High Efficiency Isolated CAN & Profibus Interface Reference Design

(ACTIVE) TIDA-00012

TIDesigns

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Description

The High Efficiency Isolated CAN & Profibus Interface Solution TI Design is intended for use in industrial systems that require isolated power for CAN and/or Profibus transceivers. This TI Design highlights the ability to completely shut off both the power converter and data transceivers with just one GPIO signal from a microcontroller (when dropping into low power modes, for example). This isolated interface solution delivers accurately regulated rails for both primary and secondary power to TI's Profibus and CAN transceivers without costly opto-coupler feedback circuits – making this the simplest, most efficient and flexible isolated interface solution for industrial automation on the market today. Other solutions using transformer drivers are not efficient and do not have the ability to be easily turned off and require additional components to regulated the secondary rail. Lastly, this TI Design has the additional feature of allowing the MCU to wait until power is good before transmitting data or to stop transmitting data if a power fault has occured on the interface.

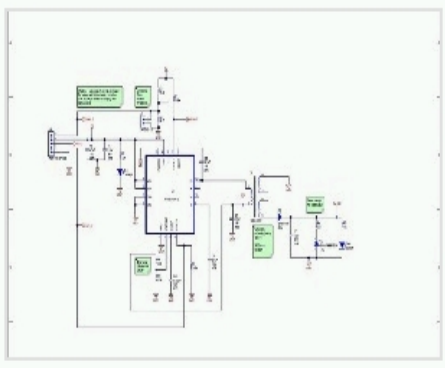
The Tiva C Series Launch Pad form factor of this TI Design allows easy connection to the LaunchPad board for use of the Tiva C microcontroller in handling the communications protocol to the interface. The combination of the two boards provides a complete, low cost CAN and Profibus communication solution.

Features

- Enable, Soft-start and Fault functions of TPS55010 provides full MCU control of the power supply rails to the communications interface -- maximizing system power savings
- Adjustable, high switching frequency increases efficiency, decreases solution size and allows avoidance of sensitive frequency bands
- Galvanic insulation technology used in TI's isolated Profibus and CAN Transceivers provide proven reliability and stability over time, temperature and moisture

Schematic/Block Diagram

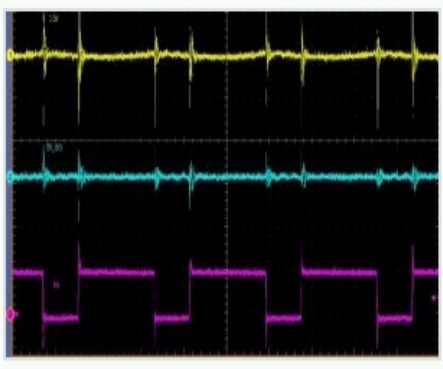
Quickly understand overall system functionality.



Download Schematic

Test Data

Get results faster with test and simulation data that's been verified.



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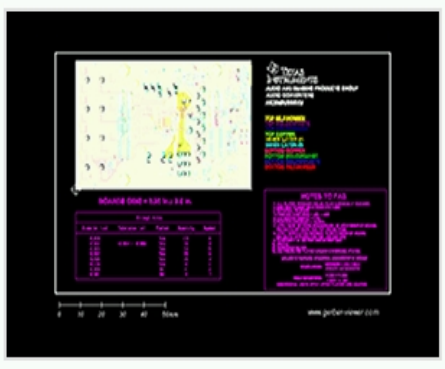
Design Files

Download ready-to-use system files to speed your design process.
Get Viewer.



Download Design File

TI Devices (3)

Get more information on the TI products in this reference design.

Part Number	Name	Product Family
ISO1050	Isolated 5-V CAN Transceivers	Isolator
ISO1176	Isolated PROFIBUS RS-485 Transceiver	Isolator
TPS55010	2.95V To 6V Input, 2W, Isolated DC/DC Converter with Integrated FETS	Converter (Integrated Switch)

Bill of Materials

Find the complete list of components in this reference design.

Download BOM

CAD/CAE Symbols

Part #	Package | Pins	CAD File (.bxl)	STEP Model (.stp)
ISO1050	SOP (DUB) | 8	Download	-
	SOIC (DW) | 16	Download	Download
ISO1176	SOIC (DW) | 16	Download	Download
TPS55010	WQFN (RTE) | 16	Download	-

Texas Instruments and Accelerated Designs Inc. have collaborated together to provide TI customers with schematic symbols and PCB layout footprints for TI products.

Step 1: Download and install the Ultra Librarian software ZIP: 62MB

Step 2: Download the Symbol and Footprint .bxl file.

- read more -

Technical Documents

User Guides (1)

Title	Abstract	Type	Size (KB)	Date	Views
TIDA-00012 Test Results		PDF	5396	04 Sep 2013	186

More Literature (2)

Title	Abstract	Type	Size (KB)	Date	Views
TIDA-00012 BOM		PDF	53	04 Sep 2013	140
TIDA-00012 Schematic		PDF	137	04 Sep 2013	675

Related Tools & Software

Software (2)

TIDA-00012 Altium
(ZIP, 569 KB) 120 views, 04 Sep 2013

TIDA-00012 Gerber
(ZIP, 385 KB) 78 views, 04 Sep 2013

Support & Community

TI E2E™ Community

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SAT - High Efficiency Isolated CAN & Profibus Interface Solution	06 Sep 2013 2:38 PM

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