TLD5542-1QV
H-Bridge DC/DC Controller
Average model

How to get started

Simulation model features

Target: perform AC simulations for converter stability analysis

- ❑ The model is a simplified version of the real device showing a reduced number of pins on the symbol and limited test bench components
- ❑ Only those elements relevant for stability have been considered inside the model
- ❑ For a better understanding of the device operation, please consult the complete transient model available on product web site

Features:

- ❑ The model is self-detecting the operation mode (BUCK or BOOST) by comparing input and output voltages internally
- ❑ Bode plots (Gain and Phase) are automatically opened at the end of simulation

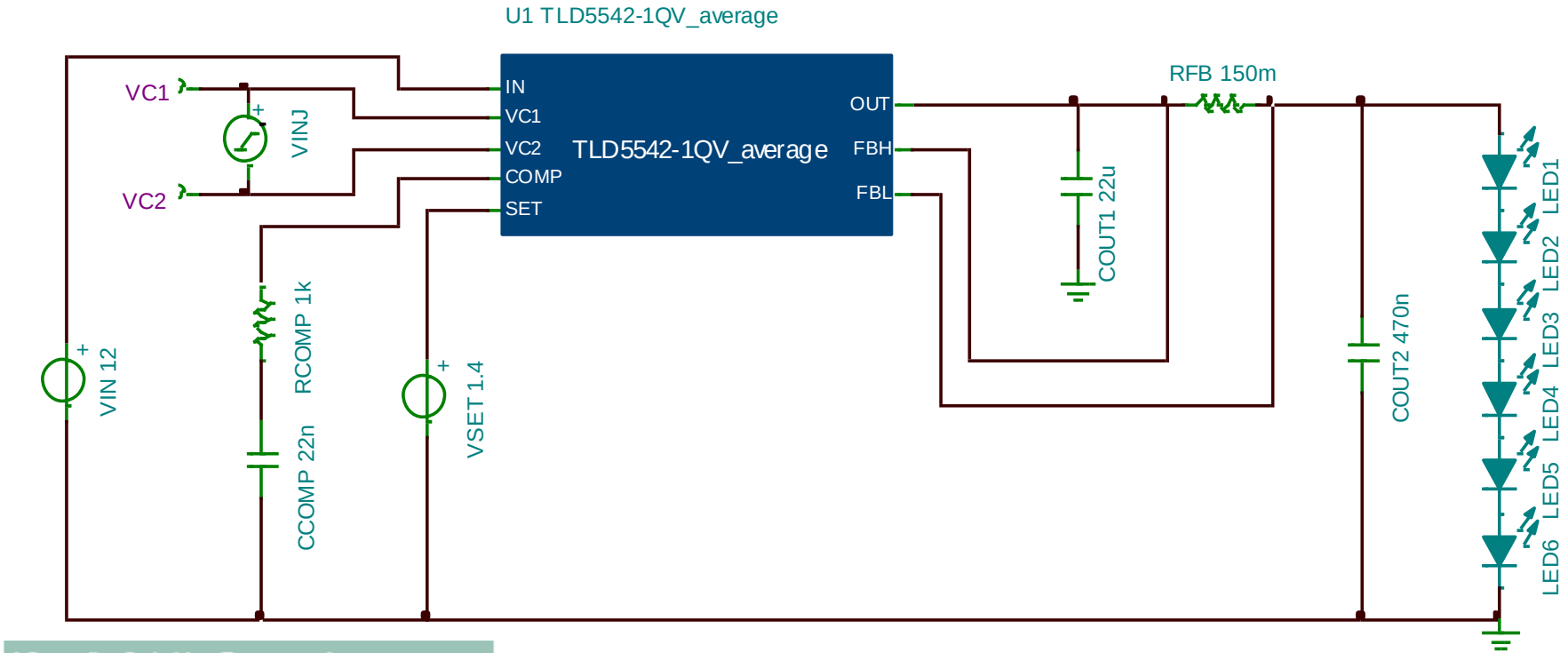
Model parameters available on test bench for user control:

- **frequency**: controller switching frequency, range from 200 kHz to 700 kHz
- **inductor**: converter switching inductor
- **rswcs**: switch and inductor current sense resistor

Note: the model is guaranteed only in BUCK and BOOST current mode regulation.

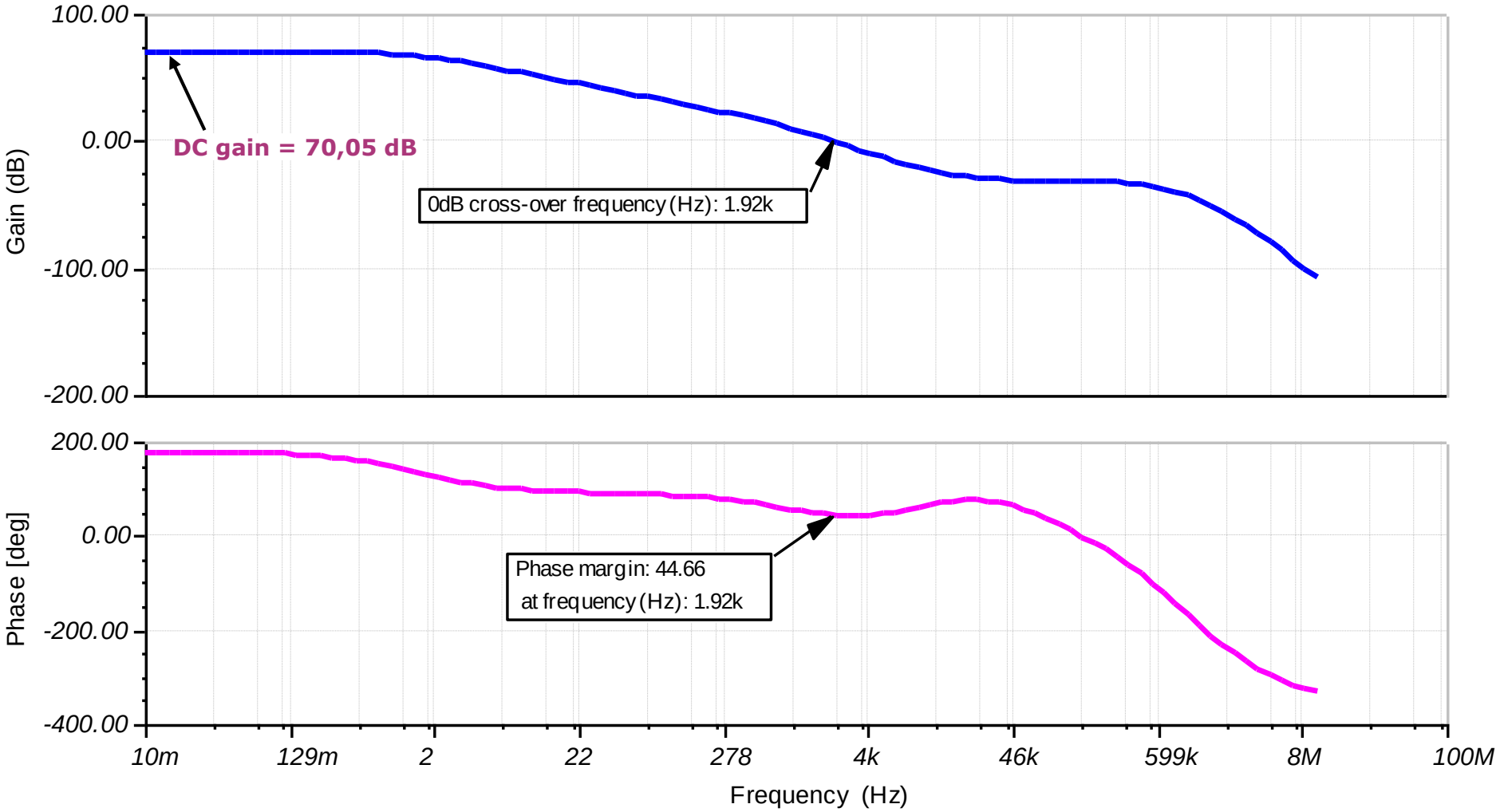
Application information – test bench

- The setup is configured as Boost topology in current mode regulation
- Output current is set at 1 A (RFB=150 mΩ), 100% analog dimming
- Equivalent output voltage for 6 LEDs @ 1 A is 26.2 V




```
{ Controller Switching Frequency }
FREQUENCY := 350k;
{ Converter Switching Inductor }
INDUCTOR := 15u;
{ Current Sense Resistor }
RSWCS := 10m;
```

Application information – AC results



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