

DRV3205-Q1 Evaluation Module

The Texas Instruments DRV3205 evaluation module (DRV3205EVM) helps designers evaluate the operation and performance of the DRV3205-Q1 bridge driver for motor driver applications.

The DRV3205EVM can be evaluated with a variety of microcontroller [LaunchPad Development Kits](#) from TI which make it easy to spin a motor through a Graphical User Interface (GUI).

The EVM can also be evaluated with the user's choice of microcontroller through an easy to connect ribbon cable interface.

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1 Features

- Operating supply voltage as low as 4.75 V, 60 V absolute maximum
- Six N-channel MOSFETs with low side current monitoring through onboard shunt resistors
- Protected phase voltages provided to header pins through divider
- Protected phase voltages provided to header pins through divider
- Logic supply level selection done through external pin
- Compatible with [Hercules™ LAUNCHXL2-TMS57012 LaunchPad](#) and many other TI LaunchPads

2 Introduction

The DRV3205EVM is an application board to evaluate the DRV3205-Q1 device. The DRV3205-Q1 device is a field effect transistor (FET) pre-driver designed for a 3-phase brushless DC motor control and integrates several enhanced protection and diagnostic functions. The EVM consists of the DRV3205-Q1 device, six N-channel MOSFETs, a 5-V regulator, and all of the passive components needed to support the device.

Because this EVM is compatible with TI's LaunchPad development kits, users can control a motor from an MCU LaunchPad provided separately by Texas Instruments.

3 Board Layout

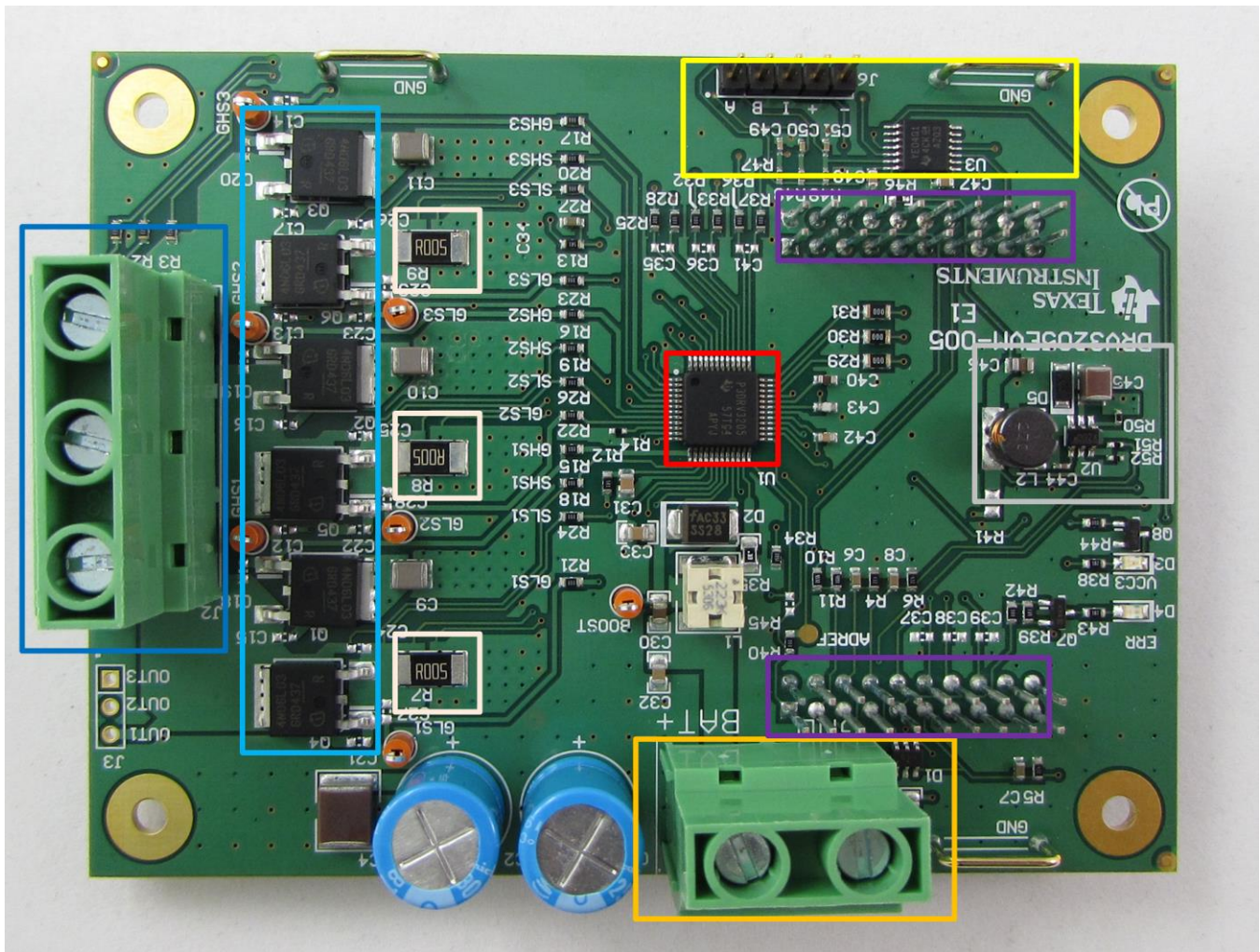


Figure 1. Top side of DRV3205EVM

Components on the top of the board include:

- DRV3205 gate driver IC
- Power FETs driven by the DRV3205
- Three-phase motor outputs
- 5-mΩ shunt resistor for current sense
- Power supply inputs
- Sensor interface
- 5-V buck regulator
- BoosterPack headers as MCU interface

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CAUTION

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Interference Statement for Class A EVM devices

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

3.2 Canada

3.2.1 For EVMs issued with an Industry Canada Certificate of Conformance to RSS-210

Concerning EVMs Including Radio Transmitters:

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Concernant les EVMs avec appareils radio:

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Concerning EVMs Including Detachable Antennas:

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication. This radio transmitter has been approved by Industry Canada to operate with the antenna types listed in the user guide with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Concernant les EVMs avec antennes détachables

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante. Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés dans le manuel d'usage et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

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http://www.tij.co.jp/lstds/ti_ja/general/eStore/notice_01.page

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If User uses EVMs in Japan, not certified to Technical Regulations of Radio Law of Japan, User is required by Radio Law of Japan to follow the instructions below with respect to EVMs:

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2. Use EVMs only after User obtains the license of Test Radio Station as provided in Radio Law of Japan with respect to EVMs, or
3. Use of EVMs only after User obtains the Technical Regulations Conformity Certification as provided in Radio Law of Japan with respect to EVMs. Also, do not transfer EVMs, unless User gives the same notice above to the transferee. Please note that if User does not follow the instructions above, User will be subject to penalties of Radio Law of Japan.

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4.2 User must read and apply the user guide and other available documentation provided by TI regarding the EVM prior to handling or using the EVM, including without limitation any warning or restriction notices. The notices contain important safety information related to, for example, temperatures and voltages.

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