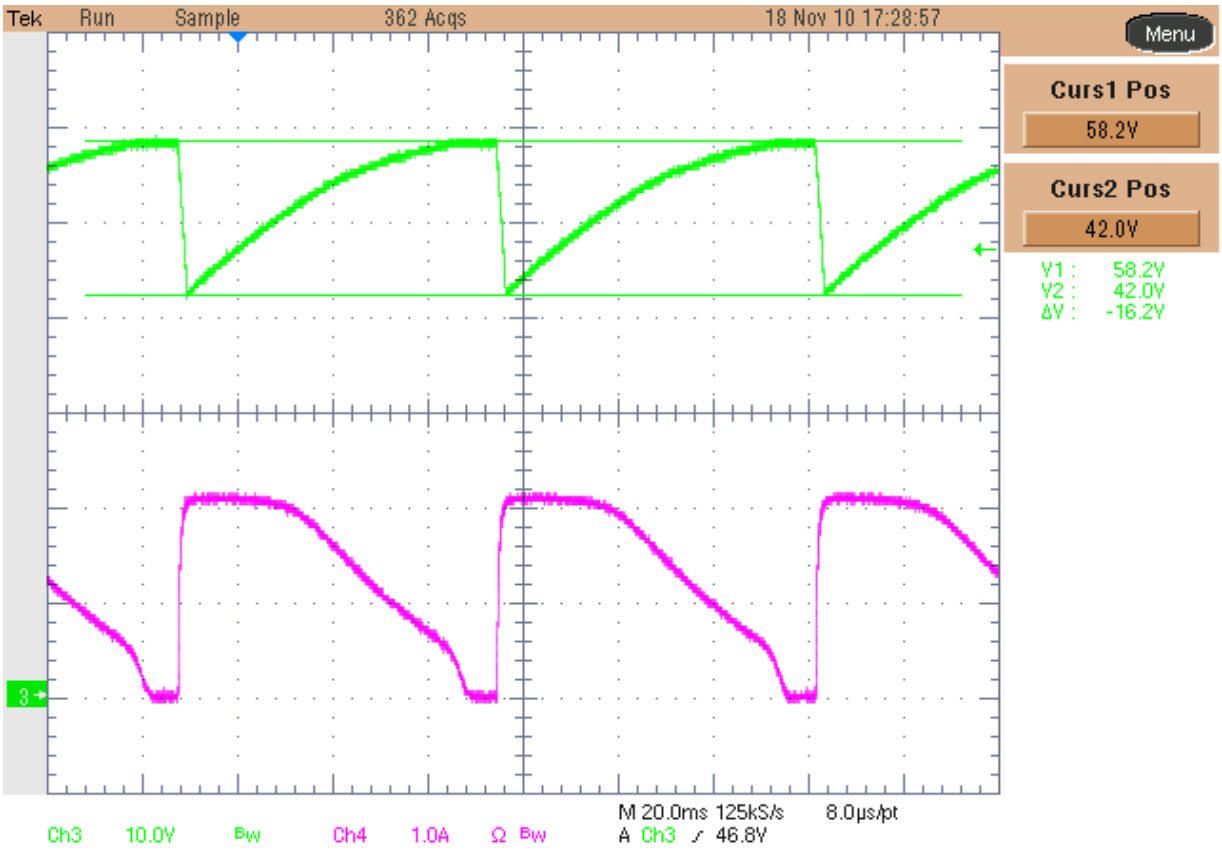
1. Input current behavior under output transient load

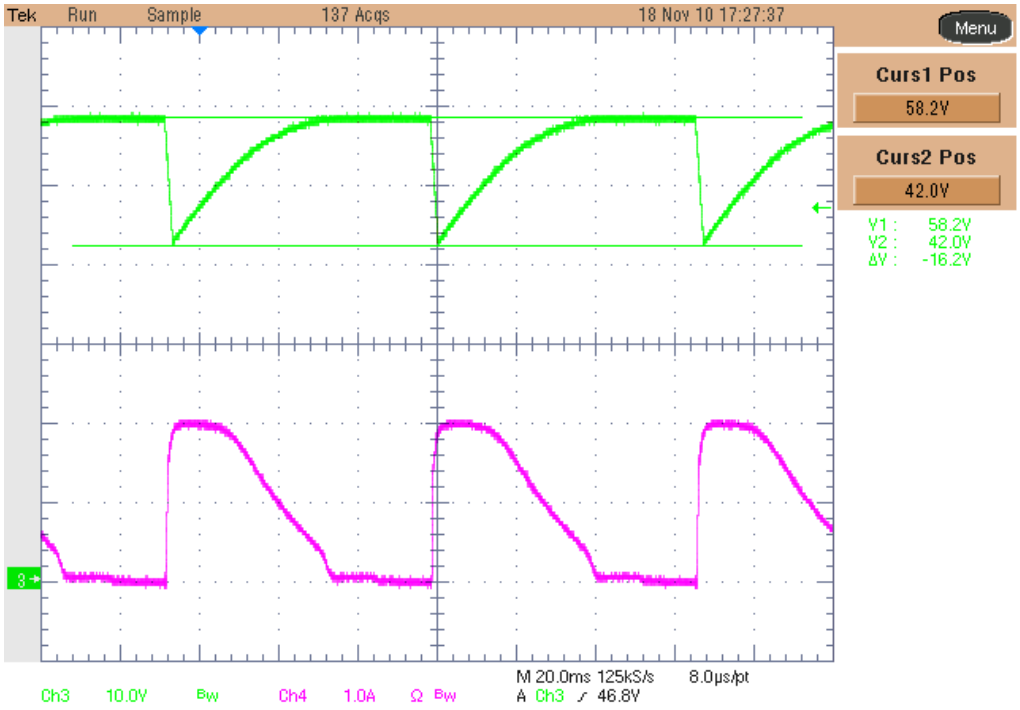
The intermediate voltage (output of the PMP5601) and the input current waveforms are shown in the images below. The input voltage was set respectively to 8V, 12V and 32V. The load on the PMP5602 has been switched between 0A and 10A, with a Ton=2ms and a frequency of 15Hz. The slew rate was set to the maximum (see transient response on Vout).

Channel 3: Intermediate Voltage (high voltage Bus), 10 V/div, 20ms/div.
Channel 4: Input current measured at PMP5601 input terminals, 1A/div.

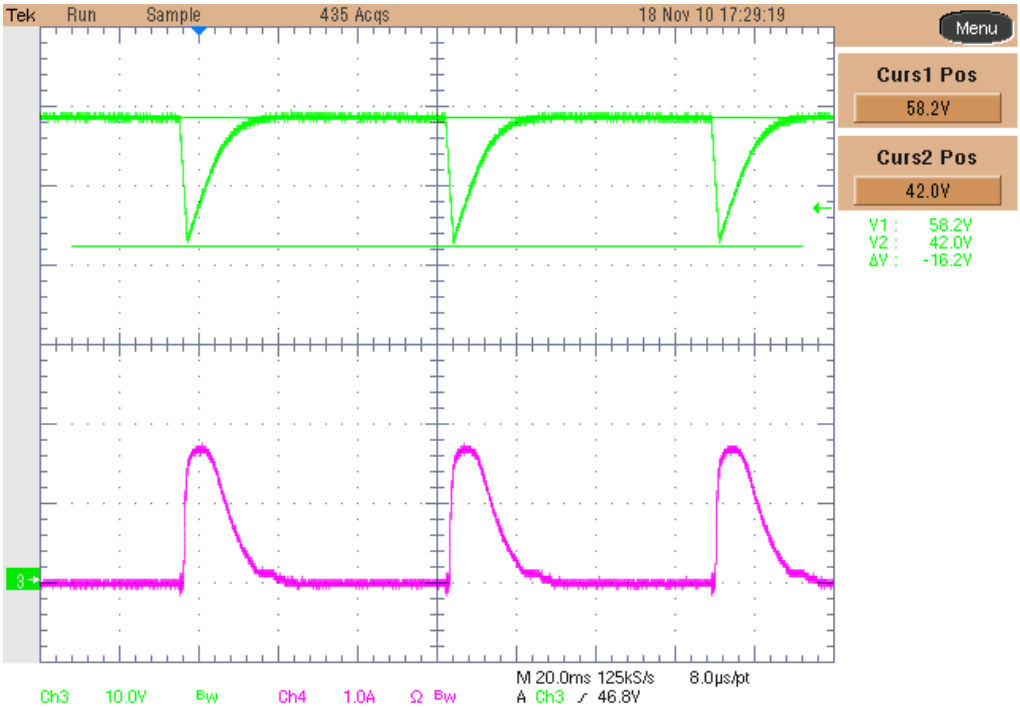
Vin=8V



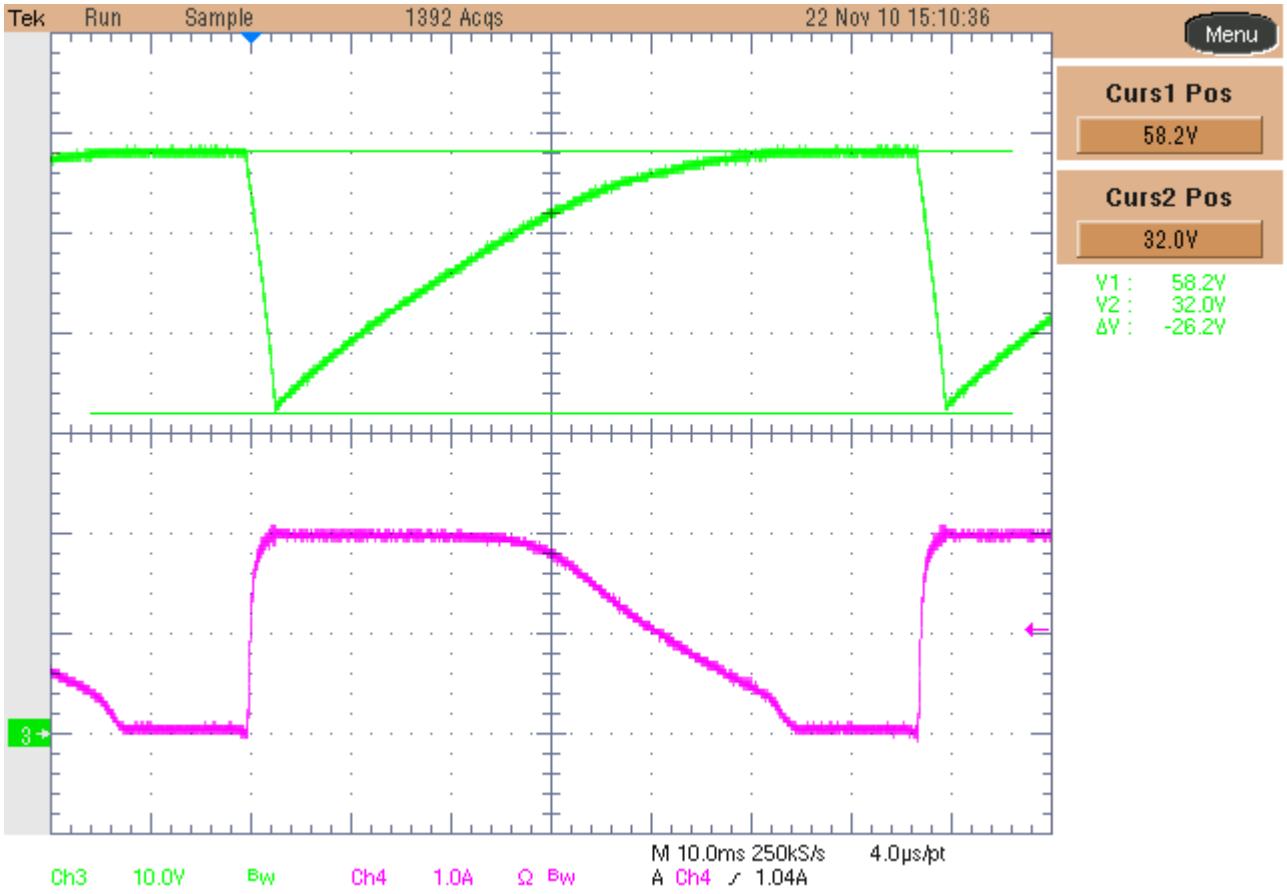
Vin=12V



Vin=32V



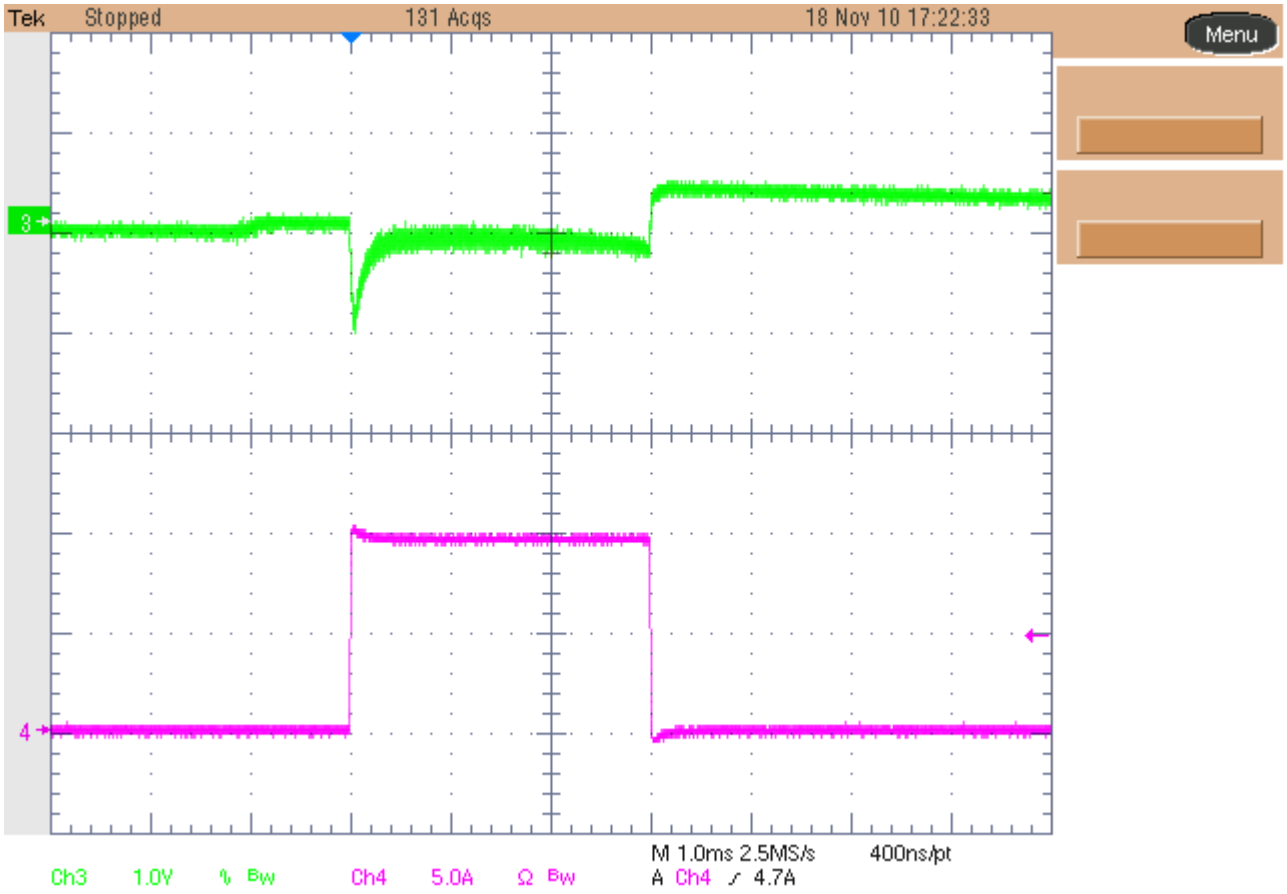
Vin=12V, Ton = 3ms (output current ON time)



2. Output voltage variation versus transient load (Transient Response)

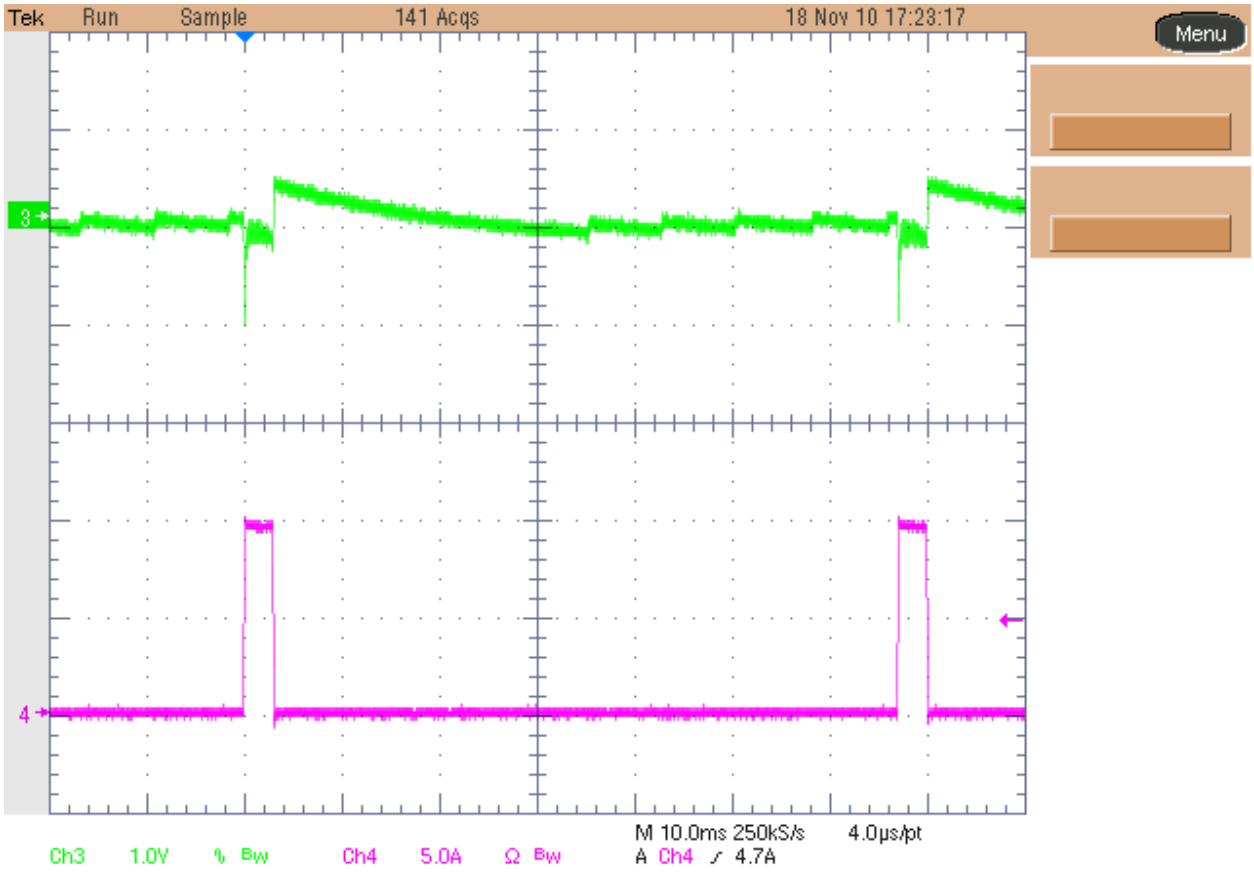
The output voltage (output of the PMP5602) and the output current waveforms are shown in the images below. The input voltage was 12V. The load on the PMP5602 has been switched between 0A and 10A, with a Ton=3ms and a frequency of 15Hz. The slew rate was set to the maximum.

Channel 3: Output Voltage (PMP5602 output), 1 V/div, AC coupled, 1ms/div.
Channel 4: Output Current, 5A/div., DC coupled



This image shows the same waveform like the above, but with a 10ms/div. time division, to show the rippled due to the burst mode operation.

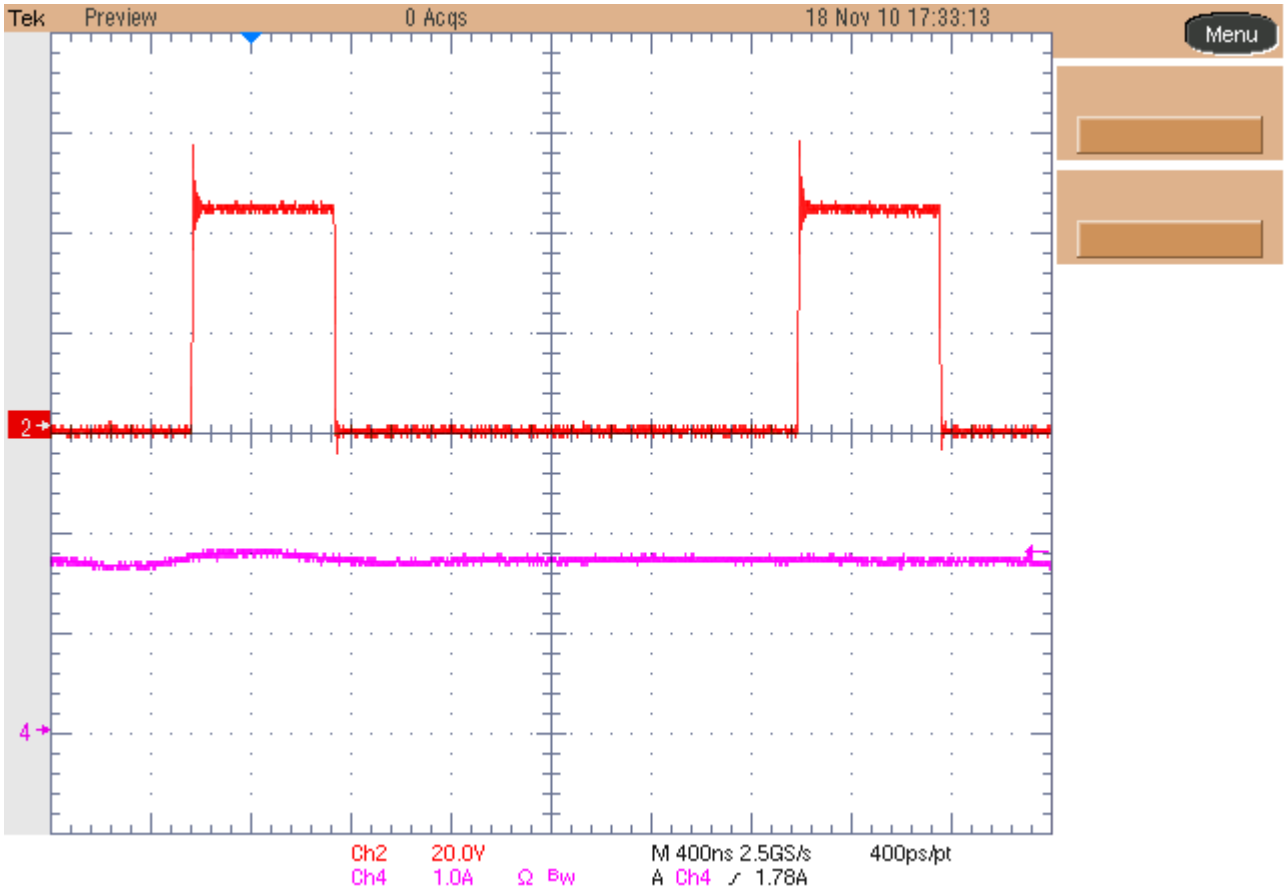
Channel 3: Output Voltage (PMP5602 output), 1 V/div, AC coupled, 10ms/div.
Channel 4: Output Current, 5A/div., DC coupled



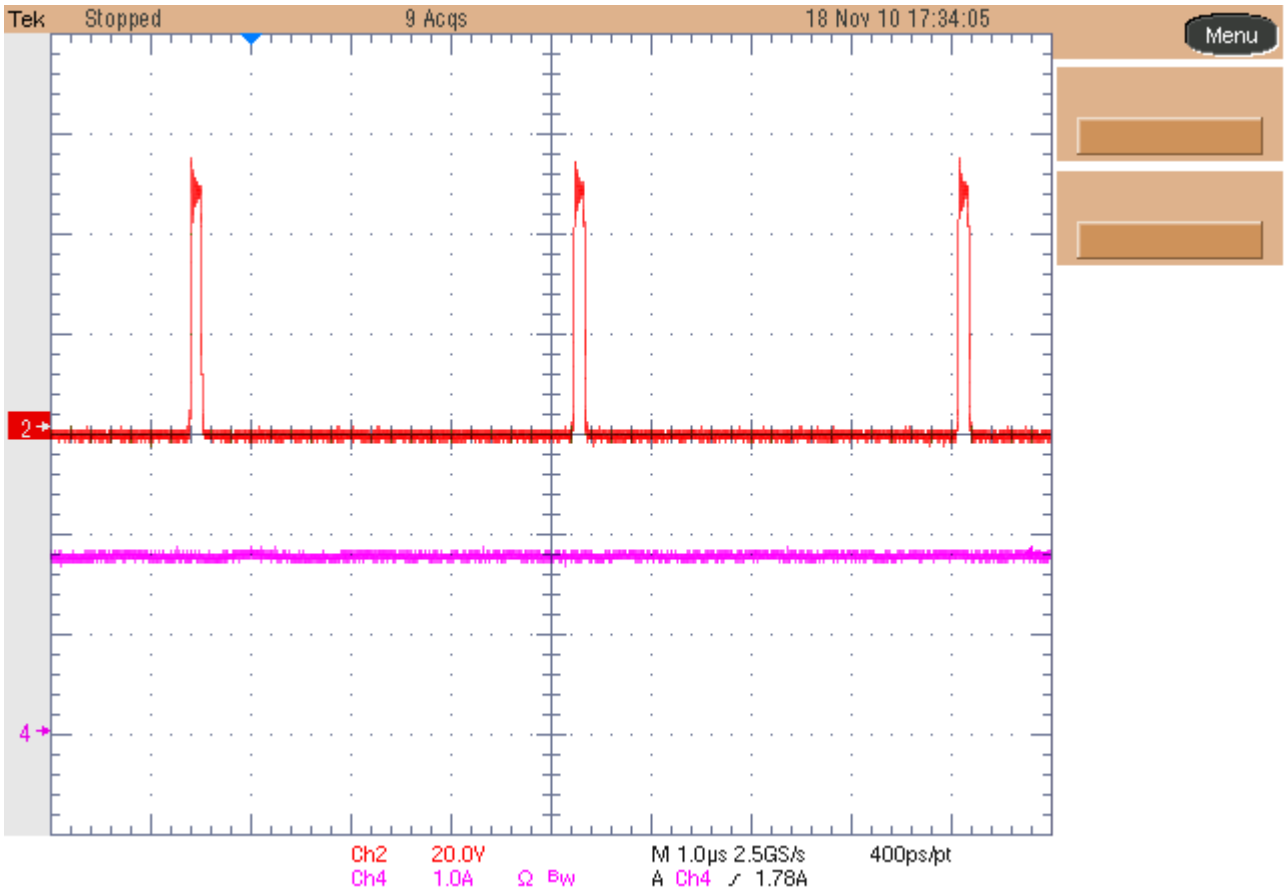
3. Switch-node

The images below show the switch-node waveforms at 12V input and full transient on output.

Q1 Mosfet of PMP5601 (Boost Converter)
Channel 2: Vds (Q1), 20V/div, 400nsec/div.
Channel 4 : Input Current, 1A/div.



Q3 Mosfet of PMP5602 (Buck Converter)
Channel 2: Vds (Q1), 20V/div, 1usec/div.
Channel 4 : Input Current, 1A/div.



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