

Dual H-Bridge Motor Driver

Features

- ❖ Wide 2.5V-to-15V Input Voltage Range
- ❖ Two Internal Full-Bridge Drivers, drive one or two brush DC motors, one bipolar stepper motor, Solenoids and other inductive loads
- ❖ Low MOSFET On Resistance (HS:500mΩ; LS:500 mΩ)
- ❖ Internal Charge Pump for the High-Side Driver
- ❖ High output Current Capability 1A RMS, 1.6A Peak per H-Bridge, 2A RMS in Parallel Mode (at $V_{VM}=5V, +25^{\circ}C$)
- ❖ PWM control interface
- ❖ Supports 1.8V, 3.3V and 5V logic inputs
- ❖ Integrated current regulation
- ❖ Low-power sleep mode ($<60nA$ at $V_{VM}=5V, T_J=25^{\circ}C$)
- ❖ Integrated protections feature
- ❖ VM undervoltage lockout
- ❖ Auto-retry overcurrent protection
- ❖ Thermal shutdown
- ❖ Fault Indication Pin (nFAULT)
- ❖ Thermally Enhanced Surface-Mount Packages
- ❖ 16-pin ETSSOP with PowerPAD, 5.0×6.4 mm
- ❖ 16-pin WQFN with PowerPAD, 3.0×3.0 mm

Applications

- ❖ Robotics
- ❖ Point-of-Sale Printers
- ❖ Portable Printers
- ❖ Toys
- ❖ Video Security Cameras

Description

The YX7833 device provides a dual bridge motor driver solution for toys, printer mechatronic applications.

The device has two H-bridge drivers, and can drive one or two DC brush motors, a bipolar stepper motor, solenoids, or other inductive loads.

The tripler charge pump allows the device to operate down to 2.5V to accommodate 2.5V low-battery conditions. The charge pump integrates all capacitors and allows for 100% duty cycle operation. Also, no external capacitors are required, simplifying applications and reducing costs.

The output driver block of each H-bridge consists of N-channel power MOSFETs configured as an H-bridge to drive the motor windings. Each H-bridge includes circuitry to regulate or limit the winding current. The inputs and outputs can be paralleled to drive high current brush DC motors with half the $R_{DS(ON)}$.

The device implements current regulation by comparing an internal reference voltage to the voltage on the xISEN pins. The ability to limit current can significantly reduce large currents during motor startup and stall conditions.

The YX7833 has a very low quiescent power consumption of up to 1mA. It also has a sleep mode which reduce quiescent current down to 1uA.

Internal protection functions with a fault output pin are provided for overcurrent protection, short-circuit protection, and overtemperature. It also features a undervoltage lockout, and over voltage shutdown.

Typical Application

