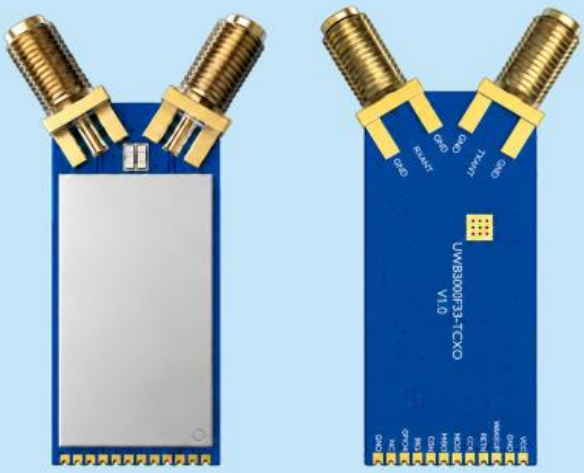
UWB3000F33

- High Output Power: 2W @ CH5, 0.6W @ CH9
- Built-in 0.5 ppm TCXO
- Built-in LAN with up to 14 dB gain
- Ultra-Long Communication Range: Up to 4 km @ CH5 and 1.7 km @ CH9 in open areas.

Product Specifications



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Note: Revision History

Revision	Date	Comment
V1.0	2026-11	1st Release

1. Production Description

UWB3000F33 is based on Qorvo's DW3000 UWB chip and features an integrated 2W high-power amplifier (PA). It complies with the IEEE 802.15.4-2020 standard and supports Two-Way Ranging (TWR) and Time Difference of Arrival (TDoA) positioning systems, delivering positioning accuracy of up to 10 cm.

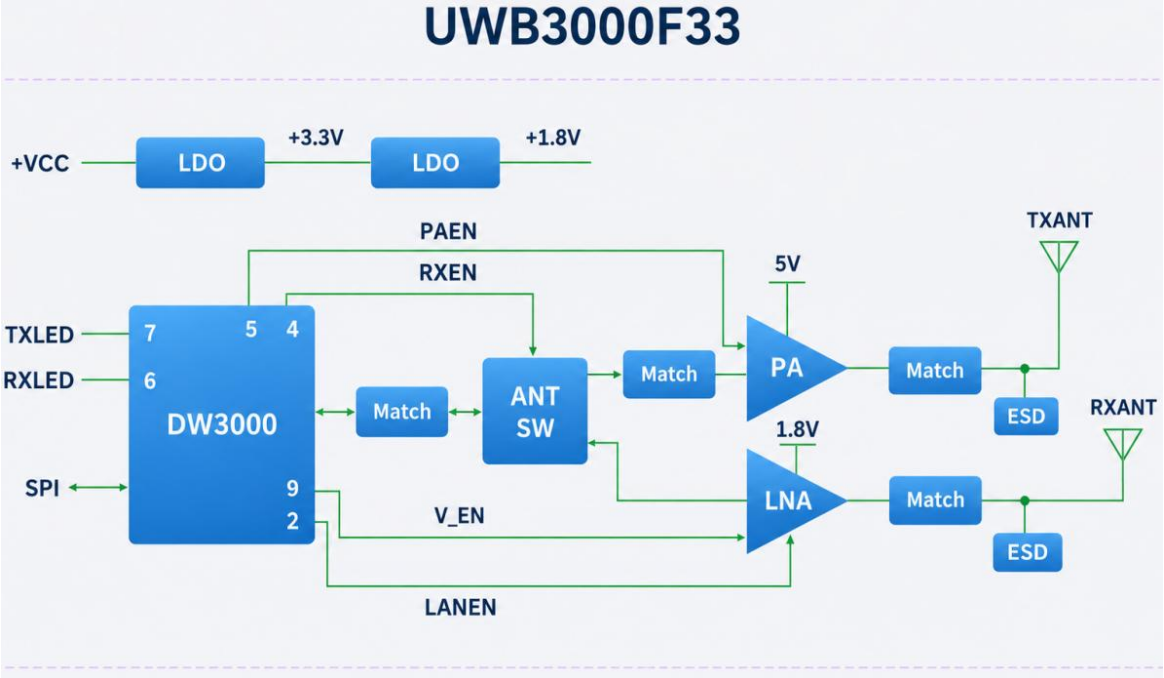
2. Feature

- IEEE802.15.4-2020 UWB
- Supports channels 5 (6489.6 MHz) and Channel 9 (7987.2MHz)
- Data rates of 850 kbps and 6.8 Mbps
- Packet length up to 1023 bytes
- Supports 2-way ranging, TDoA location
- Programmable output power
- Provides precision location and data transfer simultaneously
- Asset location to an accuracy of 10 cm
- Long distance communication and ranging

3. Applications

- Precision real time location systems (RTLS) using two-way ranging, TDoA schemes in a variety of markets: Healthcare\ Consumer\ Industrial\ Automotive
- Location aware wireless sensor networks
- Presence detection for secure entry and secure payment

4. Block Diagram

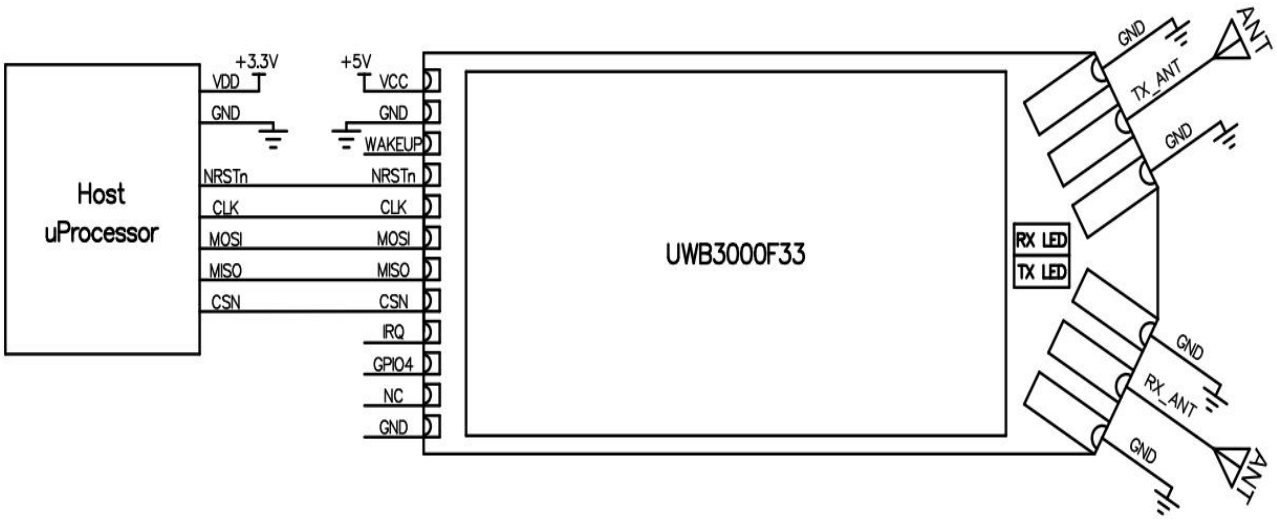


Note: To use our reference code, the internal GPIO has a transceiver switch with antenna switch and power amplifier.

5. Parameters

Parameter	Condition	Min.	Typ.	Max.	Unit
Supply Voltage		3.0	5.0	5.5	V
Operating Temperature Range		- 40	25	85	℃
Frequency Range	CH5		6489.6		MHz
	CH9		7987.2		MHz
RF Data Rate		850k		6.8M	bps
Current Consumption					
Sleep Mode			< 1.5		uA
Rx			74		mA
Tx	CH5		850		mA
	CH9		800		mA
TX current for range measurement	Peak Current		850		mA
	Average Current		21		mA
Transmit parameters					
Tx Power	@VCC=5V,CH5	31.5	33	34	dBm
	@VCC=5V,CH9	26.5	28	29	dBm
Adjustable Transmit Power Range	@VCC=5V,CH5	2		33	dBm
	@VCC=5V,CH9	0		29	dBm
Tx Bandwidth（BW)			499.2		MHz
Receive parameters					
Rx Sensitivity	@850Kbps		-100		dBm
	@6.8Mbps		-94		dBm

6. Typical Application Circuit



7. Power and current comparison table (Vcc=5.0V pure carrier emission)

➢ Operating Voltage, Output Power and Current Consumption Table

Operating Voltage (V)	Output Power (dBm) @CH5	Current (mA)	Output Power(dBm) @CH9	Current (mA)
3.3	28.9	866	26.0	827
3.6	29.8	987	26.9	925
4.0	30.9	1100	27.5	975
4.5	31.9	1200	27.9	981
5.0	32.7	1300	28.1	983

➢ Register Configuration, Output Power and Current Consumption Table

Register	Output power @CH5	Current (mA)	Output power @CH9	Current (mA)
0x00	2.8 dBm	340	0.5 dBm	353
0x04	5.8 dBm	344	1.5 dBm	354
0x06	9.6 dBm	387	5.3 dBm	377
0x14	12.5 dBm	410	7.7 dBm	365
0x18	16.7 dBm	430	8.9 dBm	377
0x20	19.1dBm	457	10.7 dBm	382
0x30	22.8 dBm	535	14.0 dBm	411
0x48	26.1dBm	668	17.3 dBm	464
0x7C	29.6 dBm	917	21.6 dBm	592
0xFC	32.5 dBm	1150	25.7 dBm	804
0xFF	33.1 dBm	1330	28.1 dBm	990

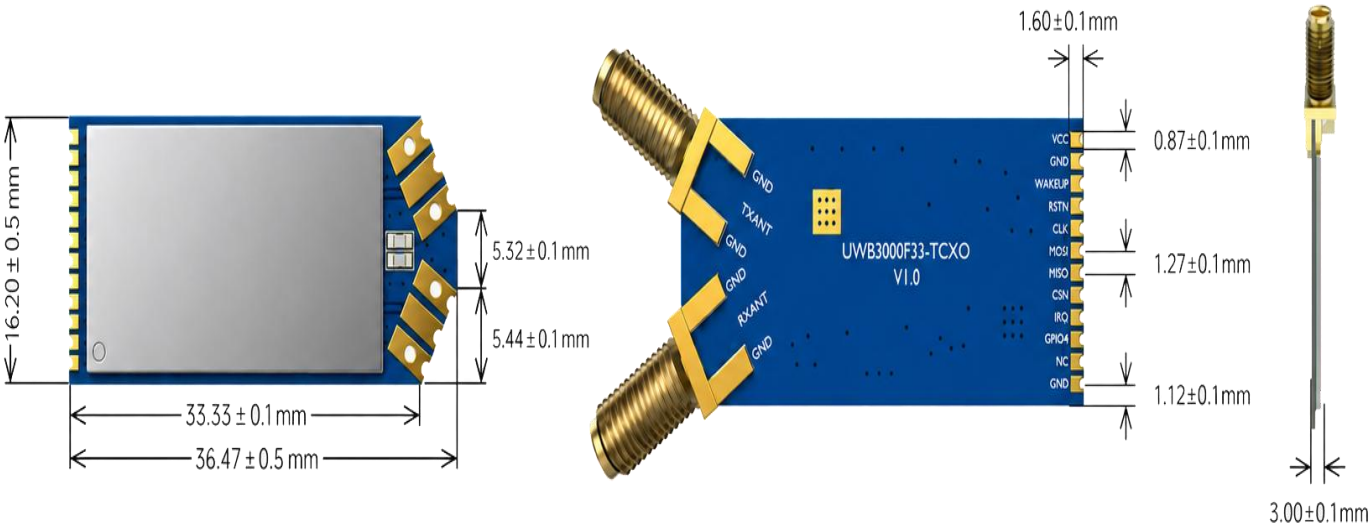
8. Pin Definition



Pin No.	Pin definition	I/O	Level	Description
1	VCC			VCC (3.0-5.5V)
2,12,13, 15,16,18	GND			Ground
3	WAKEUP	DI	0-3.3v	When asserted into its active high state, the WAKEUP pin brings the DW3000 out of SLEEP or DEEPSLEEP states into operational mode. This should be connected to ground if not used.

4	NRSTn	DIO	0-3.3v	Reset pin. Active Low Output. May be pulled low by external open drain driver to reset the DW3000. Must not be pulled high by external source.
5	CLK	DI	0-3.3v	SPI peripheral clock input.
6	MOSI	DI	0-3.3v	SPI peripheral data input.
7	MISO	DO	0-3.3v	SPI peripheral data output.
8	CSN	DI	0-3.3v	SPI chip select. This is an active low enable input. The high-to-low transition on SPICSn signals the start of a new SPI transaction. SPICSn can also act as a wake-up signal to bring DW3000 out of either SLEEP or DEEPSLEEP states.
9	IRQ	DI	0-3.3v	Interrupt request output from the DW3000 to the host processor. By default IRQ is an active-high output but may be configured to be active low if required. For correct operation in SLEEP and DEEPSLEEP modes it should be configured for active high operation. This pin will float in SLEEP and DEEPSLEEP states and may cause spurious interrupts on the host unless pulled low externally (100kΩ recommended). When the IRQ functionality is not being used the pin may be reconfigured as a general purpose I/O line2 , GPIO8.
10	GPIO4	DIO	0-3.3v	GPIO4 from DW3000.
11	NC			
14	RXANT			RF Input, Connect to an External 50 Ω Antenna
17	TXANT			RF Output, Connect to an External 50 Ω Antenna

9. Dimension (Unit： mm)



Appendix：Reflow Chart for SMT Technology

