Stacking for High Power

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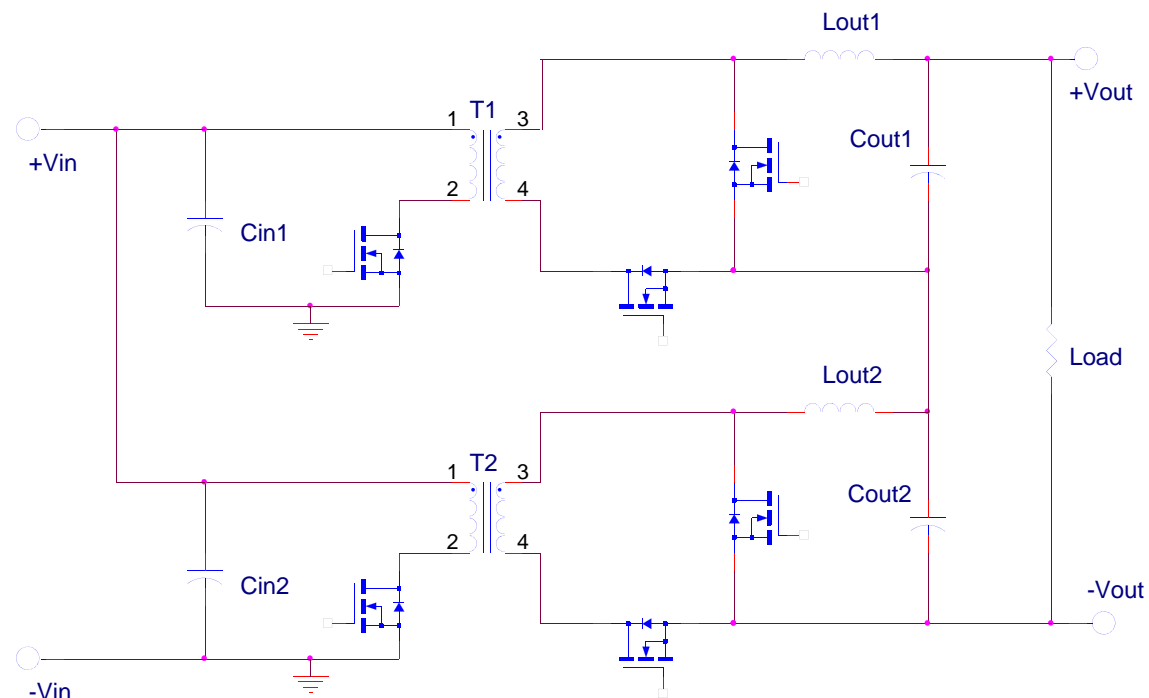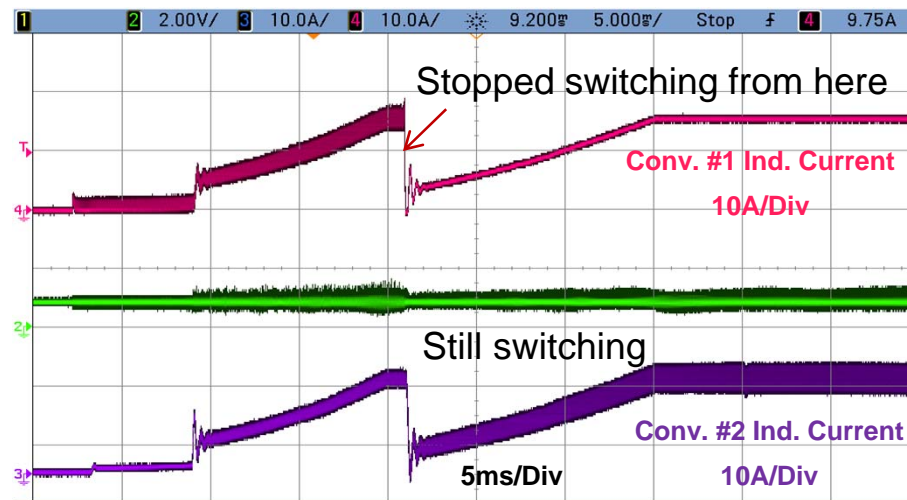
Stacked converters for High Power

Reason: For better distribution of thermal dissipation and reduced stress on the power components.
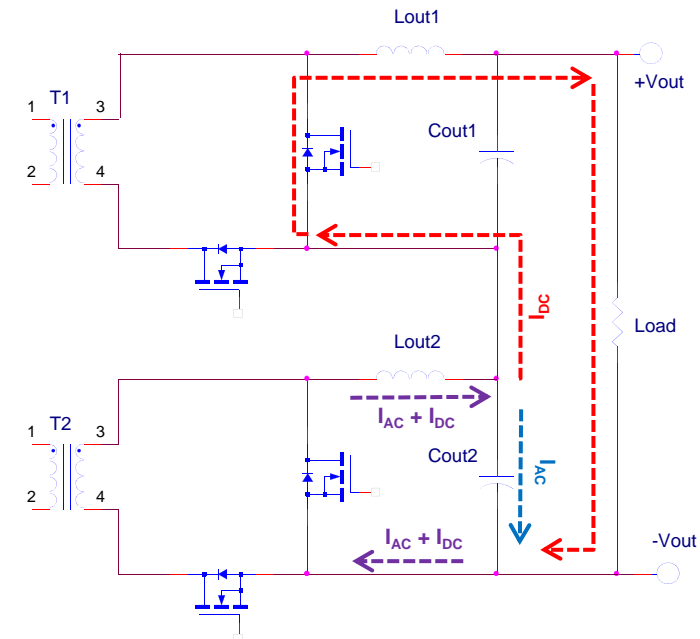
Potential Issue

Why do we need synchronized fault and startup?

Stopped switching from here

Conv. #1 Ind. Current

10A/Div

Still switching

Conv. #2 Ind. Current

5ms/Div   10A/Div

Both converters startup into an overload condition.

Converter #1 hits over current and stops switching immediately.

Converter #2 has not reached its over current threshold.

Full continuous load current will flow through the body diode of the converter #1's catch MOSFET.

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LINEAR TECHNOLOGY

Built-in Protection Feature

- Recommended interconnection between LT3752 / 52-1 / 53 for stacked converters:
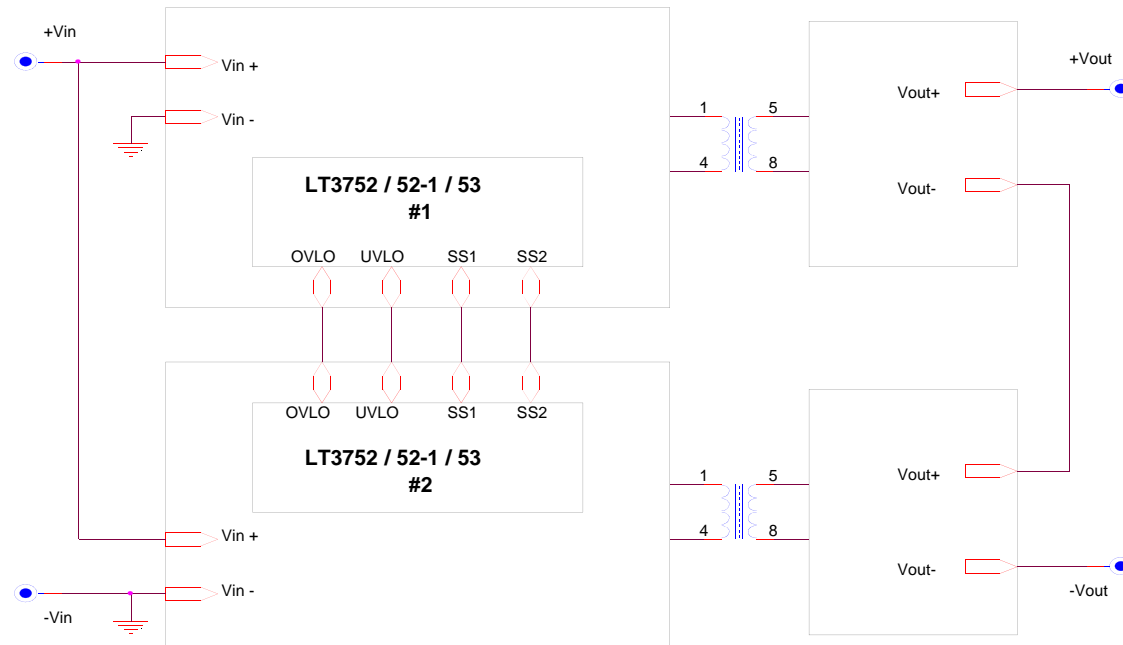
The LT3752 / 52-1 / 53 will pull up the OVLO pin voltage anytime a hard stop occurs. Any hard fault that is detected by any controller in the stack will cause a hard stop event on all other controller(s) if their OVLO pins are tied together.

The LT3752 / 52-1 / 53 will also ground the SS pins during startup, before the supply voltage reached the UVLO level. This will make sure that all controllers will not start switching until every controller in the stack reach their UVLO level.

Shutdown at the Same Time
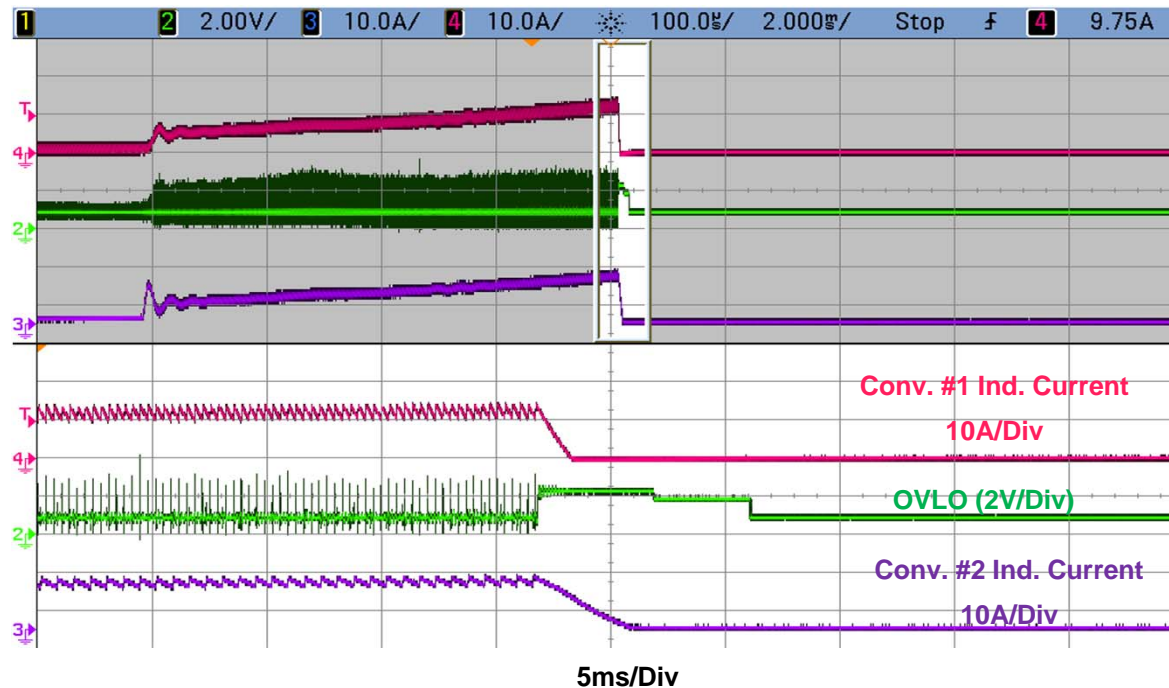
Start up into overload condition. The OVLO Pins are connected. A hard fault on one of the controller will cause both controllers to stop switching immediately.

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