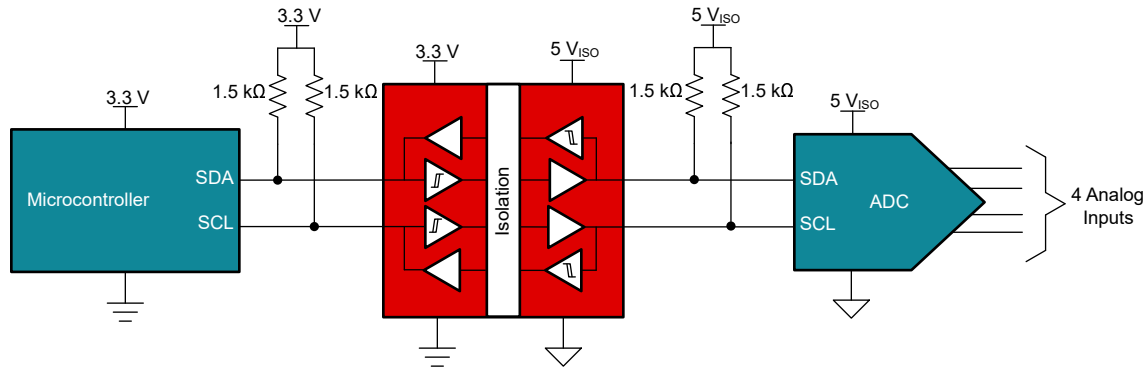


# Product Overview

## Isolating I2C Signals



Example I2C Isolation Block Diagram

### Design Considerations

- Prevents DC and unwanted AC currents between controller devices and peripheral ICs
- Allows signal transfer between controller devices and peripheral ICs
- Protects low voltage parts in a system from high voltage circuits
- Diminishes the effect of ground potential differences
- [\[FAQ\] Why is the logic LOW level output voltage, VOL1, up to 0.8 V on Side 1 of the ISO1540/ISO1541 and ISO1640/ISO1641 bidirectional I2C isolators?](#)
- [\[FAQ\] ISO1640: Why are the maximum load capacitance and load current ratings for Side 1 of the ISO1640/ISO1641 less than Side 2?](#)
- [I2C Bus Pullup Resistor Calculation](#)
- [Top 6 design questions about I2C Isolators](#)
- [How do Isolated I2C Buffers with Hot-Swap Capability and IEC ESD Improve Isolated I2C?](#)
- [Digital Isolator Design Guide](#)

Need additional assistance? Ask our engineers a question on the [TI E2E™ Isolation Support Forum](#)

### Recommended Parts

Part Number	AEC-Q100	Voltage Range	Data Rate	Bidirectional SCL Communication	Features
<a href="#">ISO1640</a>		3.0 - 5.5 V (Side 1) 2.25 - 5.5 V (Side 2)	Standard Mode (0 to 100 kbps) Fast Mode (0 to 400 kbps) Fast-Mode Plus (0 to 1 Mbps) High-Speed Mode (0 to 3.4 Mbps)	✓	High CMTI Reinforced Isolation (ISO164xDW) Basic Isolation (ISO164xBD) Hot-Swappable I2C Connections Enhanced EMC
<a href="#">ISO1640-Q1</a>	✓			✓	
<a href="#">ISO1641</a>					
<a href="#">ISO1643</a>				✓	

For more isolated I2C devices, browse through the [online parametric tool](#); for non-isolated I2C devices, please refer to the online parametric tool [on this page](#).

## IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATA SHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, regulatory or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to [TI's Terms of Sale](#) or other applicable terms available either on [ti.com](#) or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

TI objects to and rejects any additional or different terms you may have proposed.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265  
Copyright © 2022, Texas Instruments Incorporated