

AS8221

High Performance Bus Transceiver

General Description

The AS8221 is a high-speed automotive transceiver for fault tolerant and high speed applications, operating as the bi-directional interface between a generic communication controller and the twisted pair copper wires. The device enables two-way communications with the microcontroller with full mode handling, including the low-power modes.

Package: lead-free SSOP20

Functional Description

Transmission rates up to 10 Mbps as well as the implemented Bus Guardian interface enables this transceiver the usage in fault tolerant and hard real-time applications in the stringent automotive environment.

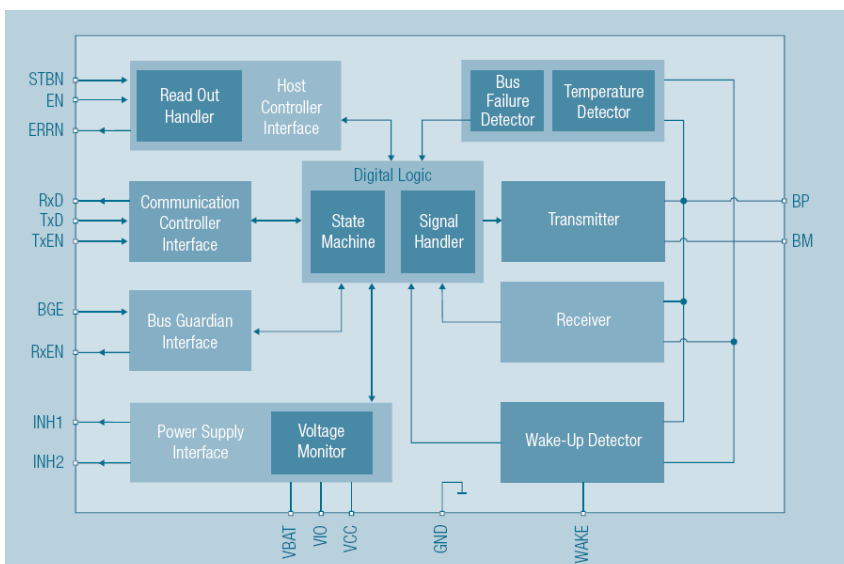
An extended diagnostic interface, offers advanced bus-failure detection capabilities with the intelligent combination of bus-current measurement and logical comparators. A thermal sensor circuit with an integral shutdown mechanism prevents damage to the device in extreme temperature conditions. The symmetrical transient control for the high- and low-side driver for both the bus-minus and bus-plus line allows an ideal balance of communications over different network topologies, with excellent EMC performance.

Applications

- FlexRay™ networks
- High speed automotive bus systems
- Backbone bus and gateways
- Safety critical applications
- X-by-wire systems
- Redundant bus systems
- Bus topologies with active stars

Key Features

- Data transfer up to 10 Mbps
- Supports 2.5, 3, 3.3, 5 V microcontrollers and automatically adapts to interface levels
- Does not disturb the bus line when un-powered
- Fail silent behaviour
- Protection against damage due to short circuit conditions on the bus (positive and negative battery voltage)
- Supports 12, 24, 42 V systems with low sleep current (30 µA)
- Integrated power management system
 - o Two INH pins for the external voltage
 - o Local wake-up input via STBN-, WAKE- and TxD-Pins
 - o Remote wake-up capability via FlexRay™ bus in sleep mode
- Operating temperature range -40°C to +125°C
- Compliant with FlexRay™ Electrical Physical Layer specification
- Excellent EMC performance
- High common mode range insure excellent signal integrity on diverse bus topologies
- Bus guardian Interface for optional bus supervision
- Automatic thermal shutdown protection



AS8221

High Performance Bus Transceiver

Pin Description

Pin	Pin Name	Pin Type	Notes
1	INH2	AIO	Inhibit switch floating in standby/sleep mode
2	INH1	AIO	Inhibit switch floating in sleep mode
3	EN	DI_PD	Enable input
4	VIO	S	I/O supply voltage
5	TxD	DI_PD	Transmission data input
6	TxEN	DI_PU	Transmission data enable
7	RxD	DO	Receive data output
8	BGE	DI_PD	Bus guardian enable
9	STBN	DI_PD	Standby input
10	Not used		
11	Not used		
12	RxEN	DO	Receive data enable output
13	ERRN	DO	Error diagnosis output
14	VBAT	S	Battery supply voltage
15	WAKE	AIO	Local wakeup input
16	GND	S	Ground
17	BM	AIO	Bus line Minus
18	BP	AIO	Bus line Plus
19	VCC	S	Supply voltage
20	Not used		

PIN Types:

S.....supply pad
 AIO.....analog I/O
 DIdigital input
 DI_PUdigital input with pull-up
 DI_PDdigital input with pull-down
 DIO_PU.....digital I/O with pull-up
 DIO_PD.....digital I/O with pull-down
 DIO_Tdigital I/O / tristate
 DO.....digital output
 DO_ODdigital output open drain

Contact

Headquarters:
 austriamicrosystems AG
 Business Unit Automotive
 T. +43 (0) 3136 500 0
 F. +43 (0) 3136 5692

info@austriamicrosystems.com
 For Sales Offices, Distributors and Representatives, please
 visit: www.austriamicrosystems.com

Copyright © 2006 austriamicrosystems. Trademarks
 registered ®. All rights reserved. The material herein
 may not be reproduced, adapted, merged, translated,
 stored, or used without the prior written consent of
 the copyright owner. To the best of its knowledge,
 austriamicrosystems.