300 – 480 MHz OOK Receiver with Decoder

Features

- Embedded EEPROM
  - Very Easy Development with RFPDK
  - All Features Programmable
- Frequency Range: 300 to 480 MHz
- Symbol Rate: 0.1 to 40 ksps
- Sensitivity: -114 dBm at 1 ksps, 0.1% BER
- 3-wire SPI Interface for EEPROM Programming
- Stand-Alone, No External MCU Control Required
- Configurable Duty-Cycle Receive Mode
- 4 Data Outputs
- Low Power Consumption: 3.8 mA
- Low Sleep Current
  - 60 nA When Sleep Timer Off
  - 440 nA When Sleep Timer On
- Support 1920, 1527 and 2262 Decoding Formats
- ID Study, Factory Code Supported
- RoHS Compliant
- 16-pin QFN 3x3 Package

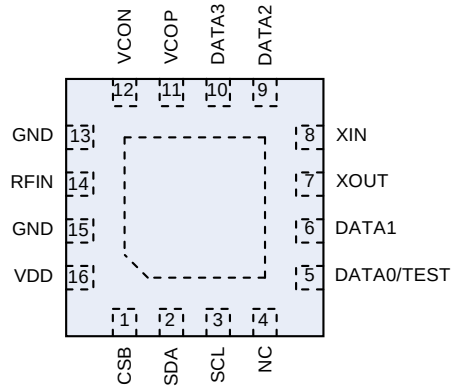
Applications

- Low-Cost Consumer Electronics Applications
- Remote Control
- Smart LED Control (On/Off Dimming)
- Home Security and Alarm
- Garage and Gate Openers
- Home and Building Automation
- Industrial Monitoring and Controls
- Sensor Networks
- Health Monitors
- Remote Keyless Entry (RKE)

Ordering Information

Part Number	Frequency	Package	MOQ
CMT2250A-EQR	Random	QFN16	5,000 pcs
CMT2250A-EQR3	315.00 MHz	QFN16	5,000 pcs
CMT2250A-EQR4	433.92 MHz	QFN16	5,000 pcs

QFN16 (3x3)



CMT2250A Top View

Descriptions

The CMT2250A is a true single-chip, ultra low power and high performance device that consists of an OOK RF receiver, a data decoder and 4 data output pins for various 300 to 480 MHz wireless applications. The device integrates a data decoder that is not only compatible with the most common used encoding format of 1527 and 2262, but also a more efficient, flexible and powerful format of 1920 designed by CMOSTEK. The device delivers sensitivity up to -114 dBm while consuming only 3.8 mA current when it is always on. An embedded EEPROM allows the frequency, symbol rate and other features to be programmed into the device using the CMOSTEK USB Programmer and RFPDK. Alternatively, in stock products of 315/433.92 MHz are available for immediate demands with no need of EEPROM programming. When pairing the device to CMOSTEK transmitters, the synchronization ID can be programmed into both of the transmitter and receiver during the manufacturing phase, or studied by the receiver from the transmitter remotely by end customers. The CMT2250A is part of the CMOSTEK NextGenRF™ family, together with CMT215x transmitters, they enable ultra low cost, low power consumption RF links.

Typical Application

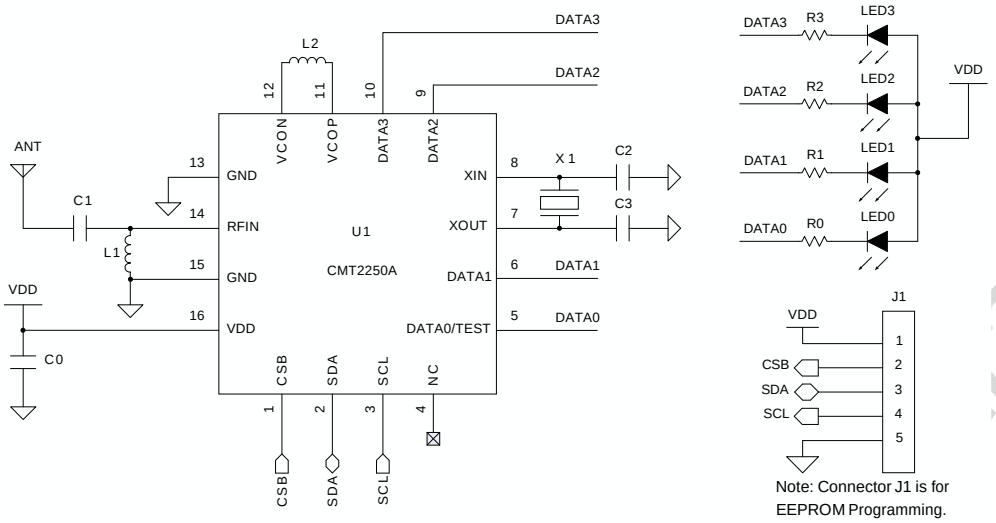


Figure 1. CMT2250A Typical Application Schematic

Table 1. BOM of Typical Application

Designator	Descriptions	Value		Unit	Manufacturer
		315 MHz	433.92 MHz		
U1	CMT2250A, 300 – 480 MHz OOK receiver with decoder	-		-	CMOSTEK
L1	±5%, 0603 multi-layer chip inductor	39	27	nH	Murata LQG18
L2	±5%, 0603 multi-layer chip inductor	33	22	nH	Murata LQG18
C1	±0.25 pF, 0402 NP0, 50 V	4.3	3.3	pF	Murata GRM15
C0	±20%, 0402 X7R, 25 V	0.1		uF	Murata GRM15
C2, C3	±5%, 0402 NP0, 50 V	15		pF	Murata GRM15
X1	±20 ppm, SMD32*25 mm, crystal	26		MHz	EPSON
R0/1/2/3	5%, 0402 chip resistor	330		Ω	-
LED0/1/2/3	SMD3528, orange LED	40		mW	-

Table 2. CMT2250A Pin Descriptions

Pin Number	Name	I/O	Descriptions
1	CSB	I	3-wire SPI chip select input for EEPROM programming
2	SDA	IO	3-wire SPI data input and output for EEPROM programming
3	SCL	I	3-wire SPI clock input for EEPROM programming
4	NC	-	Not connected, leave floating
5	DATA0/TEST	O	Data output, connect to an LED or other device Receiving data output for production test purpose
6	DATA1	O	Data output, connect to an LED or other device
7	XOUT	O	Crystal oscillator output
8	XIN	I	Crystal oscillator input or external reference clock input
9, 10	DATA2, DATA3	O	Data outputs, connect to LEDs or other devices

Pin Number	Name	I/O	Descriptions
11	VCOP	IO	VCO tank, connected to an external inductor
12	VCON		
13, 15	GND	I	Ground
14	RFIN	I	RF signal input to the LNA
16	VDD	I	Power supply input

Package Outline

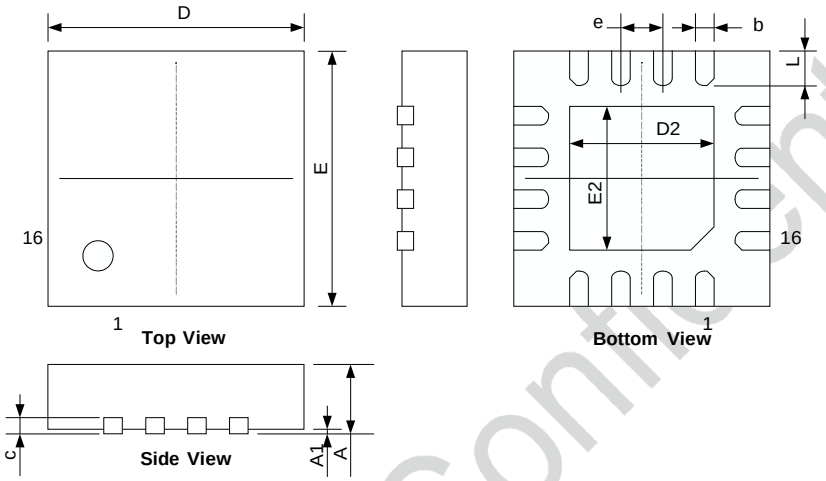


Figure 2. 16-Pin QFN 3x3 Package

Table 3. 16-Pin QFN 3x3 Package Dimensions

Symbol	Size (millimeters)	
	Min	Max
A	0.7	0.8
A1	-	0.05
b	0.18	0.30
c	0.18	0.25
D	2.90	3.10
D2	1.55	1.75
e	0.50 BSC	
E	2.90	3.10
E2	1.55	1.75
L	0.35	0.45

Contact Information

HOPE MICROELECTRONICS CO.,LTD
Add: 2/F, Building 3, Pingshan Private Enterprise Science and Technology Park, Lishan Road, XiLi Town, Nanshan District, Shenzhen, Guangdong, China
Tel: 86-755-82973805
Fax: 86-755-82973550
Email: sales@hoperf.com
Website: http://www.hoperf.com
http://www.hoperf.cn

HOPE MICROELECTRONICS CO.,LTD
Add: 2/F, Building 3, Pingshan Private Enterprise Science and Technology Park, Lishan Road, XiLi Town, Nanshan District, Shenzhen, Guangdong, China
Tel: 86-755-82973805
Fax: 86-755-82973550
Email: sales@hoperf.com
Website: http://www.hoperf.com
http://www.hoperf.cn