ISOLATION

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CA-IS36XX

Digital Isolators with Isolated Power Supplies

The CA-IS36XX family integrated signal and power isolation devices simplify system design and reduce board area. These devices are high-performance, dual-channel and four-channel, unidirectional reinforced digital isolators with up to 5kV$_{RMS}$ isolation rating and ultra-fast data rate (up to 150Mbps). The integrated isolated DC-DC converter provides up to 500mW of isolated power and different output voltage configurations. The CA-IS36XX family of devices offers high electromagnetic immunity and low emissions while isolating different ground domains and block high-voltage/high-current transients from sensitive or human interface circuitry. The CA-IS3621/3622 devices come with individual enable control pin for the A side of the isolator which can be used to put the outputs in high impedance for multi-master driving applications to reduce power consumption.

The CA-IS36XX family devices are specified over the -40°C to +125°C operating temperature range and are available in 16-pin SOIC wide body package.

Key Features

Integrated High-efficiency DC-DC Converter with on-chip Transformer

- Regulated output options: 3.3 V or 5.0 V
- Soft-start to limit inrush current and overshoot
- Overload and short-circuit protection
- Thermal shutdown
- Low emissions

Robust Galvanic Isolation of Digital Signals

- High lifetime: > 40 years
- Withstands 5kVRMS for 60s
- ±150 kV/µs typical CMTI
- Schmitt trigger inputs

Interfaces Directly with Most Micros and FPGAs

- Data rate: DC to 150Mbps
- 3V to 5.5V single supply operation
- Default output High (CA-IS362xH, CA-IS364xH) and Low (CA-IS362xL, CA-IS364xL) Options

Best in Class Propagation Delay and Skew

- 10ns typical propagation delay
- 1ns pulse width distortion
- 2ns propagation delay skew (chip -to-chip)

No Start-Up Initialization Required

Enable Control Input (CA-IS3621/CA-IS3622)

Wide Operating Temperature Range: -40°C to 125°C

Wide-body SOIC16-WB(W) Package

Applications

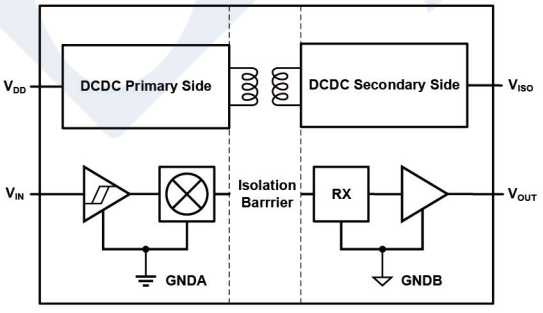
Industrial automation systems

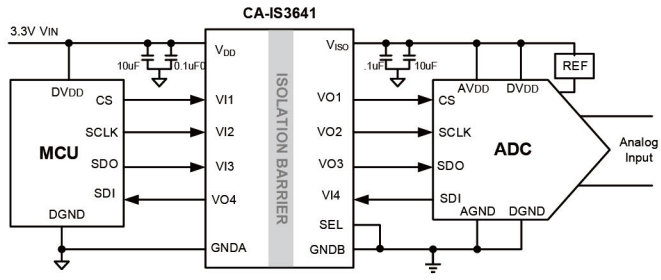
Motor control

Medical equipment

Test and Measurement

Simplified Schematic





CA-IS37XX

Standard Digital Isolators

The CA-IS37XX devices are high-performance, low-power multi-channel, unidirectional digital isolators with up to 3.75kV$_{RMS}$(narrow-body package) or 5kV$_{RMS}$(wide-body package) isolation rating and ultra-fast data rate (up to 150Mbps). These devices offer high electromagnetic immunity and low emissions while isolating different ground domains and block high-voltage/high-current transients from sensitive or human interface circuitry. Each isolation channel has a logic input and output buffer separated by capacitive silicon dioxide (SiO_2) insulation barrier, the integrated Schmitt trigger on each input provide excellent noise immunity.

The CA-IS37XX family devices are specified over the -40°C to +125°C operating temperature range and are available in 8-pin SOIC, 16-pin SOIC, 16-pin SSOP narrow body packages and 8-pin SOIC, 16-pin SOIC wide body packages.

Key Features

Robust Galvanic Isolation of Digital Signals

◆ High lifetime: >40 years

◆ Up to 3750 VRMS isolation rating (narrow body packages) and up to 5000 V$_{RMS}$ isolation rating (wide body packages)

◆ ±150 kV/μs typical CMTI

◆ Schmitt trigger inputs

Interfaces Directly with Most Micros and FPGAs

◆ Data rate: DC to 150Mbps

◆ Accepts 2.5V to 5.5V supplies

◆ Default output High (CA-IS37xxH) and Low (CA-IS37xxL) Options

Low Power Consumption

◆ 1.5mA per channel at 1Mbps with VDD = 5.0V

◆ 6.6mA per channel at 100Mbps with VDD = 5.0V

Best in Class Propagation Delay and Skew

◆ 8ns typical propagation delay

◆ 1ns pulse width distortion

◆ 2ns propagation delay skew (chip -to-chip)

◆ 5ns minimum pulse width

No Start-Up Initialization Required

Package Options

◆ Narrow-body SOIC8(S), SOIC16-NB(N), SSOP16(B) packages

◆ Wide-body SOIC8-WB(G)、SOIC16-WB(W) packages

Wide Operating Temperature Range: -40°C to 125°C

Safety Regulatory Approvals

◆ VDE 0884-11 reinforced isolation

◆ UL certification according to UL1577

◆ IEC 62368-1, IEC 61010-1, GB 4943.1-2011 and GB 8898-2011 certifications

Applications

Industrial Automation

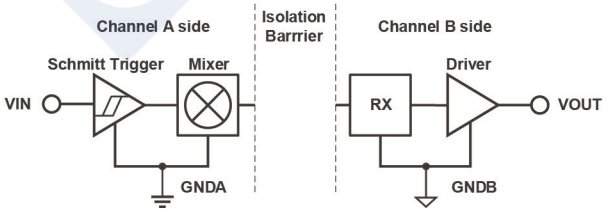
Motor Control

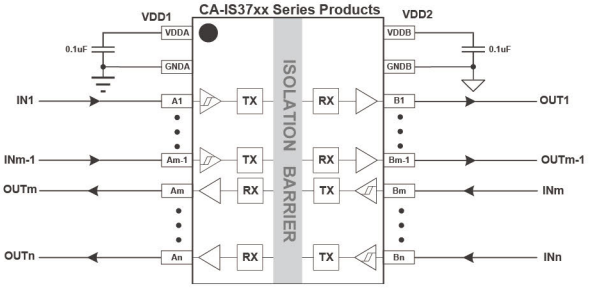
Medical Systems

Isolated Power Supplies

Solar Inverters

Simplified Schematic





CS817xXX

Ultra Low-Power Digital Isolators

The CS817xXX family of ultra-low-power digital isolators using Chipanalog's "Pulse-Coding" capacitive isolation technology, offers as low as 70μA per channel low quiescent current. These isolated CMOS digital I/Os feature up to 3kV$_{RMS}$ isolation rating and ±150 kV/μs typical CMTI, provide high electromagnetic immunity and low EMI. All device versions have Schmitt trigger inputs for high noise immunity and each isolation channel has a logic input and output buffer separated by capacitive silicon dioxide (SiO_2) insulation barrier.

The CS817xXX family of devices is specified over the -40°C to +125°C operating temperature range and is available in 8-pin SOIC narrow body package.

Key Features

Ultra Low Power
- ◆ 99μA per channel at DC, 3.3V
- ◆ 117μA per channel at 10kbps, 3.3V
- ◆ 221μA per channel at 200kbps, 3.3V

Data Rate is up to 200kbps
2.5V to 5.5V Wide Operating Supply Voltage Range
Robust Galvanic Isolation of Digital Signals
- ◆ High lifetime: >40 years
- ◆ Up to 3kVRMS isolation rating
- ◆ ±150 kV/μs typical CMTI
- ◆ Schmitt trigger inputs for high noise immunity
- ◆ High electromagnetic immunity

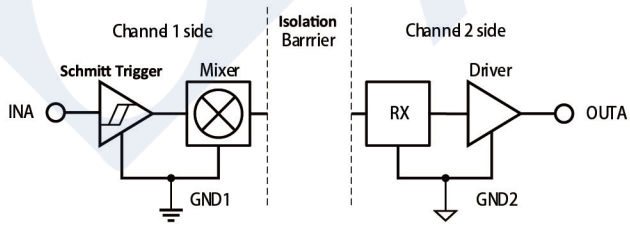
No Start-up Initialization Required
Default Output High and Low Options
RoHS-Compliant Package:
- ◆ SOIC8(S) narrow body

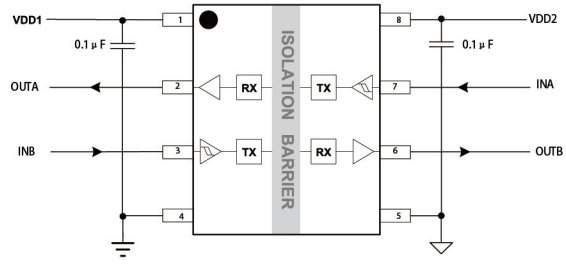
Wide Operating Temperature Range: -40°C to 125°C

Applications

Li+ battery pack protection
Home appliances
Industrial automation systems
Medical electronics
Isolated switch mode supplies
Isolated ADC, DAC
Motor control
Power inverters

Simplified Schematic





CA-IS302X

Low-Power Bidirectional I²C Isolators

The CA-IS302x devices are complete dual-channel, bidirectional, galvanic digital isolators with up to 3.75kV$_{RMS}$ (narrow-body package) or up to 5kV$_{RMS}$ (wide-body package) isolation rating and ±150kV/µs typical CMTI. All device versions have Schmitt trigger inputs for high noise immunity and each isolation channel has a logic input and output buffer separated by capacitive silicon dioxide (SiO_2) insulation barrier to provide high electromagnetic immunity and low EMI. These devices feature high-integration design and only require fewer external components to build an isolated I²C interface. This family of devices operates from DC to 2.0MHz. The CA-IS3020 offers two bidirectional, open-drain channels for applications, such as multi-master I²C, that require data and clock to be transmitted in both directions on the same line. The CA-IS3021 provides an isolated I²C compatible interface supporting master mode only, with a unidirectional clock (SCL), and bidirectional data (SDA) channel.

The CA-IS302x series of devices are specified over the -55°C to +125°C operating temperature range and are available in 8-pin SOIC narrow body package, 8-pin SOIC wide body package and 16-pin SOIC wide body package. The wide temperature range and high isolation voltage make the devices ideal for using in harsh industrial environments.

Key Features

Bidirectional Data Transfer from DC to 2.0MHz

Robust Galvanic Isolation of Digital Signals

- ◆ High lifetime: >40 years
- ◆ Withstands up to 3.75kVRMS (narrow-body package) and 5kVRMS (wide-body packages) isolation rating
- ◆ Narrow-body and wide-body packages (4mm or 8mm creepage and clearance)
- ◆ ±150 kV/µs typical CMTI
- ◆ Schmitt trigger inputs for high noise immunity
- ◆ High electromagnetic immunity and withstands ±10kV surge
- ◆ ±8kV Human Body Model ESD Protection

3.0V to 5.5V Wide Supply Operation

Open-drain Outputs

- ◆ 3.5mA Side A sink current capability
- ◆ 35mA Side B sink current capability

Wide Operating Temperature Range: -55°C to 125°C

RoHS-Compliant Packages

- ◆ Narrow-body SOIC8-NB(S) package
- ◆ Wide-body SOIC8-WB(G) package
- ◆ Wide-body SOIC16-WB(W) package

Applications

I2C, SMBus, PMBus™ Interfaces

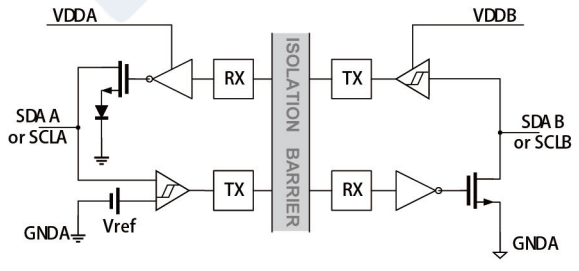
Motor control systems

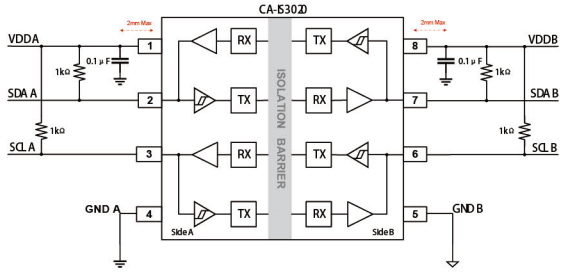
Medical Equipment

Battery Management

Instrumentation

Simplified Schematic





CA-IS305X

3.75kV$_{RMS}$ and 5kV$_{RMS}$ Isolated CAN Transceivers

The CA-IS305x family of devices is isolated controller area network (CAN) transceiver that has superior isolation and CAN performance to meet the needs of the industrial applications. All devices of this family have the logic input and output buffers separated by a silicon oxide (SiO_2) insulation barrier that provide galvanic isolation. These transceivers operate up to 1Mbps data rate and feature integrated protection for robust communication, including current limit, thermal shutdown, and the extended ±40V fault protection on the CAN bus. The dominant timeout detection prevents bus lockup caused by controller error or by a fault on the TXD input. Also, these CAN receivers incorporate an input common-mode range (CMR) of ±12V.

All devices operate over -40°C to +125°C temperature range and are available in wide-body SOIC8 and SOIC16 packages; also, the CA-IS3050 is available in small SOP8 package.

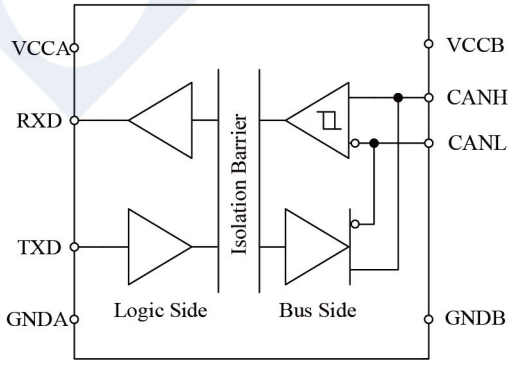
Key Features

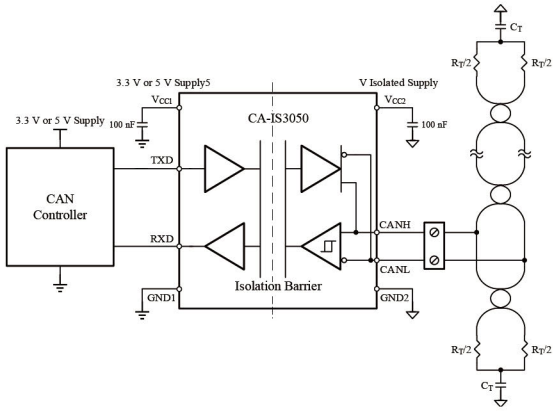
Meets the ISO 11898-2 physical layer standards
Integrated protection increases robustness
◆ 3.75kVRMS and 5kVRMS withstand isolation voltage for 60s
◆ ±150kV/μs typical CMTI
◆ ±40V fault-tolerant CANH and CANL
◆ ±12V extended common-mode input range (CMR)
◆ Transmitter dominant timeout prevents lockup, data rates down to 37 kbps
◆ Thermal shutdown
Date rate is up to 1Mbps
Low loop delay: 150ns (typical), 210ns (maximum)
I/O voltage range supports 2.5V to 5V CAN controller interface
Ideal passive behavior when unpowered
Wide operating temperature range: -40°C to 125°C
Wide-body SOIC8 (G), SOIC16-WB(W) packages and small SOP8(U) package.
Safety Regulatory Approvals
◆ VDE 0884-11 reinforced isolation certification
◆ UL certification according to UL1577
◆ IEC 62368-1, IEC 61010-1, GB 4943.1-2011 and GB 8898-2011 reinforced insulation certifications

Applications

Industrial Controls
Building Automation
Security and Protection System
Transportation
Medical
Telecom
HVAC

Simplified Schematic





CA-IS1044S

Isolated CAN Transceivers with ±58V Fault Protection

The CA-IS1044S isolated control area network (CAN) transceiver meet the ISO 11898-2 physical layer standards. Each transceiver channel has the logic input and output buffers separated by a silicon oxide (SiO_2) insulation barrier that provides up to $3kV_{RMS}$ galvanic isolation rating. Isolation improves communication by breaking ground loops and reduces noise where there are large differences in ground potential between ports.

This device is designed for using in CAN FD networks up to 2Mbps and features current limit, thermal shutdown, extended ±58V fault protection on the CAN bus lines and ±30V input common-mode range (CMR). The CA-IS1044S is in a standard 8-pin SOIC package and operates over the -40°C to +125°C temperature range.

Key Features

Meets the ISO 11898-2 physical layer standards
Integrated protection increases robustness

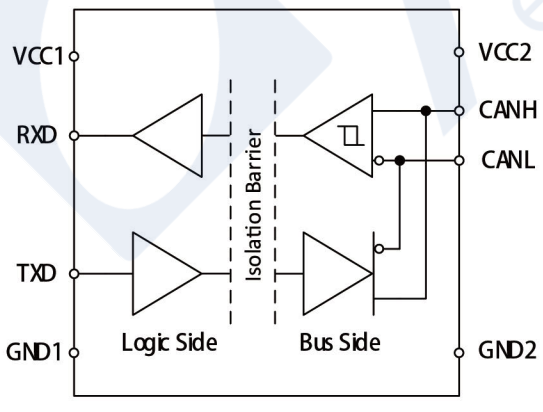
- ◆ 3.0 kVRMS withstand isolation voltage for 60s
- ◆ ±100kV/μs typical CMTI
- ◆ ±58V fault-tolerant CANH and CANL
- ◆ ±30V extended common-mode input range (CMR)
- ◆ Transmitter dominant timeout prevents lockup
- ◆ Thermal shutdown

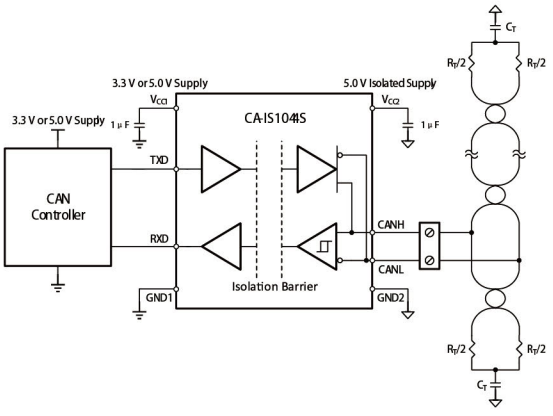
Ideal passive behavior when unpowered
Low loop delay: 150ns (typical), 210ns (maximum)
2.5V to 5.5V Logic-Supply Range
-40°C to +125°C Operating Temperature
Available in SOIC(8) package

Applications

Industrial Controls
Building Automation
Security and Protection System
Transportation
Medical
Telecom
HVAC

Simplified Schematic





CA-IS306X

5kV$_{RMS}$ Isolated CAN Transceivers with Integrated DC-DC Converter

The CA-IS306x is a family of galvanically-isolated CAN transceivers with a built-in isolated DC-DC converter, that eliminates the need for a separate isolated power supply in space constrained isolated designs. It has the logic input and output buffers separated by a silicon oxide (SiO_2) insulation barrier that provides up to 5kV$_{RMS}$ (60s) of galvanic isolation. Isolation improves communication by breaking ground loops and reduces noise where there are large differences in ground potential between ports. The transceivers operate up to 1Mbps data rate and feature integrated protection for robust communication, including current limit, thermal shutdown, and the extended ±40V fault protection on the CAN bus.

The CA-IS3062 is available in wide-body 16 pin SOIC(W) package, operates over -40°C to +125°C temperature range.

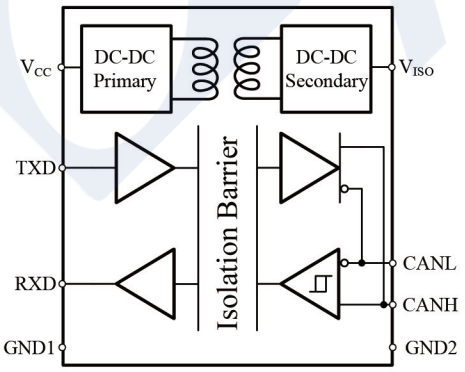
Key Features

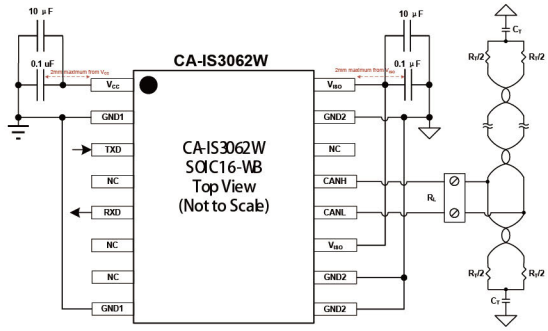
Meets the ISO 11898-2 physical layer standards
Integrated DC-DC converter for cable-side power
Integrated protection increases robustness
◆ 5.0kVRMS withstand isolation voltage for 60s (galvanic isolation)
◆ ±150kV/μs typical CMTI
◆ ±40V fault-tolerant CANH and CANL
◆ ±12V extended common-mode input range (CMR)
◆ Transmitter dominant timeout prevents lockup, data rates down to 37 kbps
◆ Thermal shutdown
Date rate is up to 1Mbps
Operating from a single 5V supply on the logic side
Low loop delay: 150ns (typical), 210ns (maximum)
Ideal passive behavior when unpowered
Wide operating temperature range: -40°C to 125°C
Wide-body SOIC16-WB(W) package

Applications

Industrial Controls
Building Automation
Security and Protection System
Transportation
Medical
Telecom

Simplified Schematic





CA-IS308X

5kV$_{RMS}$ Isolated Half/Full-Duplex RS-485/RS-422 Transceivers

The CA-IS308x family of devices is isolated RS-485/RS-422 transceiver that has superior isolation and RS485 performance to meet the needs of the industrial applications. All devices of this family have the logic input and output buffers separated by a silicon oxide (SiO_2) insulation barrier that provides up to 5000V$_{RMS}$ (60s) of galvanic isolation and ±150kV/μs typical CMTI. Robust isolation coupled with extended ESD protection and increased speeds enables efficient communication in noisy environments, making them ideal for communication between logic-side and bus-side in a wide range of applications, such as motor drivers, PLC communication modules, telecom rectifiers, elevators, HVACs etc. applications.

The CA-IS308x series devices are available in wide-body SOIC16 package which is the industry standard isolated RS-485/RS-422 package, and operate over -40°C to +125°C temperature range.

Key Features

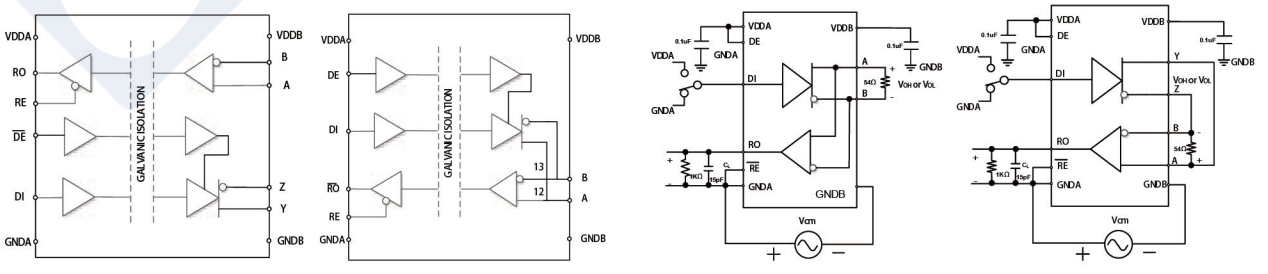
High-performance and compliant with RS-485 EIA/TIA-485 standard
Up to 10Mbps data rate
1/8 unit load enables up to 256 nodes on the bus
2.5V to 5.5V logic side supply voltage and 3.0 V to 5.5 V bus side supply voltage
Integrated protection for robust communication
◆ 5kVRMS withstand isolation voltage for 60s (galvanic isolation)
◆ ±150kV/μs typical CMTI
◆ High lifetime: >40 years
◆ ±8kV Human Body Model (HBM) ESD protection on bus I/O, ±6kV HBM ESD protection on logic I/O
◆ Short-circuit protection and thermal shutdown
◆ True fail-safe guarantees known receiver output state
Wide operating temperature range: –40°C to 125°C

Wide-body SOIC16-WB(W) package
Safety regulatory approvals
◆ VDE 0884-11 and DIN EN & IEC 62368-1 VDE reinforced isolation certifications (pending)
◆ UL certification according to UL1577
◆ IEC 62368-1, IEC 61010-1, GB 4943.1-2011 and GB 8898-2011, CQC reinforced insulation certifications

Applications

Industrial automation equipment
Grid infrastructure
Solar inverter
Motor drivers
HVAC

Simplified Schematic



CA-IS2082B

3kV$_{RMS}$ Isolated Half-Duplex RS-485/RS-422 Transceivers

The CA-IS2082B is a galvanically-isolated half-duplex RS-485/RS-422 transceiver that has superior isolation and high electromagnetic immunity, low EMI. This device has the logic input and output buffers separated by a silicon oxide (SiO_2) insulation barrier that provides galvanic isolation and improves communication by breaking ground loops and reduces noise where there are large differences in ground potential between ports. The receiver is 1/8-unit load, allowing up to 256 transceivers (loads) on a common bus. Also, this RS-485/RS-422 transceiver does not require fail-safe bias resistors because a true fail-safe feature is integrated into the devices. Fail-safe feature is used to keep the receiver's output in a defined state when the receiver is not connected to the cable, the cable has an open or the cable has a short.

The CA-IS2082B is available in 16-pin SSOP package, and operates over -40°C to +125°C temperature range.

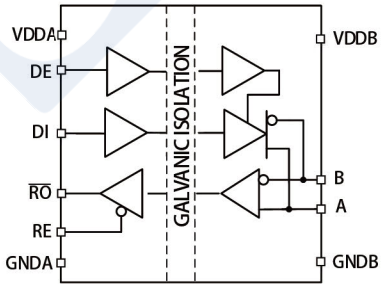
Key Features

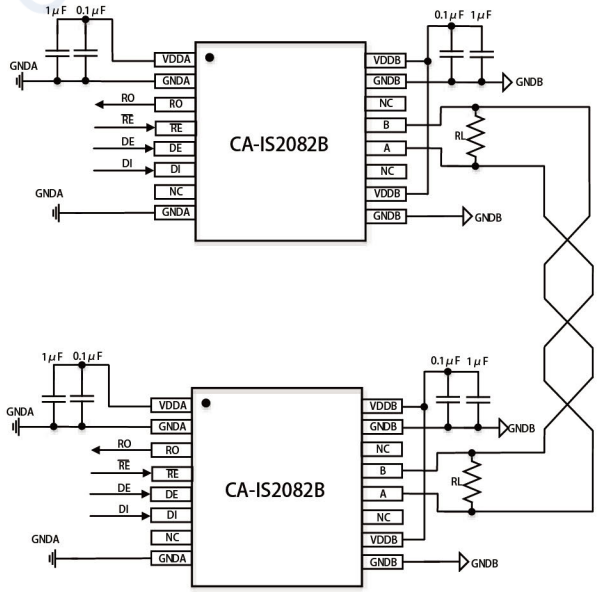
High-performance and compliant with RS-485 EIA/TIA-485 standard
Up to 5Mbps data rate
1/8 unit load enables up to 256 nodes on the bus
2.5V to 5.5V logic side supply voltage and 4.5 V to 5.5 V bus side supply voltage
Integrated protection for robust communication
◆ 3.0kVRMS withstand isolation voltage for 60s (galvanic isolation)
◆ ±100kV/μs typical CMTI
◆ High lifetime: >40 years
◆ ±8kV Human Body Model (HBM) ESD and ±12kV IEC 61000-4-2 Contact Discharge ESD protection on bus I/O, ±6kV HBM ESD protection on logic I/O
◆ Short-circuit protection and thermal shutdown
◆ True fail-safe guarantees known receiver output state
Wide operating temperature range: –40°C to 125°C
SSOP16(B) package

Applications

Industrial automation equipment
Grid infrastructure
Solar inverter
Motor drivers
HVAC

Simplified Schematic





CA-IS309X

5kV$_{RMS}$ Isolated RS-485/RS-422 Transceivers with Integrated DC-DC Converter

The CA-IS309x family of devices is isolated RS-485/RS-422 transceiver with a built-in isolated DC-DC converter, that eliminates the need for a separate isolated power supply in space constrained isolated designs. All devices of this family have the logic input and output buffers separated by a silicon oxide (SiO_2) insulation barrier that provides up to 5kV$_{RMS}$ (60s) of galvanic isolation and ±150kV/μs typical CMTI. Isolation improves communication by breaking ground loops and reduces noise where there are large differences in ground potential between ports. An integrated DC-DC converter generates the 3.3V or 5V operating voltage for the cable-side.

The CA-IS309x series devices are available in wide-body SOIC20 package and SOIC16 package which is the industry standard isolated RS-485/RS-422 package, and operate over -40°C to +125°C temperature range.

Key Features

High-performance and compliant with RS-485 EIA/TIA-485 standard
Up to 10Mbps(CA-IS3096/98 only) data rate
1/8 unit load enables up to 256 nodes on the bus
3V to 5.5V supply voltage range
Integrated DC-DC converter for cable-side power
- ◆ 3.3V and 5V output options (VISO ≤ VCC)
- ◆ High integration with internal transformer
- ◆ Soft-start reduces input inrush current
- ◆ Overload and short-circuit protection
- ◆ Thermal shutdown

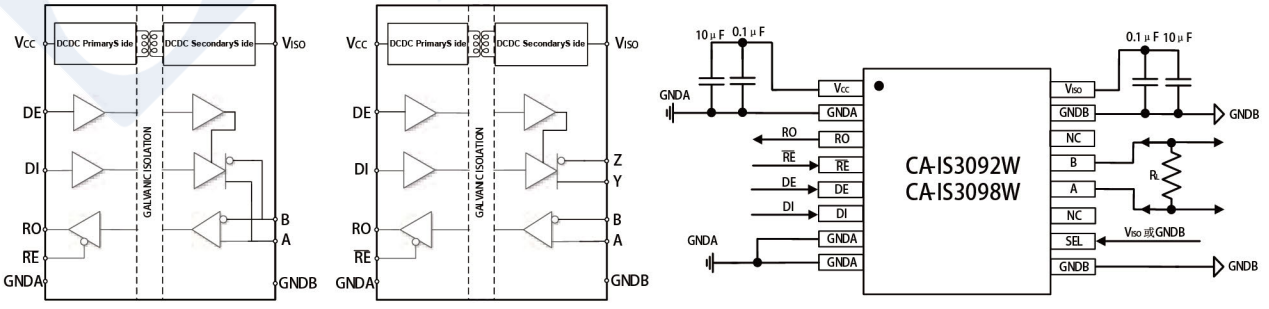
Integrated protection for robust communication
- ◆ 5kVRMS withstand isolation voltage for 60s (galvanic isolation)
- ◆ ±150kV/μs typical CMTI
- ◆ High lifetime: >40 years
- ◆ ±8kV Human Body Model(HBM) ESD, ±12kV IEC 61000-4-2 Contact Discharge ESD protection on bus I/O, ±6kV HBM ESD protection on logic I/O
- ◆ True fail-safe guarantees known receiver output state

Wide operating temperature range: –40°C to 125°C
Wide-body SOIC16-WB(W) and SOIC20-WB(T) packages

Applications

I2C, SMBus, PMBus™ Interfaces
Motor control systems
Medical Equipment
Battery Management
Instrumentation

Simplified Schematic



CA-IS2092W

2.5kV$_{RMS}$ Isolated RS-485/RS-422 Transceivers with Integrated DC-DC Converter

The CA-IS2092W is isolated half-duplex RS-485/RS-422 transceiver with internal isolated DC-DC converter, that eliminates the need for a separate isolated power supply in space constrained isolated designs. This device has the logic input and output buffers separated by a silicon oxide (SiO2) insulation barrier that provides up to 2.5kVRMS galvanic isolation and ±150kV/μs typical CMTI that improves communication by breaking ground loops and reduces noise where there are large differences in ground potential between ports. An integrated DC-DC converter generates the 3.3V or 5V operating voltage for the cable-side.

The CA-IS2092W is available in wide-body SOIC16 package which is the industry standard isolated RS-485/RS-422 package, and operates over -40°C to +125°C temperature range.

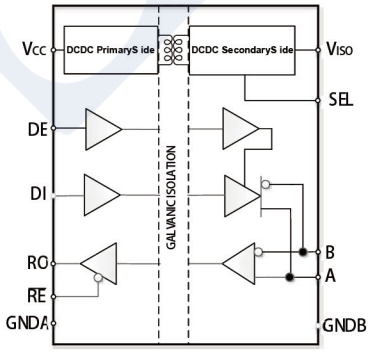
Key Features

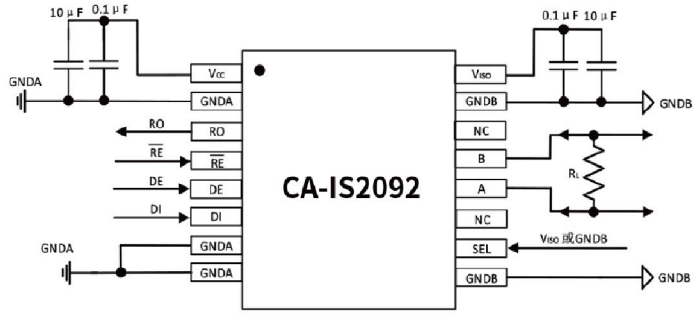
High-Performance and Compliant with RS-485
◆ **EIA/TIA-485 Standard**
Slew-rate-limited Driver with up to 500kbps Data Rate
1/8 unit load enables up to 256 nodes on the bus
3V to 5.5V Supply Voltage Range (VCC)
Integrated DC-DC Converter for Cable-side Power
◆ 3.3V and 5V output options (VISO ≤ VCC)
◆ High integration with internal transformer
◆ Soft-start reduces input inrush current
◆ Overload and short-circuit protection
◆ Thermal shutdown
Integrated Protection for Robust Communication
◆ 2.5kVRMS withstand isolation voltage for 60s (galvanic isolation)
◆ ±150kV/μs typical CMTI
◆ High lifetime: >40 years
◆ ±8kV Human Body Model(HBM) ESD protection and ±16kV IEC 61000-4-2 Contact Discharge ESD protection on bus I/O
◆ True fail-safe guarantees known receiver output state
Wide Operating Temperature Range: –40°C to 125°C
Wide-body SOIC16-WB(W) Package

Applications

Industrial automation equipment
Grid infrastructure
Solar inverter
Motor drivers
HVAC

Simplified Schematic





CA-IS398X

Isolated Octal Industrial Digital Input

The CA-IS398x family of isolated octal digital inputs are optimized for industrial 24V digital input applications. All devices can be configured for Type 1, Type 2, or Type 3 inputs with a few external components and each channel can sink and source current. These devices operate over the supply range of 2.25V to 5.5V on logic side, no power supply required on field side. The logic output level is set by supply voltage independently, easy to connect with 2.5V, 3.3V and 5V controller interface. For robust operation in industrial environments, each input of the CA-IS398x with parallel outputs includes a glitch and debounce filters with fixed delay time; The CA-IS3980S with serializer features programmable debounce filters, allow flexible debouncing and filtering of sensor outputs based on the application. For systems with more than eight sensor inputs, CA-IS3980S is capable of daisy-chaining multiple devices and have up to 128 inputs sharing the same isolated SPI interface.

The CA-IS398x family of devices are specified over -40°C to +125°C operating temperature range and are available in 20-pin SSOP package.

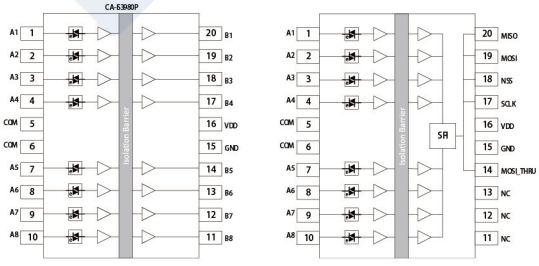
Key Features

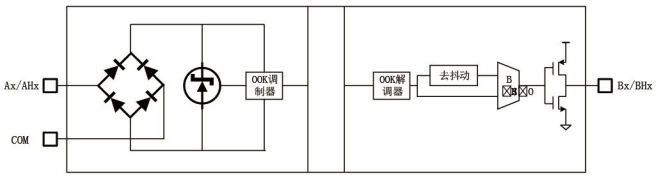
Accepts Industry Standard Input Types
◆ Compliant to IEC 61131-2 Input Types 1, 2, and 3
High Integration
◆ Eight input channels with serializer (CA-IF-3980S)
◆ Eight input channels with parallel-output s (CA-IF398xP)
Support up to 2Mbps Data Rates
Integrated Digital Glitch and Debounce Filters with 0 to 100ms Selectable Delay Time
High Transient Immunity:
◆ ±300kV/μs CMTI for the low-speed channels
◆ ±50kV/μs CMTI for the high-speed channels
2500VRMS Integrated Isolation Reduces BOM and Footprint
SPI-Compatible Serial Interface (CA-IF3980S only)
2.25V to 5.5V Single Supply , Eliminates the Need For Field-side Power Supply
-40°C to 125°C Ambient Operating Temperature
8.66mm x 3.91mm 20-pin SSOP Package
Safety Regulatory Approvals
◆ DIN VVDE V 0884-10 basic isolation certification
◆ UL1577 certification, 2500 VRMS insulation

Applications

Digital Input Modules for PLCs
Industrial, Building, and Process Automation
Motor Control
CNC Control
Industrial Data Acquisition

Simplified Schematic





CA-IS3105W

5kV$_{RMS}$ Complete Isolated DC-DC Converter

The CA-IS3105W is a complete isolated DC-DC converter with up to 5kV$_{RMS}$ isolation rating. This device integrates most of the components needed for an isolated power supply —switching controller, power switches, transformer, resistors ------ into a single, compact SOIC package. The result is an efficient and compact fully integrated solution that is easy to comply with EMI requirements and makes power-supply design as easy as possible. Operating over an input voltage range of 4.5V to 5.5V, this device provides a fixed output voltage of 3.3V, 3.7V, 5V or 5.4V set by pin SEL. The CA-IS3105W features a unique control scheme, which can quickly respond to load transient and accurately regulate the output voltage. The device is capable of delivering a load up to 650mW output power and offering soft-start, current limit, short-circuit, and thermal protection features to better enhance the reliability of the system.

The CA-IS3105W is available in wide-body SOIC16 package and operates over -40°C to +125°C temperature range.

Key Features

Complete Switch Mode Power Supply
- ◆ High integration with internal transformer
- ◆ Soft-start reduces input inrush current and output overshoot.
- ◆ Overload and short-circuit protection
- ◆ Thermal shutdown

4.5 V to 5.5 V Input Voltage Range
Selectable Output Voltages
- ◆ 3.3V, 3.7V, 5V and 5.4V output options

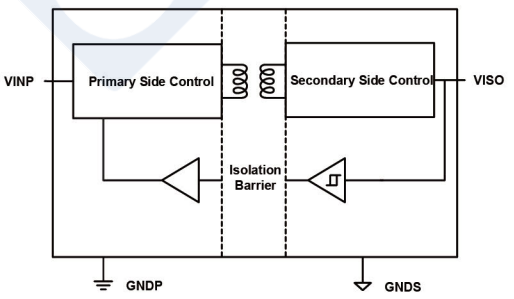
Delivers up to 650mW(5V/130mA) Output Power
Robust Galvanic Isolation Barrier
- ◆ High lifetime: > 40 years
- ◆ Up to 5000 VRMS isolation rating
- ◆ ±150 kV/μs typical CMTI
- ◆ ±10 kV surge tolerant

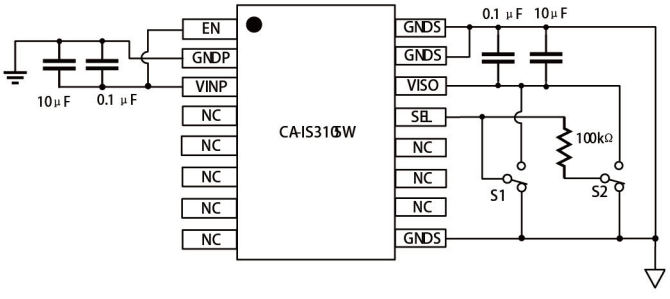
Excellent Electromagnetic Compatibility
Wide Operating Temperature Range: -40°C to 125°C
SOIC16-WB Package

Applications

Industrial Controls
Building Automation
Security and Protection System
Transportation
Medical
Telecom

Simplified Schematic





CA-IS310X

High Stability Isolated Amplifier

The CA-IS310X series of high stability isolated amplifiers are ideal for linear feedback power supplies. The input-side (high-side) and output-side (low-side) are separated by unique silicon oxide (SiO_2) capacitive isolation barriers that provide up to 2.5kV_{RMS} (CA-IS3101B) or 5kV_{RMS} (CA-IS3102W) galvanic isolation and protect the low-voltage side from potentially harmful voltages and damage. Unlike optocoupler-based solutions, these devices using Chipanalog's proprietary capacitive isolation technology can achieve the faster response, lower power consumption, and better jitter and propagation delay performance, also keep stable performance over temperature and time.

The CA-IS310X devices are available in wide-body SOIC16 package and 16-pin SSOP package, operate over -40°C to +125°C temperature range.

Key Features

Stable over Time and Temperature
- ◆ 0.5% initial accuracy
- ◆ 1% accuracy over the full temperature range

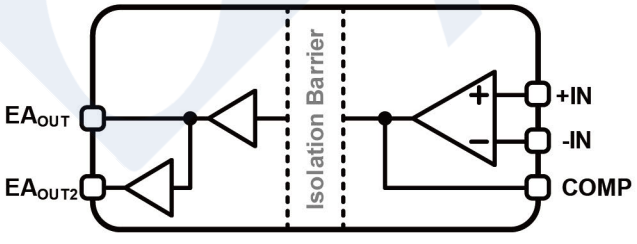
Compatible with Type II or Type III Compensation Networks
Wide Power Supply Operating Range: 3V to 20V for VDD1 and VDD2
Low-Power Operation: < 7mA
1.225V Internal Reference Voltage
400kHz Bandwidth
Robust Isolation Barrier
- ◆ High lifetime: >40 years
- ◆ Up to 2.5kVRMS (CA-IS3101B) and 5kVRMS (CA-IS3102W) isolation rating
- ◆ ±150 kV/μs typical CMTI

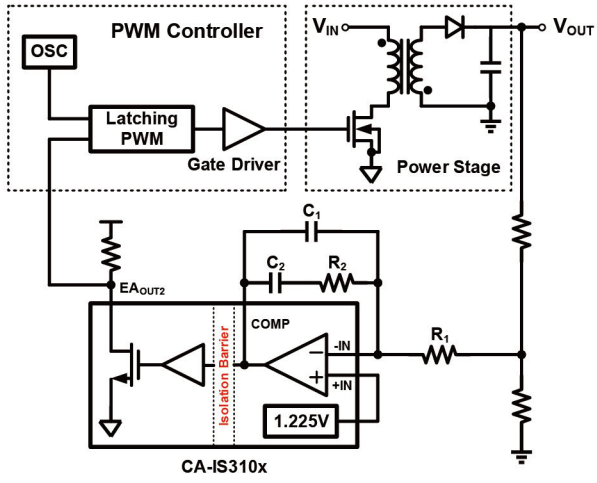
Compatible with DOSA
Wide Operating Temperature Range: –40°C to 125°C
16-pin SSOP Package and 16-pin SOIC Wide-body Package

Applications

Digital Input Modules for PLCs
Industrial, Building, and Process Automation
Motor Control
CNC Control
Industrial Data Acquisition

Simplified Schematic





CA-IS1200

3.75kV$_{RMS}$ Isolated Precision Amplifier for Current Sensing

The CA-IS1200 is isolated precision amplifier and optimized for shunt resistor-based current sensing or other small signal measurement applications. The input-side (high-side) and output-side (low-side) are separated by unique silicon oxide (SiO_2) capacitive isolation barriers that provide up to 3.75kV$_{RMS}$ galvanic isolation per UL1577 certification. In systems with different voltage domains, this isolation technical is typically used to protect the low voltage side from the high voltage side in case of any faults. This device also features up to 150kV/μs common mode transient immunity and enable efficient signal transmission in noisy environments. The CA-IS1200 device also features fail-safe output to support high safety system design.

The CA-IS1200 is specified over the -40°C to +125°C operating temperature range and are available in 8-pin SOP package.

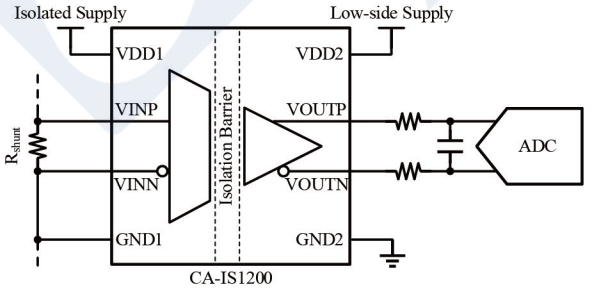
Key Features

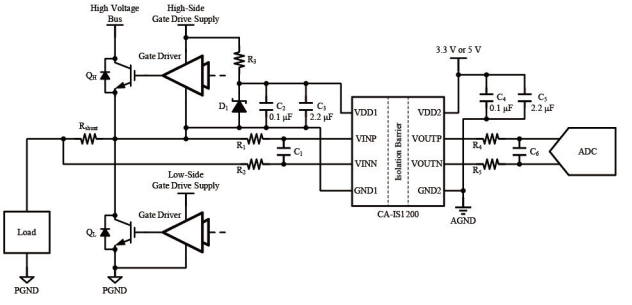
Full-Scale Sense Voltage Range: ±250 mV
Fixed Gain: 8V/V
Low Input Offset Voltage and Offset Drift
◆ ±0.2mV@ 25°C input offset voltage and ±4μV/°C offset drift
Low Gain Error and Gain Drift
◆ ±0.3% @ 25°C gain error, ±50 ppm/°C gain drift
Low Nonlinearity and Drift: 0.03%, ±1 ppm/°C
3.3V or 5V Power Supply Operating for both Input-side and Output-side
Robust Isolation Barrier
◆ High lifetime: >40 years
◆ Up to 3750VRMS isolation rating
◆ ±150 kV/μs typical CMTI
Fault Diagnostic Functions Improve System Safety
Wide Operating Temperature Range: –40°C to 125°C
8-pin SOP package (DUB8)

Applications

Industrial Motor Controls and Drives
Isolated Power Supplies
UPS

Simplified Schematic





CA-IS1300

5kV$_{RMS}$ Isolated Precision Amplifier for Current Sensing

The CA-IS1300 family of devices is isolated precision amplifier and optimized for shunt resistor-based current sensing or other small signal measurement applications. The analog input-side (high-side) and digital output-side (low-side) are separated by unique silicon oxide (SiO_2) capacitive isolation barriers that provide up to 5kV$_{RMS}$ galvanic isolation per UL1577 certification. In systems with different voltage domains, this isolation technical is typically used to protect the low-voltage side from potentially harmful voltages and damage. These devices also feature up to 150kV/μs common mode transient immunity and enable efficient signal transmission in noisy environments. This family of devices also features fail-safe output to support high safety system design.

The CA-IS1300 is specified over the -40°C to +125°C operating temperature range and are available in 8-pin SOIC wide body package.

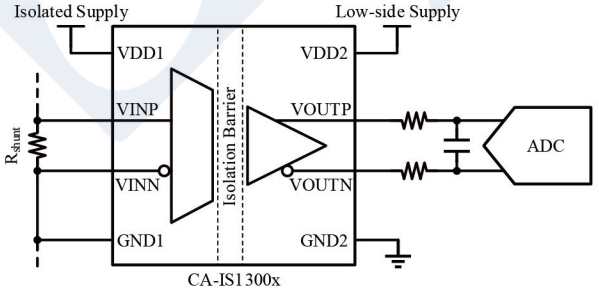
Key Features

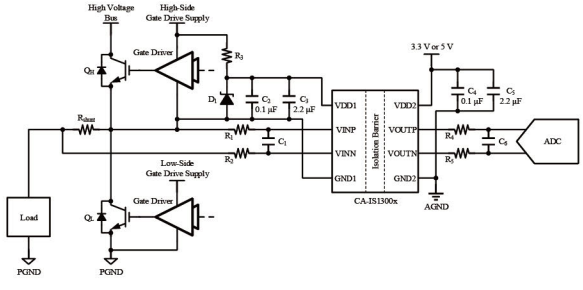
Full-Scale Sense Voltage Range: ±50mV or ±250 mV
Fixed Gain: 8.2V/V or 41V/V
Low Input Offset Voltage and Offset Drift
◆ CA-IS1300G05: ±0.1mV@ 25°C input offset voltage and ±1 μV/°C offset drift
◆ CA-IS1300G25: ±0.2mV@ 25°C input offset voltage and ±4μV/°C offset drift
Low Gain Error and Gain Drift
◆ ±0.3% (max) @ 25°C gain error, ±50 ppm/°C gain drift
Low Nonlinearity and Drift: 0.03%, ±1 ppm/°C
3.3V or 5V Power Supply Operating for both Input-side and Output-side
Robust Isolation Barrier
◆ High lifetime: >40 years
◆ Up to 5000 V$_{RMS}$ isolation rating
◆ ±150 kV/μs typical CMTI
Fault Diagnostic Functions Improve System Safety
Wide Operating Temperature Range: –40°C to 125°C
8-pin SOIC Wide Body Package

Applications

Industrial Motor Controls and Drives
Isolated Power Supplies
Frequency Inverters

Simplified Schematic





CA-IS1305/1306

5kV$_{RMS}$ Isolated Sigma-Delta Modulator with External Clock Input

The CA-IS1305/CA-IS1306 family of devices is series of precision isolated sigma-delta (Σ-Δ) modulator and optimized for shunt resistor-based current sensing or other small signal measurement applications. The analog input-side (high-side) and digital output-side (low-side) are separated by unique silicon oxide (SiO_2) capacitive isolation barriers that provide up to 5kV$_{RMS}$ galvanic isolation. In systems with different voltage domains, this isolation technical is typically used to protect the low voltage side from the high voltage side in case of any faults. These devices also feature up to 150kV/μs common mode transient immunity(CMTI) and enable efficient bit-stream transmission in noisy environments.

The CA-IS1305/CA-IS1306 devices specified for operation with 5MHz to 21MHz clock input. The internal sigma-delta modulator combined with an external digital decimation sinc^3 filter within FPGA or DSP, can achieve up to 85 dB signal-to-noise ratio (SNR) at 78.1 Ksps.

The CA-IS1305/CA-IS1306 devices are specified over the -40°C to +125°C operating temperature range and is available in 8-pin SOIC wide-body package and 16-pin SOIC wide-body package.

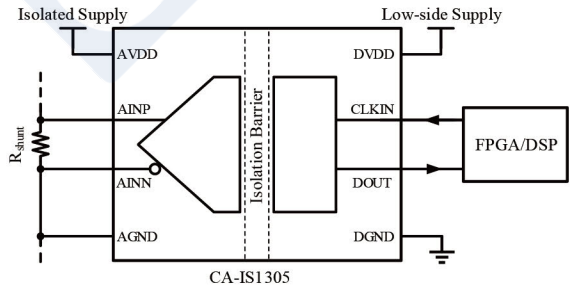
Key Features

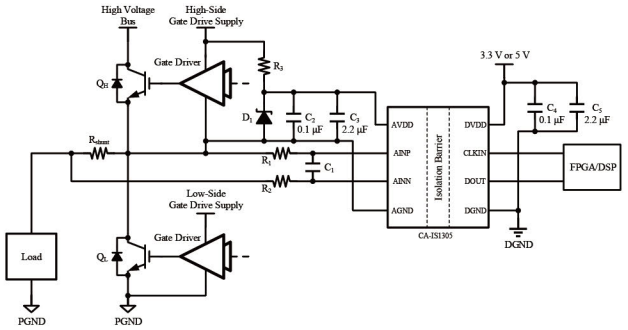
Full-Scale Sense Voltage Range: ±250 mV
Manchester Encoded or Uncoded Bitstream Output Options
Ultra-Low Input Offset Voltage and Drift
◆ CA-IS1305: ±150μV(max) @ 25°C input offset voltage
◆ CA-IS1306: ±100μV(max) @ 25°C input offset voltage
◆ ±3.5μV/°C(max) input offset tempco
Low Gain Error and Drift
◆ CA-IS1305: ±0.3%(max) @ 25°C gain error
◆ CA-IS1306: ±0.2%(max) @ 25°C gain error
◆ ±40ppm/°C(max) gain drift
Excellent AC Performance
◆ SNR: 85dB (typ)
◆ THD: -93dB (typ)
16-Bit Resolution with No Missing Codes
Robust Isolation Barrier
◆ High lifetime: >40 years
◆ Up to 5000 VRMS isolation rating
◆ ±150 kV/μs typical CMTI
Fault Diagnostic Functions Improve System Safety
Wide Operating Temperature Range: –40°C to 125°C
8-pin SOIC and 16-pin SOIC Wide-body Packages

Applications

Industrial Motor Controls and Drives
Isolated Power Supplies
UPS

Simplified Schematic





CA-IS1204

5kV$_{RMS}$ Isolated Sigma-Delta Modulator for Current Sensing

The CA-IS1204 device is precision isolated sigma-delta (Σ-Δ) modulator shunt resistor-based current sensing or other small signal measurement applications. Low offset, low gain error and drift guarantee that measuring accuracy is maintained over the entire operating temperature range. The analog input-side (high-side) and digital output-side (low-side) are separated by unique silicon oxide (SiO_2) capacitive isolation barriers that provide up to 5kV$_{RMS}$ galvanic isolation per UL1577 certification. In systems with different voltage domains, this isolation technical is typically used to protect the low voltage side from the high voltage side in case of any faults. This device also features up to 150kV/µs common mode transient immunity and enable efficient bit-stream transmission in noisy environments. It's fail-safe output is ideal to support high safety system design.

The CA-IS1204 device specified for operation with 5MHz to 21MHz clock input. The internal sigma-delta modulator combined with an external digital decimation sinc^3 filter within FPGA or DSP, can achieve up to 85 dB signal-to-noise ratio (SNR) at 78.1 Ksps.

The CA-IS1204 is specified over the -40°C to +125°C operating temperature range and is available in 16-pin SOIC wide body package.

Key Features

Full-Scale Sense Voltage Range: ±250 mV
Ultra-Low Input Offset Voltage and Gain Error
- ±1mV (max) input offset voltage
- ±2% (max) at 25°C gain error

Excellent AC Performance
- SNR: 85dB (typ)
- THD: -91dB (typ)

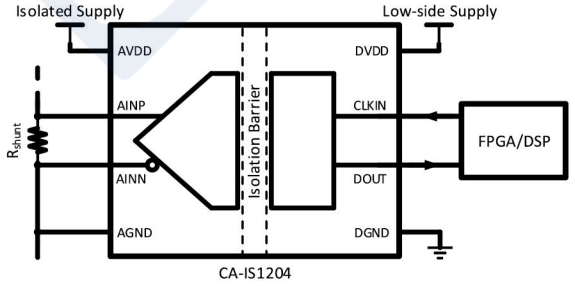
Robust Isolation Barrier
- High lifetime: >40 years
- Up to 5000 VRMS isolation rating
- ±150 kV/µs typical CMTI

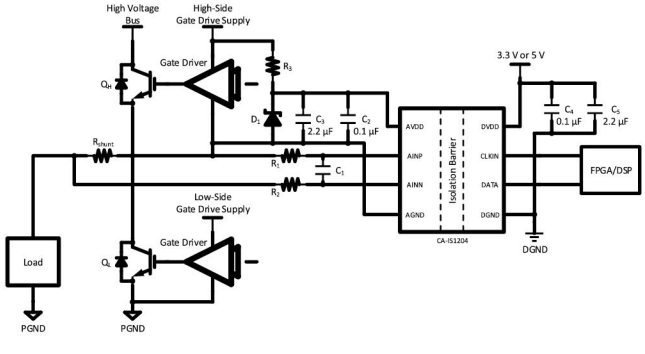
Fault Diagnostic Functions Improve System Safety
External Clock Input
Wide Operating Temperature Range: –40°C to 125°C
16-pin SOIC Wide-body Package

Applications

Industrial Motor Controls and Drives
Isolated Power Supplies
Frequency Inverters

Simplified Schematic





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