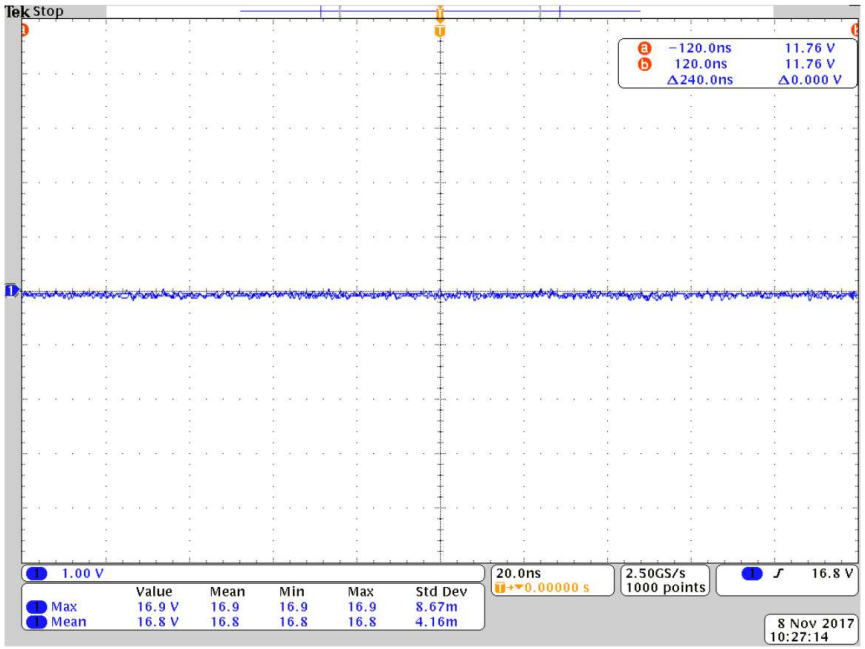
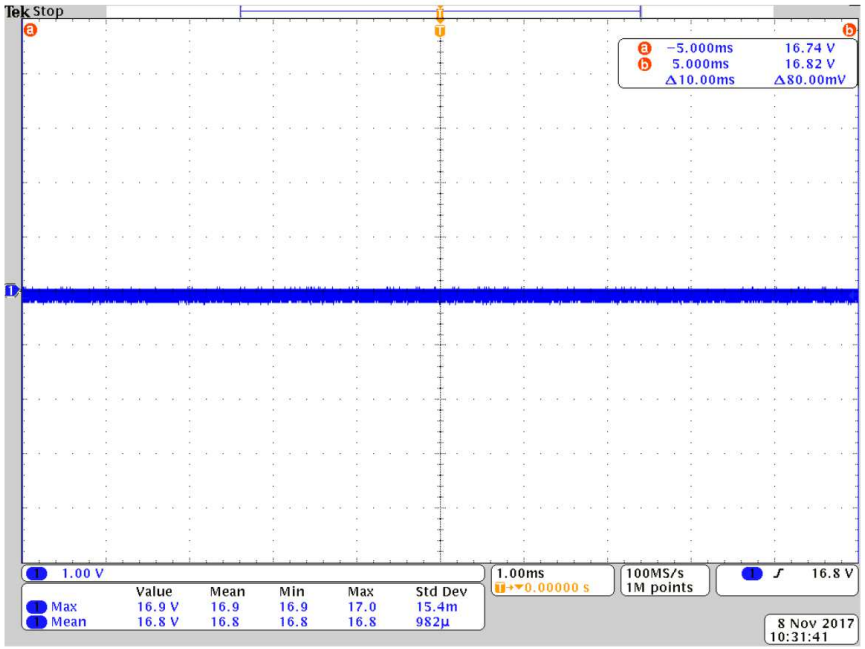
Baseline Measurement – No 10 Ohm Resistor in Series Voltage Charger Output



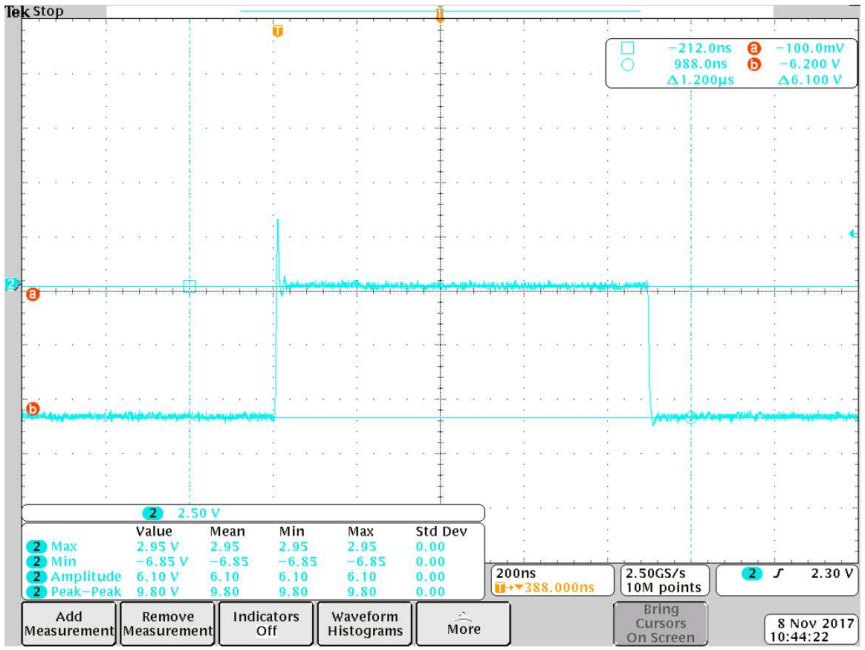
MSO4034 - 8:30:29 AM 11/8/2017



MSO4034 - 8:34:55 AM 11/8/2017

Ch1: Charger Voltage Offset by 16.8V
Average of the average is 16.8V. Average of Max is 16.9V

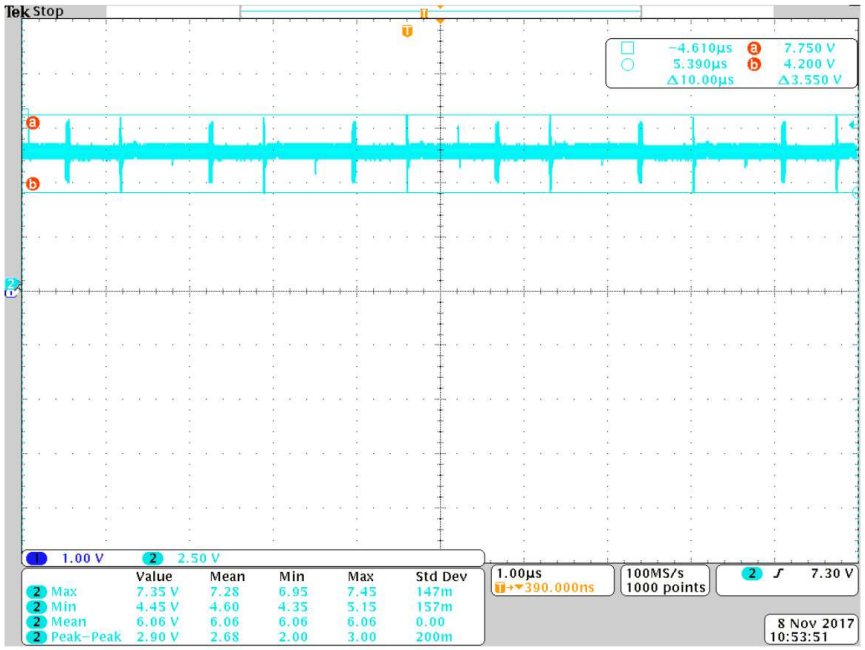
Baseline Measurement – No 10 Ohm Resistor in Series
High Side FET Driver Differential Gate-to-Source Measurement



MSO4034 - 8:47:38 AM 11/8/2017

Baseline measurement shows good performance of High Side FET driver. Rise and fall time look sharp.

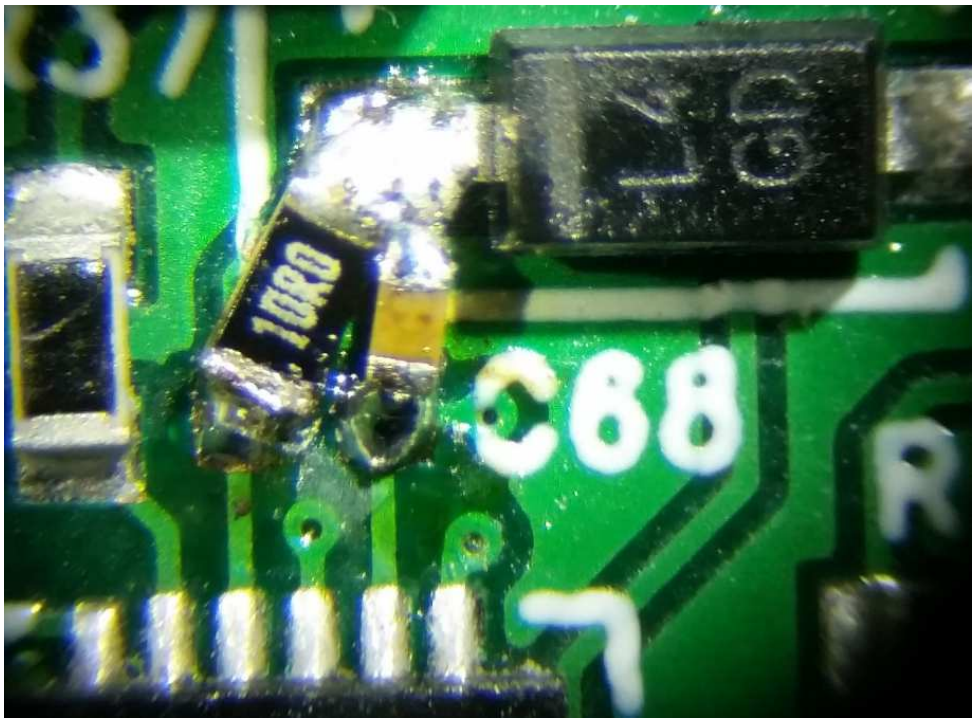
Baseline Measurement – No 10 Ohm Resistor in Series BTST to PH Pin - Differential Measurement



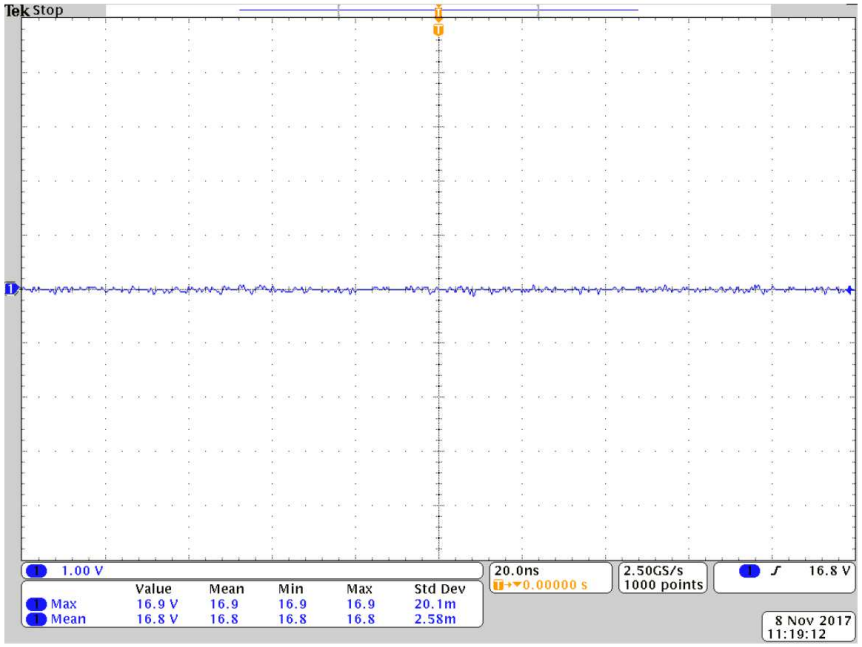
MSO4034 - 8:57:06 AM 11/8/2017

Baseline voltage transients across BTST to PH pins. Minimum voltage reaches 4.45V while turning on high side FET.

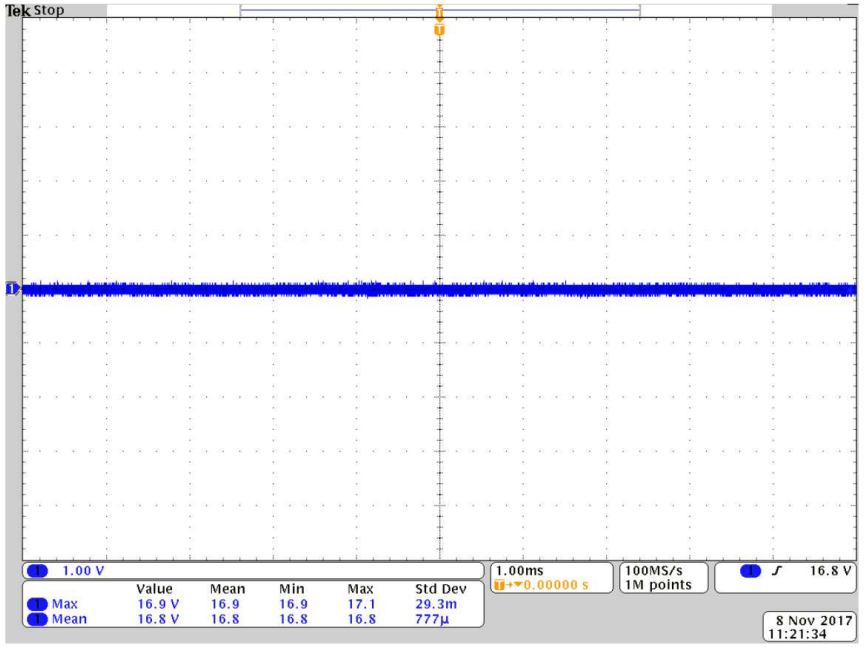
10 Ohm Resistor Added in Series With BTST Pin



10 Ohm Resistor in Series with BTST Pin Voltage Charger Output



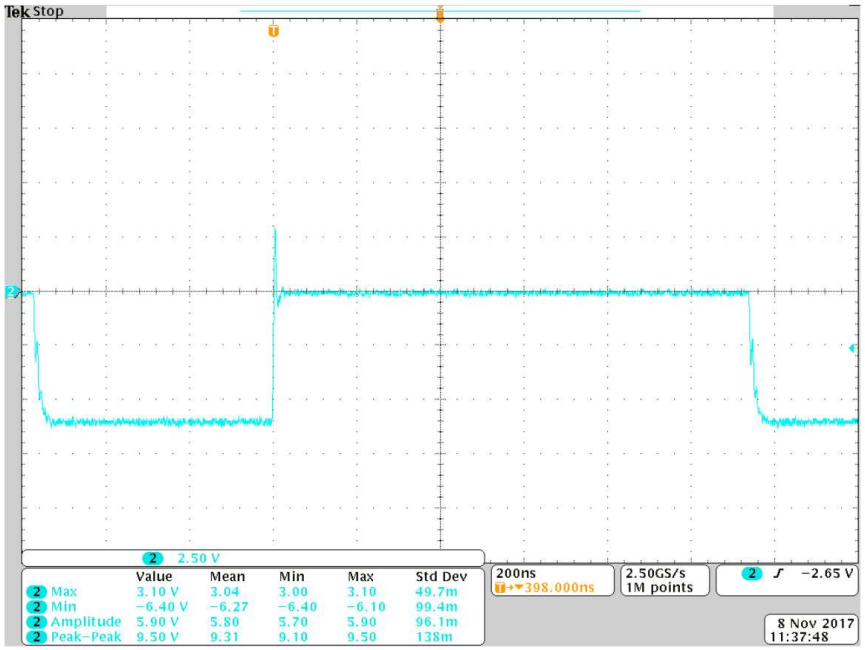
MSO4034 - 9:22:27 AM 11/8/2017



MSO4034 - 9:24:48 AM 11/8/2017

Ch1: Charger Voltage Offset by 16.8V
Mean of the Mean is 16.8V. Mean of the Max is 16.9V
Additional R in series with BTST has no effect on charger output transient performance.

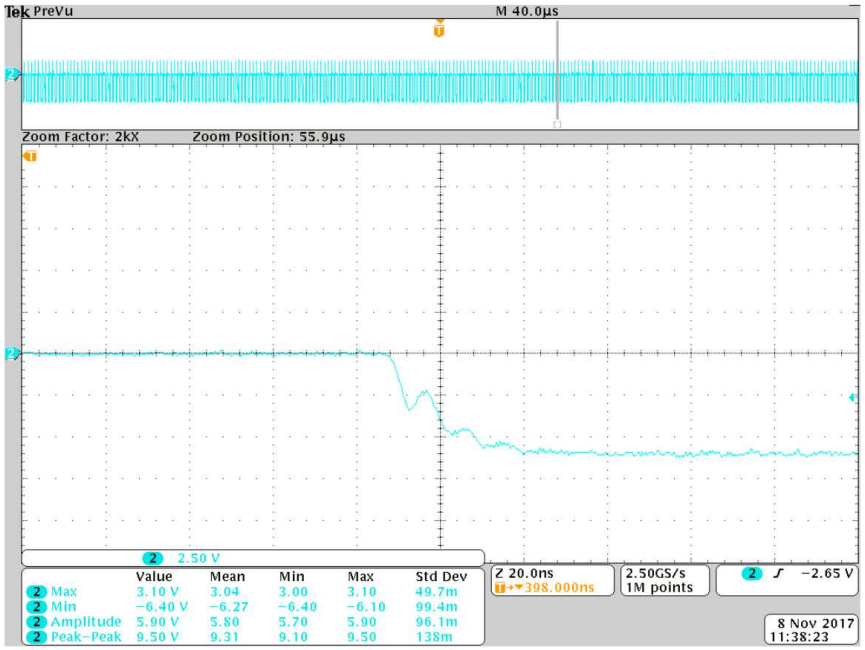
10 Ohm Resistor in Series with BTST Pin
High Side FET Driver Differential Gate-to-Source Measurement



MSO4034 - 9:41:02 AM 11/8/2017

Additional R in series with BTST does effect the performance of the high side FET driver. The turn on time is slower and the amplitude of the turn on voltage is slightly less (0.1V).

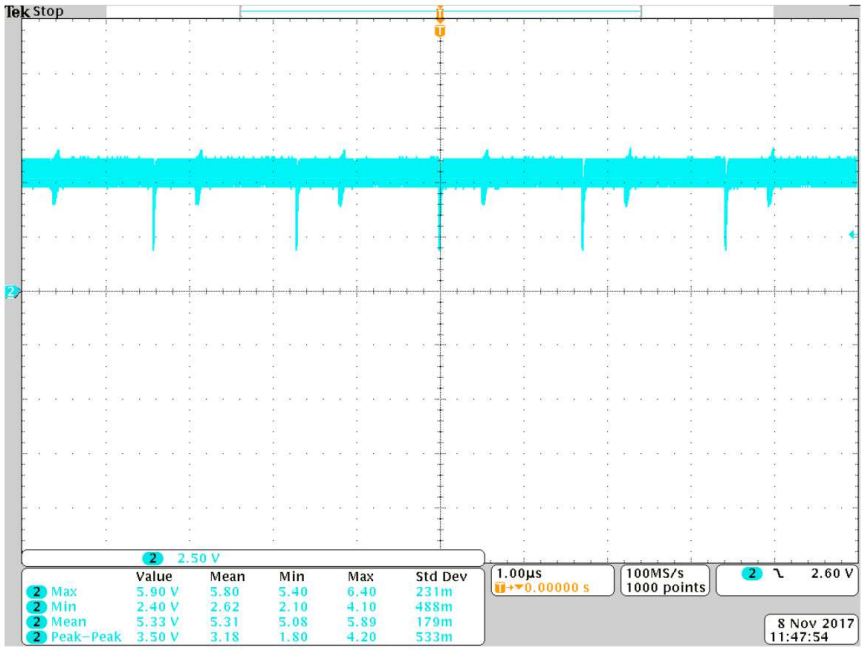
10 Ohm Resistor in Series with BTST Pin
High Side FET Driver Differential Gate-to-Source Measurement



MSO4034 - 9:41:37 AM 11/8/2017

Turn on voltage to high side FET exhibits oscillations which is caused by current limiting the high side driver power supply input.

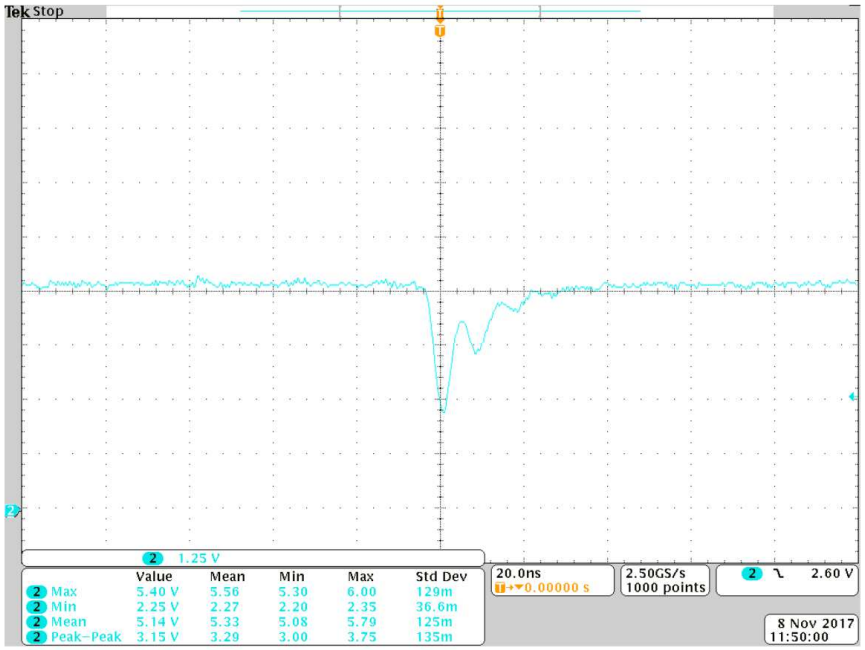
10 Ohm Resistor in Series with BTST Pin
BTST to PH Pin - Differential Measurement



MSO4034 - 9:51:09 AM 11/8/2017

Voltage transients across BTST to PH pins after modification. Minimum voltage reaches 2.4V while turning on high side FET. This limiting slows down the turn time of the High Side FET.

10 Ohm Resistor in Series with BTST Pin
BTST to PH Pin - Differential Measurement



MSO4034 - 9:53:17 AM 11/8/2017

Voltage transients across BTST to PH pins after modification zoomed in. Minimum voltage reaches 2.25V while turning on high side FET.