Radio module deRFmega256 23M12

Datasheet

- The main component of the deRFmega256-23M12 radio module is the ATmega256RFR2 and a PA/LNA front-end. The single chip solution of Atmel combines an 8-Bit AVR microcontroller with a 2.4 GHz transceiver for wireless applications like ZigBee or 6LoWPAN and complies with IEEE 802.15.4.
- The radio module is designed as long range end devices for wireless sensor networks combined with very low sleeping current. The user can access all important signals via a total of 59 solderable LGA pads (0.80 mm pitch), positioned at the radio module's bottom side.
- With the special receive features of the ATmega256RFR2 the module consumes with at 8 MHz running microcontroller only unrivaled 17 mA in receive listen extending battery life considerably.
- The solderable RF pads allow the use of own external antenna designs or coaxial sockets.
- The on-board HF front-end has a transmit gain of +20 dB delivering a transmit output of up to +23 dBm and a receiver sensitivity of -104 dBm.
- At 8 MHz MCU clock the radio module has a current consumption of approx. 233 mA (+23 dBm) in transmit and 22/17 mA in receive mode (receive/listen). In sleep mode the current consumption is less than 1 µA. The supply voltage range is 2.0 VDC to 3.6 VDC.

deRFmega256-23M12

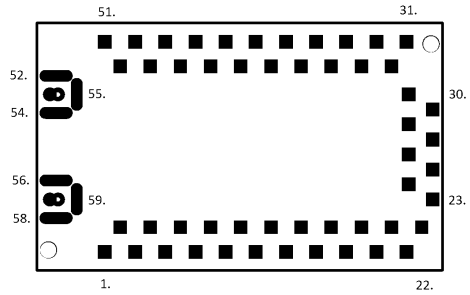
Technical Data

Dimensions	21.5 x 13.2 x 3.0 mm
Operating temperature	-40 to +85°C
Controls and display elements	None
Power supply	2.0 to 3.6 VDC
Power consumption @ 3.3 VDC	TX: 49 mA @ +5.5 dBm TX: 233 mA @ +23 dBm RX: 22 mA | RX listen: 17mA Sleep: <1 µA
Connections	59 pads
Antenna	RF pads
Antenna gain	n.a.
Antenna diversity	Yes
External front end connection	n.a.
Range	Depending on antenna
Frequency range	2.4 GHz
Transmit power	+23 dBm (US) | +10 dBm (EU)
Receiver sensitivity	-104 dBm (250kbit/s)
Communication standard	IEEE 802.15.4
Data rate (gross)	250 kbit/s, 500 kbit/s, 1 Mbit/s, 2 Mbit/s
Microcontroller	ATmega256RFR2
Transceiver	Integrated
Interfaces	JTAG, UART, I2C, ADC, SPI, GPIO
Certification	CE, ETSI, FCC

Pin Assignment

Pin Assignment

1:	DGND	16:	PD0/SCL	31:	DGND	46:	PF6/TDO
2:	VCC	17:	PD1/SDA	32:	PE3	47:	PF5/TMS
3:	DGND	18:	PD5/XCK1	33:	PE4	48:	PF4/TCK
4:	RSTN	19:	PD6	34:	PE5	49:	DGND
5:	RSTON	20:	PB0	35:	NC	50:	VCC
6:	PG0/DIG3	21:	PB2/MOSI	36:	NC	51:	DGND
7:	PG1/DIG1	22:	PB1/SCK	37:	PD4		
8:	PG2/AMR	23:	PB3/MISO	38:	AVDD	52:	RFGND
9:	PG5	24:	PB4	39:	AREF	53:	RFOUT2
10:	PE7	25:	PB5	40:	PF0/ ADC0	54:	RFGND
11:	PE6	26:	PB6	41:	PF1/ ADC1	55:	RFGND
12:	PD3/TXD1	27:	PB7	42:	PF2/ADC2/DIG2	56:	RFGND
13:	PD2/RXD1	28:	PE0/RXD0	43:	PF3/ADC3/DIG4	57:	RFOUT1
14:	CLKI	29:	PE1/TXD0	44:	DGND	58:	RFGND
15:	PD7	30:	PE2/XCK0	45:	PF7/TDI	59:	RFGND



Footprint deRFmega256-23M12

For detailed dimensions and notes to be applied please refer to the user manual.

Order Information

Scope of delivery — **Part number**

Radio module deRFmega256-23M12 — BN-600013

Development boards

deRFnode-2TNP2-00N00	BN-031634
Adapter board deRFmega256-23T13	BN-600016
deRFbreakout board	BN-032688

Options

Board options

Radio module deRFmega256-23M00	BN-600011
Radio module deRFmega256-23M10	BN-600012
Radio module deRFmega128-22M00	BN-034491
Radio module deRFmega128-22M10	BN-034492
Radio module deRFmega128-22M12	BN-034368

More information about the variants can be found in detail in the user manual.

Order online: https://shop.dresden-elektronik.de

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