



V6000 Product Brief

Version: 0.3
Release Date: November 21, 2016

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General Description

The V6000 is a receiver (RX) integrated line driver, providing a high-current capability for driving the low-impedance line applications. The fully-differential design can achieve a superior performance in terms of MTPR (Multi-Tone Power Ratio) at 16 V_{ppd} when 4 A peak current outputs. It also retains the bandwidth and the linearity while operates at single power supply of 9V~15V and temperature range of -40 °C ~ +85 °C.

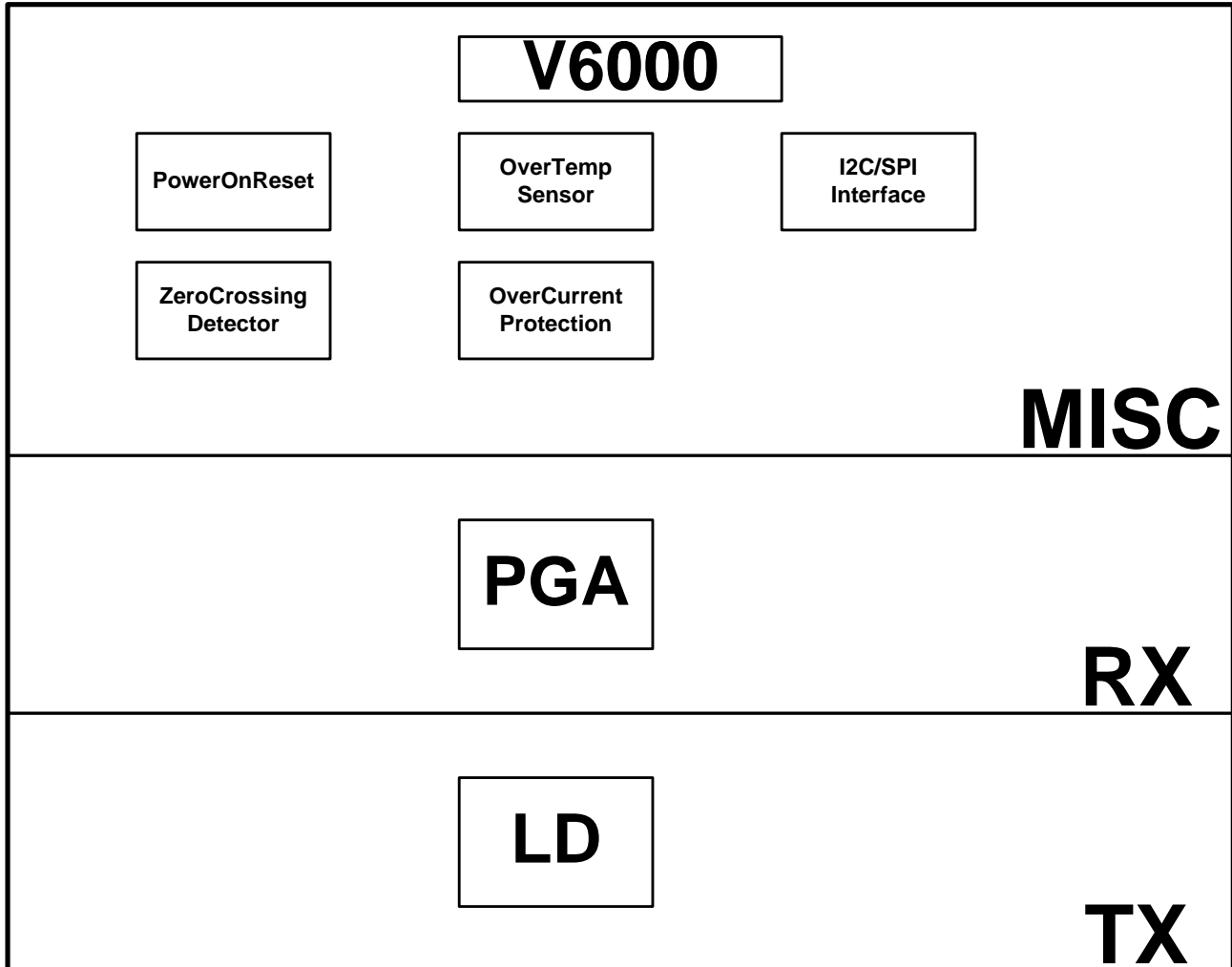
The V6000 contains a voltage-feedback TX amplifier and a programmable RX gain amplifier. Both of the amplifiers are designed to deal with the high-swing signal. The V6000 is protected against Over Temperature (OT) and Over Current (OC) by the built-in sensor. An internal-forced shutdown signal can be used to set the device back to the initial state. Besides, the OC condition can be avoided once the alarm alerts and is fed into the signal source. Via the SPI/I²C interface, the V6000 can be fully-controlled and optimized by firmware configuration.

The V6000 is housed in a thermally-enhanced 40-pin QFN package.

Features

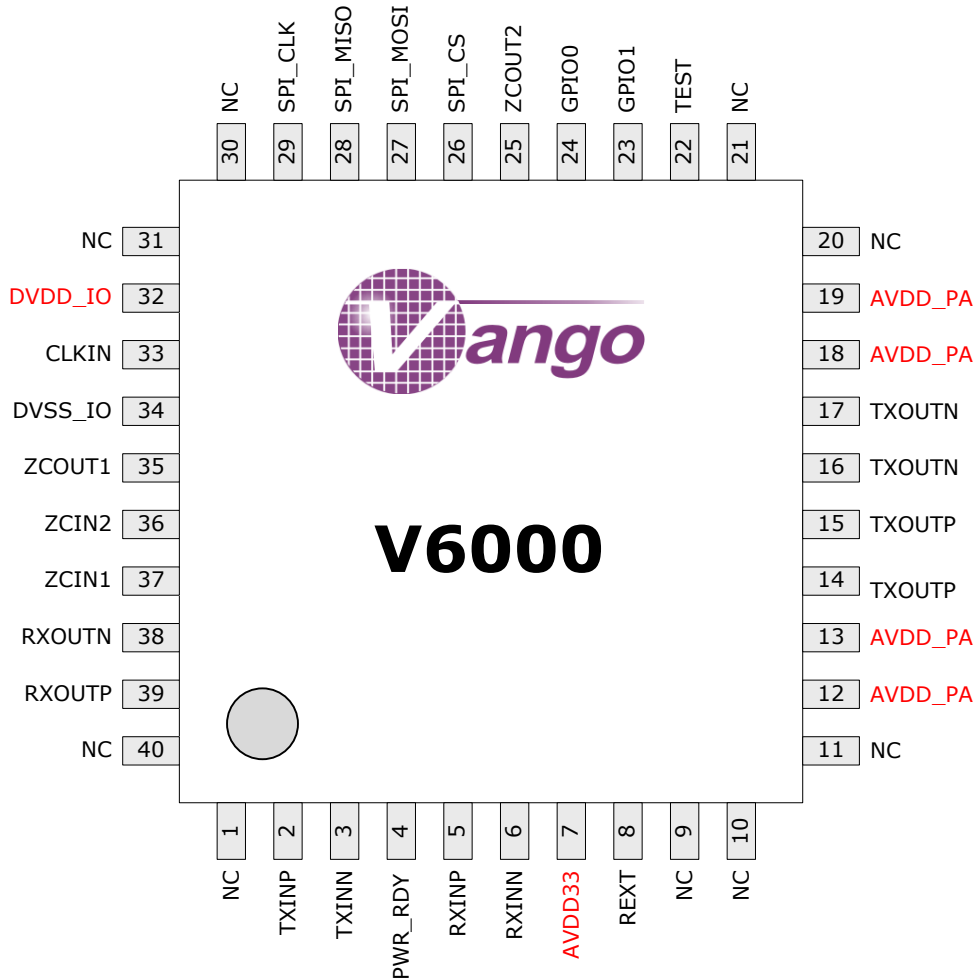
- Supporting 4 A output driving capability
- Accurate thermal sensor for Over Temperature (OT) protection
- Supporting built-in Over Current (OC) protection
- Programmable TX and RX gain
- Single power supply range: 9V ~ 15V
- 28 V_{ppd} output under 18 V power supply
- Zero-crossing detectors
- Supporting I²C/SPI control interface
- Package: 40-pin QFN EPAD
- Operating temperature: -40 °C ~ +85 °C
- Applications: Power Line Communication (PLC)

System Block Diagram



Pin Assignments

40-pin QFN



NOTE: The exposed thermal pad is connected to the ground.

Pin Descriptions

(Pin type: "O"=Output, "I"= Input, "P"=Power, "G"=Ground)

No.	Mnemonic	Type	Description
1	NC		NC
2	TXINP	I	Line driver differential positive input
3	TXINN	I	Line driver differential negative input
4	PWR_RDY	O	Power ready signal output
5	RXINP	I	Receiver amplifier differential positive input
6	RXINN	I	Receiver amplifier differential negative input
7	AVDD33	P	Analog 3.3 V power
8	REXT	I/O	For external resistor connection
9	NC		NC
10	NC		NC
11	NC		NC
12	AVDD_PA	P	Line driver high-voltage power
13	AVDD_PA	P	Line driver high-voltage power
14	TXOUTP	O	Line driver differential positive output
15	TXOUTP	O	Line driver differential positive output
16	TXOUTN	O	Line driver differential negative output
17	TXOUTN	O	Line driver differential negative output
18	AVDD_PA	P	Line driver high-voltage power
19	AVDD_PA	P	Line driver high-voltage power
20	NC		NC
21	NC		NC
22	TEST		For test only
23	GPI01	O	General purpose output 1
24	GPI00	O	General purpose output 0
25	ZCOUT2	O	Zero-crossing detector2 output
26	SPI_CS	I	SPI chip select input. Used as I2C_SCL in proprietary I ² C mode

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Power Line Communication Driver

No.	Mnemonic	Type	Description
27	SPI_MOSI	I	SPI slave input
28	SPI_MISO	I/O	SPI slave output. Used as I2C_SDA in proprietary I ² C mode
29	SPI_CLK	I	SPI clock input
30	NC		NC
31	NC		NC
32	DVDD_IO	P	IO 3.3 V power
33	CLKIN	I	24 MHz clock input
34	DVSS_IO	G	IO 3.3 V ground
35	ZCOUT1	O	Zero-crossing detector1 output
36	ZCIN2	I	Zero-crossing detector2 input
37	ZCIN1	I	Zero-crossing detector1 input
38	RXOUTN	O	Receiver amplifier differential negative output
39	RXOUTP	O	Receiver amplifier differential positive output
40	NC		NC

