



**Figure 8-2. Transceiver plus VREG Functional Block Diagram**

## 8.3 Feature Description

### 8.3.1 LIN (Local Interconnect Network) Bus

This high voltage input or output pin is a single wire LIN bus transmitter and receiver. The LIN pin can survive transient voltages up to 58 V. Reverse currents from the LIN to supply ( $V_{SUP}$ ) are minimized with blocking diodes, even in the event of a ground shift or loss of supply ( $V_{SUP}$ ).

#### 8.3.1.1 LIN Transmitter Characteristics

The transmitter meets thresholds and AC parameters according to the LIN specification. The transmitter is a low side transistor with internal current limitation and thermal shutdown. During a thermal shutdown condition, the transmitter is disabled to protect the device. There is an internal pull-up resistor with a serial diode structure to  $V_{SUP}$ , so no external pull-up components are required for the LIN responder node applications. An external pull-up resistor and series diode to  $V_{SUP}$  must be added when the device is used for a commander node application. In fast mode, the transmitter can support 200 kbps data rates.

#### 8.3.1.2 LIN Receiver Characteristics

The receiver characteristic thresholds are ratiometric with the device supply pin according to the LIN specification.

The receiver is capable of receiving higher data rates (>100 kbps) than supported by LIN or SAEJ2602 specifications. This allows the TLIN1431x-Q1 to be used for high speed downloads at the end-of-line production or other applications. The actual data rate achievable depends on system time constants (bus capacitance and pull-up resistance) and driver characteristics used in the system. In fast mode the receiver can support 200 kbps.

#### 8.3.1.2.1 Termination

There is an internal pull-up resistor with a serial diode structure to  $V_{SUP}$ , so no external pull-up components are required for the LIN responder node applications. An external pull-up resistor (1 kΩ) and a series diode to  $V_{SUP}$  must be added when the device is used for commander node applications as per the LIN specification (ISO 17987-4).