

Below is the circuit used with the TPS40009 (Figure 1).

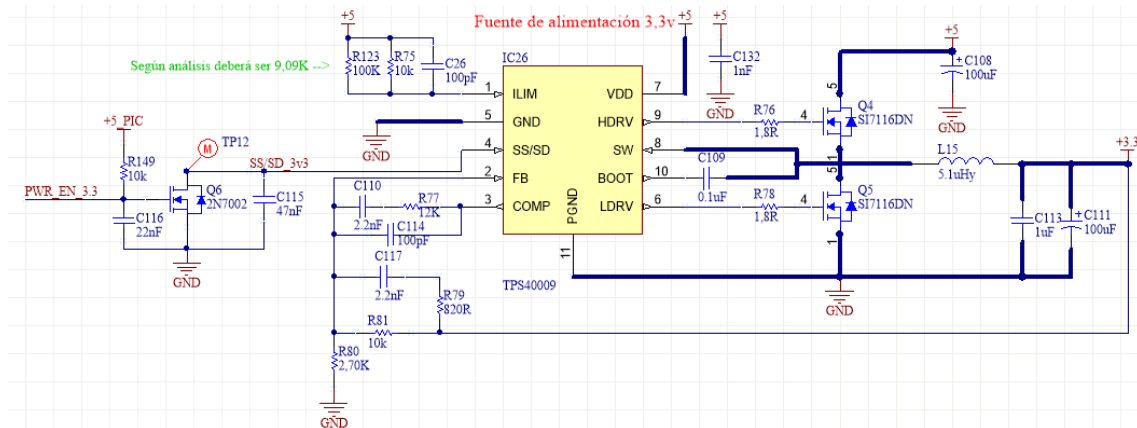


Figure 1

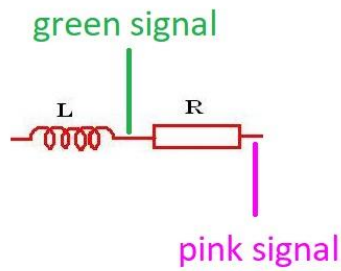


Figure 2

The test was performed by measuring the voltage of a Rshunt = 0.1 Ohm.

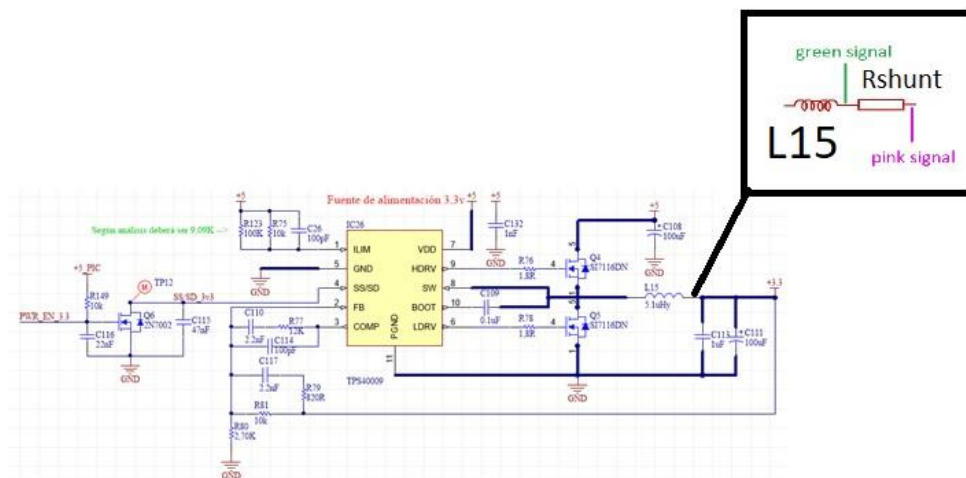


Figure 3

Voltage measurement at start-up of the TPS40005 controller.

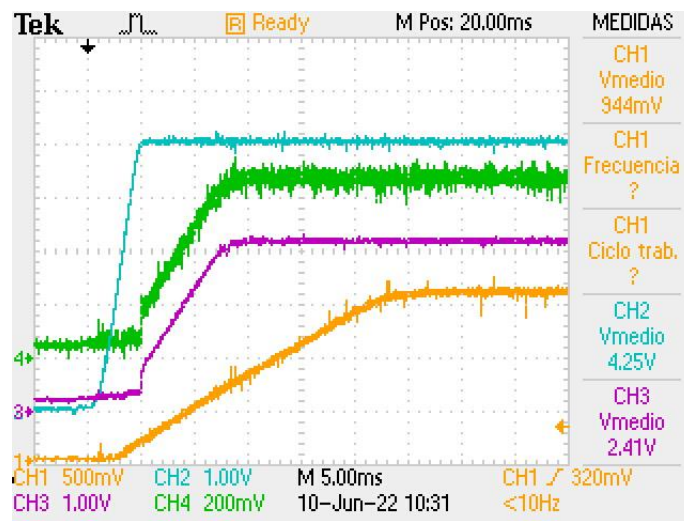


Figure 4

References:

Pink: Vout 3,3V.

Yellow: voltage on the css capacitor.

Cyan: Vin 5V.

Green: Vfeedback.

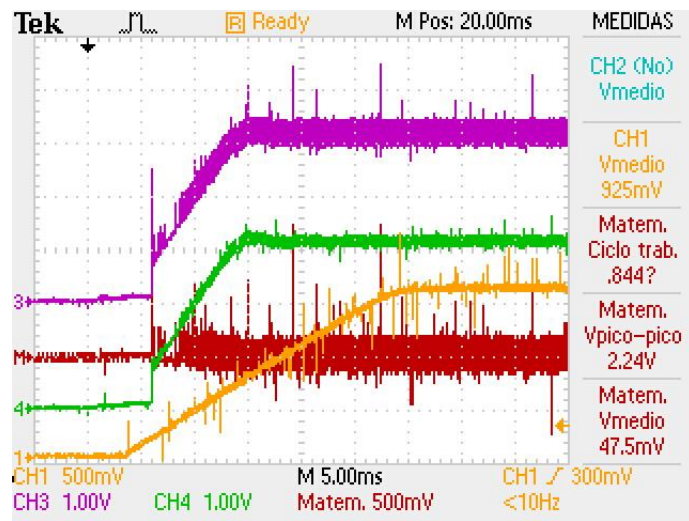


Figure 5

References:

Yellow: voltage on the css capacitor.

Green: low side Rshunt.

Pink: high side Rshunt.

Red: green signal – pink signal.

Coil current measurement in the TPS40005 controller

No-load coil current measurement.

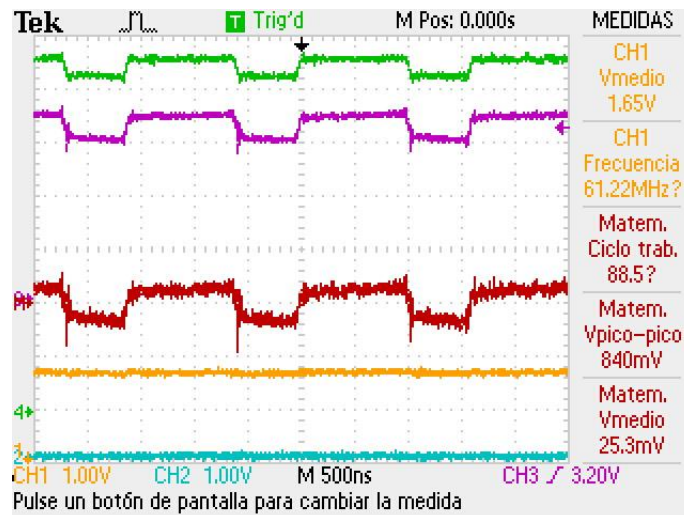


Figure 6

References:

Green: 500mV/div.

Pink: 1V/div.

Red: green signal – pink signal

Yellow: voltage on the CSS capacitor.

Cyan: no connection.

Current measurement with the load malfunctioning.

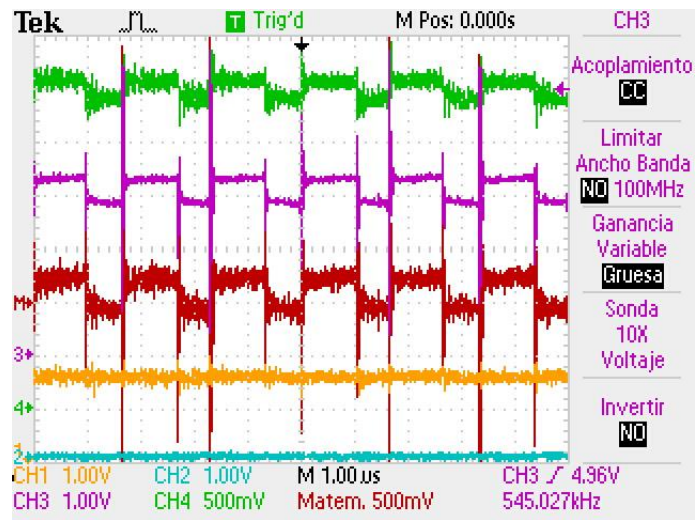


Figure 7

Current measurement with load working fine.

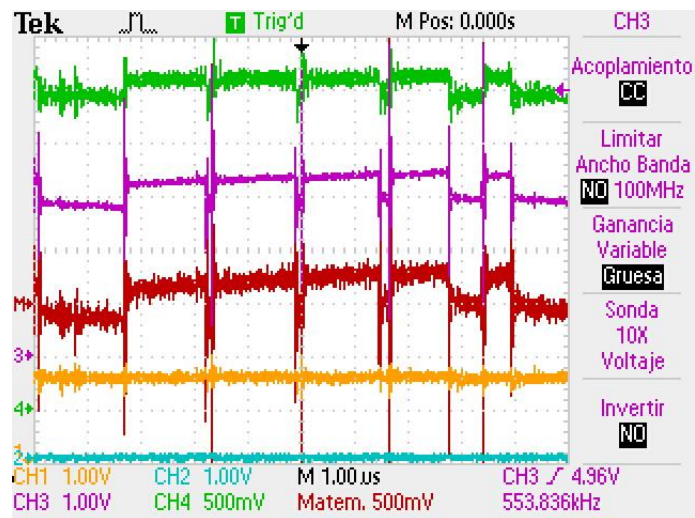


Figure 8

Zoom-out of the Current measurement with load working fine.

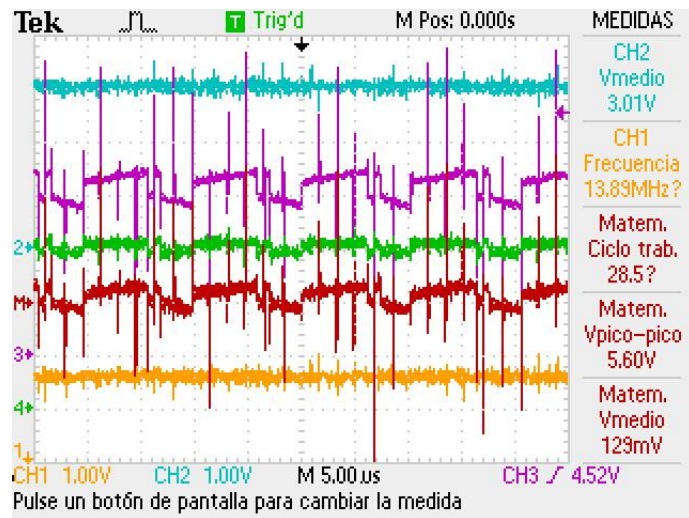


Figure 9

References:

Red: green signal – pink signal

Yellow: voltage on the css capacitor.

Cyan: no connection.

Current measurement with the load working well and with the measurement of the voltage on the SW pin.

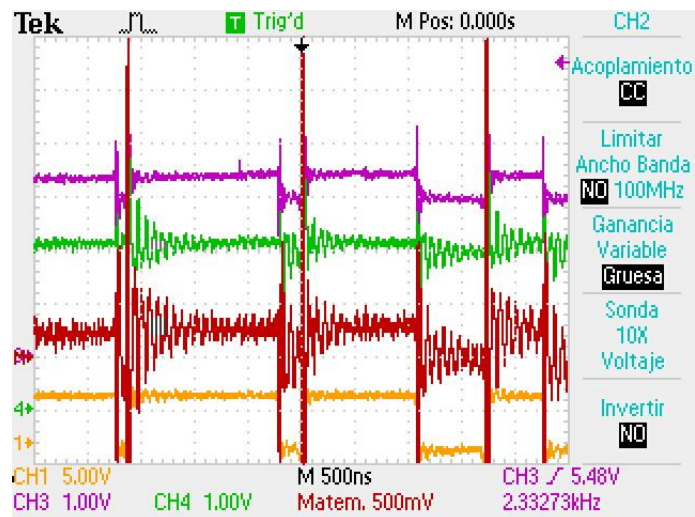


Figure 10

Red: green signal – pink signal

Yellow: voltage on the SW pin.

Cyan: no connection.