dresden elektronik

Radio modules deRFmega128 22M00 | 22M10

Datasheet

- The main component of the deRFmega128-22M00 | 22M10 radio modules is the ATmega128RFA1. Atmel's single chip solution combines an 8-bit AVR microcontroller with a 2.4 GHz transceiver for wireless applications like ZigBee or 6LoWPAN and complies with the IEEE 802.15.4 standard.
- The radio modules are designed as energy-saving end devices for wireless sensor networks. The user can access all important signals via a total of 51 or 55 solderable LGA pads (0.80 mm pitch), positioned at the radio module's bottom side.
- Type 22M00: has an integrated antenna eliminating the need for additional RF design. It minimizes the integration time and BOM costs on customized designs.

  Type 22M10: with its RF pads it enables own external antenna designs or coaxial sockets.
- The integrated transceiver has a receiver sensitivity of –100 dBm as well as an 128-bit AES data encryption unit.
- The radio modules have a very low current consumption of approx. 18 mA in transmit and 17 mA in receive mode. Current consumption in sleep mode is less than 1 µA. The supply voltage can range from 1.8 VDC up to 3.6 VDC.

deRFmega128-22M00

deRFmega128-22M10

Technical Data

Dimensions	19.0 x 13.2 x 3.0 mm (22M10) 23.7 x 13.2 x 3.0 mm (22M00)
Operating temperature	–40 to +85°C
Controls and display elements	None
Power supply	1.8 to 3.6 VDC
Power consumption	TX: 18 mA | RX: 17 mA | Sleep: <1 µA
Connections	55 pads (22M10) 51 pads (22M00)
Antenna	RF pads (22M10) Chip ceramic antenna (22M00)
Antenna gain (22M00)	+1.3 dBi (peak) | –0.5 dBi (average)
Antenna diversity	Yes* (22M10) No (22M00)
External front end connection	Yes (22M10) No (22M00)
Range (22M00)	>200 m (line of sight)
Frequency range	2.4 GHz
Transmit power	+2.9 dBm
Receiver sensitivity	–100 dBm
Communication standard	IEEE 802.15.4
Data rate (gross)	250 kbit/s, 500 kbit/s, 1 Mbit/s, 2 Mbit/s
Microcontroller	ATmega128RFA1
Transceiver	Integrated
Interfaces	JTAG, UART, I2C, ADC, SPI, GPIO
Certification	CE, ETSI, FCC pending

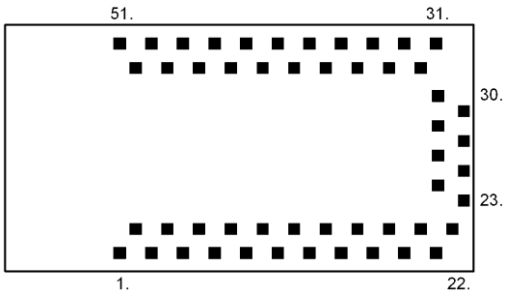
* external components required

Pin Assignment

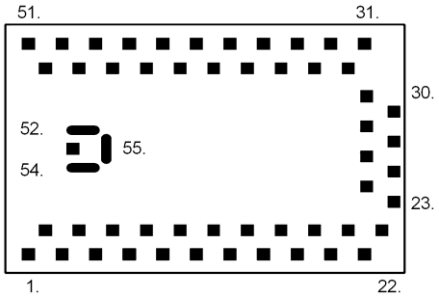
Pin Assignment

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

* 22M10 only



Footprint deRFmega128-22M00



Footprint deRFmega128-22M10

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

Order Information

Scope of delivery	**Part number**
Radio module deRFmega128-22M00	BN-034491
Radio module deRFmega128-22M10	BN-034492
Development boards	
deRFnode-2TNP2-00N00	BN-031634
Adapter board deRFmega128-22T00	BN-034224
Adapter board deRFmega128-22T02	BN-034476
deRFbreakout Board	BN-032688

Options

Board options	
Radio module deRFmega128-22M12	BN-035722

More detailed information about all variants is given in the user manual.
Order online: https://shop.dresden-elektronik.de/

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