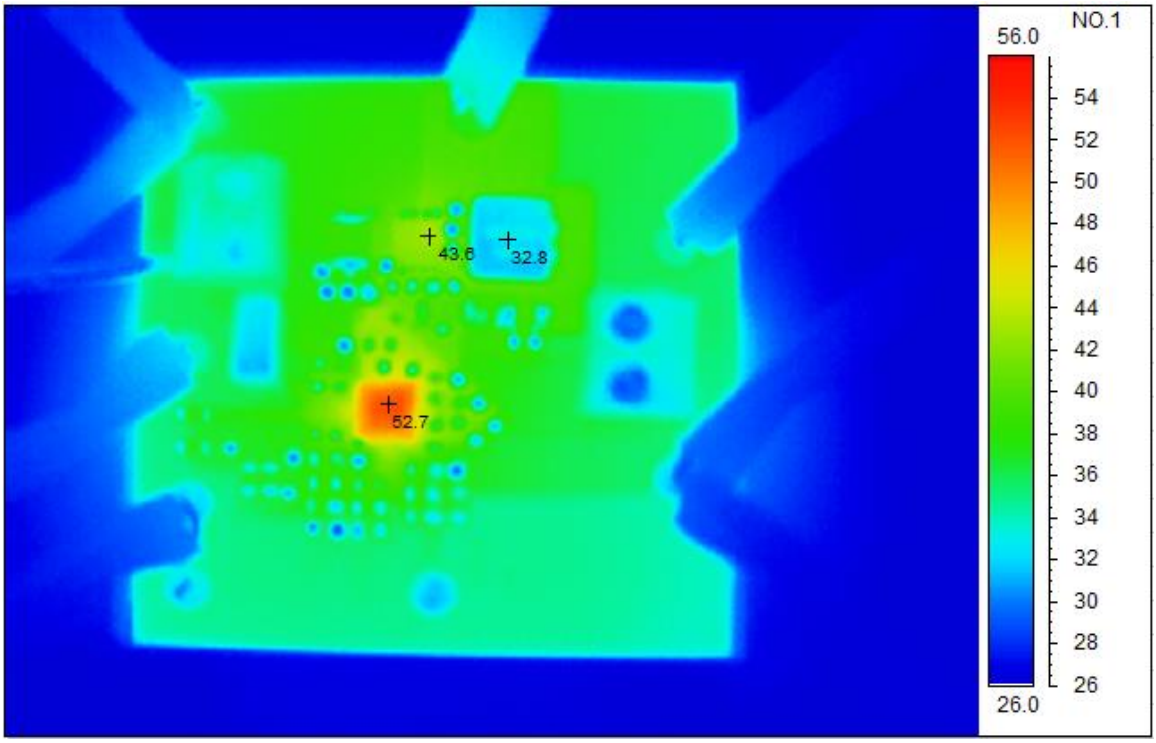
6 Photo

The photo below shows the PMP10921 REVB assy.



7 Thermal Image

The thermal image below shows sustained operation while at 24V input / 0.372A output, with no airflow.



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