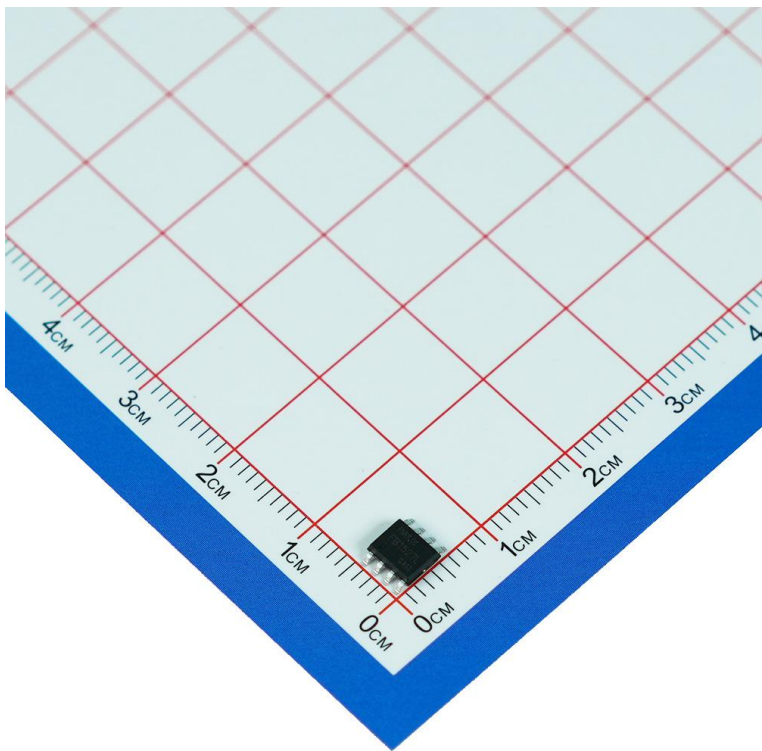




LBT17 Transmitter IC Datasheet



Item	Details
Product Model	LBT17
Document Version	V1.7
Release Date	2026-07-29
Brand	FNRF



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1 Product Overview

The LBT17 is an ASK/OOK wireless transmitter IC with integrated FB1527 digital encoding. Transmission is triggered through K0-K3 key inputs, making it suitable for remote-control transmitters, wireless switches, doorbells, alarm triggers, and low-power remote-control terminals.

2 Key Features

- Available operating frequencies: 433.92 MHz.
- Operating voltage: 2.0-5.5 V; typical operating voltage: 3.0 V.
- Integrated FB1527 digital encoding with one million address-code combinations.
- Supports four K0-K3 key inputs and combined key values.
- Typical transmit power: 14.5 dBm; output power reaches 17 dBm at 5 V.
- Standby current: 0 μ A; suitable for battery-powered remote controls.
- Accidental-trigger protection (power off after a 10-second long press).
- ESD rating: 6 kV.
- SOP-8 package.

3 Typical Applications

- Remote Controls and Wireless Keys
- Wireless Doorbells and Wireless Switches
- Home-Appliance and Smart-Home Remote Control
- Toys and Small Remote-Control Terminals
- Alarm Triggering and Low-Rate Control-Signal Transmission



4 Technical Specifications

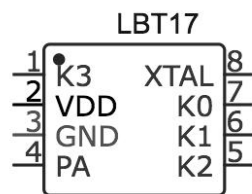
Parameter	Symbol	Condition	Minimum	Typical	Maximum	Unit
Operating Voltage	VDD	-	2.0	3.0	5.5	V
Operating Current	ION	315 MHz, POUT=14 dBm	-	8	-	mA
Operating Current	ION	433.92 MHz, POUT=14 dBm	-	8	-	mA
Standby Current	IOFF	315 MHz	-	-	0	uA
Standby Current	IOFF	433.92 MHz	-	-	0	uA
Operating Frequency	FRF	-	310	433.92	450	MHz
Output Power	POUT	315 MHz / 433.92 MHz	-	14.5	-	dBm
Output Power	POUT	VDD=5 V	-	-	17	dBm
Shutdown Delay	TOFF	-	-	1.4	2.0	ms
Default Minimum Pulse Width	-	4CLK	-	370	-	us
Modulation	-	-	-	ASK/OOK	-	-
Encoding	-	-	-	FB1527	-	-



5 Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Supply Voltage Range	VDD	-2.0	5.5	V
I/O Pin Voltage	VIO	-	VDD+0.3	V
Operating Temperature Range	TA	-40	120	°C
Storage Temperature Range	TSTG	-40	150	°C
ESD Rating	VESD	-	6	kV

6 Pin Assignment

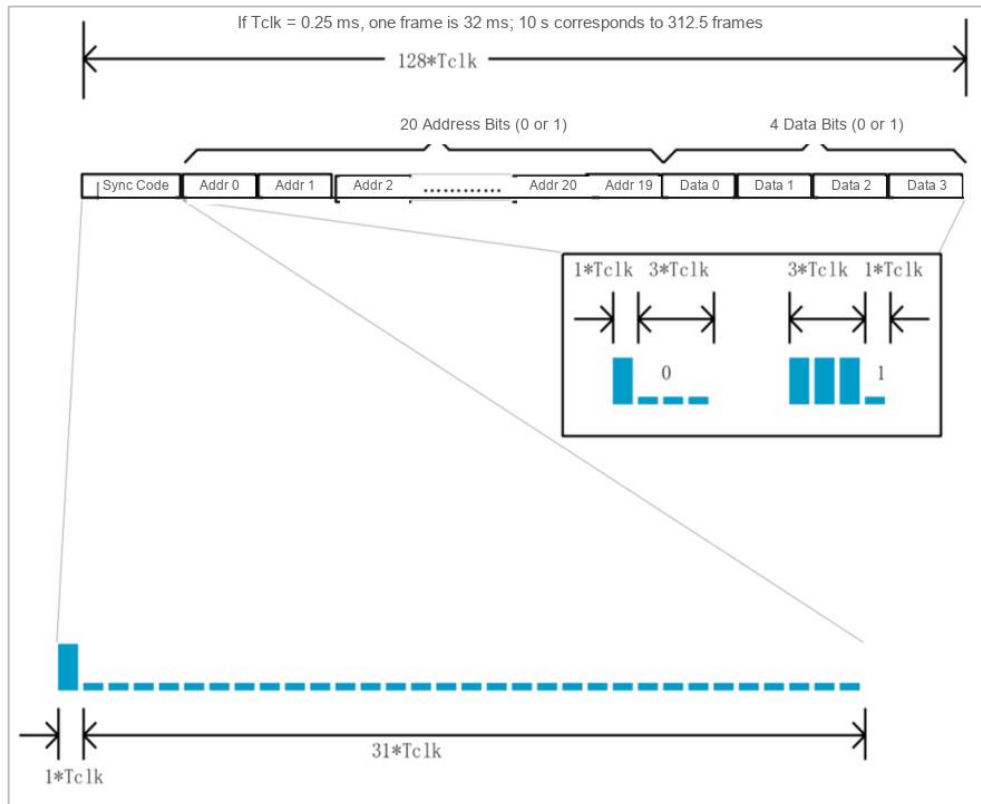


Pin Number	Pin Name	Function	Description
1	K3	Key / LED	Ground-triggered transmission; default key value: 1.
2	VDD	Positive Supply	Typical: 3.0 V.
3	GND	Power Ground	System ground.
4	PA	RF Output	Connect to the matching network and antenna.
5	K2	Key Input	Ground-triggered transmission; default key value: 2.
6	K1	Key Input	Ground-triggered transmission; default key value: 4.
7	K0	Key Input	Ground-triggered transmission; default key value: 8.
8	XTAL	Crystal	Use an external crystal or configure according to the reference circuit.



7 Encoding and Key Values

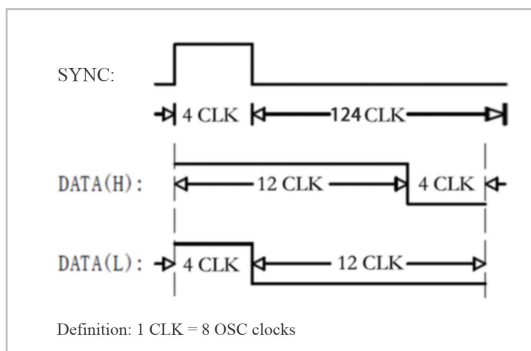
Uses FB1527 encoding: 20 address bits + 4 key-value bits.



Pulse-Width Description:



The middle portion of the figure above is one complete data frame. Its most distinctive feature is the widest section, commonly called the synchronization pulse. The short pulses between two synchronization pulses are the code to be decoded. The high level between two synchronization headers is 25 bits, of which the final 1 bit belongs to the next synchronization header; only the 24 bits in between need to be decoded.



Default minimum pulse width (4CLK): 370 us; customizable.

Key Values:

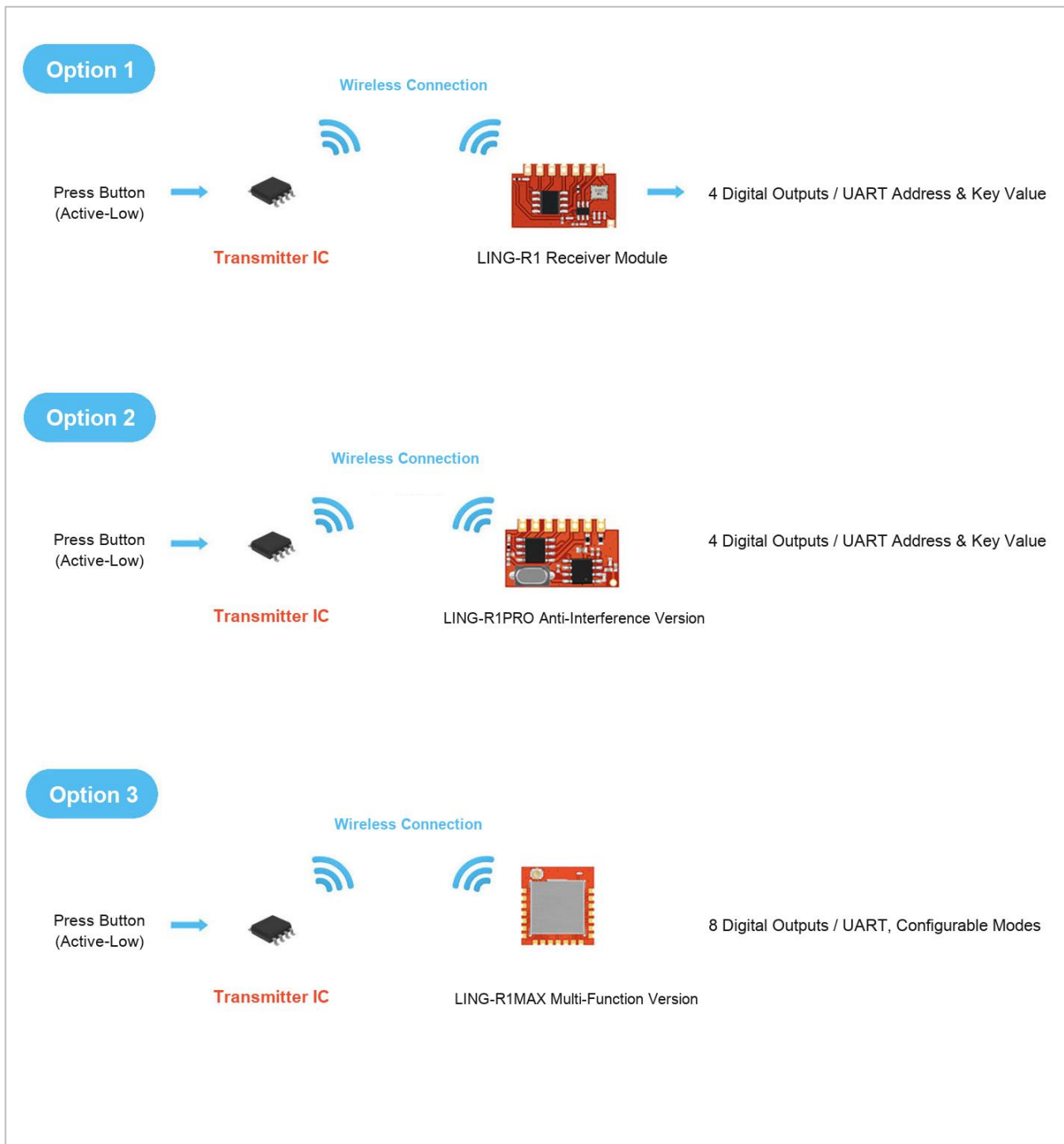
Key	Hexadecimal
K0	0x08
K1	0x04
K2	0x02
K3	0x01
K1+K3	0x09
K1+K2	0x0E
K0+K3	0x0C
K0+K2	0x06
K0+K1	0x0A
K2+K3	0x05

Key values can be viewed with the development assistant:



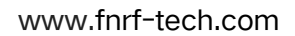


8 Usage



The LBT17 K0-K3 key inputs are ground-triggered. After a key is activated, the IC outputs an ASK/OOK RF signal encoded by the internal FB1527 encoder; the PA pin connects to the antenna through the matching network for transmission.

The IC is suitable for low-rate remote control and status triggering; it is not suitable for continuous high-speed data transmission or bidirectional communication links.



(R3 and C6 are antenna-matching components; footprints are reserved. Crystal: 10 ppm/20 pF.)



10 Power Supply Design Recommendations

- Place a 0.1 μ F decoupling capacitor close to VDD. Battery-powered products may add bulk capacitance of an appropriate value.
- Transmit-time current is approximately 8 mA. Verify the VDD waveform at the minimum battery voltage, maximum key-press duration, and actual load condition.
- Keep power traces short and wide with a continuous GND return; prevent key traces, LED traces, or load current from affecting the RF transmit ground reference.

11 PCB and EMC Recommendations

- Keep the PA-to-matching-network-and-antenna trace short, straight, and continuous; avoid crossing split ground or routing near high-noise signals.
- K0-K3 key traces should not be excessively long. For external harnesses, add filtering or protection according to ESD and accidental-trigger requirements.
- Keep DC-DC converters, motors, relays, buzzers, and high-frequency clocks away from the PA, matching network, and antenna area.
- Before volume production, perform repeated trigger tests with the actual enclosure, actual battery, and target distance.

12 Antenna and RF Matching Recommendations

Connect the PA pin to the antenna through a matching network for the applicable band. Antenna length, matching parameters, and complete-product structure differ between 315 MHz and 433.92 MHz, so tune each target band separately during design.

No antenna or an unmatched antenna can seriously affect communication distance or even damage the product. Keep the antenna area away from metal enclosures, batteries, large copper areas, and strong interference sources; re-verify communication distance and stability after complete-product assembly.



13 Ordering and Technical Support

Technical documentation, configuration software, and test tools are available from the FNRF Wireless website:

WWW.FNRF-TECH.COM



Appendix Antennas、Development Tools

Antennas are important. No antenna or an unmatched antenna can seriously affect performance. Actual performance also depends on the PCB, enclosure, and mechanical structure; purchase several types for practical testing.

TT02		433MHz	27.5mm*5.0mm
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Development Tools:

Development Assistant	Signal Assistant
	
Difference: 1、Measures data values 2、Requires an encoding type (1527, etc.)	Difference: 1、Measures signal strength 2、No encoding restriction (ASK/OOK modulation)
Use: 1、Displays the address code and key value of a remote control/transmitter module 2、Displays remote-control frequency, pulse width, and encoding type 3、Volume testing of remote-control products	Use: 1. Displays signal strength of a remote control/transmitter module (relative value) 2. Compares antenna performance 3. Volume testing of remote-control products
Power Supply: TYPE-C	Power Supply: TYPE-C