## DESCRIPTION

Transceiver of digital data working in the bandwidth 870MHz, with reception frequencies 868,3MHz and 869,85MHz. FSK modulation and high efficiency integrated antenna.

It transmits data in transparent way coming from proprietary protocols with a maximum data of 9600 bps (NRZ) and of 4800 with Manchester coding.

The main features are: Effective radiated Power of 6dBm, reception sensitivity-108dBm FSK mode, voltage supply from 2.1 V to 3.6 V. It's comply with ETSI EN 300220-1 V3.1.1.
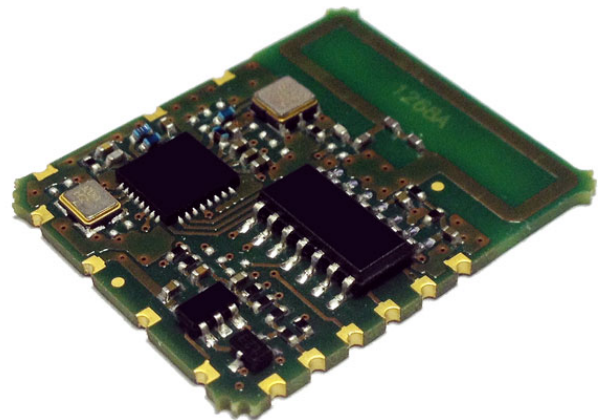
The device has a compact size in SMD format, available in reel for automated assembly.

MECHANICAL DIMENSIONS AND PIN-OUT
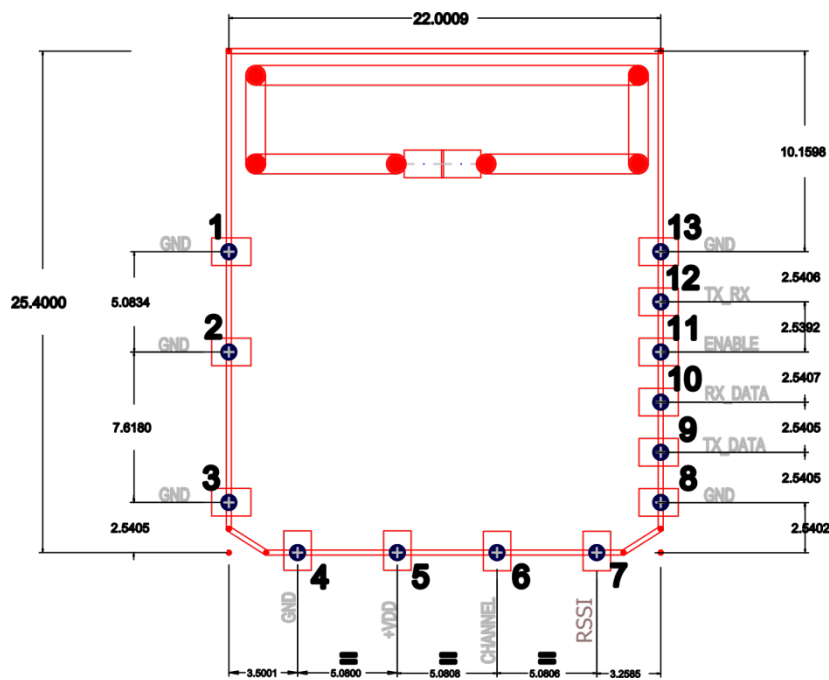
Absolute limit values

Voltage supply	-0,3V +3,6V
Digital voltage input	-0,3V ÷ Vcc+0,6V
Digital voltage output	0V ÷ Vcc
Voltage input pin. 6,8,11,12	-0,3 ÷ Vcc
Working temperature	-20°C ÷ +70°C

The technical specifications are subject to change without notice. AUREL SpA does not assume responsibilities for any damages caused by improper use of the device.

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PIN DESCRIPTION

Pin 1	**GND**	Connected to the negative voltage supply
Pin 2	**GND**	Connected to the negative voltage supply
Pin 3	**GND**	Connected to the negative voltage supply
Pin 4	**GND**	Connected to the negative voltage supply
Pin 5	**+Vcc**	Connected to the positive voltage supply: +2,1V ÷ +3,6V
Pin 6	**CN/SEL**	RF CHANNEL SELECTION: 0 o NC = frequency 868,3MHz 1 = frequency 869,85MHz
Pin 7	**RSSI**	Not implemented feature
Pin 8	**GND**	Connected to the negative voltage supply
Pin 9	**DIGITAL DATA INPUT**	Transmitter digital data input: Low logic level: transmission of Low logic level 0 High logic level: transmission of High logic level 1
Pin 10	**DIGITAL DATA OUTPUT**	Receiver digital data output
Pin 11	**ENABLE**	Connect to the positive or negative voltage supply as below: 0 = PWDN (switched-off device with a current consumption < 1uA) 1 = Active (switched-on device ready to receive and transmit)
Pin 12	**TX/RX**	Connect to the positive or negative voltage supply as follows: 0 o N.C = Reception (Active receiver) 1 = Transmission (Active transmitter) NOTE: For the switching times please see the technical specification below Pin connected to pull down resistance
Pin 13	**GND**	Connect to the negative power supply

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Technical specification

	Min	Typical	Max	Unit	NOTE
Vs voltage supply	2,1	3	3,6	**V**	
Current consumption in power-down mode **Pin 11 (ENABLE) = 0** **Pin 5 (+Vcc) = +Vcc** **Pin 6 (CN/SEL) = 0** **Pin 9 (TX-DATA) = 0 or NC** **Pin 12 (TX/RX) = 1 or NC**			1	**uA**	
Current consumption RX = ON **Pin 5 (+Vcc) = 1** **Pin 11 (ENABLE) = 1** **Pin 12 (TX/RX) = 0 or NC**		4		**mA**	
Current consumption in "FSK transmission" mode: **Pin 5 (+Vcc) = 1** **Pin 11 (ENABLE) = 1** **Pin 12 (TX/RX) = 1**		27	30	**mA**	
Reception frequency 1 **Pin 6 (CN/SEL) = 0**	868,29	868,3	868,31	**MHz**	
Reception frequency 2 **Pin 6 (CN/SEL) = 1**	869,84	869,85	869,86	**MHz**	
RF Sensitivity in FSK		-108		**dBm**	
ERP	0,05		5	**dBm**	
FSK deviation - ΔF		±25		**KHz**	
Blocking to ± 2MHz		72		**dB**	see note 1
Blocking to ± 10MHz		90		**dB**	see note 1
Immunity to LTE bandwidth with sensitivity -107dBm		90		**dB**	
Immunity to LTE bandwidth with sensitivity -95dBm		100		**dB**	
Output Square wave	0,05	1	5	**KHz**	
Input Square wave	0,01		5	**kHz**	
Low logic level output (Digital outputs)			gnd+0,4	**V**	see note 2
High logic level output (Digital outputs)	V_{cc}-0,25			**V**	see note 2
High logic level input (Digital input)	Vs-0,6		Vs+0,6	**V**	
Low logic level input (Digital input)			0,4	**V**	
Emission RF spurious in antenna			-60	**dBm**	
Switch-on Time PWRDN → TX-ON **Usage condition:** **pin 5 = +Vcc** **pin12 (TX/RX) = 1** **pin 11 (Enable) = 0 → 1** **pin 6 (CN/SEL) = 0 or 0 → 1**	2,5		4	**ms**	see note 3
Switch-on Time PWRDN → RX-ON **Usage condition:** **pin 5 = +Vcc** **pin12 (TX/RX) = (1 or NC) → 0** **pin 11 (Enable) = 0 → 1** **pin 6 (CN/SEL) = 0 or 0 → 1**			4	**ms**	see note 3
Switching time TX → RX		0,5	1	**ms**	see note 3
Switching time RX → TX		0,5	1	**ms**	see note 3
Operating temperature	-20		+70	**°C**	

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Dimensions	25,4 x 22 x 2,5 mm	

NOTE 1: Test carried out with the criterion described on paragraph 5.18 of the ETSI EN 300 220-1 V3.1.1 normative.
NOTE 2: Values obtained with a maximum 100KΩ load.
NOTE 3: Time employed from the device to reach the declared technical specification.

Release:
Rev. 0 : First issue
Rev. A : Pin 7 function change, mecanichal drawing and dimension modification, data-rate parameter.
Rev. B : TX to RX and PWDN to TX and PWDN to RX time change.
Rev.C : PWDN to TX and PWDN to RX usage condition, reference rules