

# MC33793

## Distributed System Interface (DSI) Sensor Interface

### Distributed Systems Interface Components

#### DESCRIPTION

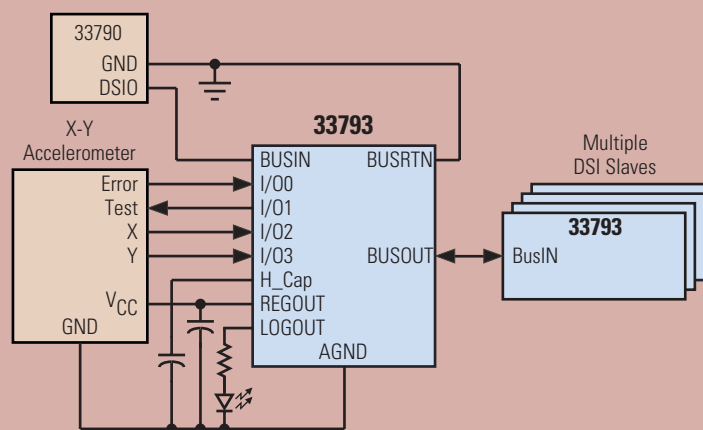
The 33793 is designed to be used with a sensor or actuator at a location that is remote from a centralized MCU. This device provides power, measurement, local logic I/O, and communications between the remote sensor and the centralized MCU over a DSI bus.

Sensors such as accelerometers can be powered from the regulated output of the device and the resulting analog value from the sensor can be converted by the 33793 from an analog level to a digital value for transmission over the DSI bus in response to a query from the MCU.

Four I/O lines can be configured by the central MCU over the DSI bus as analog inputs, digital inputs, or digital outputs. This allows more than one sensor to be remotely controlled and measured by a single 33793. Additionally, a high-drive logic output is provided that can be used to power other low-power sensors or indicators.

The 33793 can replace an MCU and its supporting hardware in remote measurement and control applications, resulting in a significant cost reduction.

#### 33793 SIMPLIFIED APPLICATION DIAGRAM



#### APPLICATIONS

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

#### PERFORMANCE

#### TYPICAL VALUES

Operating Voltage	7.0 – 30 V
Data Rate	5.0 k – 150 kB/s
Reg. Outputs	6.0 mA @ 5.0 V
Regulation	±5.0%
ESD	±2000 V
Operating Temperature	-40°C ≤ T <sub>A</sub> ≤ 85°C

## FEATURES

- Conforms to DSI specification version 1
- 4-channel, 8-bit Analog-to-Digital Converter (ADC)
- 4 pins configurable as analog or logic inputs or as logic outputs
- Provides regulated +5.0 V output for sensor power from bus
- Additional high-drive logic output
- Undervoltage fault detection and signaling
- On-board clock (no external elements required)
- Field-programmable address
- Default and field-programmable as a DSI daisy chain device
- Recognizes reverse initialization for open bus fault tolerance
- Detects short to battery on bus switch and prevents its closure
- Lead free package
- Devices available for comparison are in the Analog Product Selector Guide - SG1002, and Automotive Product Selector Guide - SG187.

PROTECTION	LIMITING	SHUT DOWN	ACTIVE PULL UP/DOWN
Under-voltage		●	
Over-current	LogOUT		
Open I/O Pins			●

## CUSTOMER BENEFITS

- Reduces cost of remote control and measurements
- Eliminates the need for a separate remote power source and wires

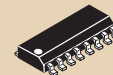
## QUESTIONS

- Are you working with vehicular safety systems?
- Do you need an inexpensive way to remotely power, measure, and control things?
- Are you currently using an MCU at remote locations to provide communications, control, and measurement? The DSI bus family of parts can do this with a single low-cost part and eliminate power supplies, software, and many support components at the remote location.

## ORDERING INFORMATION

Device	Temperature Range (T <sub>A</sub> )	Package
MCZ33793EF/R2	-40°C to 85°C	16 SOICN (Pb-free)
MCZ33793AEF/R2		
Data Sheet Order Number		MC33793

Contact Sales for Evaluation Kit Availability



16 SOICN  
1.27 mm Pitch  
9.9 mm x 3.9 mm Body