ZB2530UPA-A Module Datasheet V1.0

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CONTENTS

Module Name Information

ZB	-	2530	-	U	-	PA	-	A
↓		↓		↓				↓
Module Type: ZigBee		Chip Number: CC2530		Antenna Type : U=UFL UFL Antenna		Power Amplifier		Hardware Revision:

Description

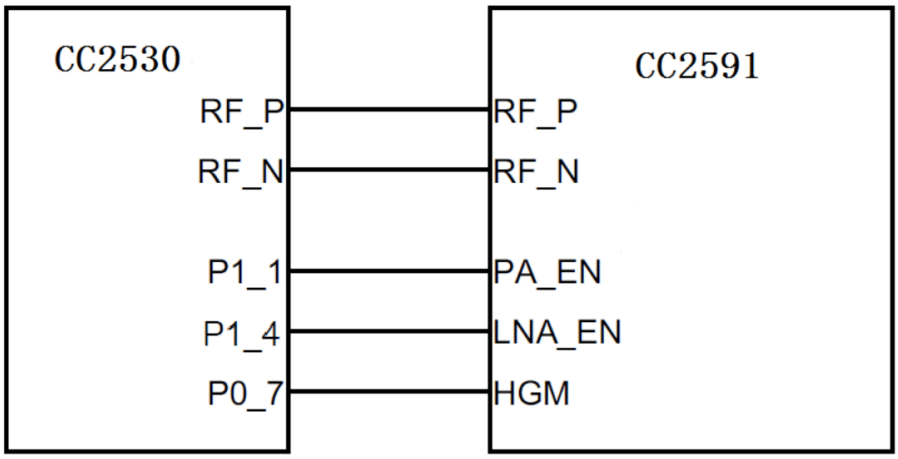
The CC2530 is TI's second generation ZigBee® / IEEE 802.15.4 RF System-on-Chip (SoC) for the 2.4 GHz unlicensed ISM band. This chip enables industrial grade applications by offering state-of-theart selectivity/co-existence, excellent link budget, and low voltage operation. The CC2531 is identical to the CC2530 with the addition of an USB interface.

CC2591 is a range extender for 2.4-GHz RF transceivers, transmitters and SoC products from Texas Instruments. CC2591 increases the link budget by providing a Power Amplifier (PA) for higher output power and a Low Noise Amplifier (LNA) for improved receiver sensitivity. CC2591 further contains RF switches, RF matching, and a balun for a seamless interface with the CC2530. This allows for simple design of high performance wireless applications.

This application note describes how to implement the CC2530 and the CC2591 in the same design. It further describes the expected performance from this combination as well as important factors to consider with respect to the layout and regulatory requirements. The combined CC2530 and CC2591 solution is suitable for systems targeting compliance with FCC CFR47 Part 15.

The RF front end of CC2530 is the same as the ones being used in CC2531. The presented results in this application note are therefore also valid for CC2531.

Functional Block Diagram



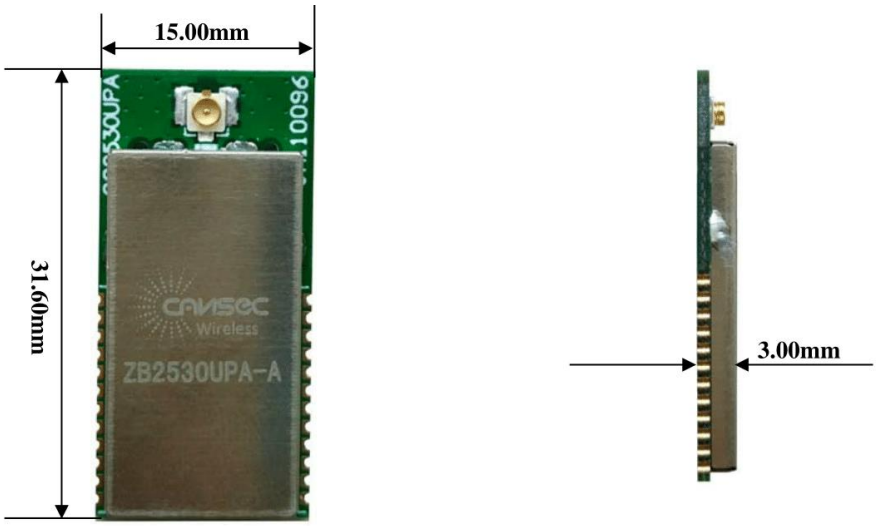
Control Logic for connecting the CC2591 to a CC2530 Device

There are four digital control pins (PAEN, EN, HGM, and RXTX) on the CC2591 controls the state the chip is in. Table below shows the control logic when connecting the CC2591 to a CC2530 device.

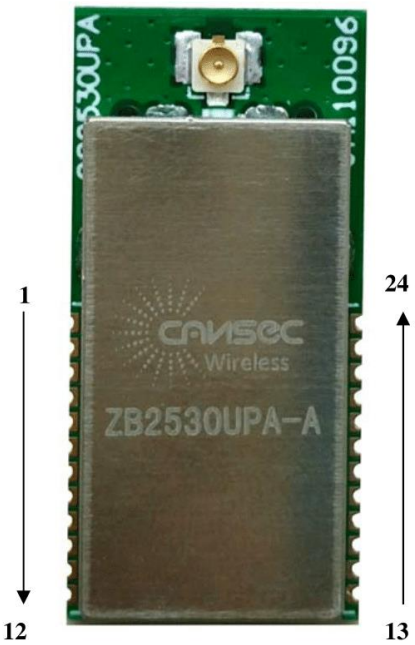
PAEN	EN	RXTX	HGM	Mode of Operation
0	0	NC	X	Power Down
0	1	NC	0	RX LGM
0	1	NC	1	RX HGM
1	0	NC	X	TX
1	1	NC	X	Not Allowed

Mechanical Drawing

Tolerance: ±0.2mm



Terminal Description



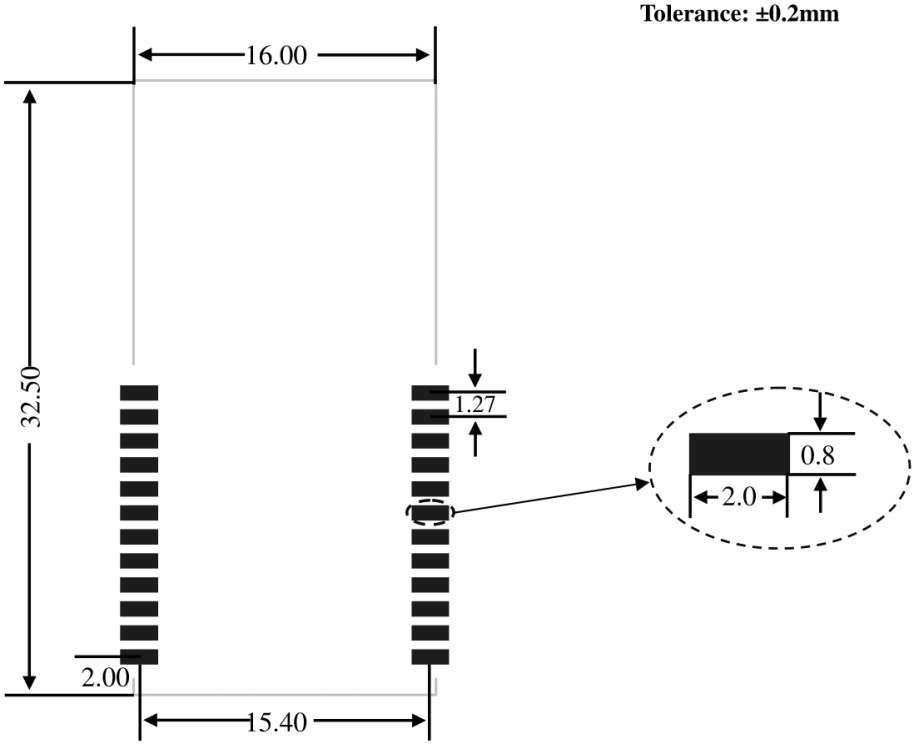
Pad Number	Name	Description	Pin Type
1	P2_2	Port 2.2	Digital I/O
2	P2_1	Port 2.1	Digital I/O
3	P2_0	Port 2.0	Digital I/O
4	P1_7	Port 1.7	Digital I/O
5	P1_6	Port 1.6	Digital I/O
6	P1_5	Port 1.5	Digital I/O
7	P1_4	Port 1.4	Digital I/O
8	P1_3	Port 1.3	Digital I/O
9	P1_2	Port 1.2	Digital I/O
10	P1_1	Port 1.1 – 20-mA drive capability	Digital I/O
11	P1_0	Port 1.0 – 20-mA drive capability	Digital I/O
12	P0_7	Port 0.7	Digital I/O
13	GND	The ground pad must be connected to a solid ground plane.	Ground Pin
14	GND	The ground pad must be connected to a solid ground plane.	Ground Pin
15	P0_6	Port 0.6	Digital I/O
16	P0_5	Port 0.5	Digital I/O
17	P0_4	Port 0.4	Digital I/O
18	P0_3	Port 0.3	Digital I/O
19	P0_2	Port 0.2	Digital I/O
20	P0_1	Port 0.1	Digital I/O
21	P0_0	Port 0.0	Digital I/O
22	RESET_N	Reset, active-low	Digital input
23	VDD	2-V–3.6-V digital power-supply connection	Power
24	VDD	2-V–3.6-V digital power-supply connection	Power

Specifications

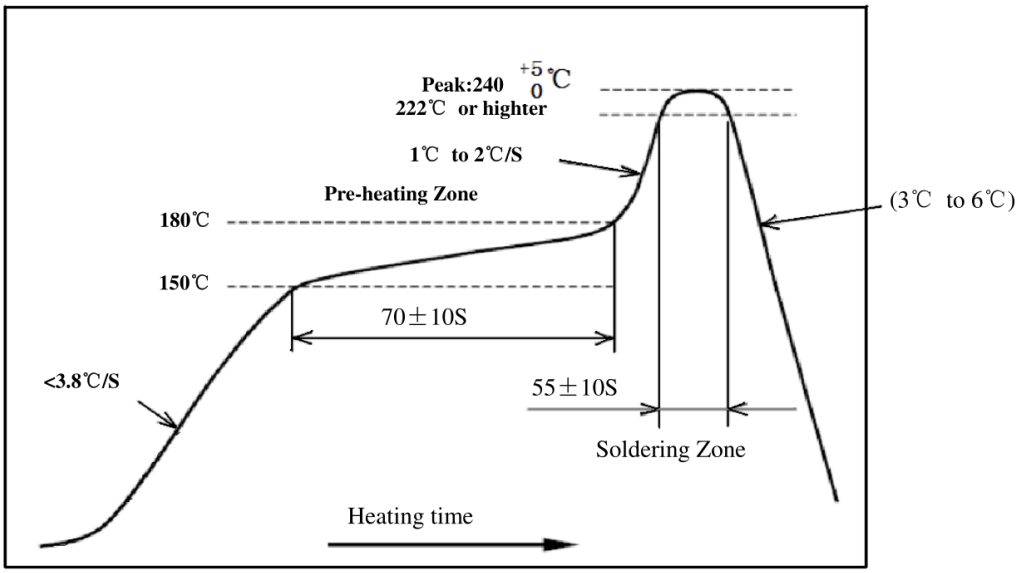
Parameter	Min	Max	Unit
Operating Voltage	2.0	3.6	V
TX Power	-	20	dBm
RX Sensitivity	-	-97	dBm
Standby Current	-	2.5	uA
Operating Frequency	2405	2483.5	MHz
Operating Temperature	-30	85	℃

Recommended PCB Layout for Package

Unit: mm
Tolerance: ±0.2mm



Soldering Recommendations



Contact details

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