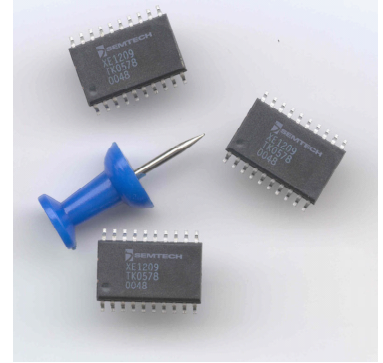


Product Brief



SEMTECH ADVANCED COMMUNICATION & SENSING



XE1209

Ultra-Low Power 30 – 70 kHz Transceiver

Low Power Near Field Communication Transceiver

The XE1209 is a CMOS Ultra Low-Power transceiver for short-range low frequency RF data communications system. It uses 2-level Continuous Phase FSK modulation. The receiver section includes the preamplifier, the down-converter, and the channel filters, the demodulator and the bit synchronizer, which delivers synchronized data at the output. The transmitter section is composed of a Direct Digital Synthesizer (DDS), and the power amplifier generating a square-wave output current.

The XE1209 has carrier detector to detect the presence of a signal at the carrier frequency. The local clock is based on a 32kHz crystal oscillator and a PLL to generate the required Local Oscillator (LO) frequency. The XE1209 has a simple interface with an external microcontroller.

Key Product Features:

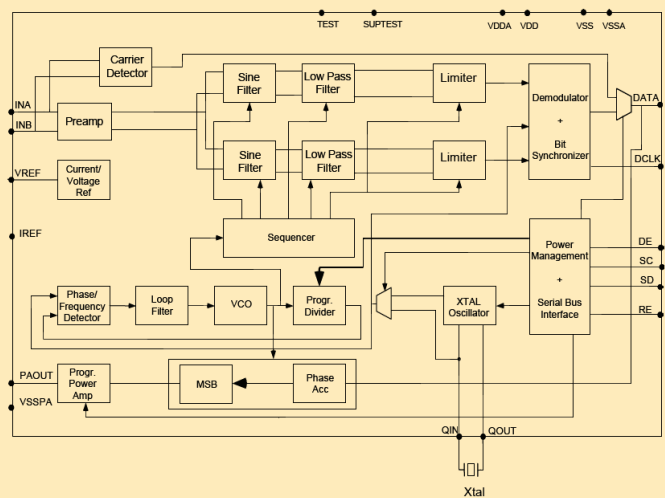
- Unlicensed ISM band
- Short range communications from 1 to 3 meters
- 200 μA active receiver current
- 95 μA carrier detect mode current consumption
- 150 nA sleep mode current consumption
- 70 μV sensitivity level with 200 μV carrier detect threshold
- Fully synthesized 30 kHz – 70 kHz operating frequency
- DDS Transmitter for accurate data transmission

- 32.768 kHz low power reference oscillator
- 1820 bps robust FSK modulation
- Low external component count
- SSOP / QFN Package RoHS-compliant “green package”

Applications:

- Low data rate NFC
- BodyLAN
- Access and Security Control
- Short Range Wireless Data

Block Diagram:

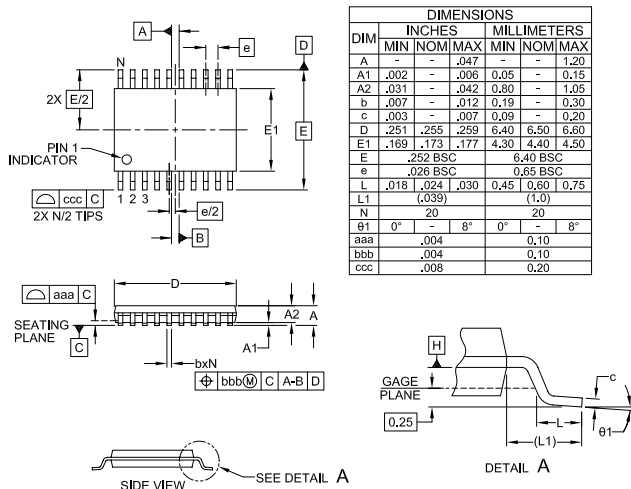


Product Brief

XE1209 – Ultra Low Power Low Frequency NFC Transceiver

Characteristics					
Parameter	Min	Typ	Max	Unit	Condition
Operating Conditions					
Operating temperature range	-10		+60	°C	
Operating supply voltage	2		3.2	V	
Current Consumption					
Sleep mode		150		nA	
Standby mode		1	2	μA	
Carrier detect		95	120	μA	
Receiver mode		200	300	μA	
Low power transmit mode		1.8		mA	
High power transmit mode		110		mA	
RF Characteristics					
Frequency range	30		70	kHz	With 32.768 KHz Crystal
Date rate		1820		Bps	
Rx sensitivity		70		μV	Source impedance=100Ω
Conditions: Supply Voltage = 2.6 V, Temperature = 25 °C, Carrier Frequency = 36.86 kHz, Bit Rate = 1820 bps, BER = 0.01%					

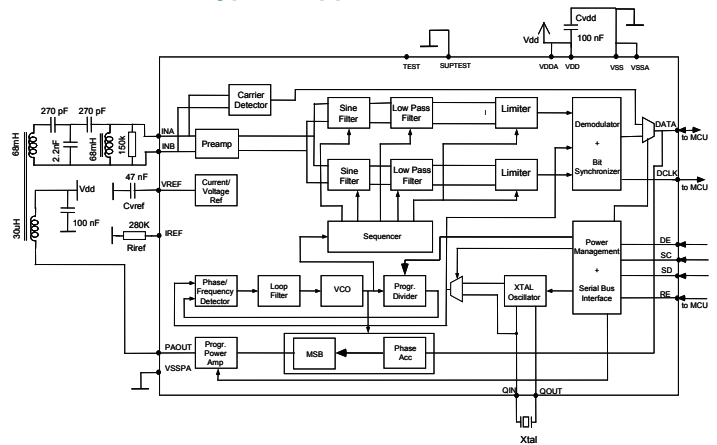
XE1209 Package Drawing



NOTES:

- CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
- DATUMS \overline{A} AND \overline{B} TO BE DETERMINED AT DATUM PLANE \overline{H} .
- DIMENSIONS "E1" AND "D" DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
- REFERENCE JEDEC STD MO-153, VARIATION AC.

Typical Application Circuit



Ordering Information

Part Number	Package
XE1209C012TRLF	SOP-20 Lead-Free RoHS-1000 pieces on Tape & Reel
XE1209C061TRLF	VQFN-28 Lead-Free RoHS-2300 pieces on Tape & Reel

Visit our website to locate the most current product specifications, datasheets and contact information for your local Semtech Field Applications Engineer.