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IPS2050H/IPS2050H-32

Smart load management solution for Industry 4.0

High-efficiency dual-channel high-side switch ICs with extended diagnostics and per-channel overload protection for smart driving of capacitive loads

ST's new series of Intelligent Power Switches (IPS) offer a unique Smart Load Management feature to intuitively drive any industrial load correctly.

The IPS2050H and IPS2050H-32 are specifically designed to meet the requirements of smart load applications suitable for Safety Integrity Level systems, thanks to a 60V operating voltage and embedded protections and diagnostics.

KEY FEATURES

- 8 to 60V operating voltage
  - Very low $R_{DS(on)}$: 50 mOhm (max.)
- Load current limitation
  - 2.5A/Ch (min.) IPS2050H
  - 5.7A /Ch (min.) IPS2050H-32
- Smart driving of capacitive loads
  - Programmable initial current threshold (ILIMH) duration using external capacitor
- Fast demagnetization when switching inductive loads
- OVL and OVT fault diagnostics and protections per channel
- Case over-temperature protection
- Vcc over-voltage protection
- Ground disconnection protection
- Under-voltage lock-out
- Designed to comply with IEC 61000-4-2, IEC 61000-4-4, and IEC 61000-4-5 standards
- Package
  - QFN48L (8 x 6 x 0.9 mm)
  - PowerSSO-24

KEY APPLICATIONS

- Programmable logic control
- Industrial PC peripheral I/Os
- Numerical control machines
- Vending machines
- General high-side switching applications

LONGEVITY 15 YEARS COMMITMENT

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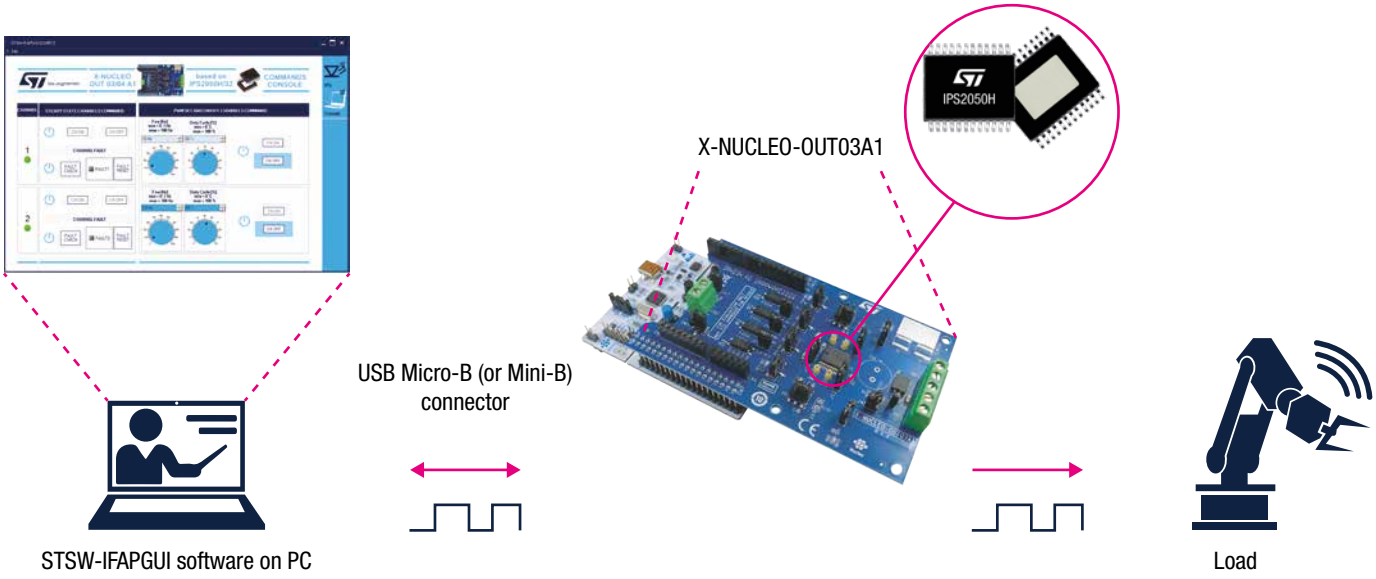
Hands-on development

The IPS2050H and the IPS2050H-32 are monolithic dual-channel high-side switch ICs which can drive capacitive, resistive or inductive loads with one side connected to ground (high-side switch). The recommended operating voltage ranges from 8 to 60V, but the breakdown voltage on the supply pin can reach 65V. The only difference between the two devices is the internal current limitation (2.5A per channel for the IPS2050H and 5.7A for the IPS2050H-32), all other electrical parameters are the same.

The output stage is an N-channel PowerMOSFET with a typical RDS(on) of 25mΩ at ambient temperature, internally limited at 2.5A output current (min.) for the IPS2050H and 5.7A for the IPS2050H-32. Both ICs allow two current limitation settings (ILIMH and ILIML) for smart driving loads such as bulb lamps and loads with an initial peak current request, such as capacitive ones.
These dual high-side switch ICs offer embedded protections with a programmable cut-off time via an external capacitor and integrated per-channel diagnostics making them ideal for robust machinery solutions.

To help developers explore the features and application benefits ST offers evaluation and expansion boards for STM32 Nucleo, as well as STM32Cube expansion software, demonstration firmware and an intuitive graphical user interface (see table below).



Order Code	Packing	Package	Current Limitation (A)	Evalboard Order Code	Software	Related Documents
IPS2050H	Tube	PowerSSO-24	2.5	X-NUCLEO-OUT03A1	X-CUBE-IPS	DB4205, UM2727
IPS2050HTR	Tape & Reel					
IPS2050HQ		QFN48L (8x6 mm)		STEVAL-IFP043V1		DB4770, UM3049
IPS2050H-32	Tube	PowerSSO-24	5.7	X-NUCLEO-OUT04A1		DB4206, UM2728
IPS2050HTR-32	Tape & Reel					
IPS2050HQ-32		QFN48L (8x6 mm)		STEVAL-IFP044V1		DB4771, UM3050