IPS1050LQ

Single-channel, low-side switch for 60 V factory automation solutions

Single-channel intelligent power switch for efficient and reliable driving in factory automation applications

The IPS1050LQ single-channel, low-side switch for 60 V factory automation applications allows the driving of a wide selection of loads that address safety integrity level applications.

With an extremely low R_{DSON} (25 mΩ typ) and smart overload protection, this IC is ideal for applications requiring high inrush and configurable steady-state operating current.

The compact QFN32L 6x6 package renders this IC suitable for various implementations, especially considering the growing adoption of slim modules and programmable logic controllers in factory automation applications.

KEY FEATURES & BENEFITS

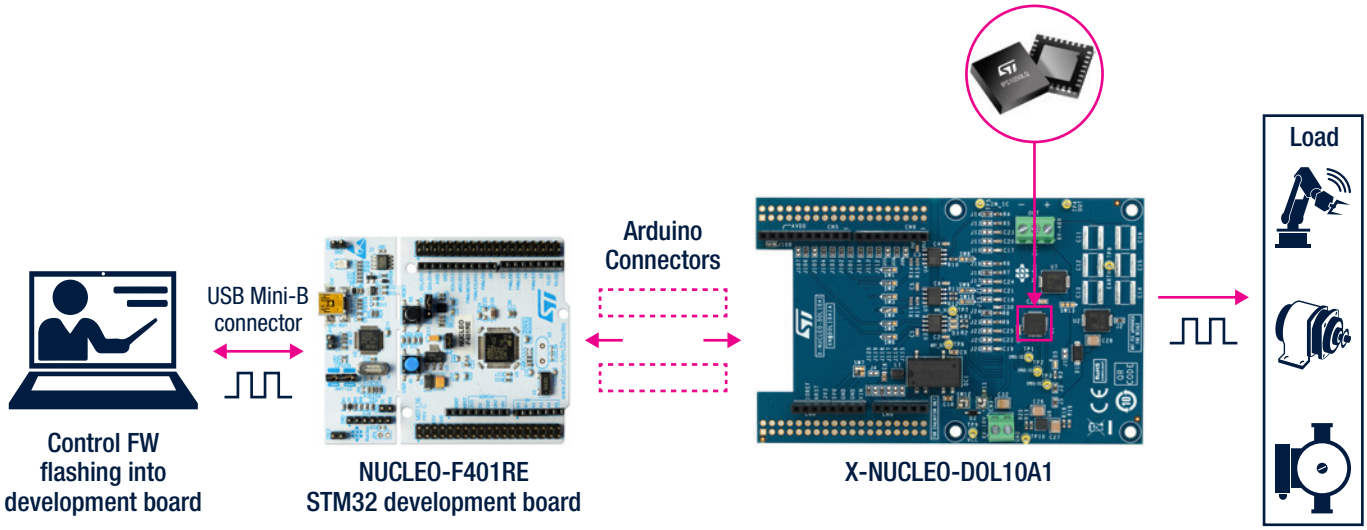
- Absolute maximum rating up to 65 V on the output stage
- Operating supply voltage from 5.8 to 10 V [12 V AMR]
- Smart overload protection with configurable inrush current and limitation levels
- Eight-level configurable current limitation [1.2 to 25 A]
- Junction overtemperature protections
- Dedicated OVT diagnostic open drain pin
- Fast demagnetization of inductive loads
- Designed to meet IEC 61000-4-2, IEC 61000-4-4, IEC 61000-4-5
- Designed to drive DC-13 loads according to EN 60947-5-1

KEY APPLICATIONS

- Programmable logic control
- Industrial PC peripheral input/output
- Numerical control machines

Detailed description

The IPS1050LQ is a monolithic, single-channel, low-side switch based on ST's robust VIPower technology. It is designed to drive capacitive, resistive, or inductive loads connected to the supply rail.
With a 65-V absolute maximum rating on the output stage, the IPS1050LQ is highly suitable for safety integrity level applications.
The device is capable of intelligent overload protection, offering static and dynamic overload detection options to ensure flexible driving of various types of loads.
For static overload detection, the current limitation level can be modified by setting the IPDx pins. For dynamic overload detection, the IC automatically reduces the current limitation level when the internal timer (regulated by capacitors on IPDx pins) elapses.
A dedicated temperature sensor protects the output channel from junction overtemperature, activating the diagnostic pin OVT for as long as the overtemperature condition persists.
Available in a compact 32 pin QFN (6 x 6 mm) package, this intelligent power switch is ideal for space-constrained industrial applications in compliance with IEC 61000-4-2/4/5 ESD immunity standards.
A stackable digital output expansion board STM32 Nucleo (X-NUCLEO-DOL10A1) and STM32Cube expansion software (X-CUBE-IPS) with ready-to-use example code are available to help developers quickly take advantage of this compact solution.



Product	Package	Channels	Rating	Operating supply voltage (V)	Temperature range (°C)	Ready-to-use evaluation boards
IPS1050LQ	QFN32L	1 (low side)	Industrial	5.8 to 10	-40 to 150	X-NUCLEO-DOL10A1

Order code: FL2511IPS1050LQ