



## Product Overview

### NCV70522DQ: SPI Stepper Driver with Voltage Regulator

For complete documentation, see the data sheet

#### Product Description

The NCV70522DQ is a micro-stepping stepper motor driver for bipolar stepper motors. The chip is connected through I/O pins and a SPI interface with an external microcontroller. The NCV70522DQ features an internal current-translation table: it takes the next micro-step depending on the clock signal on the stepping input pin (NXT) and the status of the direction register or input pin (DIR). A reliable current control is achieved using an integrated proprietary PWM algorithm.

The NCV70522DQ includes a so-called Speed and Load Angle (SLA) output, allowing the creation of stall detection algorithms and control loops to adjust torque and speed based on the motor's back electromotive force (BEMF).

The NCV70522DQ is implemented in I2T100 technology, enabling both high voltage analog circuitry and digital functionality on the same chip. The device is fully compatible with automotive voltage and temperature requirements and suited to general purpose stepper motor applications in the automotive, industrial, medical and marine domains.

#### Features

- Dual H-Bridge for 2 Phase Stepper Motors
- Programmable Peak-Current up to 1.2 A Continuous (1.5 A Short Time), Using a 5Bit Current DAC
- On-Chip Current Translator
- SPI Interface
- Speed and Load-Angle Output
- 7 Step Modes from Full-Step up to 32 Micro-Steps
- Fully Integrated Current-Sense
- PWM Current Control with Automatic Selection of Fast and Slow Decay
- Low EMC PWM with Selectable Voltage Slopes
- Active Fly-back Diodes

#### Part Electrical Specifications

Product	Compliance	Status	Type	V <sub>M</sub> Min (V)	V <sub>M</sub> Max (V)	V <sub>CC</sub> Min (V)	V <sub>CC</sub> Max (V)	I <sub>O</sub> Max (A)	I <sub>O</sub> Peak Max (A)	Step Resolution	Control Type	Feedback Method	Current Sense	Regulator Output	Fault Detection	Flyback Protection	R <sub>DS(on)</sub> Typ (Ω)	Package Type
NCV70522DQ004G	AEC Qualified PPAP Capable Pb-free Halide free	Active																SSOP-36 EP
NCV70522DQ004R2G	AEC Qualified PPAP Capable Pb-free Halide free	Active																SSOP-36 EP

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