

DALLAS

SEMICONDUCTOR

DS2480

Serial 1-Wire™ Line Driver

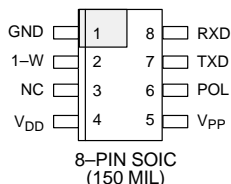
FEATURES

- Universal, common-ground serial port to 1-Wire™ line driver for MicroLAN™ applications
- Meets iButton™ and MicroLAN communication Standards
- Communicates at regular and Overdrive 1-Wire speed and serial port data rates of 9600 (default), 19200, 57600 and 115200 bps
- Supports 12V EPROM programming and stiff 5V pull-up for Crypto iButton, sensors and EEPROM
- Self-calibrating time base with +0/-3% tolerance for serial and 1-Wire communication
- Slow rate controlled 1-Wire pull-down and active pull-up to accommodate long lines and reduce radiation
- User-selectable RXD/TXD polarity minimizes component count when interfacing to 5V based RS232 systems or directly to UARTs
- Programmable 1-Wire timing and driver characteristics accommodate a wide range of MicroLAN configurations at regular speed
- Smart protocol combines data and control information without requiring extra pins
- Compatible to optical, IR and RF to RS232 converters
- Low cost 8-pin SOIC surface mount package
- Operates over 4.5V to 5.5V from -40°C to +85°C

DESCRIPTION

The DS2480 is a serial port to 1-Wire interface chip that supports standard and Overdrive speeds. It connects directly to UARTs and 5V RS232 systems. Interfacing to RS232C ($\pm 12V$ levels) requires a passive clamping circuit and one 5V to $\pm 12V$ level translator. Internal timers relieve the host of the burden of generating the time-critical 1-Wire communication waveforms. In contrast to the DS9097(E) where a full character must be sent by the host for each 1-Wire time slot, the DS2480 can translate each character into eight 1-Wire time slots thereby increasing the data throughput significantly. In addition, the DS2480 can be set to communicate at four different data rates including 115.2k bps, 57.6k bps and 19.2k bps with 9.6k bps being the power-on default.

PIN ASSIGNMENT



PIN DESCRIPTION

GND	Ground
1-W	1-Wire Input/Output
NC	No Connection
V _{DD}	4.5 to 5.5 Volts
V _{PP}	Optional EPROM Programming Voltage
POL	RXD/TXD Polarity Select
TXD	Serial Data from UART
RXD	Serial Data to UART

ORDERING INFORMATION

DS2480S	8-pin SOIC
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Command codes received from the host's crystal controlled UART serve as a reference to continuously calibrate the on-chip timing generator. The DS2480 uses a unique protocol that merges data and control information without requiring control pins. This approach maintains compatibility to off-the-shelf serial to wireless converters allowing easy realization of 1-Wire media jumpers. The various control functions of the DS2480 are optimized for MicroLAN 1-Wire networks and support the special needs of all current 1-Wire devices including the Crypto iButton, EPROM-based Add-Only Memories, EEPROM devices and 1-Wire Thermometers.