



# Fast Facts



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## Smart Load Switches for Current Limit Protection

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### Use Smart Load Switches For Current Limit Protection

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A smart switch device designed specifically for load switching and fault protection applications is much simpler and has far fewer components than a load switch comprising discrete components.

The ability to turn on loads in a controlled manner is important in applications where the power budget is limited. Hard switching a load can cause the input power rail to droop and result in a fault. In some applications, a short of a single rail can damage the entire system by resulting in the reset or damage of the main supply or excessive power dissipation on the system board.

This is why system designers often include high-side load switches as part of the power-supply architecture (Fig. 1). To achieve some of the desirable functions such as low-voltage enable/disable, load discharge, and slew-rate control, quite a few discrete components need to be used.

**Fig. 1** Comparison of a discrete implementation of a "smart" high-side load switch (a) versus an integrated approach (b).

**a.** A discrete implementation of a "smart" high-side load switch (a) utilizes several external components versus the simplicity of an integrated approach, such as the SIP32429 (b).

**b.** A block diagram of the SIP32429 integrated load switch. It includes a power input, VIN, a Smart switch, V<sub>Out</sub>, To load, Bias up to 6 V, EN, I<sub>LM</sub>, SS, C<sub>SS</sub>, R<sub>SEL</sub>, FLG, PG, and GND.

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