

Radio module deRFsam3 13M10

Datasheet

- The main components of the deRFsam3-13M10 radio module are the powerful Atmel 32-Bit ARM Cortex-M3 microcontroller ATSAM3S4 combined with the low power sub-GHz transceiver AT86RF212. The radio module is designed for wireless applications like ZigBee or 6LoWPAN and complies with IEEE 802.15.4 standard.
- The radio module is designed as end device as well as router, coordinator or gateway for wireless sensor networks.
- The user can access all important signals via a total of 55 solderable LGA pads (0.80 mm pitch), positioned at the radio module's bottom side.
- RF pads enable own external antenna designs or coaxial sockets. The integrated transceiver has a receiver sensitivity of -110 dBm as well as a 128-Bit AES data encryption unit.
- At 48 MHz MCU clock the radio module has a current consumption of approx. 47 mA (+4 dBm) and 54 mA (+8 dBm) in transmit mode and 37 mA in receive mode. In sleep mode the modules consumes less than 6 µA. The supply voltage range is 1.8 VDC to 3.6 VDC.



Technical Data

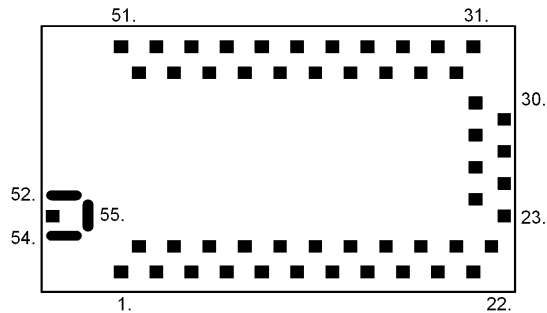
Dimensions	21.5 x 13.2 x 3.0 mm
Operating temperature	-40 to +85°C
Controls and display elements	None
Power supply	1.8 to 3.6 VDC
Power consumption @ 3.3 VDC	TX: 47 mA @ +4 dBm TX: 54 mA @ +8 dBm RX: 37 mA Sleep: <6 µA at 32 kHz
Connections	55 pads
Antenna terminal	RF pads
Antenna gain	Depends on user RF design
Antenna diversity	Yes*
External front end connection	Yes
Range	>200m (line of sight) Depends on user RF design
Frequency range	780 / 868 / 915 MHz
Transmit power	+4 dBm (780/868 MHz) +8 dBm (915 MHz)
Receiver sensitivity	-110 dBm (20kbit/s)
Communication standard	IEEE 802.15.4
Data rate (gross)	250 / 500 / 1000 kbit/s (780 MHz) 20 / 100 / 200 / 400 kbit/s (868 MHz) 40 / 250 / 500 / 1000 kbit/s (915 MHz)
Microcontroller	ATSAM3S4
Transceiver	AT86RF212
Interfaces	JTAG, UART, I2C, ADC, SPI, GPIO, USB
Certification	CE, ETSI, FCC pending

Technical Data

* external components required

Pin Assignment

1:	DGND	15:	NC	29:	PA10/UTXDO	43:	DIG4
2:	VCC	16:	PA4/TCKLO	30:	PB0/AD4	44:	DGND
3:	DGND	17:	PA3/TWDO	31:	DGND	45:	TDI
4:	NRST	18:	NC	32:	PB1/AD5	46:	TDO
5:	JTAGSEL	19:	PA8	33:	NC	47:	TMS
6:	DIG3	20:	NC	34:	NC	48:	TCK
7:	DIG1	21:	PA6/TXDO	35:	ERASE	49:	DGND
8:	PA7	22:	PA2/SCKO	36:	USBDM	50:	VCC
9:	NC	23:	PA5/RXDO	37:	USBDP	51:	DGND
10:	NC	24:	NC	38:	AVDD		
11:	NC	25:	NC	39:	AREF	52:	RFGND
12:	PB3/UTXD1	26:	NC	40:	PA18/AD1	53:	RFOUT
13:	PB2/URXD1	27:	NC	41:	PA19/AD2	54:	RFGND
14:	NC	28:	PA9/URXDO	42:	PA20/AD3	55:	RFGND



Footprint deRFsam3-13M10

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

Scope of delivery

Radio module deRFsam3-13M10

Part number

BN-034489

Development boards

deRFnode-1TNP2-00N00
 Adapter board deRFsam3-13T02
 deRFbreakout Board

BN-031632
 BN-034478
 BN-032688

Board options

Radio module deRFsam3-23M10-2
 Radio module deRFsam3-23M10-3R

BN-034490
 BN-600042

More information about the product and its variants can be found in the user manual.
 Order online: <https://shop.dresden-elektronik.de>

Pin Assignment

Order Information

Options