INTERFACE

CA-IF4023

AISG On and Off Keying Coax Modem Transceiver

The CA-IF4023 is an integrated AISG transceiver designed to be compliant with the Antenna Interface Standards Group (AISG) v3.0 specification. Integrated on the chip are the transmitter, receiver, and active filters. The receive channel offers a typical dynamic range of 20dB and integrates an active band-pass filter with 2.176MHz center frequency to enable demodulation of signals even in the presence of spurious frequency components.

The transmitter integrates an narrow bandwidth band-pass filter with 2.176MHz center frequency as well and is compliant with the spectrum emission requirement provided by the AISG v3.0 standard. It supports adjustable output power levels varying from +5.4dBm to +12dBm in order to compensate for loss in the external circuitry and cabling. A direction output is provided which facilitates bus arbitration for an RS-485 interface. This device integrates an oscillator input for a crystal and also accept standard clock inputs to the oscillator.

The CA-IF4023 is packaged in a small, 3mm x 3mm, 16-pin QFN and is fully specified for operation over -40°C to +125°C extended temperature range。

Key Features

Receiver Offers a Wide Input Dynamic Range

◆ -15dBm to +5dBm in 50Ω

5.4dBm to 12dBm Resistor-adjustable Output Power

AISG v3.0-compliant Output Emission Profile

Supports 9.6kbps, 38.4kbps, 115.2kbps AISG Signaling

Integrated Active Band-pass Filter with Center Frequency at 2.176MHz

3.0V to 5.5V Analog Supply Voltage

1.6V to 5.5V Independent Logic Supply Voltage

Low-Power Standby Mode

-40°C to +125°C Operating Temperature Range

Small, 3mm x 3mm, 16-pin QFN Package

Applications

Industrial automation equipment

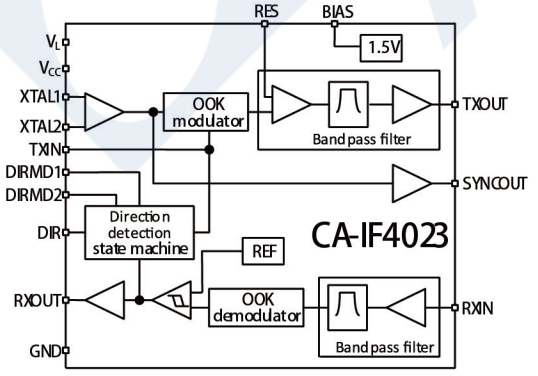
Grid infrastructure

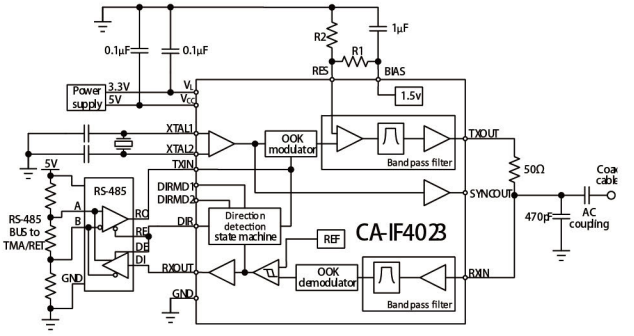
Solar inverter

Motor drivers

HVAC

Simplified Schematic





CA-IF4888

Bus-Polarity Correcting RS-485/RS-422 Transceive

The CA-IF4888 half-duplex ±30kV ESD-protected RS-485 transceiver features integrated automatic polarity correction to ensure that miswired A and B lines are autonomously corrected, simplifying equipment and network installation. Upon hot plug-in, the CA-IF4888 detects and corrects the bus polarity within the first 76 ms of bus idling. This device has ±30V fault protection for overvoltage conditions on the communication bus lines that ensure robust protection on the bus. It also features ±15V of common-mode range (CMR), making them ideal for electrically noisy environments where different systems have shifting ground levels relative to each other and long distance transmission.

The CA-IF4888 device is specified over the -40°C to +125°C operating temperature range and is available in SOIC8 package.

Key Features

Automatic Polarity Correction Within 80ms (typ.)
High-Performance and Compliant with RS-485 EIA/TIA-485 Standard
- ◆ 300bps to 500kbps data rate
- ◆ 1/8 unit load enables up to 256 nodes on the bus
- ◆ 3V to 5.5V supply voltage range

Integrated Protection for Robust Communication
- ◆ ±30V fault protection range on driver outputs/receiver inputs
- ◆ Common-mode voltage range: ±15V
- ◆ ±30kV Human Body Model ESD protection
- ◆ Short-circuit protection and thermal shutdown
- ◆ True fail-safe guarantees known receiver output state

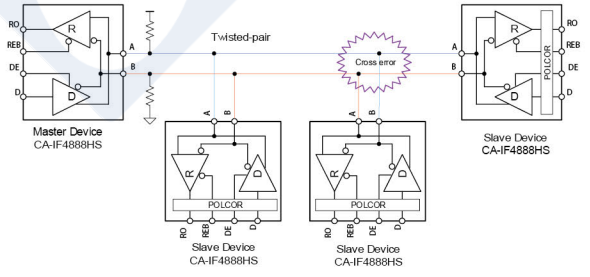
Low Power
- ◆ 960µA (max.) @ receive mode
- ◆ Shutdown current: < 5µA

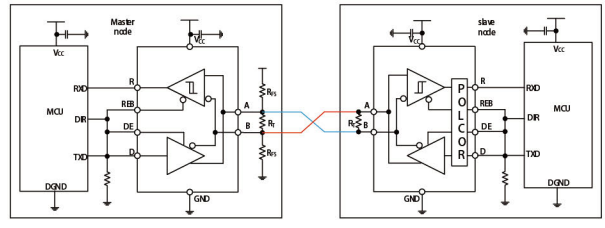
Wide Operating Temperature Range: –40°C to 125°C
8 pin SOIC Package

Applications

Industrial automation and process control
HVAC systems
Electricity meters
Inverters
Video surveillance
Control systems
Telecom equipment

Simplified Schematic





CA-IF4805/20/50

RS485/RS422 Transceivers with ±30kV ESD Protection

The CA-IF4805/20/50 family of devices are low-power transceivers for RS-485 and RS-422 communications in harsh environments. All devices have ±30V fault protection for overvoltage conditions on the communication bus lines that ensure robust protection on the bus. They also feature ±15V of common-mode range (CMR), making them ideal for electrically noisy environments where different systems have shifting ground levels relative to each other and long distance transmission. The bus pins of these devices are protected against ±15kV (for the full-duplex parts) and ±30kV (for the half-duplex parts) electro-static discharge (ESD) shocks, eliminating the need for additional system level protection components.

The CA-IS48xx family devices are specified over the -40°C to +125°C operating temperature range and are available in small 8-pin MSOP, 8-pin DFN packages for space constrained applications and 8-pin SOIC for drop-in compatibility.

Key Features

High-Performance and Compliant with RS-485 EIA/TIA-485 Standard

◆ Low EMI 500Kbps data rate (CA-IF4805) and up to 50Mbps (CA-IF4850), 20Mbps (CA-IF4820) high-speed data rate

◆ 1/8 unit load enables up to 256 nodes on the bus

◆ 3V to 5.5V supply voltage

Integrated Protection for Robust Communication

◆ ±30V fault protection range on driver outputs/receiver inputs

◆ Common-mode voltage range: ±15V

◆ ±15kV Human Body Model ESD protection for the full-duplex devices (CA-IF48xxF_)

◆ ±30kV Human Body Model ESD protection for the half-duplex devices (CA-IF48xxH_)

◆ Short-circuit protection

◆ Thermal shutdown

◆ True fail-safe guarantees known receiver output state

Low Power

◆ 960µA (max.) @ receive mode

◆ Shutdown current: < 5µA

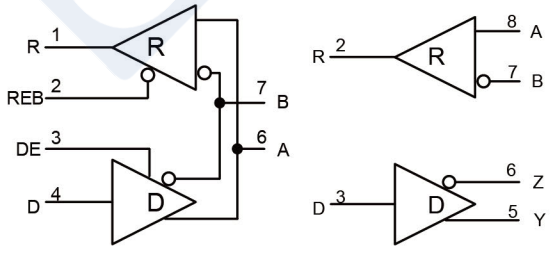
Wide Operating Temperature Range: –40°C to 125°C

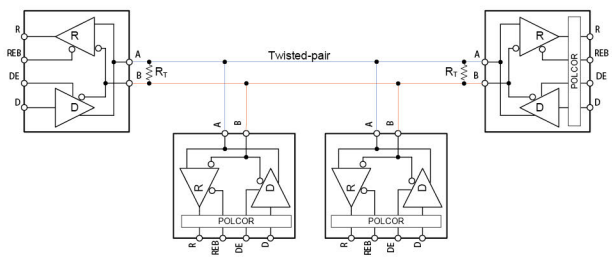
8 pin SOIC, 8 pin MSOP-8 and 8 pin DFN-8 Packages

Applications

Motor Drive
Factory Automation & Control
Grid Infrastructure
Home and Building Automation
Video Surveillance
Process Control
Telecommunication Equipment

Simplified Schematic





CS48505/48520

RS485/422 Transceivers with ±20kV ESD Protection

The CS485XX family of devices are low-power half-duplex transceivers for RS-485/RS-422 communications in harsh environments. All devices feature ±20kV electro-static discharge (ESD) protection for the bus pins (A and B), eliminating the need for additional system level protection components.

The CS485XX family of devices contain one driver(TX) and one receiver(RX), operates over the +3V to +5.5V supply range, making these devices convenient for designers to use one part with either +3.3V or +5V supply systems. The CS48520x devices can transmit and receive at data rates up to 20Mbps, while the CS48505x devices are specified for data rates up to 500kbps. These devices also include fail-safe circuitry, guaranteeing a logic-high receiver output when the receiver inputs are shorted or open.

Key Features

High-Performance and Compliant with RS-485 EIA/ TIA-485 Standard

◆ Low EMI 500kbps Data Rate (CS48505x) and up to 20Mbps (CS48520x) High-Speed Data Rate

◆ 1/8 Unit Load Enables up to 256 Nodes on the Same Bus

Integrated Protection for Robust Communication

◆ -7V to +12V Common-Mode Voltage Range

◆ ±20kV Human Body Model ESD Protection and ±4kV Contact Discharge IEC 61000-4-2 ESD Protection on A/B pins

◆ Short-Circuit Protection

◆ Thermal Shutdown

◆ True Fail-Safe Guarantees Known Receiver Output State

◆ Glitch-free during Power on/Power off

Output Level is Compatible with Profibus Standard

◆ $|V_{OD}|$ > 2.1V @ 5V Supply Voltage

Low Power

◆ Low Supply Current (0.95mA, typ.)

◆ Shutdown Current < 5µA

3V to 5.5V Supply Voltage Range

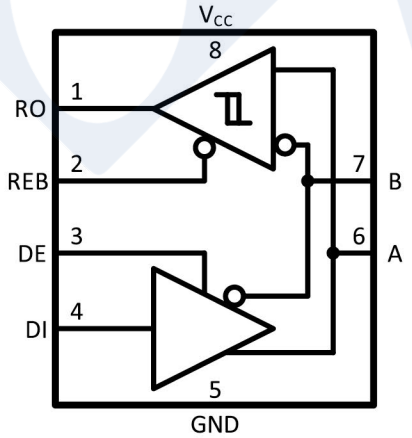
Wide Operating Temperature Range: –40°C to 125°C

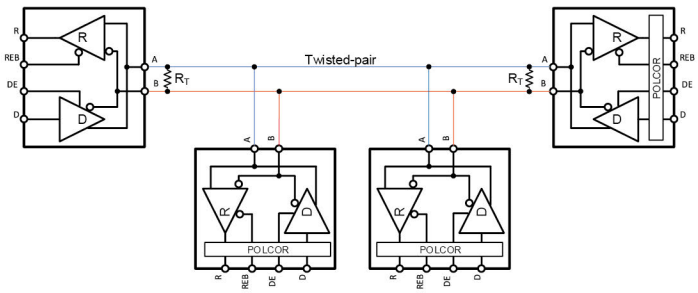
8 pin SOIC, 8 pin MSOP and 8 pin DFN Packages

Applications

Factory Automation & Control
Grid Infrastructure
Home and Building Automation
Video Surveillance
Smart Meters
Process Control
Telecommunication Equipment

Simplified Schematic





CA-IF1051

±70V Fault Protected CAN Transceiver with CAN FD

The CA-IF1051 is a family of +5V control area network (CAN) transceivers with integrated protection for industrial applications. These devices are designed for using in high-speed CAN FD networks up to 5Mbps data rate, features extended ±58V (CA-IF1051S/VS) or ±70V (CA-IF1051HS) fault protection on the CAN bus for equipment where overvoltage protection is required. These CAN devices also incorporate an input common-mode range (CMR) of ±30V and well suited for applications where ground planes from different systems are shifting relative to each other. The transmitter include a dominant timeout detection to prevent bus lockup caused by controller error or by a fault on the TXD input. In addition, the family features a variety of options to address common CAN application requirements: silent-mode to disable the transmitter, low level translation to interface with low voltage controllers (CA-IF1051VS).

The CA-IF1051 devices are in a standard 8-pin SOIC package. All parts operate over the -55°C to +125°C temperature range.

Key Features

Meets the ISO 11898-2:2016 and ISO 11898-5:2007 Physical Layer Standards

'Turbo' CAN:

◆ Support classic CAN and high-speed operation of up to 5Mbps CAN FD (flexible data rate)

◆ Short symmetrical propagation delay and fast loop times for enhanced timing margin

Ideal Passive Behavior When Unpowered

◆ Bus and logic terminals are high impedance (no load)

◆ Power up/down with glitch free operation on bus and RXD output

Integrated Protection Increases Robustness

◆ ±58V (CA-IF1051S/VS) or ±70V (CA-IF1051HS) fault-tolerant CANH and CANL

◆ ±30V extended common-mode input range (CMR)

◆ Undervoltage protection on VCC and VIO ("V" version) supply terminals

◆ Transmitter dominant timeout prevents lockup, data rates down to 4kbps

◆ Thermal shutdown

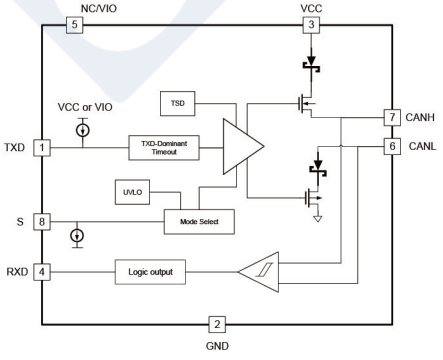
Junction temperatures range of –55°C to 125°C

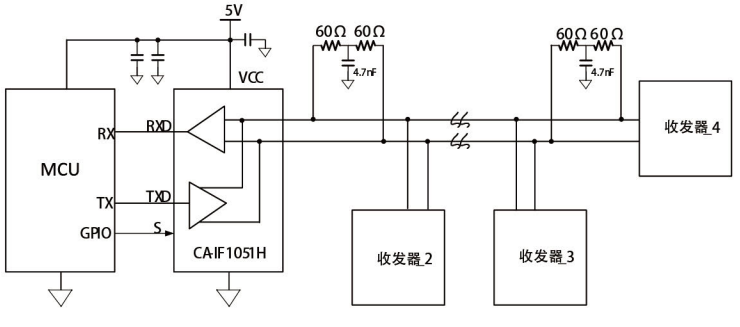
2.5V to 5.5V Logic-Supply (VIO) Range (CA-IF-1051VS only)

Applications

Industrial automation
Building automation
HVAC systems
Distribution automation
Vending machines
Security systems

Simplified Schematic





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