

MICROCONTROLLER KIT

NEC ELECTRONICS AMERICA

Applications

- › Evaluation and development of brushless DC motor control firmware with the NEC Electronics μ PD78F0712 ASSP for low-voltage, low-power applications such as handheld power tools, small servo drives, remote-controlled toy cars, model airplanes, among others
- › Evaluation of the on-board debugger and flash programmer using the NEC Electronics μ PD78F0730 USB microcontroller
- › Evaluation of the NEC Electronics μ PA2792 complementary power MOSFETs
- › Evaluation of the NEC Electronics 78K0R microcontroller-based ZigBee stick

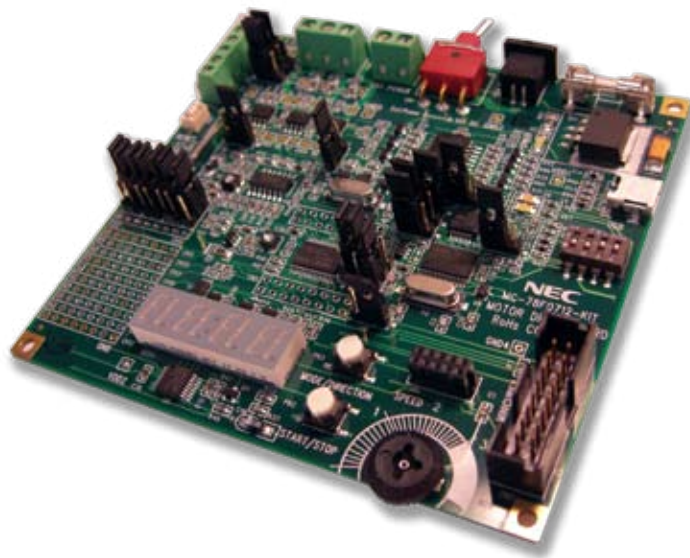
MC-78F0712-KIT Low-Voltage BLDC Motor Control Starter Kit

The MC-78F0712-KIT is a single-board, all-in-one, low-voltage motor control evaluation kit developed specifically for evaluation of NEC Electronics' low-pin-count μ PD78F0712 application-specific standard product (ASSP) for motor control. A complete and easy-to-use kit, the MC-78F0712-KIT provides everything you need to quickly get started testing and running a brushless DC (BLDC) motor.

In addition to the μ PD78F0712 motor control ASSP, the kit also uses NEC Electronics' μ PA2792GR (or similar) complementary P-N power MOSFETs and 8-bit μ PD78F0730 USB microcontroller (MCU) for operation with the host computer, on-board flash programming, and debugging of user code without the need for additional hardware. An interface connector for wireless motor control applications using an NEC Electronics 78K0R microcontroller-based ZigBee® stick is also included.

Features

- › 12V to 18V BLDC motor drive
- › Start/stop, direction and RPM control
- › Four-digit 7-segment LED
- › NEC Electronics μ PA2792 complementary power MOSFETs
- › NEC Electronics 8-bit μ PD78F0730 MCU with USB functionality for debugging, flash memory programming, and operation with the host computer
- › On-board debugging and flash programming of hardware and firmware
- › Connector for wireless operation using an NEC Electronics 78K0R microcontroller-based ZigBee stick
- › Interface for connection to NEC Electronics' MINICUBE2™ debugging emulator
- › Detection of hall sensor faults, motor stalls, and current overloads



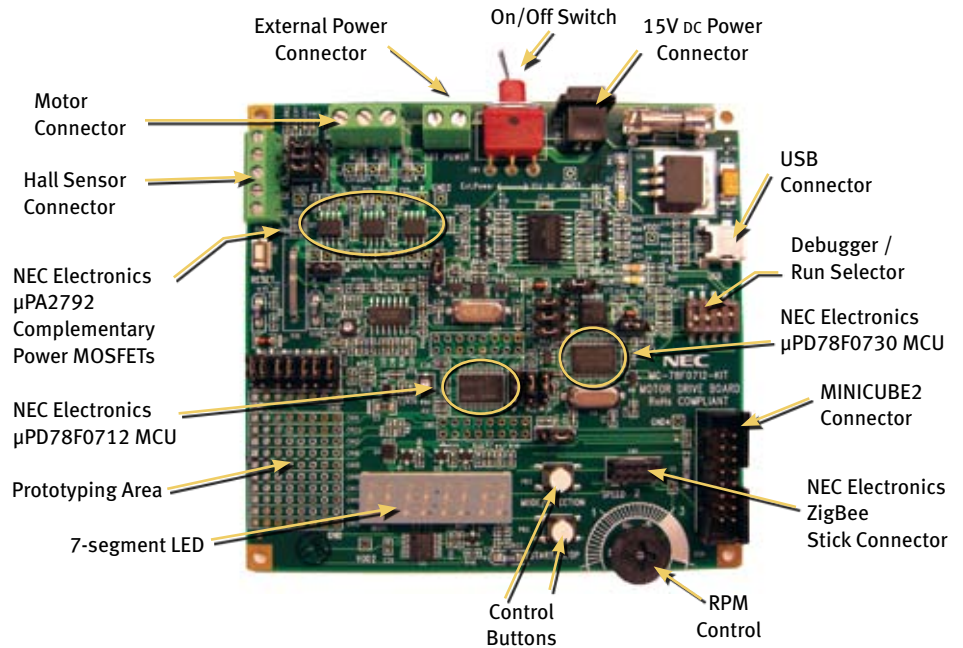
BLDC Motor
Anaheim Automation
15V, 8-pole, 8000 RPM
Model: bly171s-15v-8000

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Board Layout



Modes of Operation

- › Standalone operation using the on-board controls
- › With the host computer using the μPD78F0712 MCU's UART-to-USB (μPD78F0730) connection
- › Using an NEC Electronics 78K0R MCU-based ZigBee stick for remote control

Debugging of μPD78F0712 Motor Control ASSP

- › On-board debugging through the USB connector using the new NEC Electronics ID78K0-QB EZ integrated debugger
- › With the NEC Electronics MINICUBE2 debugger

Flash Programming

- › Programming of μPD78F0712 MCU via the USB connector
- › Programming of μPD78F0712 MCU using the NEC Electronics MINICUBE2 debugger/ programmer
- › Programming of the μPD78F0730 MCU using the NEC Electronics MINICUBE2 debugger/ programmer (for updating on-board USB debugger firmware)

Kit Contents

- › Single-board drive
- › Low-voltage BLDC motor
- › 15V/1A power supply and USB cable
- › Software CD
 - NEC Electronics 78K0 compiler package
 - NEC Electronics PM+ project manager
 - NEC Electronics ID78K0-QB EZ debugger
 - NEC Electronics FPL flash programming GUI
 - BLDC motor control sample code
 - User's manual
 - Electrical schematic

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