

# L6733 single-phase modular controller

Advanced PWM controller for multi-module redundant power supplies



The L6733 is a new advanced single-phase stackable controller from STMicroelectronics, and provides greater design flexibility. Up to 8 modules can be stacked together, providing a high-density power supply that supports up to 240 A of output current.

The L6733 allows multi-output topologies minimizing electromagnetic interference using an advanced synchronization system.

## Key features

- High-current embedded drivers with programmable supply voltage
- Operating supply voltage range: 4.5 V to 16 V with selectable UVLO
- Adjustable output voltage: 0.6 V ref.
- 0.8% accuracy over line and temperature variations (0 °C to 125 °C)
- Tracking function to synchronize startup/shutdown
- Integrated remote sense amplifier
- Current sharing bus control
- Selectable DCM to optimize efficiency at light load
- Margin mode and synchronization
- Pre-bias start-up management
- Programmable oscillator: 200 kHz to 1 MHz

## Targeted applications

- High-performance DC-DC modules
- Redundant power supplies with hot-plug
- niPoL (non-isolated point of load) converters
- Data centers
- Telecommunications equipment

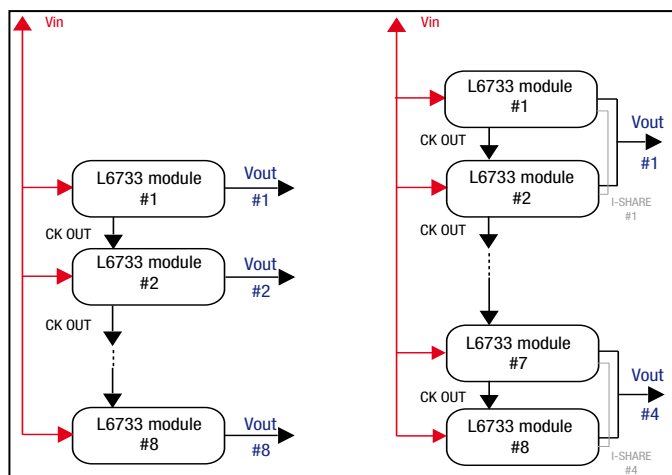
## Product description

The L6733 supports an input voltage conversion range of 1.5 V to 30 V, and operates from a 4.5 V to 16 V power source. The device converts from a 30 V input to 0.6 V output at a switching frequency programmable up to 1 MHz. This new PWM single-phase controller guarantees an excellent line and load regulation of 0.8% for the internal 0.6 V voltage reference.

Current information is monitored across the main direct current resistance (DCR) rejecting noise and allowing a sensing element to be placed in different locations without affecting the measurement accuracy. Over- and undervoltage protection, as well as programmable dual-level overcurrent protection, are provided.

Democratic current-sharing bus control avoids master-slave configuration issues, so allowing the implementation of fault-tolerant stackable power supplies.

Synchronization with programmable phase-shift is also available to minimize electromagnetic interference, so helping further in reducing input capacitance in paralleled converters. The L6733 also implements multi-output converters while still allowing programmable synchronization to optimize the input filter. The track function enables the IC to manage both simultaneous and ratiometric start-up. The programmable margin mode control through a single pin allows a known deviation to be given to the regulated voltage. The L6733 is equipped with complete supervisory and control features, including power good, thermal shutdown, pre-bias start-up management and feedback disconnection.



Flexibility: multi-output and multi-module applications

## L673x: fully configurable synchronous DC-DC controllers

Part number	Duty cycle	Fsw	Soft start	Current sense	Package
L6733	100%	200 kHz to 1 MHz	Ref and track	DCR	VFQFPN32 5x5
L6730	100%	100 kHz to 1 MHz	Comp (simul)	RdS(on) HS and LS	HTSSOP20
L6730B	100%	100 kHz to 1 MHz	Comp (simul)	RdS(on) HS and LS	HTSSOP20
L6730CQ	100%	100 kHz to 1 MHz	Ref (ratio)	RdS(on) HS and LS	VFQFPN24 4x4
L6732	100%	250 kHz to 1 MHz	Comp (simul)	RdS(on) HS and LS	HTSSOP16
L6731D	100%	250 kHz to 1 MHz	Ref (ratio)	RdS(on) HS and LS	HTSSOP16
L6725	100%	250 kHz to 1 MHz	Comp (simul)	RdS(on) HS and LS	S016N
L6725A	100%	250 kHz to 1 MHz	Ref (ratio)	RdS(on) HS and LS	S016N



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