

ANALOG PRODUCTS

MC33390 FACT SHEET



APPLICATIONS

- Robotic Systems
- Automotive Systems
- Farm Equipment
- Industrial Equipment
- Applications where Module-to-Module Communication is Required
- Marine and Aircraft Networks

33390 SERIAL LINK J-1850 BUS TRANSCEIVER

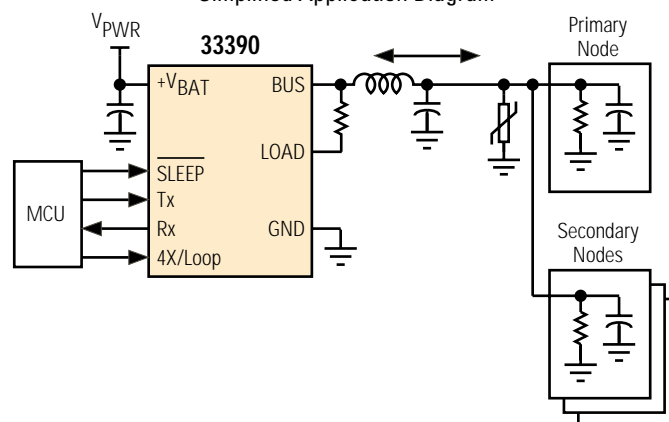
The 33390 is a serial link bus transceiver designed to provide bi-directional half-duplex communication meeting the automotive SAE Standard J-1850 Class B Data Communication Network Interface specification. It can be used at speeds up to 20 kB/s in non-standard applications. It is designed to interface directly to on-board vehicle microcontrollers and serves to transmit and receive data on a single-wire bus at data rates of 10.4 kB/s using variable pulse width modulation.

The 33390 operates directly from a vehicle's 12 V battery system and functions in a "true logic" fashion as an I/O interface shifting the microcontroller's 5.0 V CMOS logic level signals to 0 to 7.0 V waveshaped signal swings required of the bus. The bus output driver is short circuit current limited.

A tristateable 4X/loop mode select pin is used to invoke normal waveshaped J-1850 Class B operation (0 V), disabled waveshaped high-speed operation (5.0 V), or looped-back transmitted Tx output to Rx signal after having been waveshaped but not transmitted onto the bus (high impedance). The loop-back mode is used to confirm operational integrity independent of the bus.

Though the 33390 was designed for automotive SAE J-1850 Class B Standards, it is suited for other serial module-to-module communication applications.

Simplified Application Diagram



CUSTOMER BENEFITS

- Lower system cost with reduced part count with simple external hookup
- Industry-standard communication protocol
- Smaller system (reduced component count)
- Faster design cycle time


Performance

Performance	Typical Values
Bus Output	J-1850 $V_{P_{PWM}}$
Data Rate	to 20 kB/s
Operating Voltage	9.0 – 16 V
Sleep/Stdby Current	15 μ A
ESD	± 2000 V
Operating Temp	$-40^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$

FEATURES

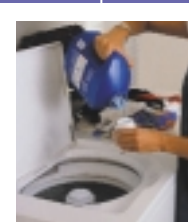
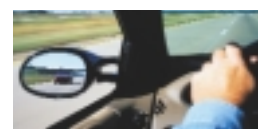
- Interfaces directly to standard 5.0 V CMOS microcontroller
- Off-bus loopback diagnostic feedback
- Controlled voltage and current waveshaping of bus drive (for radiated EMI reduction)
- Waveshaping can be disabled
- Additional devices available for comparison in Analog Selector Guide SG1002/D

Protection	Detect	Limiting	Shut Down	Auto Retry
Over Current/SC	•	•		
Over Temperature	•		•	•
Open GND	•		•	•

Ordering Information	Package	Ship Method	Motorola Part Number
	8 SOICN	Rail T/R	**33390D **33390DR2
Data Sheet Order Number			MC33390/D
Contact Sales for Evaluation Kit Availability			
**Prefix Index: PC = Eng Samples; XC = In Qual; MC = Production			

QUESTIONS

- What type of module communication protocol are you using?
- Do you need a robust half-duplex bi-directional communication between two modules?
- Do you need a communication bus with signal waveshaping for radiated noise reduction?
- Do you need a communication device that translates low-level 5.0 V microcontroller logic signals to and from a high-level communication bus?
- Do you need a communication system that meets the automotive SAE J-1850 Class B V_{PWM} Standard?



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