MC33790

Two Channel Distributed System Interface (DSI) Physical Interface Device

Applications

- Simple Bus for Remote Control and Sensing
- Automotive, Aircraft, Marine, Industrial Control, and Safety Systems
- Heating and Air-Conditioning

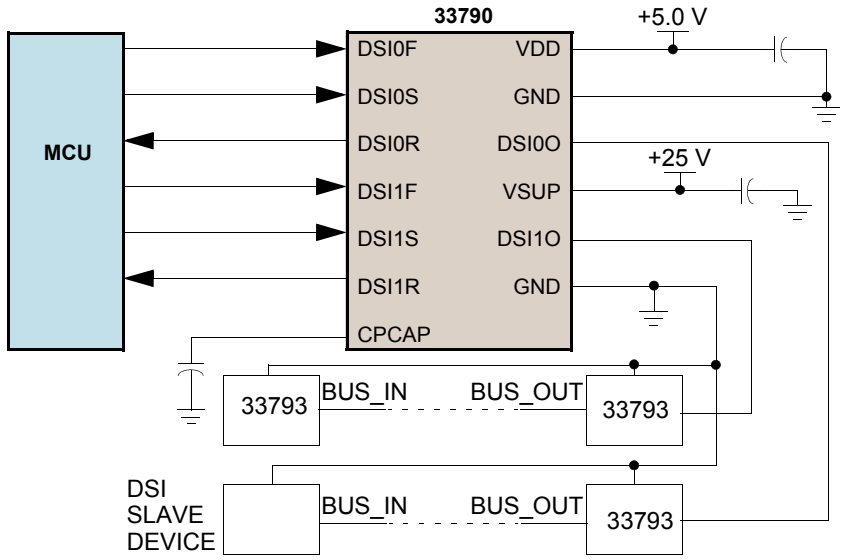
Overview

The 33790 is a dual channel physical layer interface IC for the Distributed Systems Interface (DSI) bus. It connects DSI masters to DSI slave sensors and actuators. It provides power to the slave sensors and actuators over the DSI bus and supports bi-directional communication between the slave and master ICs over this same bus wire.

When used with other DSI family parts, remote sensing and control can be easily and inexpensively accomplished. The Simplified Application Diagram shows how some of these parts can be used. Up to 30 remote devices can be supported by a single 33790.

An MCU can be utilized to interface to the 33790 through the MCU's 5.0 V I/O pins.

MC33790 Simplified Application Diagram



Performance	Typical Values
Operating Voltage	8.0 V – 25 V
Data Rate	5.0 kB/s – 150 kB/s
Bus $R_{DS(ON)}$	6.0 Ω
Bus Drive Current	150 mA/Channel
ESD	±2000 V
Operating Temperature	-40 °C ≤ T_A ≤ 85 °C

Features

- Two independent DSI compatible buses
- Wave-shaped bus output voltage
- Independent thermal shutdown and current limit
- Return signalling current detection
- Internal logic input pull-ups and pull-downs
- On-board charge pump
- Communications rate up to 150 kbps
- Pb-free packaging designated by suffix code EG

Customer Benefits

- Lower cost sensing and control system
- Bus carries both power and bi-directional communications
- No critical clock components needed
- Each part can handle up to 30 remote devices
- Controlled voltage slew rates reduce EMI

Questions

- Are you working with vehicular safety or sensing systems?
- Do you need an inexpensive way to remotely power, measure, and control things?

Protection

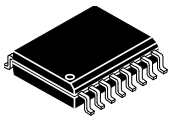
Protection	Detect	Limiting	Shut Down	Auto Retry
Over-current/SC	●	●	●	
Over-temperature	●		●	●

Ordering Information

Device	Temperature Range	Package
MC33790HEG/R2	-40 to 85°C	16 SOICW

Documentation	Description
MC33790	Data sheet order number
SG1002	Analog Product Selector Guide
SG 187	Automotive Product Selector Guide

16 SOICW



1.27 mm Pitch
10.3 mm x 7.5 mm Body

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

Document Number: MC33790FS REV. 5.0