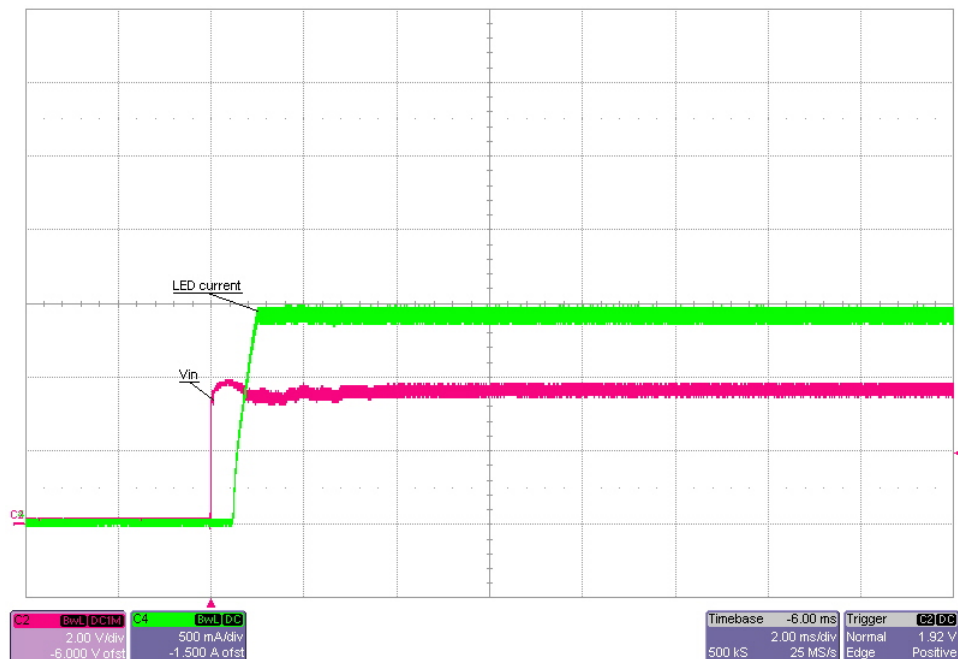


1 Start Up

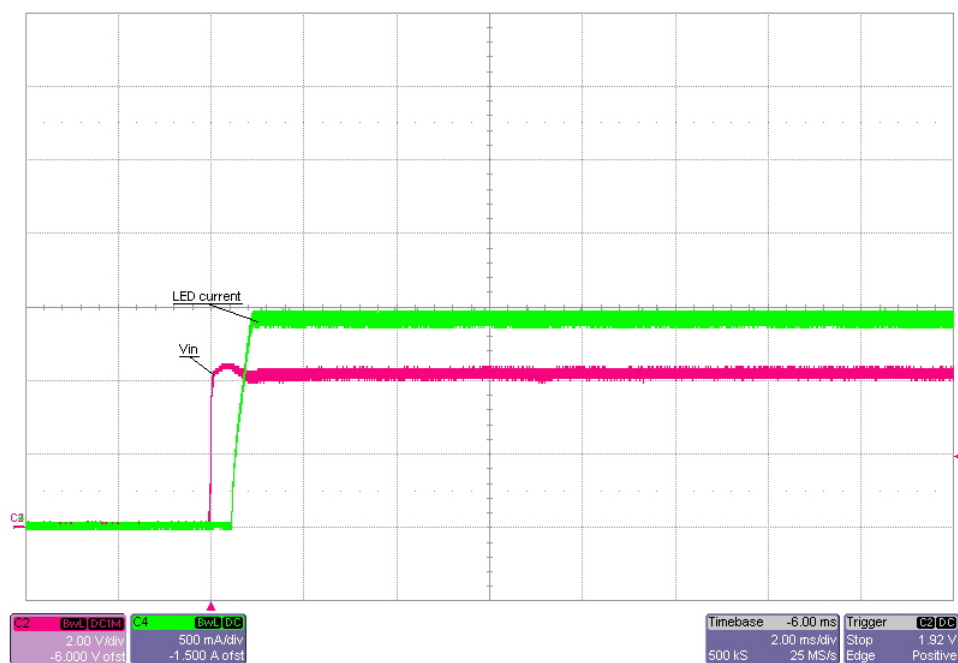
The photo below shows the startup of the LED output current after the input voltage is applied.

$V_{in} = 3.7V$ and $I_{out} = 1.41A$ (2V/DIV, 500mA/DIV, 2mS/DIV)



The photo below shows the startup of the LED output current after the input voltage is applied.

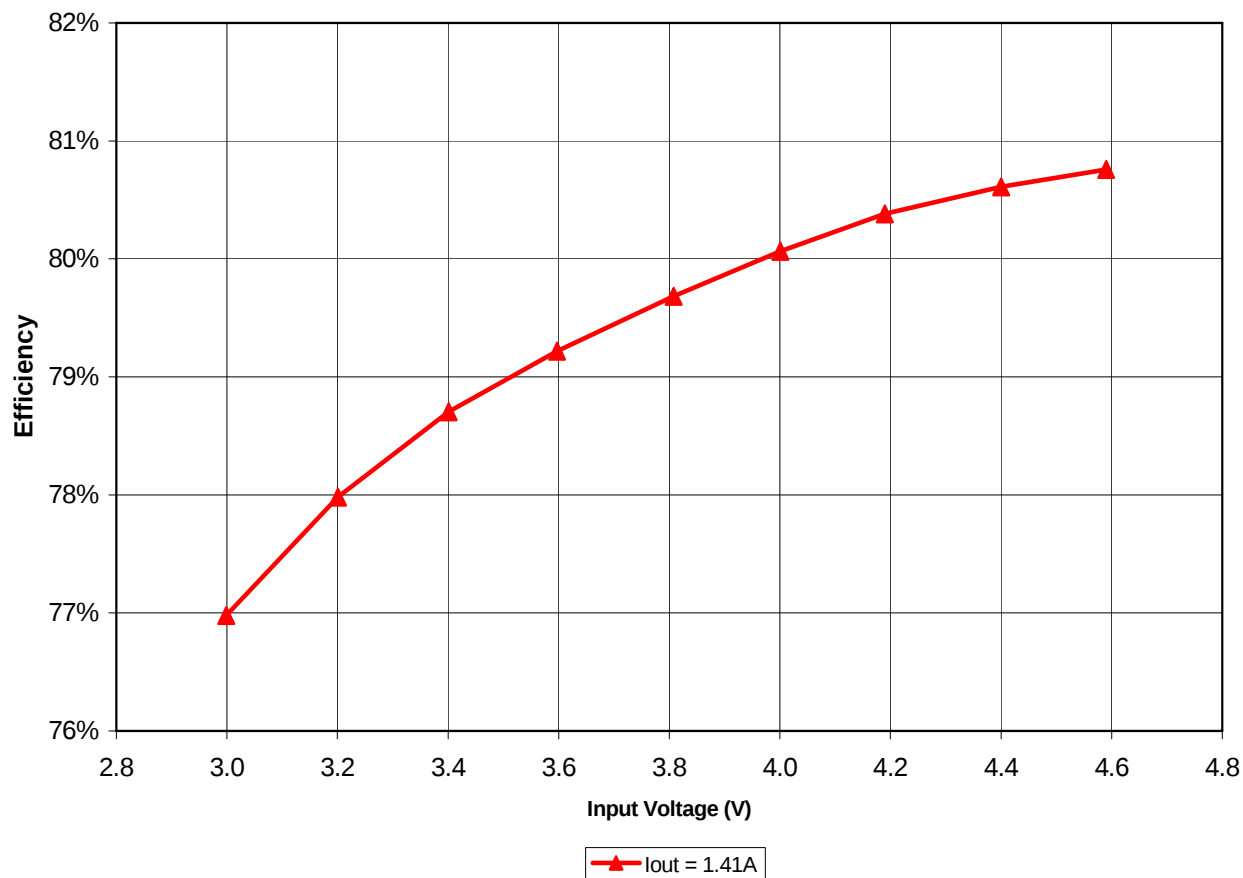
$V_{in} = 4.2V$ and $I_{out} = 1.41A$ (2V/DIV, 500mA/DIV, 2mS/DIV)



2 Efficiency

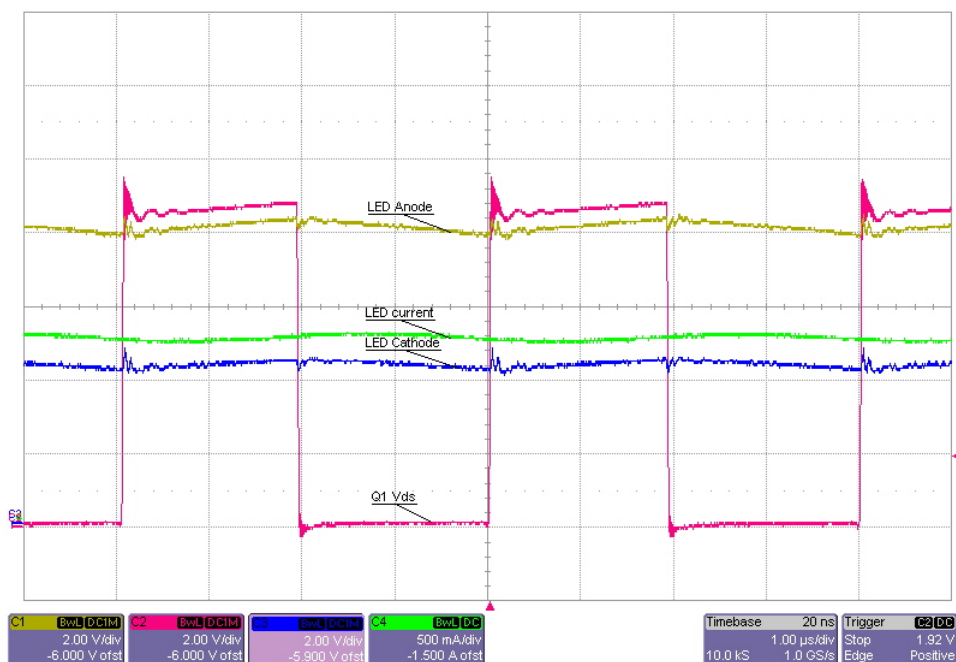
The converter efficiency is shown in the figure below. The LED output current is constant.

UCC39421 Buck-Boost Efficiency

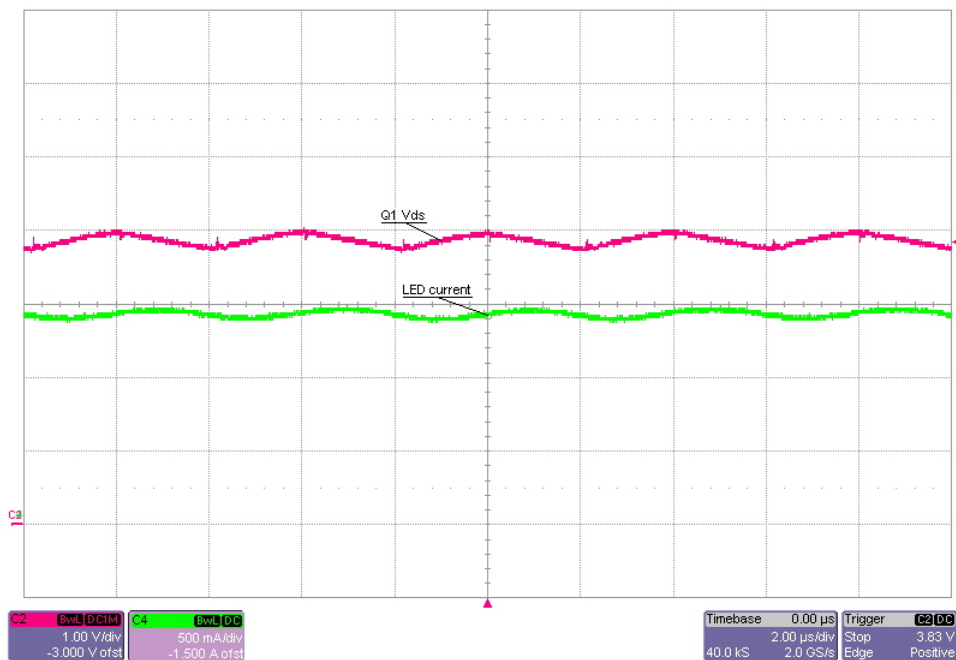


3 Switching Voltage Waveforms

The photo below shows the power FET switch node (Q1 Vds), LED ripple current, and the LED anode and cathode voltages. The input voltage is set to 4.2V. (2V/DIV, 500mA/DIV, 1uS/DIV)



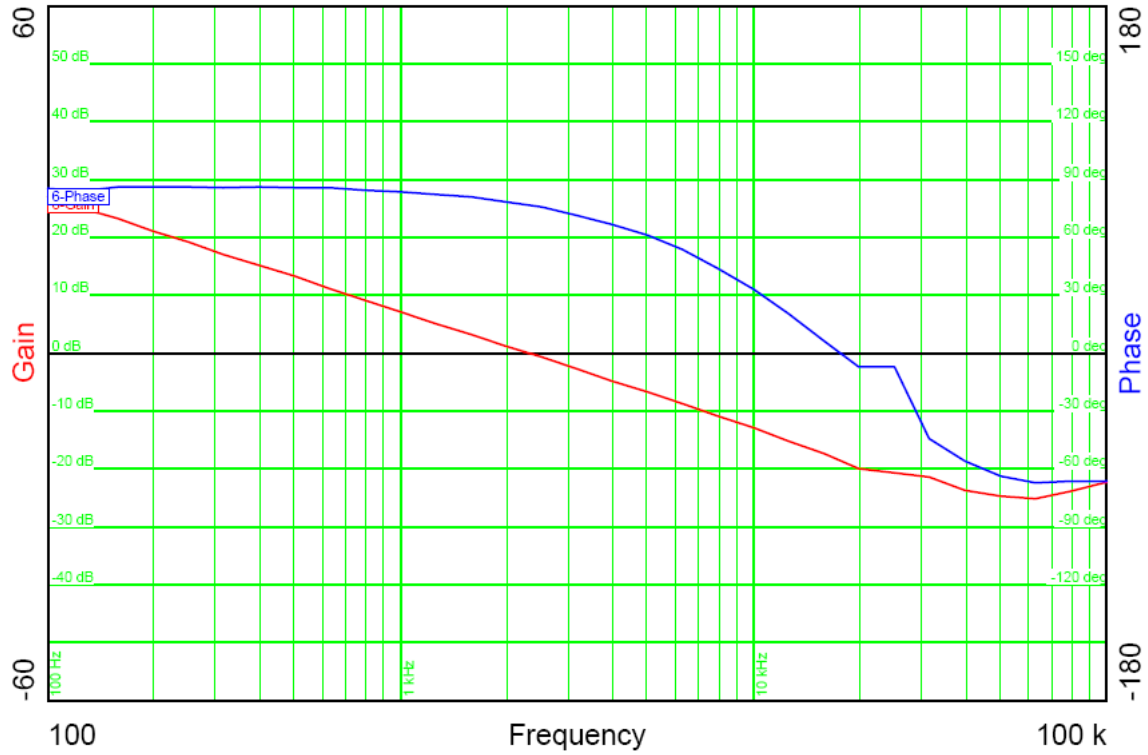
The photo below shows the LED ripple current, and the LED voltage (referenced to cathode). The input voltage is set to 4.2V. (2V/DIV, 500mA/DIV, 1uS/DIV)



4 Control Loop Gain / Stability

The plot below shows the loop gain and phase margin with the input voltage set to 4.2V.

Bandwidth = 2.3KHz Phase Margin = 75 degrees



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