

**TABLE 1** TRANSCEIVERS AND SOCs FOR LOW-DATA-RATE NETWORKS

Vendor	Part no.	Frequency bands	Modulation format	Transmitting current at 0 dBm (mA)	Receiving current (mA)	Output-power range (dBm)	Supply range (V)
Analog Devices	ADF7020	431 to 478 MHz, 862 to 956 MHz	GFSK/FSK/ASK/OOK	19.1	19	13	2.3 to 3.6
Analog Devices	ADF7020-1	135 to 650 MHz	GFSK/FSK/ASK/OOK	18.6	18.5	13	2.3 to 3.6
Analog Devices	ADF7021-1	135 to 650 MHz	GFSK/FSK/ASK/OOK	18.6	18.5	13	2.3 to 3.6
Atmel	ATA5429	915 MHz	FSK/OOK	9.6	10	10	2.4 to 3.6
Ember	EM250	2.4 GHz	O-QPSK	35	35	As high as 4	2.3 to 3.6
Freescale	MC13202	2.4 GHz	O-QPSK	30	37	-27 to +4	2 to 3.4
Freescale	MC13211	2.4 GHz	O-QPSK	30	37	-27 to +4	2 to 3.4
Freescale	MC13212	2.4 GHz	O-QPSK	30	37	-27 to +4	2 to 3.4
Freescale	MC13213	2.4 GHz	O-QPSK	30	37	-27 to +4	2 to 3.4
Texas Instruments	CC1100	315, 433, 868, 915 MHz	FSK, OOK, MSK	16.6	15.1	-30 to +10	1.8 to 3.6
Texas Instruments	CC1110	315, 433, 868, 915 MHz	FSK, OOK, MSK	31	22	-30 to +10	2 to 3.4
Texas Instruments	CC2420	2.4 GHz	DSSS (IEEE 802.15.4)	17.4	19.7	-20 to 0	2.1 to 3.6
Texas Instruments	CC2430	2.4 GHz	DSSS (IEEE 802.15.4)	24.7	27	-20 to 0	2 to 3.6
Texas Instruments	CC1020	433, 868, 915 MHz	FSK, OOK, GFSK	20.5	19.9	-20 to +10	2.3 to 3.6

Sensitivity (dBm)	Approximate line-of-sight range (m)	Maximum data rate (kbps)	Included functions	Price (1000)	Package
-112	NA	200	NA	\$2.29	7×7-mm, 48-lead LFCSP
-114	NA	200	NA	\$2.20	7×7-mm, 48-lead LFCSP
-117	NA	25	NA	NA	7×7-mm, 48-lead LFCSP
-107	800	40	Demodulation and transceiver/receiver byte buffer	\$3	7×7-mm QFN-48
-97	NA	250	16-bit XAP core with 128-kbyte flash memory, 5-kbyte RAM, two timers, sigma-delta ADC, integrated encryption core	\$5	7×7-mm QLP-48
-94 at 1% packet-error rate	400	250	External	\$2.75	5×5-mm QFN-32 ROHS
-94 at 1% packet-error rate	NA	250	8-bit Freescale microcontroller with 16-kbyte flash and 1-kbyte RAM	\$3.61	9×9-mm LGA-64 ROHS
-94 at 1% packet-error rate	NA	250	8-bit Freescale microcontroller with 32-kbyte flash and 2-kbyte RAM	\$3.94	9×9-mm LGA-64 ROHS
-94 at 1% packet-error rate	NA	250	8-bit Freescale microcontroller with 60-kbyte flash and 4-kbyte RAM	\$4.32	9×9-mm LGA-64 RoHS
-110	500	500	2×64-byte FIFO, packet handling, addressing, wake-on radio	\$1.83	4×4-mm QLP-20
-109	500	500	SOC with 8051 microcontroller, 32-kbyte flash, 4-kbyte RAM, Advanced Encryption Standard	\$4.64	6×6-mm QLP-36
-94	100	250	2×128-byte FIFO, packet handling, addressing	\$3.60	7×7-mm QLP-48
-94	100	250	SOC with 8051 microcontroller, 128-kbyte flash, 8-kbyte RAM, Advanced Encryption Standard	\$5.80	7×7-mm QLP-48
-118	1200	153.6	Bit synchronizer, automatic frequency compensation	\$4.43	7×7-mm QFN-32