

MC33780

Dual DBUS Master with Differential Drive and Frequency Spreading

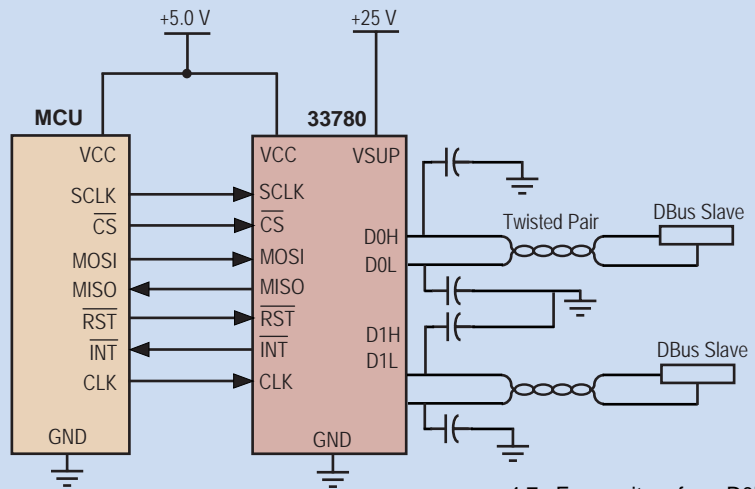
Distributed Systems Interface

DESCRIPTION

The 33780 is a master device for two differential DBUS buses. It contains the logic to interface the buses to a standard serial peripheral interface (SPI) port and the analog circuitry to drive data and power over the bus as well as receive data from the remote slave devices.

The differential mode of the 33780 generates lower electromagnetic interference (EMI) in situations where data rates and wiring make this a problem. Frequency spreading further reduces interference by spreading the energy across many channels, reducing the energy in any single channel.

33780 SIMPLIFIED APPLICATION DIAGRAM



4.7 nF capacitors from D0H, D0L, D1H and D1L to circuit ground are required for proper operation.

APPLICATIONS

- Sensor Bus for Automotive Airbag Systems
- Simple 2-Wire Bus for Remote Control and Sensing
- Automotive, Aircraft, Marine, and Industrial Control and Safety Systems
- Heating, Ventilation, and Air-Conditioning (HVAC)

PERFORMANCE

TYPICAL VALUES

Operating Range	9.0 – 25 V
Data Rate	5 kB/s – 150 kB/s
Bus Drive Current	200 mA/Channel
Operating Temperature	-40°C – 85°C
ESD (HBM)	±2000 V

FEATURES

- Two independent DBUS I/Os
- Common SPI interface for all operations
- Open-drain interrupt output with pullup
- Maskable interrupts for send and receive data status
- Automatic message Cyclical Redundancy Checking (CRC) generation and checking
- Four-stage transmit and receive buffers
- 8- to 16-bit messages with 0- to 8-bit CRC
- 16-terminal SOIC wide body package
- Independent frequency spreading for each channel
- Additional devices available for comparison in Analog Product Selector Guide, SG1002 and Automotive Products Selector Guide, SG187

PROTECTION	DETECT	LIMITING	SHUT DOWN	STATUS REPORTING
Overcurrent/SC	X	X	X	
Overtemperature	X		X	X
Overvoltage	X	X		

CUSTOMER BENEFITS

- Lower cost sensing and control system
- Bus carries both power and bi-direction communications
- No critical clock components needed
- Each part can handle up to 30 remote devices
- Simple Serial Peripheral Interface (SPI) interface
- EMI is minimizing through the use of controlled voltage slew rates, differential signaling, and spread-spectrum signaling

QUESTIONS

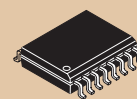
- Are you working with vehicular safety or sensing systems?
- Do you need an inexpensive way to remotely power, measure, and control timing?
- Do you need a fault-tolerant control and sensing bus?
- Would you like to use a remote sensor or control device without the need of a separate MCU and power supply at the remote site?

ORDERING INFORMATION

Device	Temperature Range (T _A)	Package
MC33780EG/R2	-40°C to 85°C	16 SOICW
MCZ33780EG/R2		

Data Sheet Order Number MC33780

Contact Sales for Evaluation Kit Availability



16 SOICW
1.27 mm Pitch
10.3 mm x 7.5 mm Body