Plano RF Module User Manual

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1. Features

- 2.4GHz Frequency Hopping spread spectrum (FHSS) radio transceiver module
- Operates in the unlicensed worldwide ISM band (2.4 GHz to 2.483.5GHz) band
- Fully integrated power regulation with a wide input unregulated operating range 3V to 10V
- Fully integrated local oscillator and 24MHz 10ppm reference crystal
- 400mA operating current
- Transmit power - <=18.5dBm in EU, <=26dBm in North America
- Receive sensitivity up to -95dBm
- DSSS data rates up to 1Mbps
- 1 mile operating range
- Full packet assembling and disassembling
- Auto transaction sequencer
- Fully buffered digital interface with high voltage tolerant inputs

2. Pin description

Pin Number	Name	Description
1	RF_P	Positive RF input signal to LNA during RX
		Positive RF output signal to PA during TX
2	RF_N	Negative RF input signal to LNA during RX Negative RF output signal to PA during TX
3,7,17,20,29,33	GND	Module GND
4	RX_TX	Optional bias pin for the RF LNA
5	X32K_Q1	32-kHz crystal oscillator pin 1
6	X32K_Q2	32-kHz crystal oscillator pin 2
8	DIO_0	GPIO, Sensor Controller, high-drive capability
9	DIO_1	GPIO, Sensor Controller, high-drive capability
10	DIO_2	GPIO, Sensor Controller, high-drive capability
11	VDDS2	1.8-V to 3.8-V GPIO supply
12	DCOUPL	1.27-V regulated digital-supply decoupling capacitor(
13	JTAG_TMSC	JTAG TMSC

14	JTAG_TCKC	JTAG TCKC
15	DIO_3	GPIO, High drive capability, JTAG_TDO
16	DIO_4	GPIO, High drive capability, JTAG_TDI
18	DCDC_SW	Output from internal DC-DC. Tie to ground for external regulator mode
19	VDDS_DCDC	(1.7-V to 1.95-V operation)
21	RESET_N	Reset, active-low. No internal pullup.
22	DIO_5	GPIO, Sensor Controller, Analog
23	DIO_6	GPIO, Sensor Controller, Analog
24	DIO_7	GPIO, Sensor Controller, Analog
25	DIO_8	GPIO, Sensor Controller, Analog
26	DIO_9	GPIO, Sensor Controller, Analog
27	VDDS	1.8-V to 3.8-V main chip supply
28	VDDR	1.7-V to 1.95-V supply, typically connect to output of internal DC-DC.
30	X24M-N	24-MHz crystal oscillator pin 1
31	X24M_P	24-MHz crystal oscillator pin 2
32	VDDR_RF	1.7-V to 1.95-V supply, typically connect to output of internal DC-DC(

3. Specifications

Parameter	Value	Units
Storage Temp	-65 to 105	Degrees Celsius
VDD	2.4 to 3.6	Volts
Receive Sensitivity	-95	dBm
Transmit power (conducted)	25.5	dBm MAX
Transmit power (radiated)	27	dBm MAX
Idle current	5	mA
Receive current	22	mA
Transmit current	400	mA

4. Module User Requirements

4.1 This module must be integrated into a device where the user cannot access the antenna connector.

4.2 Only a 1.5dBi antenna can be used with this module. The antenna must meet and not exceed the gain and pattern of the supplied folded dipole antenna.

4.3 The device must contain the following permanent labeling on the exterior of the device as follows:

Contains FCC ID: BRWPLANO1T
Contains IC: 6157A-PLANO1T

4.4 The user manual of the device must contain the following paragraph:

FCC Information

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution:

Changes or modifications not expressly approved by the party

manufacturer could void the user's authority to operate the equipment.

4.5 This module meets the requirements for a mobile device that may be used at separation distances of more than 5cm from the human body. It may be used in hand-held controllers that provide a separation distance of at least 5cm between the antenna and the body (excluding hands/wrists).

IC Information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Information IC

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

CE Information

This product contains a radio transmitter with wireless technology

which has been tested and found to be compliant with the applicable

regulations governing a radio transmitter in the 2.400 GHz to 2.4835 GHz

frequency range.