ECS640A Development Kit - Quick Start

STR-ECS640A-GEVK

Box Content

- 01 STR−ECS640A−GEVB Unit
- Embedded "Direct Torque and Flux Control" (DTFC) Motor Control Algorithm Firmware flashed in ECS640A Part
- 01 USB Cable
- ECS640A Development Kit − Quick Start Printout (this document)

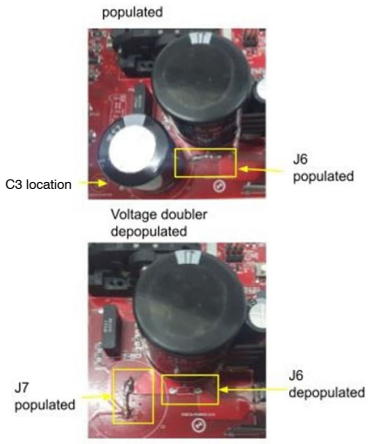
SAFETY PRECAUTIONS

It is **mandatory** to read the following precautions before manipulating the STR−ECS640A−GEVB unit.

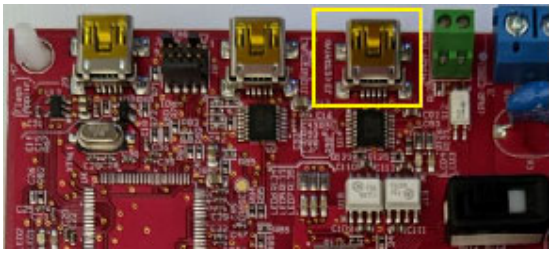
	When connecting an oscilloscope probe to EVB unit the probe's ground needs to be isolated. **Failure to do so may result in personal injury or death.**
	STR−ECS640A−GEVB unit contains DC bus capacitors which take time to discharge after removal of the main supply. Before touching the module, wait ten minutes for capacitors to discharge to safe voltage levels. **Failure to do so may result in personal injury or death.**
	Only personnel familiar with the drive and associated machinery should plan or implement the installation, start−up and subsequent maintenance of the system. Failure to comply may result in personal injury and/or equipment damage.
	The surfaces of the heat sink may become hot, which may cause injury.
	STR−ECS640A−GEVB unit contains parts and assemblies sensitive to Electrostatic Discharge (ESD). ESD control precautions are required when installing, testing, servicing or repairing this unit's parts or assemblies. ESD control procedures not followed may lead to component damage. If you are not familiar with electrostatic control procedures, refer to applicable ESD protection handbooks and guidelines.
	A drive, incorrectly applied or installed, can result in component damage or reduction in product lifetime. Wiring or application errors such as under sizing the motor, supplying an incorrect or inadequate AC supply or excessive ambient temperatures may result in system malfunction.
	Remove and lock out power from STR−ECS640A−GEVB unit before you disconnect or reconnect wires or perform service. Wait ten minutes after removing power to discharge the bus capacitors. Do not attempt to service the drive until the bus capacitors have discharged to zero. **Failure to do so may result in personal injury or death.**
	Voltage doubler configuration is the default STR−ECS640A−GEVB unit configuration and can be used only with 120Vrms AC input. The use of voltage doubler configuration at 230Vrms AC input **may result in personal injury or death.**

Thanks for your interest in **onsemi** STR−ECS640A−GEVK development platform. Please follow the instructions below and get access to latest ECS640A Interface GUI application and evaluation kit documentation available online in Strata Developer Studio (Visit https://www.onsemi.com/design/tools−software/strata−developer−studio for additional information).

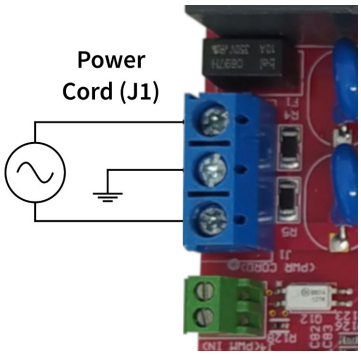
1. STR−ECS640A−GEVB unit is set up for 120Vac AC mains supply. The EVB unit will be permanently damaged if connected to a 230Vac AC mains supply. Please follow the instructions below to set up the EVB unit for 230Vac supply. If the unit is being powered with 120Vac you may skip to step 3.
2. The full wave rectification topology needed for 230Vac AC mains supply requires STR−ECS640A−GEVB hardware configuration change by following the steps below:
   a. Remove C3 (150 μF / 450 V capacitor)
   b. Add J7 jumper as indicated in the picture
   c. Remove J6 jumper



3. Connect USB cable (provided in EVK box) to EVB J3 connector and laptop USB port. See picture below for EVB J3 details. EVB LED3 turns on if laptop is powered on.



4. Connect AC mains power cord Line, Neutral and Ground signals wire to EVB J1 connector. AC power cord is not included in EVK box. See picture below for details. Do not connect power cord to AC mains outlet at this time.



5. Visit https://www.onsemi.com/design/tools−software/strata−developer−studio to properly set up “Strata Developer Studio” environment on the laptop. The “Strata Developer Studio” environment enables access to up−to−date documentation and latest ECS640A Interface application to issue BLDC motor commands.
6. Connect EVB power cord to proper AC mains voltage (120Vac or 230Vac according to setup explained in steps 1 and 2 of this Quick Start guide). Do not touch EVB unit components when energized. Failure to do so may result in personal injury or death.
7. EVB LED5 and LED7 will start blinking (~1 second period) when properly energized and successful ECS640A boot up sequence.
8. Launch “Strata Developer Studio” application. Make sure EVB unit is AC mains powered and USB cable properly connected to laptop to enable automatic EVB part number identification. A successful STR−ECS640A−GEVB automatic identification in Strata Developer Studio is shown below.

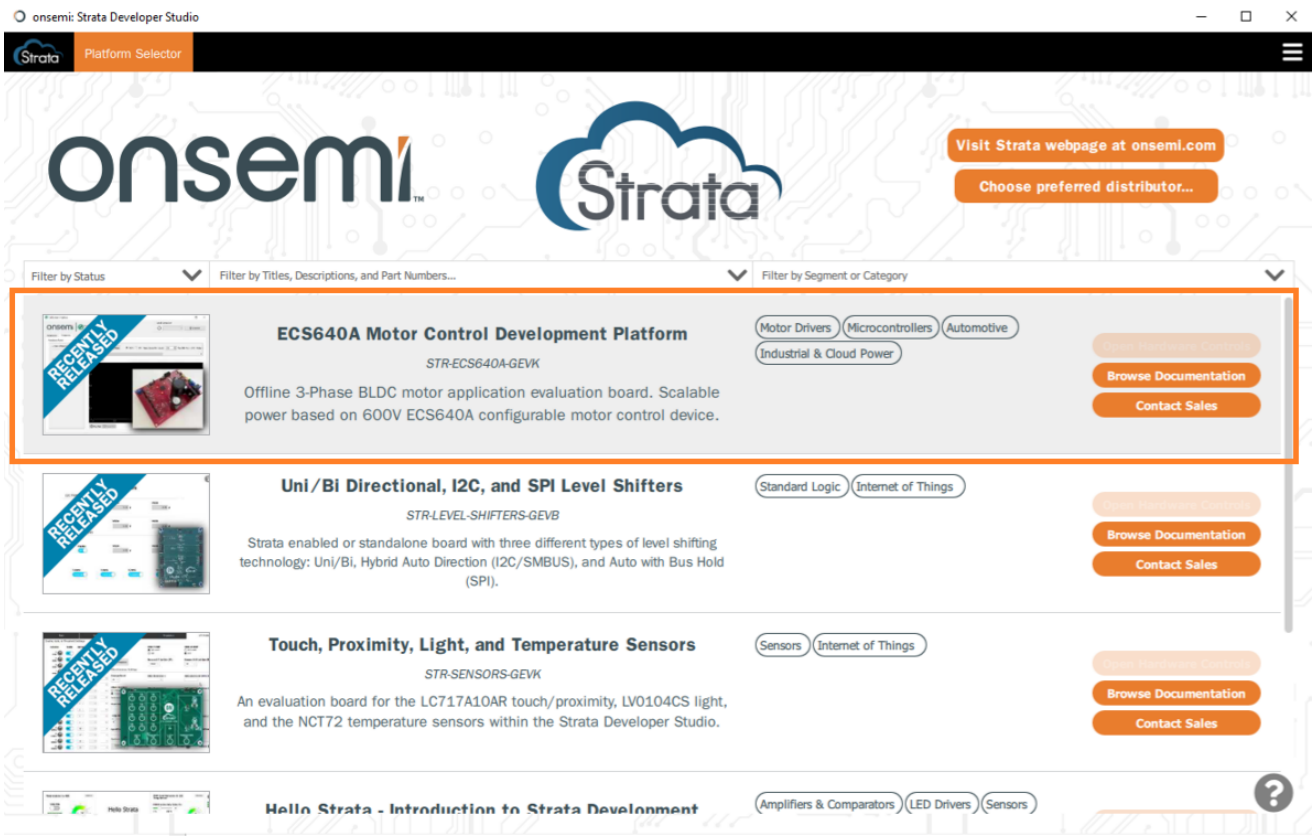


Figure 1. STR−ECS640A−GEVB automatic identification in Strata Developer Studio

9. Download and read "*ECS640A Development Platform – Quick Start*" documentation available at "Strata Developer Studio" for setting up a new BLDC motor using ECS640A development platform.

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:
Technical Library: www.onsemi.com/design/resources/technical−documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support
For additional information, please contact your local Sales Representative at www.onsemi.com/support/sales