

IPS4140HQ IPS4140HQ-1



Compact 4-channel high-side switches for industrial innovation



Compact 4-channel high-side switches with protection features and dedicated over-temperature diagnostic pins

The compact, quad-channel IPS4140HQ and IPS4140HQ-1 intelligent power switches offer a full set of embedded protections and dedicated per-channel diagnostics for very reliable and robust applications.

Housed in a compact QFN package that reduces the number of required BOM components and saves space on application PCBs, these IPSs are ideal for slim digital output (DO) modules in PLC systems and other compact DO solutions.

OVL = Overload
OVT = Overtemperature



KEY FEATURE & BENEFITS

- 10.5 to 36 V operating voltage
- Low $R_{DS(on)}$: 80 mΩ/ch (max.)
- Output current limitation:
 - 0.7 A/Ch (min.) IPS4140HQ
 - 1.0 A/Ch (min.) IPS4140HQ-1
- OVL/OVT protections per channel
- Dedicated per-channel OVT diagnostic pins
- Case OVT protection
- Short-circuit protection
- Ground disconnection protection
- Undervoltage lock-out
- Fast demagnetization for inductive load

KEY APPLICATIONS

- Programmable logic control (PLC)
- Industrial PC peripheral I/Os
- Numerical control machines (CNC)
- Drivers for all type of loads (R, L, C)

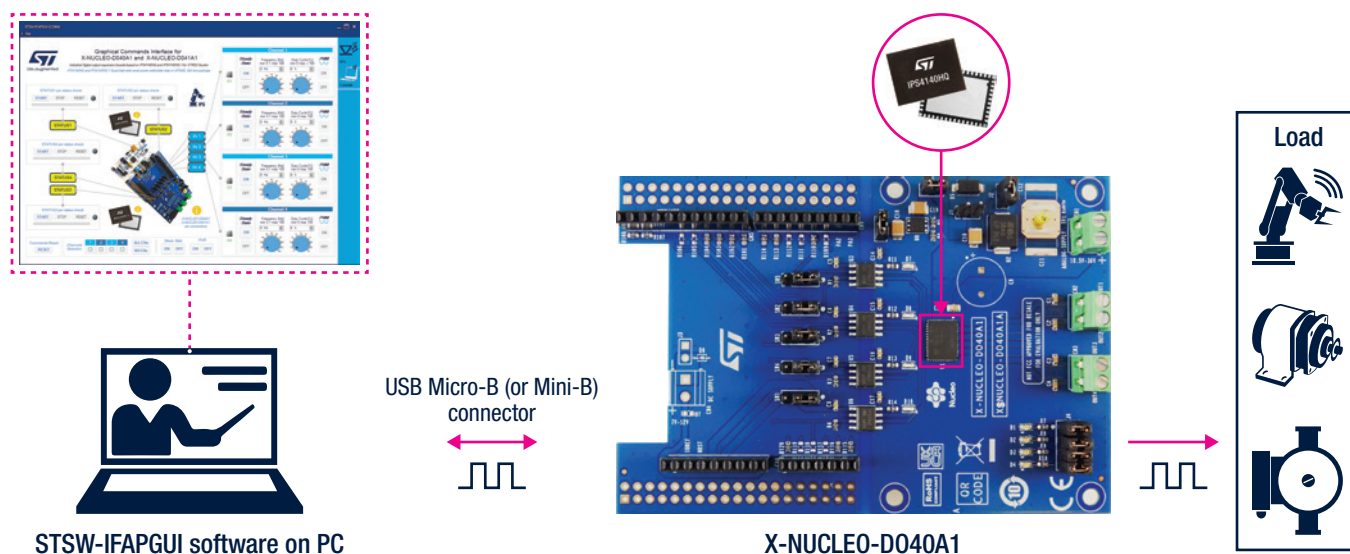
Hands-on development

Monolithic devices built with ST’s robust VIPower technology, the IPS4140HQ and IPS4140HQ-1 high-side switches are designed to drive any type of capacitive, resistive or inductive industrial load with one side connected to ground. The ICs differ for the internal current limitations, 0.7 A per channel for the IPS4140HQ and 1.0 A for the IPS4140HQ-1, while all other electrical parameters are the same. Each of the four output stages is a fully protected N-channel Power MOSFET with a typical $R_{DS(on)}$ of 80 mΩ max at ambient temperature.

Both switches integrate device protections and dedicated over-temperature diagnostic pins for each channel to aid intelligent system management.

Available in a compact 48-pin QFN (8 x 6 mm) package, these intelligent power switches are ideal for space-constrained industrial applications in compliance with IEC 61000-4-2/4/5 ESD immunity standards.

To help developers benefit from all the advantages of this compact solution, stackable digital output expansion boards for STM32 Nucleo (X-NUCLEO-DO40A1 and X-NUCLEO-DO41A1) and STM32Cube expansion software (X-CUBE-IPS) with ready-to-use example code and an intuitive graphical user interface are available.



Order code	Package	Packing	Current limitation (A)	Evalboard order code	Related documents	Software
IPS4140HQ	QFN48L 8x6 mm	Tape and reel	0.6	X-NUCLEO-DO40A1	DB5346, UM3411	X-CUBE-IPS
IPS4140HQ-1			1.0	X-NUCLEO-DO41A1	DB5347, UM3412	



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