MC33399

Local Interconnect Network (LIN) Physical Interface

Applications

- Automotive systems
- Robotic systems
- Farm Equipment
- Industrial Controls
- Marine and Aircraft Networks

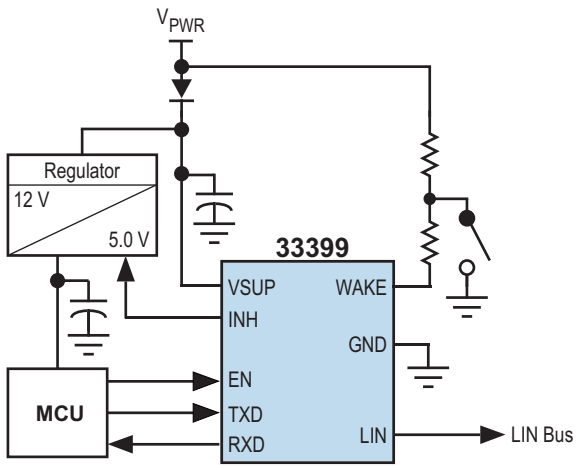
Overview

Local interconnect network (LIN) is a serial communication protocol designed to support automotive networks in conjunction with controller area network (CAN). As the lowest level of a hierarchical network, LIN enables cost-effective communication with sensors and actuators when all the features of CAN are not required.

The MC33399 is a physical layer component dedicated to automotive sub-bus applications. It offers communication speed from 1.0 kbps to 20 kbps, and up to 60 kbps for programming mode. It has two operating modes: Normal and Sleep.

The MC33399 supports LIN protocol specification 1.3.

MC33399 Simplified Application Drawing



Performance	Typical Values
Bus Output	LIN
Data Rate	1.0 kbps to 20 kbps
Operating Voltage	7.0 V to 18 V
Sleep Current	20 μA
ESD (HBM)	± 4000V
Ambient Operating Temperature	-40 °C ≤ T_A ≤ +125 °C
Junction Operating Temperature	-40 °C ≤ T_J ≤ +150 °C

Features

- Nominal operation from V_{SUP} 7.0 to 18 V DC, functional up to 27 V DC battery voltage and capable of handling 40 V during load dump
- Active bus waveshaping to minimize radiated emission
- ±5.0 kV ESD on LIN bus terminal, ±4.0 kV ESD on other terminals
- 30 kΩ internal pullup resistor
- Ground shift operation and ground disconnection Fail-safe at module level
- An unpowered node does not disturb the network
- Wake-up capability from LIN bus, MCU command and dedicated high voltage wake-up input (interface to external switch)
- Interface to MCU with CMOS-compatible I/O terminals
- Control of external voltage regulator

Benefits

- Lower system cost
- Industry standard communications protocol
- Smaller system (reduced components count)
- Faster design cycle time

Questions

- What type of module communication protocol are you using?
- Do you need a communication interface compliant with LIN specification?
- What is the maximum communication speed?
- What is the maximum supply current?
- Do you need wake-up function?

Protection

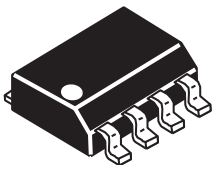
Protection	Detect	Shut Down	Limiting
Under-voltage	•	•	
Over-temperature	•	•	
Reverse Battery	•	•	•
Over-current	•		•
Unpowered Node	•	•	

Ordering Information

Part Number (for Tape and Reel, add an R2 suffix)	Temperature range (T_A)	Package
MC33399PEF	-40 °C ≤ T_A ≤ 125 °C	8 SOICN

Documentation

Document Number	Title	Description
MC33399	Data Sheet	Local Interconnect Network (LIN) Physical Interface
SG1002	Selector Guide	Analog Product Selector Guide
SG187	Selector Guide	Automotive Product Selector Guide



98ASB42564B
8-PIN SOICN

Learn More: For current information about Freescale products, please visit **www.freescale.com**.

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