



HVC 2480B for BLDC Motor Control Features, Tools, and Application Support

HVC 2480B Overview

The Micronas HVC 2480B is a highly integrated 8-bit microcontroller for direct 12 V operation.

The integrated triple half-bridge drives up to three times 300 mA. Alternatively, up to three external half-bridges can be directly controlled to drive higher currents. A LIN 2.x compliant transceiver with LIN UART provides Local Interconnect Network communications with little CPU interaction.

Available in a PQFN40 package and thanks to the high integration level, the HVC 2480B is an ideal solution for applications with limited available space.

Key Features

- ◆ Direct 12V operation
- ◆ High-performance 8-bit 8051 core (two-clock machine cycle) running with up to 24 MHz
- ◆ 1.75 kbyte RAM
- ◆ 32 kbyte Flash memory
- ◆ 512 byte EEPROM

- ◆ On-chip oscillators and watchdogs
- ◆ Active EMI suppression module
- ◆ Triple half-bridge
- ◆ Drivers for up to three half-bridges
- ◆ Three comparators with selectable reference: integrated virtual star point or external reference input
- ◆ Embedded operational amplifier
- ◆ 10-bit queued ADC, with down to 2.6 μ s conversion time, various triggers and references
- ◆ Temperature sensor
- ◆ Switchable 5 V supply
- ◆ LIN 2.x physical layer interface
- ◆ PQFN40 6x8 mm² package
- ◆ AEC-Q100 qualified
- ◆ TA = -40 °C to +125 °C

Target Applications

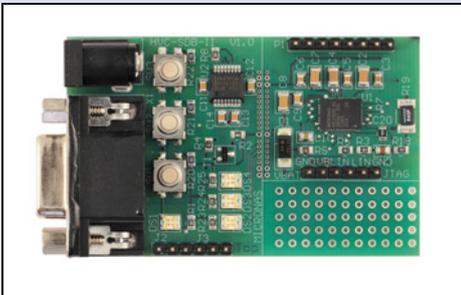
- ◆ Control of single-, two- or three-phase(s) BLDC motors in
 - Fans
 - Pumps
 - Smart Actuators

- ◆ Sensor or sensorless controlled operation.
- ◆ Block or sinusoidal (Space Vector Modulation) commutation.
- ◆ Closed-loop control of speed, torque, etc.

Development Environments

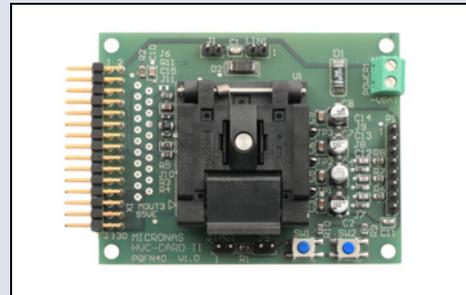
- ◆ Workbenches / IDEs
 - IAR Embedded Workbench®
 - Keil μ Vision
 - Raisonance RIDE
- ◆ Debugger
 - Phyton CodeMaster with JEM-52 JTAG debug probe
- ◆ Application Notes and Software
 - Sensored / Sensorless BLDC motor six-step commutation
 - Space vector modulated motor control
 - API and drivers
 - LIN software stack

Evaluation Boards



Small Demo Board

PCB with soldered HVC 2480B in PQFN40 package. The three-part board consists of a solder pad area, a general-purpose I/O section with 9-pin Sub-D connector for LIN/SPI/RS232, debug I/F, jack for 12 V unregulated power supply, and the controller section with an 8-pin BLDC motor connector. The controller section can be separated to achieve a minimized (27×29 mm²) PCB version.

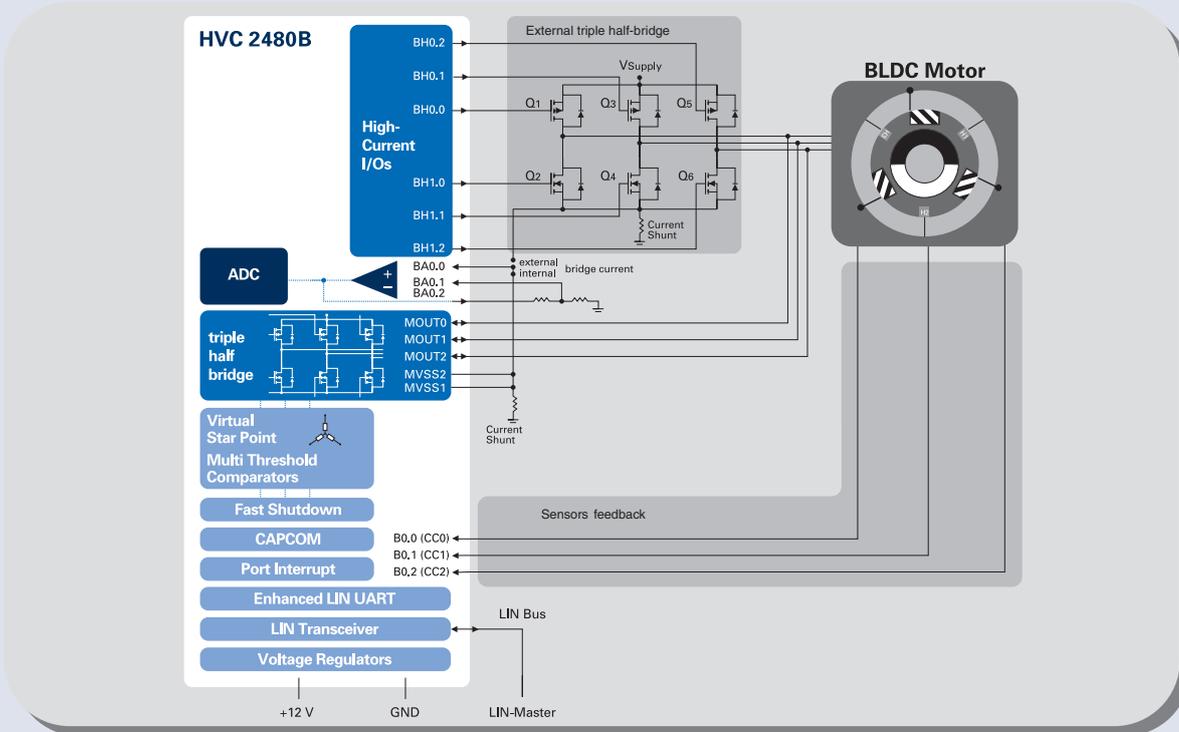


HVC-Card

Board with clam shell socket for PQFN40 providing:

- ◆ 2-pin connectors for debug and LIN I/F
- ◆ 8-pin BLDC motor connector
- ◆ Shunt resistor for current measurement
- ◆ All I/O signals available on a 30-pin connector

Application Example: Sensor/Sensorless-controlled Commutation of a BLDC Motor with an Internal/External Triple Half-Bridge



All information and data contained in this system solution are without any commitment, are not to be considered as an offer for conclusion of a contract, nor shall they be construed as to create any liability. Product or development sample availability and delivery are exclusively subject to our respective order confirmation form. By this publication, Micronas GmbH does not assume responsibility for patent infringements or other rights of third parties which may result from its use.

No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of Micronas GmbH.

Edition Feb. 25, 2011; Order No. SS000019_001EN