

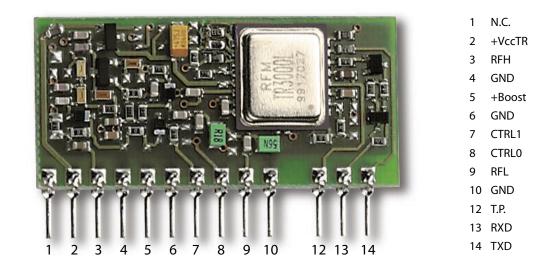
OOK TRANSCEIVER 3-2000473

868,35 MHz / P.n. 3-2000473

DESCRIPTION:

The 3-2000473 module is an On-Off Key transceiver operating at 868,35 MHz, low consumption and low cost. In transmission the typical power output is 10 mW (+10 dBm) and the receiver sensitivity reaches –98 dBm.. There is an auxiliary pin for RF input/output to use when in transmission is sufficient 1 mW (0 dBm) power output and it wants to limit the current consumption. In power down mode the 3-2000473 current consumption is about 5 μ A and so is perfect for battery supply systems.

PIN CONFIGURATION AND DEFINITION:



LIMIT VALUES:

Transceiver Power Supply+Vcc (pin 2):	from -0,3 to 5,2 V
Booster Power Supply+Boost (pin 5):	from -0,3 to 5,2 V
Voltage Range on CTRL1 e CTRL0 (pin 7 e 8):	from -0,3 to 3,8 V
Operative Temperature:	from -40 to +85°C
Storage Temperature:	from -50 to +100°C

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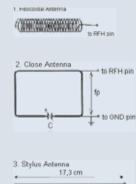


Parameter Min. Tip. Max. Units Transceiver Power Supply +Vcc (pin 2) 4,5 5,2 V Booster Power Supply +Boost (pin 5) 4,5 5,2 V Voltage Range on CTRL 1 e CTRL0 (pin 7 e 8) 0 3,8 V Receiver Electrical Characteristics: 3,8 V VOL on RX Data (pin 13) 0 V V Current Consumption +Vcc = 4,5 5,0 V 3,4 3,9 V Current Consumption +Vcc = 4,5 5,0 V 3,4 3,6 mA Carrier Frequency Bandwidth at -3 dB f0 ± 300 KHz Sensitivity for 2400 baud -93 -97 dBm Sensitivity for 19200 baud -91 -93 dBm Bm Bm Bm Sensitivity for 38400 baud -91 -93 dBm Bm Bm Bm Rejection ±30 MHz 5 V Gm V VI Mm Sm V Sm Sm Sm Sm Sm Sm Sm Sm Sm <th>ELECTRICAL CHARACTERISTICS:</th> <th></th> <th></th> <th></th> <th></th>	ELECTRICAL CHARACTERISTICS:					
Booster Power Supply +Boost (pin 5) 4,5 5,2 V Voltage Range on CTRL1 e CTRL0 (pin 7 e 8) 0 3,8 V Receiver Electrical Characteristics: V VOL on RX Data (pin 13) 0 V VOH on RX Data (pin 13) +Vcc = 4,5 5,0 V 3,4 3,9 V Current Consumption +Vcc = 4,5 5,0 V 3,4 3,6 mA Carrier Frequency f0 868.35 MHz MA Sensitivity for 2400 baud -93 -97 dBm Sensitivity for 19200 baud -92 -95 dBm Sensitivity for 19200 baud -91 -93 dBm Sensitivity for 19200 baud -92 -95 dBm Sensitivity for 19200 baud -91 -93 dBm Rejection ±30 MHz 55 dB ME Sensitivity for 38400 baud -91 -93 dB VIL on TX Data (pin 14) 0 V Current Consumption +Vcc = 4,5 5,0 V 250 VIL on TX Data (pin 14) +Vcc = 4,5 5,0 V 5 V <th>Parameter</th> <th>Min.</th> <th>Tip.</th> <th>Max.</th> <th>Units</th>	Parameter	Min.	Tip.	Max.	Units	
Voltage Range on CTRL1 e CTRL0 (pin 7 e 8) 0 3,8 V Receiver Electrical Characteristics: V VOL on RX Data (pin 13) 0 V VOH on RX Data (pin 13) 0 V Current Consumption +Vcc = 4,5 5,0 V 3,4 3,6 mA Carrier Frequency 10 868.35 MHz Sensitivity for 2400 baud -93 -97 dBm Sensitivity for 2400 baud -92 -95 dBm Sensitivity for 3800 baud -91 -93 dBm Sensitivity for 19200 baud -92 -95 dBm Sensitivity for 38400 baud -91 -93 dBm Sensitivity for 19200 baud -92 -95 dBm Sensitivity for 38400 baud -91 -93 dBm Sensitivity for 19200 baud -92 -95 dBm Sensitivity for 38400 baud -91 -93 dBm Receircent ±30 MHz 55 dB GBm Secont partiel for	Transceiver Power Supply +Vcc (pin 2)	4,5		5,2	V	
Receiver Electrical Characteristics: VOL on RX Data (pin 13) 0 V VOL on RX Data (pin 13) +Vcc = 4,5 5,0V 3,4 3,9 V Current Consumption +Vcc = 4,5 5,0V 3,4 3,6 mA Carrent Consumption +Vcc = 4,5 5,0V 3,4 3,6 mA Carrent Consumption +Vcc = 4,5 5,0V 3,4 3,6 mA Carrent Consumption +Vcc = 4,5 5,0V 3 40 MHz Sensitivity for 2400 baud -93 -97 dBm Sensitivity for 38400 baud -91 -93 dBm Sensitivity for 38400 baud -91 -93 dBm Rejection ±30 MHz 55 dBm Sensitivity for 38400 baud -91 -93 dBm Rejection ±30 MHz 55 dBm Rejection ±30 MHz 55 V VIL on TX Data (pin 14) • Vcc = 4,5 5,0 V 5 V Current Consumption +Vcc = 4,5 5,0 V \$68,05 \$68,65 MHz <td colsp<="" td=""><td>Booster Power Supply +Boost (pin 5)</td><td>4,5</td><td></td><td>5,2</td><td>V</td></td>	<td>Booster Power Supply +Boost (pin 5)</td> <td>4,5</td> <td></td> <td>5,2</td> <td>V</td>	Booster Power Supply +Boost (pin 5)	4,5		5,2	V
VOL on RX Data (pin 13) 0 V VOH on RX Data (pin 13) +Vcc = 4,5 5,0 V 3,4 3,9 V Current Consumption +Vcc = 4,5 5,0 V 3,4 3,6 mA Carrier Frequency f0 868.35 MHz Frequency Bandwidth at -3 dB f0 ± 300 KHz Sensitivity for 2400 baud -93 -97 dBm Sensitivity for 19200 baud -92 -95 dBm Sensitivity for 38400 baud -91 -93 dBm Sensitivity for 38400 baud -91 -93 dBm Rejection ±30 MHz 55 dB dBm Sensitivity for 38400 baud -91 -93 dBm Ry Switching On Time 250 μ 5 dB RX Switching On Time 250 μ 5 V VIL on TX Data (pin 14) 0 V VIH on TX Data (pin 14) a +Vcc = 4,5 5,0 V 5 V Current Consumption +Vcc = 4,5 5,0 V square wave modulation and 50% Duty Cycle 22 22 mA Data Transmission Rate 1200 38400 baud Power Output +Vcc, VIH = +5,0 V +7.5	Voltage Range on CTRL1 e CTRL0 (pin 7 e 8)	0		3,8	V	
VOH on RX Data (pin 13) +Vcc = 4,5 5,0 V 3,4 3,9 V Current Consumption +Vcc = 4,5 5,0 V 3,4 3,6 mA Carrier Frequency f0 868.35 MHz Frequency Bandwidth at -3 dB f0 ± 300 KHz Sensitivity for 2400 baud -93 -97 dBm Sensitivity for 19200 baud -92 -95 dBm Sensitivity for 38400 baud -91 -93 dBm Rejection ±30 MHz 55 dB BR RX Switching On Time 250 µS V VIH on TX Data (pin 14) 0 V V VIH on TX Data (pin 14) a +Vcc = 4,5 5,0 V 5 V Current Consumption +Vcc = 4,5 5,0 V 5 V Current Consumption +Vcc = 4,5 5,0 V 5 V Current Consumption +Vcc = 4,5 5,0 V 120 38400 baud Power Output +Vcc, VIH = +5,0 V +7.5 +10 dBm 5 Second Harmonic Level (1737 MHz) -30 dBm M 4 +Vcc = 4,5 5,0 V -30 dBm 5 µ	Receiver Electrical Characteristics:					
Current Consumption +Vcc = 4,5 5,0 V 3,4 3,6 mA Carrier Frequency f0 868.35 MHz Frequency Bandwidth at -3 dB f0 ± 300 KHz Sensitivity for 2400 baud -93 -97 dBm Sensitivity for 19200 baud -92 -95 dBm Sensitivity for 38400 baud -91 -93 dBm Rejection ±30 MHz 55 dB dBm Rejection ±30 kHz 55 dB dB RX Switching On Time 250 μ S dV VIL on TX Data (pin 14) 0 V V VIH on TX Data (pin 14) +Vcc = 4,5 5,0V 5 V Current Consumption +Vcc = 4,5 5,0V square wave modulation and 50% Duty Cycle 22 mA Carrier frequency f0 868,05 868,65 MHz Data Transmission Rate 1200 38400 baud Power Output +Vcc, VIH = +5,0V +7.5	VOL on RX Data (pin 13)		0		V	
Carrier Frequency 0 868.35 MHz Frequency Bandwidth at –3 dB f0±300 KHz Sensitivity for 2400 baud -93 -97 dBm Sensitivity for 19200 baud -92 -95 dBm Sensitivity for 38400 baud -91 -93 dBm Sensitivity for 38400 baud -91 -93 dBm Rejection ±30 MHz 55 dB dBm RX Switching On Time 250 µS dBm VIL on TX Data (pin 14) 0 V V VIH on TX Data (pin 14) a +Vcc = 4,5 5,0 V 5 V 220 MA 5 868,05 868,65 MHz Carrier frequency f0 868,05 868,65 MHz Data Transmission Rate 1200 38400 baud Power Output +Vcc,VIH = +5,0V +7.5 +10 dBm Second Harmonic Level (1737 MHz) -30 dBm dBm Fourth Harmonic Level (2605 MHz) -30 dBm -5 +Vcc = 4,5 5,0V -30 dBm -5 Fourth Harmonic Level (3473 MHz) -30	VOH on RX Data (pin 13) +Vcc = 4,5 5,0 V	3,4		3,9	V	
Frequency Bandwidth at -3 dB f0 ± 300 KHz Sensitivity for 2400 baud -93 -97 dBm Sensitivity for 19200 baud -92 -95 dBm Sensitivity for 38400 baud -91 -93 dBm Rejection ±30 MHz 55 dB dBm Rigection ±30 MHz 55 dB dB RX Switching On Time 250 μS dB VIL on TX Data (pin 14) 0 V V VIH on TX Data (pin 14) a +Vcc = 4,5 5,0 V 5 V 22 mA - 55 V 22 mA - 38400 baud 9 Power Output +Vcc, VIH = +5,0 V +7.5 +10 dBm Second Harmonic Level (1737 MHz) -30 dBm 38400 Power Output +Vcc, VIH = +5,0 V -30 dBm 38400 baud Power Output +Vcc, VIH = +5,0 V -30 dBm 38400 baud Power Output +Vcc, VIH = +5,0 V -30 dBm 38400 <td< td=""><td>Current Consumption +Vcc = 4,5 5,0 V</td><td>3,4</td><td></td><td>3,6</td><td>mA</td></td<>	Current Consumption +Vcc = 4,5 5,0 V	3,4		3,6	mA	
Sensitivity for 2400 baud -93 -97 dBm Sensitivity for 19200 baud -92 -95 dBm Sensitivity for 38400 baud -91 -93 dBm Rejection ±30 MHz 55 dB RX Switching On Time 250 µS Transmitter Electrical Characteristics: VIL on TX Data (pin 14) 0 V VIH on TX Data (pin 14) a +Vcc = 4,5 5,0 V square wave modulation and 50% Duty Cycle 22 mA 2 38400 baud Carrier frequency f0 868,05 868,65 MHz Data Transmission Rate 1200 38400 baud Power Output +Vcc,VIH = +5,0 V +7.5 +10 dBm Second Harmonic Level (1737 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (2605 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm	Carrier Frequency f0		868.35		MHz	
Sensitivity for 19200 baud -92 -95 dBm Sensitivity for 38400 baud -91 -93 dBm Rejection ±30 MHz 55 dB RX Switching On Time 250 µS Transmitter Electrical Characteristics: 250 µS VIL on TX Data (pin 14) 0 V VIH on TX Data (pin 14) a +Vcc = 4,5 5,0 V 5 V Current Consumption +Vcc = 4,5 5,0 V square wave modulation and 50% Duty Cycle 20 mA Carrier frequency f0 868,05 868,65 MHz Data Transmission Rate 1200 38400 baud Power Output +Vcc, VIH = +5,0 V +7.5 +10 dBm Second Harmonic Level (1737 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (2605 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 <t< td=""><td>Frequency Bandwidth at –3 dB</td><td></td><td>f0 ± 300</td><td></td><td>KHz</td></t<>	Frequency Bandwidth at –3 dB		f0 ± 300		KHz	
Sensitivity for 38400 baud -91 -93 dBm Rejection ±30 MHz 55 dB RX Switching On Time 250 μS Transmitter Electrical Characteristics: VIL on TX Data (pin 14) 0 V VIH on TX Data (pin 14) a +Vcc = 4,5 5,0 V 5 V Current Consumption +Vcc = 4,5 5,0 V square wave modulation and 50% Duty Cycle 22 mA 2 22 Carrier frequency f0 868,05 868,65 MHz Data Transmission Rate 1200 38400 baud Power Output +Vcc, VIH = +5,0 V +7.5 +10 dBm Second Harmonic Level (1737 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (2605 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Radiated Emissions According to I-ETS-300-220 and I-ETS-300-EXU TX Switching On time 15 µs	Sensitivity for 2400 baud	-93	-97		dBm	
Rejection ±30 MHz 55 dB RX Switching On Time 250 μS Transmitter Electrical Characteristics: VIL on TX Data (pin 14) 0 V VIL on TX Data (pin 14) a +Vcc = 4,5 5,0 V 5 V Current Consumption +Vcc = 4,5 5,0 V square wave modulation and 50% Duty Cycle 22 mA 2 2 Carrier frequency f0 868,05 868,65 MHz Data Transmission Rate 1200 38400 baud Power Output +Vcc, VIH = +5,0 V +7.5 +10 dBm Second Harmonic Level (1737 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (2605 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Radiated Emissions According to I-ETS-300-220 and I-ETS-300-683	Sensitivity for 19200 baud	-92	-95		dBm	
RX Switching On Time 250 μS Transmitter Electrical Characteristics: V VIL on TX Data (pin 14) 0 V VIH on TX Data (pin 14) a +Vcc = 4,5 5,0 V 5 V Current Consumption +Vcc = 4,5 5,0 V square wave modulation and 50% Duty Cycle 22 22 mA 250 40 40 Carrier frequency f0 868,05 868,65 MHz Data Transmission Rate 1200 38400 baud Power Output +Vcc, VIH = +5,0 V +7.5 +10 dBm Second Harmonic Level (1737 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (2605 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Radiated Emissions According to I-ETS-300-220 and I-ETS-300-683 TX Switching On time 15 μs	Sensitivity for 38400 baud	-91	-93		dBm	
Transmitter Electrical Characteristics: VIL on TX Data (pin 14) 0 V VIH on TX Data (pin 14) a +Vcc = 4,5 5,0 V 5 V Current Consumption +Vcc = 4,5 5,0 V square wave modulation and 50% Duty Cycle 22 mA 22 22 Carrier frequency f0 868,05 868,65 MHz Data Transmission Rate 1200 38400 baud Power Output +Vcc,VIH = +5,0V +7.5 +10 dBm Second Harmonic Level (1737 MHz) -30 dBm +Vcc = 4,5 5,0V -30 dBm Fourth Harmonic Level (2605 MHz) -30 dBm +Vcc = 4,5 5,0V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm TX Switching On time 15 µs	Rejection ±30 MHz	55			dB	
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VIH on TX Data (pin 14) a +Vcc = 4,5 5,0 V 5 V Current Consumption +Vcc = 4,5 5,0 V square wave modulation and 50% Duty Cycle 22 mA 22 Carrier frequency f0 868,05 868,65 MHz Data Transmission Rate 1200 38400 baud Power Output +Vcc, VIH = +5,0 V +7.5 +10 dBm Second Harmonic Level (1737 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Third Harmonic Level (2605 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Radiated Emissions According to I-ETS-300-220 and I-ETS-300-683 TX Switching On time 15 μs	Transmitter Electrical Characteristics:					
Current Consumption +Vcc = 4,5 5,0 V square wave modulation and 50% Duty Cycle 22 mA Carrier frequency f0 868,05 868,65 MHz Data Transmission Rate 1200 38400 baud Power Output +Vcc, VIH = +5,0 V +7.5 +10 dBm Second Harmonic Level (1737 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Third Harmonic Level (2605 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Radiated Emissions According to I-ETS-300-220 and I-ETS-300-683 TX Switching On time 15 μs	VIL on TX Data (pin 14)		0		V	
mA Carrier frequency f0 868,05 868,65 MHz Data Transmission Rate 1200 38400 baud Power Output +Vcc, VIH = +5,0 V +7.5 +10 dBm Second Harmonic Level (1737 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Third Harmonic Level (2605 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Radiated Emissions According to I-ETS-300-220 and I-ETS-300-83 TX Switching On time 15 μs Power Down Mode Electrical Characteristics: Secording to I-ETS-300-220 and I-ETS-300-220	VIH on TX Data (pin 14) a +Vcc = 4,5 5,0 V			5	V	
Carrier frequency f0 868,05 868,65 MHz Data Transmission Rate 1200 38400 baud Power Output +Vcc, VIH = +5,0 V +7,5 +10 dBm Second Harmonic Level (1737 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Third Harmonic Level (2605 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Radiated Emissions According to I-ETS-300-220 and I-ETS-300-683 TX Switching On time 15< μs	Current Consumption +Vcc = 4,5 5,0 V square	wave modulatio	on and 50% Duty (Cycle	22	
Data Transmission Rate 1200 38400 baud Power Output +Vcc, VIH = +5,0 V +7.5 +10 dBm Second Harmonic Level (1737 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Third Harmonic Level (2605 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Radiated Emissions According to I-ETS-300-220 and I-ETS-300-683 JBM TX Switching On time 15 μs	mA					
Power Output +Vcc, VIH = +5,0 V +7.5 +10 dBm Second Harmonic Level (1737 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Third Harmonic Level (2605 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm TX switching On time According to I-ETS-300-220 and I-ETS-300-520 Jµs TX Switching On time 15 µs	Carrier frequency f0	868,05		868,65	MHz	
Second Harmonic Level (1737 MHz) +Vcc = 4,5 5,0 V -30 dBm Third Harmonic Level (2605 MHz) +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) +Vcc = 4,5 5,0 V -30 dBm Radiated Emissions According to I-ETS-300-220 and I-ETS-300-683 TX Switching On time 15 μs	Data Transmission Rate	1200		38400	baud	
+Vcc = 4,5 5,0 V -30 dBm Third Harmonic Level (2605 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Fourth Harmonic Level (3473 MHz) -30 dBm +Vcc = 4,5 5,0 V -30 dBm Radiated Emissions According to I-ETS-300-220 and I-ETS-300-683 TX Switching On time 15 μs	Power Output +Vcc, VIH = +5,0 V	+7.5	+10		dBm	
Third Harmonic Level (2605 MHz)+Vcc = 4,5 5,0 V-30dBmFourth Harmonic Level (3473 MHz)+Vcc = 4,5 5,0 V-30dBmRadiated EmissionsAccording to I-ETS-300-220 and I-ETS-300-683TX Switching On time15μsPower Down Mode Electrical Characteristics:	Second Harmonic Level (1737 MHz)					
+Vcc = 4,5 5,0 V-30dBmFourth Harmonic Level (3473 MHz)+Vcc = 4,5 5,0 V-30dBmRadiated EmissionsAccording to I-ETS-300-220 and I-ETS-300-683TX Switching On time15 μ sPower Down Mode Electrical Characteristics:	+Vcc = 4,5 5,0 V			-30	dBm	
Fourth Harmonic Level (3473 MHz) +Vcc = 4,5 5,0 V -30 dBm Radiated Emissions According to I-ETS-300-220 and I-ETS-300-683 TX Switching On time 15 μs	Third Harmonic Level (2605 MHz)					
+Vcc = 4,5 5,0 V-30dBmRadiated EmissionsAccording to I-ETS-300-220 and I-ETS-300-683TX Switching On time15μsPower Down Mode Electrical Characteristics:	+Vcc = 4,5 5,0 V			-30	dBm	
Radiated EmissionsAccording to I-ETS-300-220 and I-ETS-300-683TX Switching On time15Power Down Mode Electrical Characteristics:	Fourth Harmonic Level (3473 MHz)					
TX Switching On time 15 μs Power Down Mode Electrical Characteristics:	+Vcc = 4,5 5,0 V			-30	dBm	
Power Down Mode Electrical Characteristics:	Radiated Emissions	Accordin	ng to I-ETS-300-22	0 and I-ETS-300	0-683	
	TX Switching On time			15	μs	
	Power Down Mode Electrical Characteristic	:5:				
Current Consumption 5 µA	Current Consumption			5	μA	

PIN DESCRIPTION:						
Pin	Name	Description				
1	N.C.	Not Connected				
2	+VccTR	Power Supply				
3	RFH	RF Input/Output. In transmission the power output is 10 mW. An antenna with 50 Ω characteristic impedance can be connected , see three examples below. Note: if this pin is used then the ausiliary pin RFL (pin 9) must be not connected.				

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to RFH pin



Isolated copper wire with 0,5 mm thick Solenoid diameter: 3,2 mm 12 coils 3 mm spaced

Antenna on PCB Strip thickness: 1 mm Ring Area: from 4 to 10 cm2 fp (feed point): from 15 to 25% of the entire antenna lenght C:variable capacity 1,5... 5 pF

Conductive wire, strip on PCB or their com-bination up to 8,6 cm total lenght

Note: the brought back values over there are pure indicative. Optimal antenna matching goes searched using adequate instrumentation (for es. Networks Analyzer).

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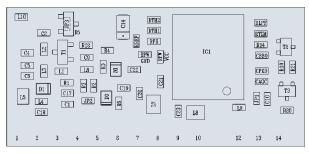
		Description					
4	GND						
5	+Boost	Booster Power Supply : this pi Note: supply the booster or if the power otput is 1 mW (u to ground or not connected	ly during transm	nission (see pi	n 7 descriptior	ו – CTRL1 <u>)</u>	
6	GND	Ground (0 V)					
7	CTRL1	The transceiver function mod and +Boost according to the		ight the inputs	CTRL1, CTRL0	I	
		Functi		CTRL1	CTRLO	+Boos	
		Power de OOK Transmission 1		0	0	0	
		OOK Transmission		0	1	0	
		Not Def		1	0	X	
		R eceiving I	Node	1	1	0	
		Note: as it turns out from the on CTRL1 and CTRL0 input is solution is recommended :					
			(TRL) (A) (A) (A) (A) (A) (A) (A) (A) (A) (A)	and and state			
8	CTRL0	See pin 7 description (CTRL1)	*	+			
o 9	RFL	RF Input/Output . In transmis	sion the power ou	Itput is 1 mW.		1 31	
		Note: if this pin is used then i film resistor Rlow (10 K_). See		nove the thick	rimu	overe	
					5 6	6 7	
10	GND	Ground (0 V)			5 6	5 7	
10 12	GND T.P.	Ground (0 V) Test Point: rapresents the den characteristic impedance of t mode becomes very high. If t changes to 10 mV/dB and car above are proportionally low signal measuring the value of o The simpler outline in order to	his pin is about 1 he received signal n reach the 685 m er. It is possible to offset that the T.P.a	K_, while in tra I has 50% duty V. For a smaller obtain a RSSI 1 ssumes during -vel is the follow	smission and p cycle, the si-gr duty cycle the function on the the reception c wing:	oower dow nal on T.P. e two value e received	
		Test Point: rapresents the den characteristic impedance of t mode becomes very high. If t changes to 10 mV/dB and car above are proportionally low signal measuring the value of o The simpler outline in order to	his pin is about 1 he received signal o reach the 685 m er. It is possible to offset that the T.P. a o obtain a RSSI le- 10 K T.P. Pin 12 ~////-	K_, while in tra I has 50% duty V. For a smaller obtain a RSSI 1 ssumes during -vel is the follow	smission and p cycle, the si-gr duty cycle the function on the the reception c wing:	oower dow nal on T.P. e two value e received	
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		Test Point: rapresents the den characteristic impedance of t mode becomes very high. If t changes to 10 mV/dB and car above are proportionally low signal measuring the value of o The simpler outline in order t Typical values for the RSSI lev Max Min The applications of the RSSI s - level indicator of the radio s - battery economizer, since av - keeping the booster off, whe of the receiver. It is recommen	his pin is about 1 he received signal or reach the 685 m er. It is possible to offset that the T.P.a. o obtain a RSSI le- 10 K T.P. Pin 12 ~////- els are: T.P. Offset 2.10 V 2.03 V 1.97 V 1.92 V 1.86 V 1.79 V 1.77 V ignal can be: gnal. roid the use of the en two devices are	K_, while in tra I has 50% duty V. For a smaller obtain a RSSI f ssumes during vel is the follow to RSSI 10 nF 10 nF	smission and p cycle, the si-gr duty cycle the function on the the reception of wing: Out RF Signal Lev - 50 dBm - 60 dBm - 70 dBm - 80 dBm - 90 dBm - 100 dBm absence of RF	oower dov nal on T.P. e two value e received of the signa vel signal ng signal. tion	
		Test Point: rapresents the den characteristic impedance of t mode becomes very high. If t changes to 10 mV/dB and car above are proportionally low signal measuring the value of o The simpler outline in order t Max Max Min The applications of the RSSI s - level indicator of the radio s - battery economizer, since av - keeping the booster off, who of the receiver. It is recommen greater than 2 V :	his pin is about 1 he received signal or reach the 685 m er. It is possible to offset that the T.P.a. o obtain a RSSI le- 10 K T.P. Pin 12 ~////- els are: T.P. Offset 2.10 V 2.03 V 1.97 V 1.92 V 1.86 V 1.79 V 1.77 V ignal can be: gnal. roid the use of the en two devices are	K_, while in tra I has 50% duty V. For a smaller obtain a RSSI f ssumes during vel is the follow to RSSI 10 nF 10 nF	smission and p cycle, the si-gr duty cycle the function on the the reception of wing: Out RF Signal Lev - 50 dBm - 60 dBm - 70 dBm - 80 dBm - 90 dBm - 100 dBm absence of RF	oower dov nal on T.P. e two value e received of the signa vel signal ng signal. tion	

PIN DESCRIPTION:

Pin	Name	Description
13	RXD	Data Output in Receiving Mode
14	TXD	Data Input in Trasmission. Note: in receiving and power down mode on this pin must be a zero logical level

CUSTOMIZING THE TRANSCEIVER:

The Transceiver is supplied in a standard configuration, whose performances are described in the techni-cal characteristics. Various configurations are possible in order to optimize the behavior in base of the di-gital signal characteristics. In the figure and in the following table the positions and the indicative values of the involved components are brought back.



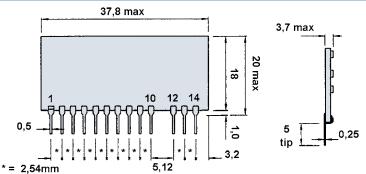
Description	Symbol	Operation Mode			Default Values		
		OOK	OOK	ASK	ASK	Units	Varaes
Data Trasmission Rate		2.4	19.2	57.6	115.2	kbps	1.2 ÷ 38.4
Min. Impulse Width							
Single Bit		417	52	17	8	_S	-
Max. Impulse Width							
4 Bit		1666	208	69	34	μS	-
Capacitor	CAGC	-	-	4700	2200	рF	-
Capacitor	CPKD	-	-	2	1	nF	-
Capacitor	CBBO	100	15	5.6	2.7	nF	150
Resistor	RTXM	8.2	8.2	8.2	8.2	K	8.2
Resistor	RLPF	240	30	25	12	K	30
Resistor	RREF	100	100	100	100	K	100
Resistor	RTH2	-	-	100	100	K	82
Resistor	RTH1	10	27	100	100	K	100
Resistor	RPR	1100	330	160	160	K	330
Resistor	RPW	270 vs	270 vs	1000 vs	1000 vs	K	270 vs
		GND	GND	Vcc	Vcc		GND

MODIFYING THE VOLTAGE SUPPLY:

Refering to the Fig. 1, the Transceiver can be configure in order to work with 5 V or 3 V power supply applying the following changes :

Vcc	D5 - BAV99	JP3 - 0 ohm	R3	RTXM
5 V	MOUNTED	NOT MOUNTED	22K	8K2
3 V	NOT MOUNTED	MOUNTED	18K	3K3

MECHANICAL DIMENSIONS:



More information about the integrated circuit TR1001 employed for the Transceiver realization can be find on the manufacturer website: RFM.com.

Mipot S.p.A. reserves the right to modify the specifications without notice.

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