

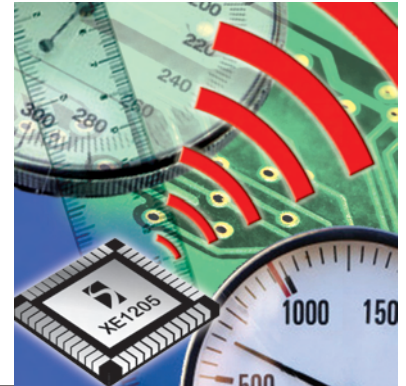
# Product Brief



SEMTECH WIRELESS & SENSING PRODUCTS

## XE1205

Narrowband High-Performance  
Multi-Channel UHF-band Transceiver



### WORLD'S HIGHEST LINK BUDGET TRANSCEIVER

Highest link-budget BiCMOS UHF-band  
FSK transceiver with data rates up to  
304.6 kbit/second and narrowband capability

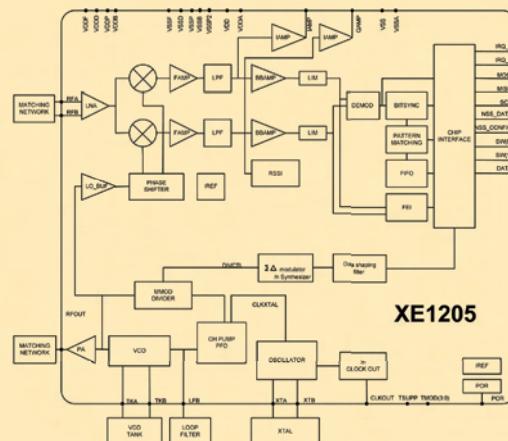
#### Key Features:

- Typical link budget of 131 dB at 4.8 kbits/s, 0.1% BER WITHOUT external LNA or PA
- Rx sensitivity -121 dBm (typical) @ 1.2 kbit/s, 0.1% BER
- Tx output +15 dBm (typical)
- Data rates from 1.2 to 152.3 kbit/s (Europe) and 1.2 to 304.6 kbit/s (USA)
- 100 $\mu$ s Transmitter wake-up time (typical, synthesizer enabled)
- FIFO for transmit/receive data buffering and transfer via SPI bus
- Digital RSSI
- Automatic Frequency-error cancellation
- Two-layer pre-certified reference design
- 433, 868 and 915 MHz bands
- Satisfies ETSI EN 300 220-1 and FCC part 15.247 regulations without requiring an external SAW filter.

#### Applications:

- Narrowband 25kHz Applications
- Automated Meter Reading
- Long-range remote controls
- High-performance Telemetry
- Home and Building automation
- KONNEX™ systems
- Security and alarm systems
- Industrial monitoring and control
- Remote Keyless Entry Systems
- Voice-over-RF links

#### Block Diagram:



# Product Brief

## XE1205

### Narrowband High-Performance Multi-Channel UHF-band Transceiver

#### Features:

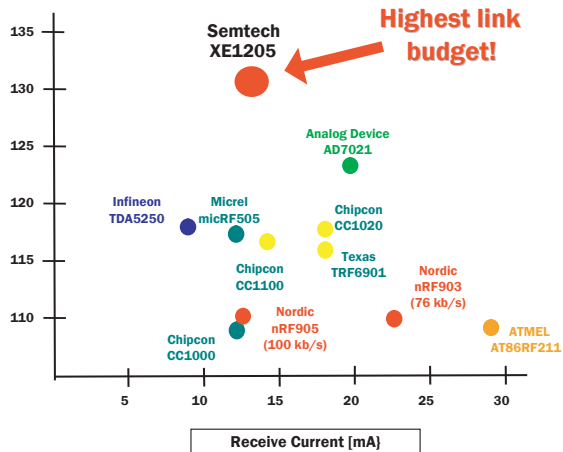
- 7 x 7 mm VQFN RoHS-compliant “green package”
- FCC DTS compliant (up to +11 dBm output power without requiring frequency-hopping)
- Modified-Gaussian Frequency Shift Keying (GFSK & FSK) data transmission
- KONNEX™ compatible
- SPI interface for data transmission and register configuration
- Low external component count
- Use as receiver with SX1223 transmitter for unidirectional systems

#### Characteristics

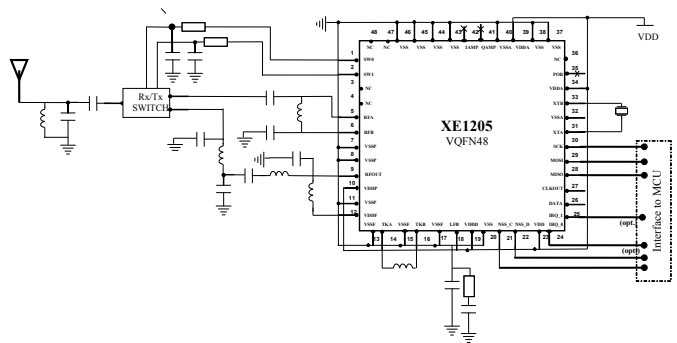
Parameter	Min	Typ	Max	Unit	Condition
<b>Operating Conditions</b>					
Operating temperature range	-40		85	°C	
Operating supply voltage	2.4		3.6	V	
<b>Current Consumption</b>					
Current consumption Rx		14		mA	
Current consumption Tx		33.0		mA	+5 dBm
		62.0		mA	+15 dBm
Current consumption, sleep mode		0.2	1	µA	
<b>RF Characteristics</b>					
Frequency Range (frequencies of 300 – 1000 MHz with external component changes)	433		435	MHz	500 Hz resolution
	863		870	MHz	
	902		928	MHz	
Data rate (programmable)	1.2		152.3	kbit/s	Europe
	1.2		304.6	kbit/s	USA
Tx Output power (programmable)	0		15	dBm	
Rx sensitivity		-121		dBm	4.8 kbit/s
		-116		dBm	
Conditions: Supply Voltage = 3.3V, temperature = 25 °C, 2-level FSK without pre-filtering, f <sub>c</sub> = 915 MHz, Δf = 5 kHz, Bit rate = 4.8 kbit/s, BW <sub>SSB</sub> = 10 kHz, BER = 0.1%					

#### LINK-BUDGET COMPARISON CHART

Link budget @ 5 kb/s [dB]



#### TYPICAL APPLICATION CIRCUIT



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