

Typical Applications

- Remote Keyless Entry
- Remote Monitoring
- Wireless Security Systems
- Remote Controls

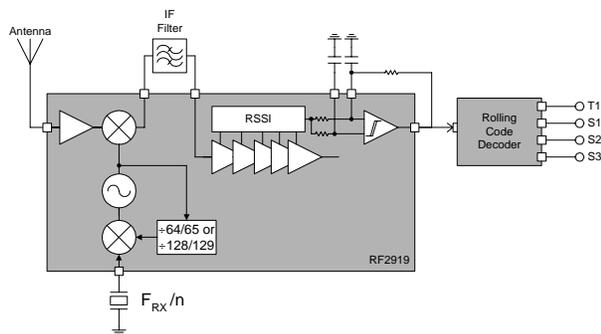
Product Description

The DK1001R is the receiver half of our remote keyless entry system evaluation kit. It is designed to allow the user to easily and quickly demonstrate the operation of the RF2919 in a typical application. Everything needed to demonstrate a one way receiver is included. The RF2919 is setup to demonstrate a typical keyless entry system using a rolling code decoder while operating at 433MHz. A battery is included and the antenna is printed on the circuit board. This unit is designed to work with the mating transmitter, DK1001T.



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|--|-----------------------------------|--------------------------------------|
| <input type="checkbox"/> Si BJT                | <input type="checkbox"/> GaAs HBT | <input type="checkbox"/> GaAs MESFET |
| <input checked="" type="checkbox"/> Si Bi-CMOS | <input type="checkbox"/> SiGe HBT | <input type="checkbox"/> Si CMOS     |



Functional Block Diagram

Features

- Complete Receiver
- Programmable Rolling Code Decoder
- LED and Buzzer Indicators
- Mates with DK1001T Transmitter
- Battery and Antenna

Ordering Information

DK1001R	433MHz Remote Keyless Entry Receiver
DK1001R	Available only as part of the DK1001 Reference Design Kit

RF Micro Devices, Inc.  
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<http://www.rfmd.com>

# DK1001R

## Absolute Maximum Ratings

Parameter	Ratings	Unit
Supply Voltage	3.3 to 9.0	V <sub>DC</sub>
Input RF Level	+10	dBm
Output Load VSWR	50:1	
Operating Ambient Temperature	-40 to +85	°C
Storage Temperature	-40 to +150	°C



**Caution!** ESD sensitive device.

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Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
<b>Overall</b>					T=25 °C, V <sub>CC</sub> =3.3V (regulated), Freq=433MHz
RF Frequency Range		433		MHz	
Reference Frequency		6.6128		MHz	
RX Sensitivity	-100	-104		dBm	
LO Leakage			-70	dBm	
<b>Power Supply</b>					9V to 3.3V regulated supply
Voltage	3.3		9.0	V	
Current Consumption	9.0	13.0	20.0	mA	

## DK1001R Theory of Operation and Application Information

The 9V battery is installed in the back of the receiver by sliding open the battery door located below the moveable stand. The battery is clipped into the connector provided, placed in the compartment, and the battery door replaced. The receiver is activated by moving the small lever switch to the "ON" position. The power switch may be accessed through an opening in the clear cover on the front of the receiver with a small tool. When the receiver is turned on the LED marked "POWER" will be illuminated. Turning the receiver off when not in use will extend battery life.

### OPERATION

The receiver is operated by first turning on the power as described previously. The LEDs may be observed to be illuminated corresponding to the button that is being depressed on the transmitter. The LED on the receiver will be illuminated indicating that the power is on. The "LEARN" LED will flash while the receiver is decoding a transmitted signal. The buzzer will be activated indicating that the corresponding button is being depressed on the transmitter. The stand on the back of the receiver may be extended by lifting up on the upper portion of the stand (marked "1" on the case) and pulling out the bottom portion of the stand. The receiver may then be placed for easy viewing while operating the transmitter.

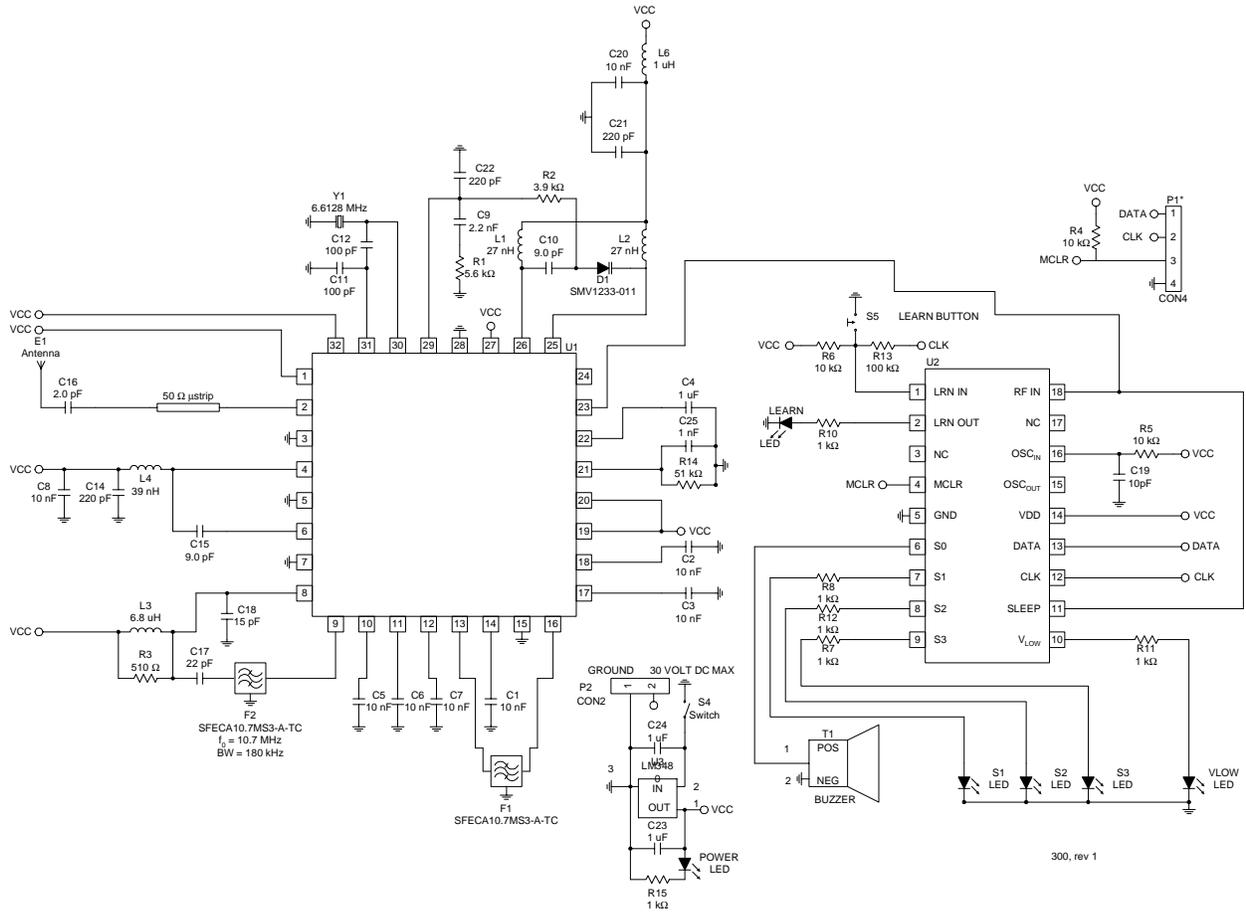
The receiver has one lever switch for turning the power on and off and one pushbutton used in learning the transmitter. There are five LEDs on the receiver PCB. One of the LEDs indicates that the receiver is activated (power on). Another LED is used during the process of learning the transmitter and flashes during normal operation while receiving a signal. The three LEDs marked "S1", "S2", and "S3" are illuminated as corresponding buttons are depressed on the transmitter. The buzzer is activated by pressing the fourth button on the transmitter. The remaining LED, marked "VLOW" is illuminated to indicate a low battery condition. This indicates the need to replace the battery. An antenna is printed onto the PCB for convenience.

The receiver uses the HCS512 decoder from Microchip. Four pads are included for programming this device. It is preprogrammed to operate in the desired manner for this application. Additional information about this device may be obtained from the manufacturer.

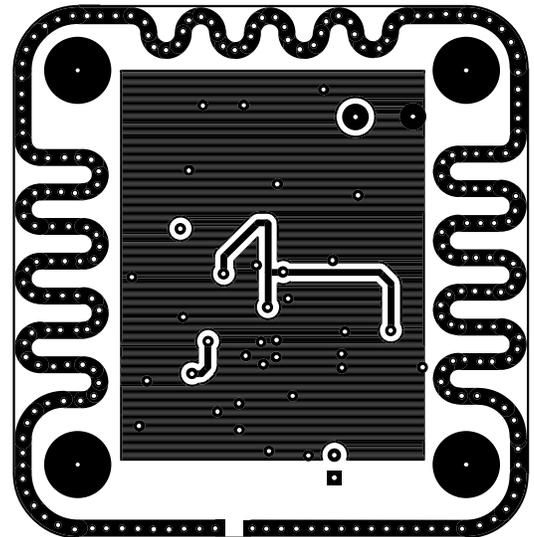
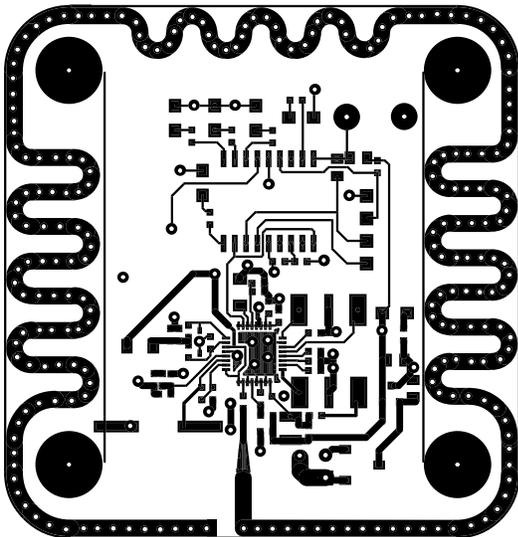
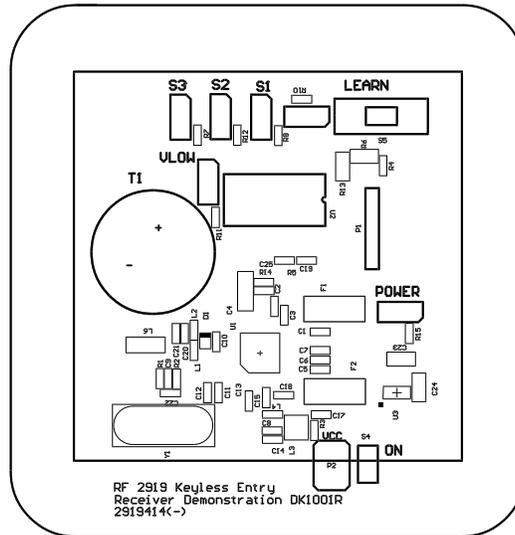
The 433MHz receiver uses a 6.6128MHz crystal which may be identified by the label on the top of the crystal can. The following pages show the schematic for the 433MHz receiver, the bill of material for the 433MHz receiver, the printed circuit board layout for the 433MHz receiver. These materials, along with the Gerber files for the PCBs may be found on the Internet at [www.rfmd.com](http://www.rfmd.com).

## Evaluation Board Schematic 433MHz

(Download [Bill of Materials](http://www.rfmd.com) from [www.rfmd.com](http://www.rfmd.com).)



Evaluation Board Layout  
Board Size 2.287" x 2.361"  
Board Thickness 0.062", Board Material FR-4



**DK1001R**

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