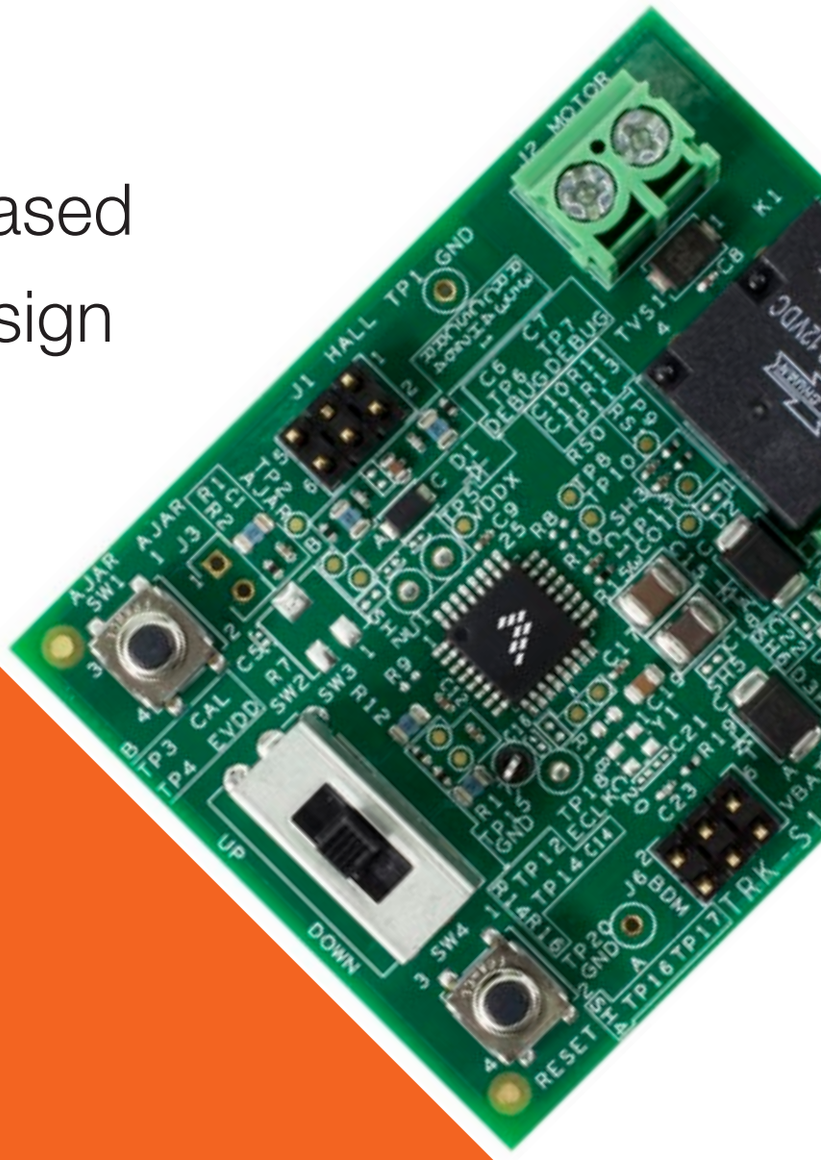
TRK-S12VR-WLFT

Quick Start Guide

Power Window Lift and Relay-Based DC Motor Control Reference Design using the S12VR64

StarterTRAK Development Platform



Get to Know the Board

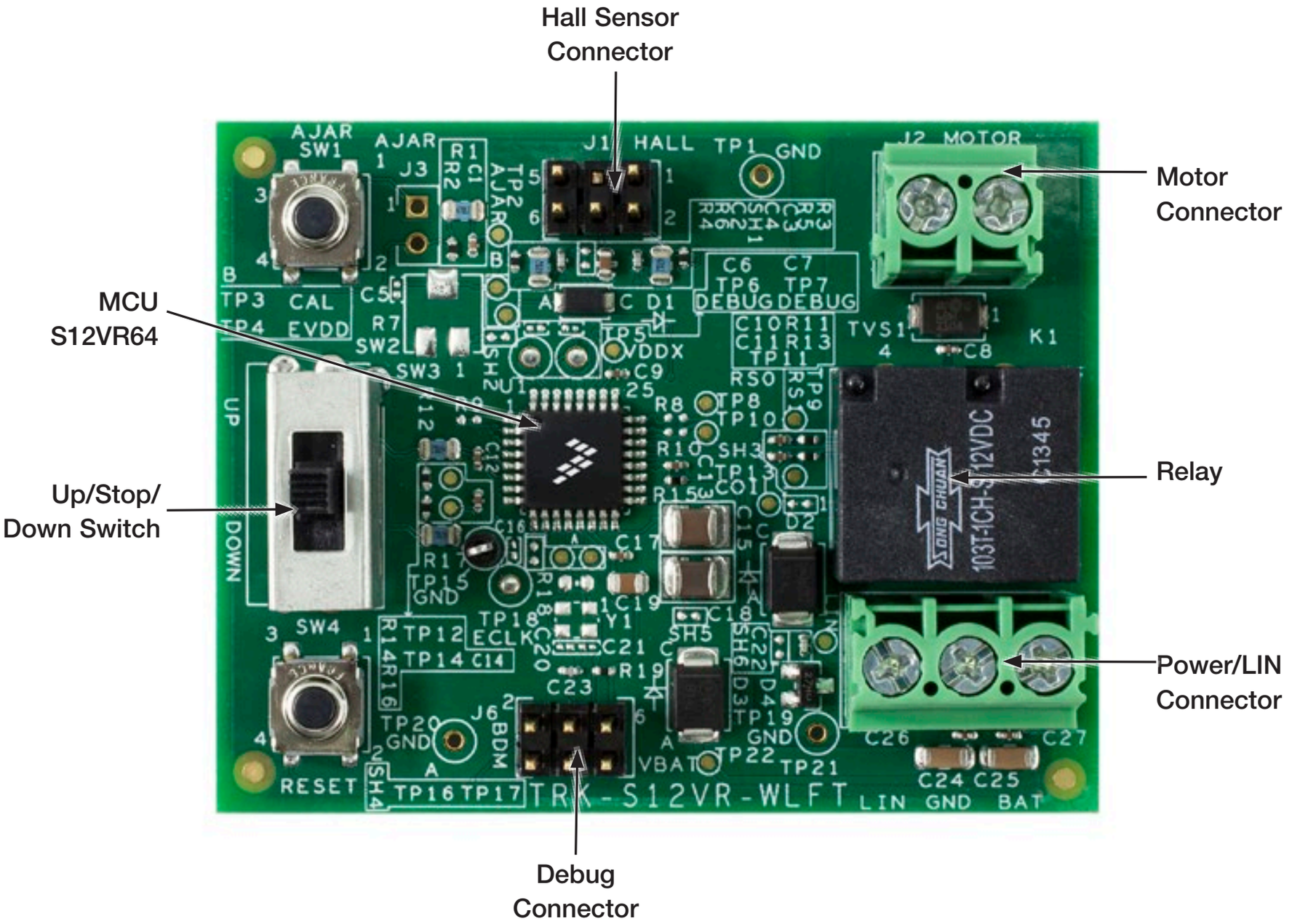
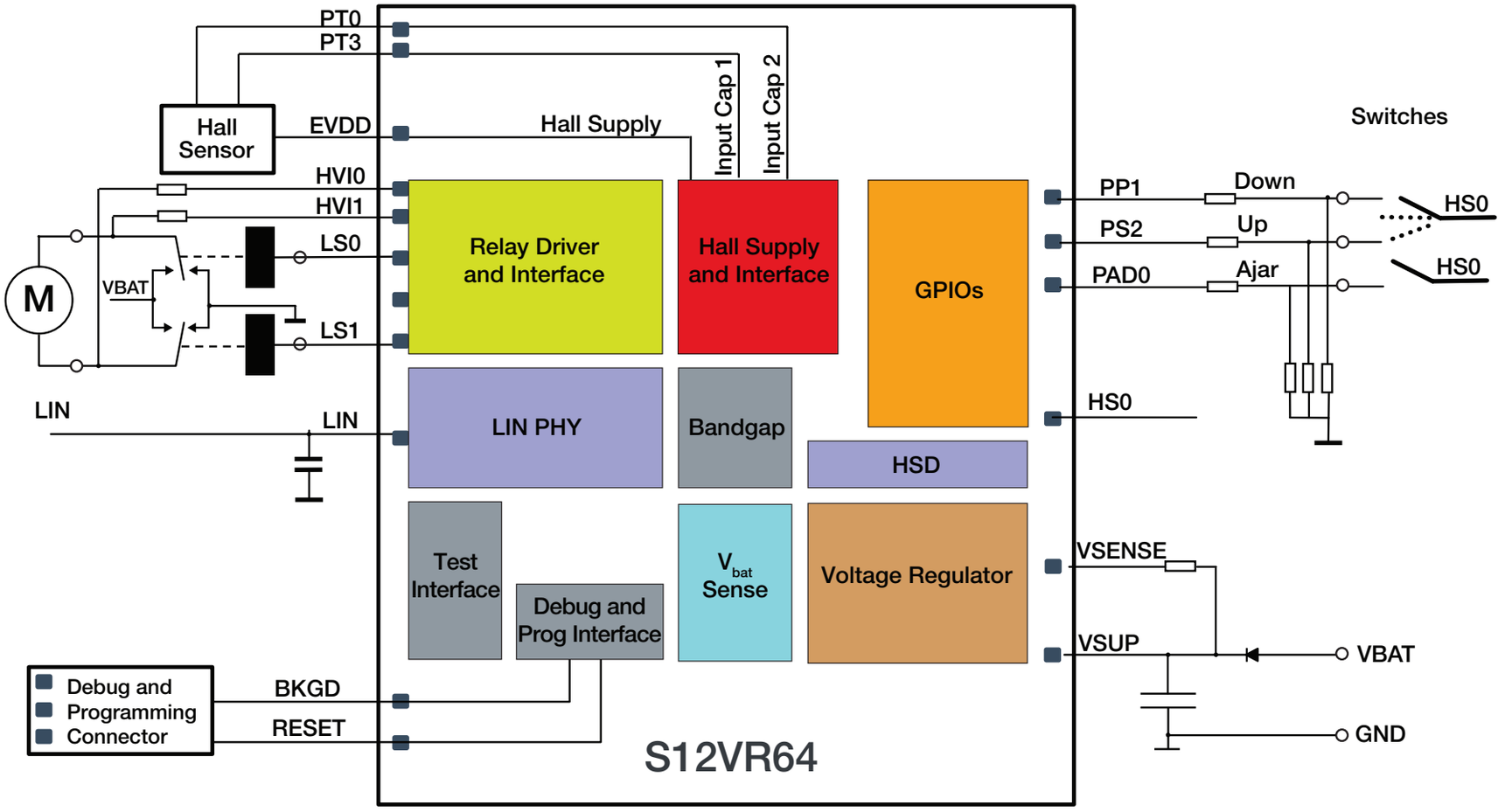


Figure 1: Top Side of TRK-S12VR-WLFT

Simplified Board Description



TRK-S12VR-WLFT Overview

- Power Window Lift and Relay Based DC Motor Control Reference Design
- Board controls a single Brushed DC motor using a relay to allow Up/Down/Stop direction control.
- Window speed and direction can be determined by using an external Hall Effect Sensor
- Board can communicate to a master node using the LIN 2.2 communication protocol.
- Debug communication port to allow an external debugger connection.

Software Features

- Board is pre-programmed with basic Up/Stop/Down firmware. This does not implement Hall Sensor input required for the anti-pinch algorithm.
- Software implementing the Hall Sensor input for anti-pinch algorithm can be downloaded from: **freescale.com/TRK-S12VR-WLFT**.

Step-by-Step Operation Instructions

1 Install Code Warrior Development Studio

CodeWarrior Development Studio for HCS12(X) installation file is included on the supplied media for your convenience. The most recent version of CodeWarrior for MCUs can be downloaded from **freescale.com/CodeWarrior**

2 Open the Application Software

Copy the application software zip file from the included media and uncompress the project. Open the file up-down-no-antipinch.mcp with CodeWarrior Development Studio for HCS12(X).

3 Connect the board

Connect a 12 V automotive battery and a brushed DC motor to the board. For details refer to the next section, “Step By Step Board Connection.”

4 Download the software to the S12VR64 MCU flash

Connect an HCS12(X) external debugger to the computer and then connect the debugger to J6. Follow the operating system messages to install the debugger drivers. Flash the application by pressing the debug button on CodeWarrior. Follow the debugger instructions to flash the MCU.

Step-by-Step Operation Instructions (cont.)

5 Execute the firmware

On the debugger window, press the run button to start executing the firmware.

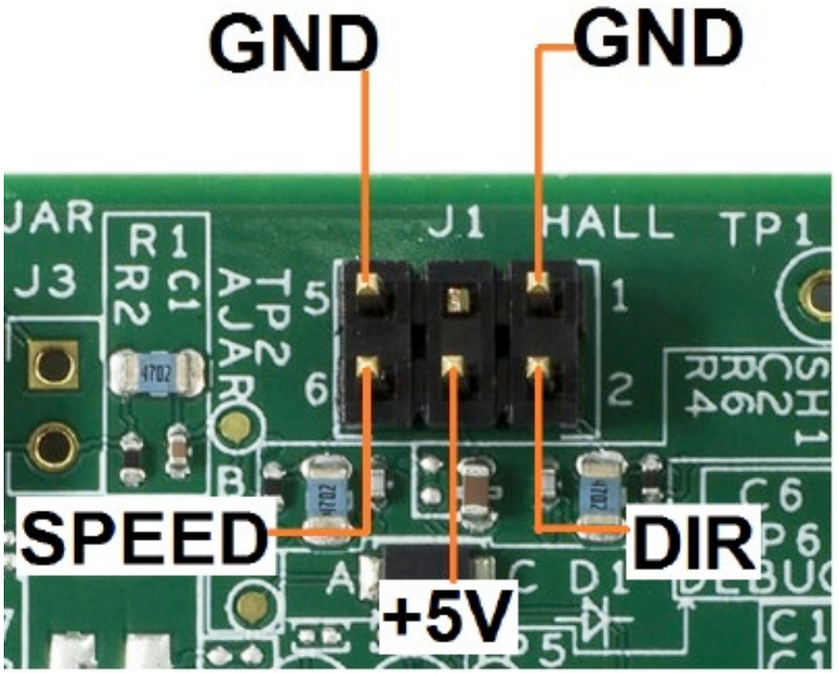
6 Operate the board

The motor direction now can be controlled with the up/down switch. Center switch position is off.

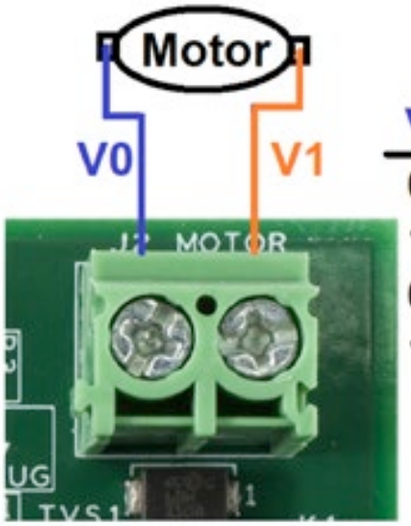
Caution: Avoid motor stall conditions. The motor may get damaged if a prolonged stall condition occurs. Stall condition occurs when the motor is powered but the rotor can not rotate.

Step-by-Step
Board Connection

1 Connect the Hall Encoder. (Only required for anti pinch applications)



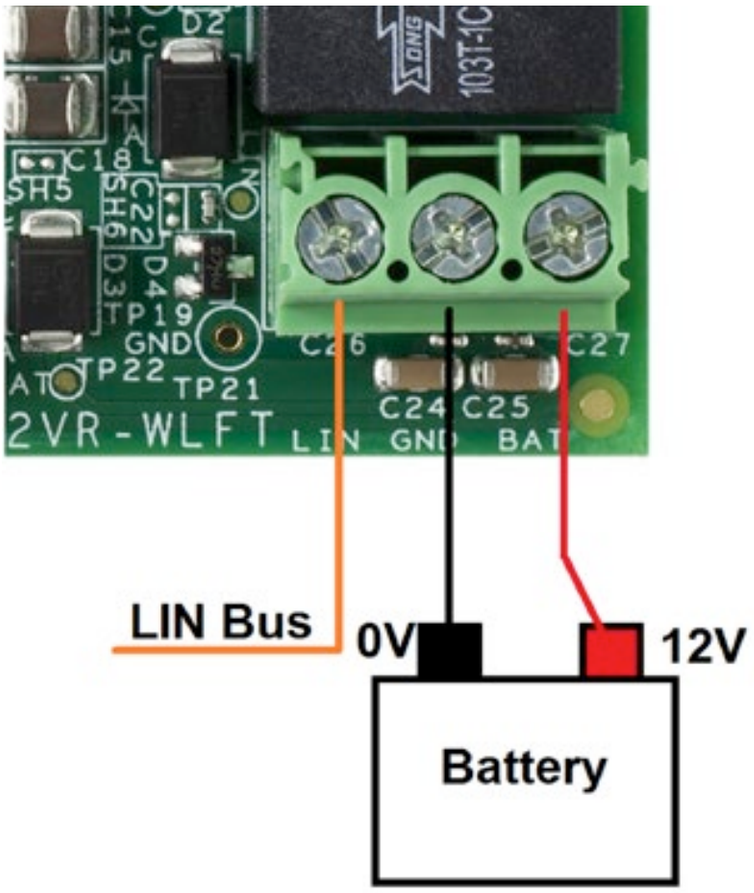
2 Connect the motor



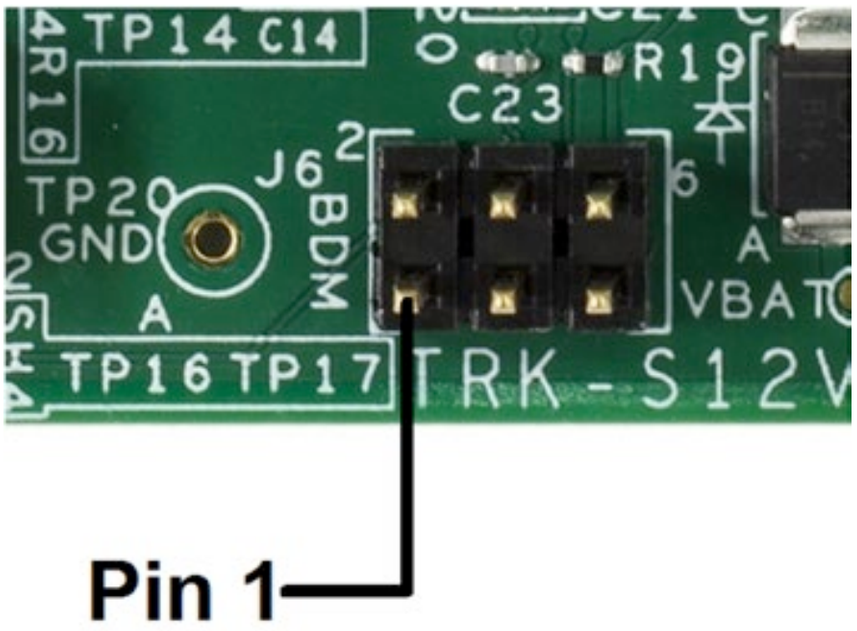
V0	V1	Direction
0V	12V	Up
12V	0V	Down
0V	0V	OFF
12V	12V	Invalid

Step-by-Step
Board Connection (cont.)

3 Connect the Power supply and the LIN bus. Lin is required only on applications using LIN protocol.



4 Connect an external HCS12(X) debugger.



Board Description

Headers and connector list:

J5 - Power/LIN Connector

J2 - Motor Connector

J1 - Hall Sensor Connector

J6 - HCS12(X) Debugger Connector

Support

Visit **freescale.com/support** for a list of phone numbers within your region.

Warranty

Visit **freescale.com/warranty** for complete warranty information.

For more information, visit freescale.com

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