



2001-08-10

PRODUKTINFORMATION

Vi reserverar oss mot fel samt förbehåller oss rätten till ändringar utan föregående meddelande

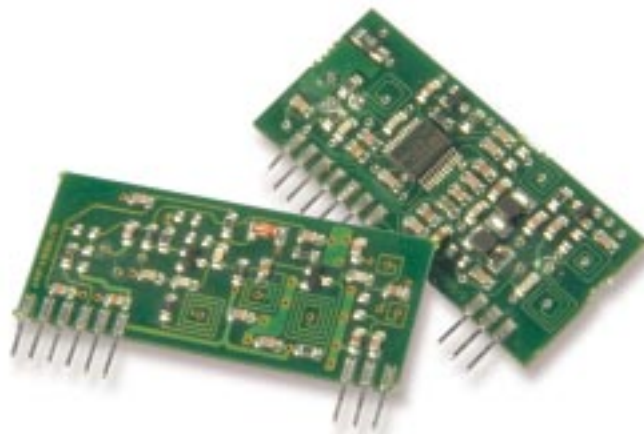
ELFA artikelnr

78-301-10 TX modul ARF09, ARF6374F

78-301-69 RX modul ARF09, ARF6370A

Low cost UHF FSK transmitter and receiver dedicated to general public applications (medium data rate)

The ARF09 transmitters and receivers enable an economic one-way FM digital link over several hundreds metres. They are used as an asynchronous serial channel with a possible binary transmission rate of 2400 / 9600 bps. They function on the 434 MHz band in compliance with the European RTTE directive (EN 300-220 & EN 301-489) and are available as integratable daughter boards. The applications cover point to point or micro-network data transmissions at a medium rate.



TXARF09 transmitter

- SAW frequency reference
- Frequency 433.92MHz (433.42MHz on request)
- Developed power: 10 mW / 50 Ω
- Frequency modulation: FSK or FM \pm 25 kHz
- Serial digital input: 0 - Vdc
- Operating voltage: 3 or 5 V
- Electronic consumption: 25 mA / 5 V
- Dimensions: 46 x 18 x 3 mm

RXARF09 receiver

- Superheterodyne with single frequency change
- Frequency 433.92MHz (433.42MHz on request)
- Input sensitivity: 1.2 μ V for 12 dB S/N (BER < 10⁻³)
- Frequency demodulation
- Bandwidth: < 250 kHz
- Serial digital output: 0 - 5 V
- Operating voltage: 2.7 to 6 V
- Electronic consumption: 8 mA on receipt
- Dimensions: 40 x 22 x 7 mm

Complete system performances

- 400 m range in open field
- Transmission rate from 2400 to 9600 bps NRZ
- Operating temperature: - 20 to + 70° C
- Can be qualified in compliance with European RTTE directive (EN 300-220 & EN 301-489)

Alternative versions

- ARF6374F: FSK 433.9 MHz transmitter - 5 V version
- ARF6374G: FSK 433.4 MHz transmitter - 5 V version
- ARF6374H: FSK 433.9 MHz transmitter - 3 V version
- ARF6370A: FSK 433.9 MHz receiver - Standard version
- ARF6370B: FSK 433.4 MHz receiver - Standard version

Our local distributor:

Qualification

When using radio transceivers in the form of integrated daughter boards, qualification relates to the finished product. Presentation for qualification takes place after a request for a qualification file for radiocommunication products using "data transmission by radiofrequency channel falling into the Low Power Devices category".

Presentation for european qualification requires :

1. The presentation file duly completed.
2. The report of compliance with Radio Standard ETS 300-220.
3. The report of compliance with EMC Standard ETS 301-489.

Important :

Although the ARF09 daughter boards comply with the criteria and dimensions of the radio standard ETS 300-220, their integration with a "mother" electronics system may modify some electrical characteristics (harmonic levels, spurious RF, etc...)

Before it is sent for laboratory tests, the product therefore has to be examined on our premises to check that it complies with regulations and thus avoid a possible administrative refusal

After presentation, the product has to be kept as proof of qualification.

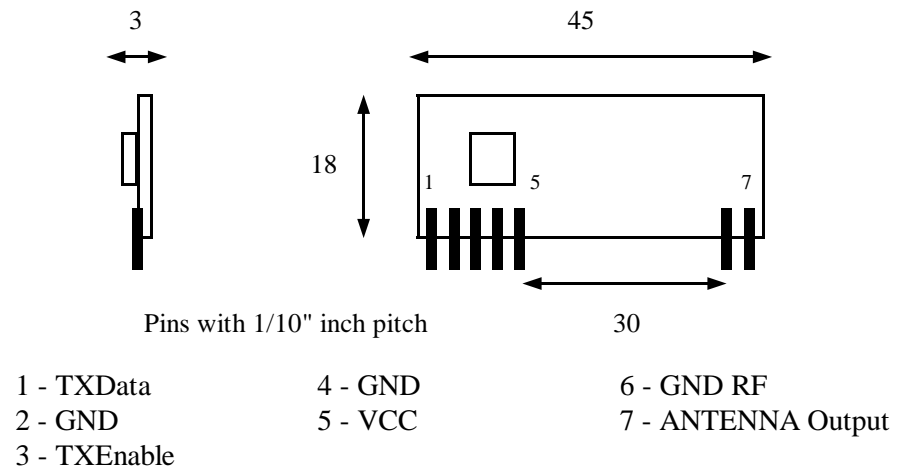
TXARF09 transmitter

General use :

The TXARF09 transmitter is a SAW transmitter developing a power of 10 mW on 50? . The radiated power is then about 8 mW when a ground plane whip antenna (length 17 cm) is used. This transmitter admits a WBFSK digital modulator.

This transmitter is compatible with any FM receiver able to deal with frequency deviations of 20 to 50 kHz.

Dimensions / Pin assignment :



Notes :

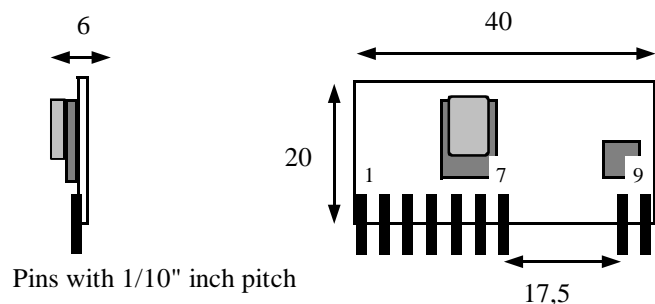
- ?? Power-up of the transmitter will be obtained by applying a logical level 1 (=Vcc) on its TXEnable input.
- ?? The TXData input directly controls the WBFSK modulator. Any voltage from 2.5 to 9V, independent from the VDC, can be used on a logic 1.
- ?? Data to be transmitted are injected on TXData pin. Because ARF09 is a "rough" link, data rate has to be in the equivalent 200 / 5000 Hz range.
- ?? For more informations about Radio Protocol : http://www.adeunis-rf.com/oem/appli_notes/an_radio-low-level-protocol.pdf
- ?? A transmitter by definition generates a large electrical field. The neighbouring high-impedance circuits will therefore have to be moved away or protected.

RXARF09 receiver

Geenral use :

The RXARF09 receiver is a superheterodyne receiver with a sensitivity better than 1.5 μV . The use of a whip antenna is compulsory to obtain suitable characteristics on receipt.

This receiver is compatible with any 15 to 40 kHz FSK transmitter using a synthesized or SAW frequency reference.



- | | | |
|------------|---------------------------|-------------------|
| 1 - RSSI | 4 - Audio (For Test Only) | 7 - PWRDN |
| 2 - VCC | 5 - VCC | 8 - ANTENNA Input |
| 3 - RXData | 6 - GND | 9 - GND RF |

Notes :

- ?? Receiver sampling must be performed via the PWDN pin (Receipt valid if PWDN = 0 / Standby if PWDN = 1). *For more information :* http://www.adeunis-rf.com/oem/appli_notes/an_low-power-mgt.pdf
- ?? The RSSI outputs gives an overview of the RF input level. But DC level image of RF level only varies from 1,15 to 1,55 V !
- ?? The AUDIO output can be used for analogue transmission; the associated transmitter must however admit an analogue modulator.
- ?? A receiver is by definition sensitive at very low electrical levels. It should therefore be kept away from any known radioelectrical source (fast time base, logic clock, PWM power supply, address / data bus...). Likewise particular care should be taken over decoupling of its VDC (10 μ / 100 nF RC circuit recommended) *For more information :* http://www.adeunis-rf.com/oem/appli_notes/an_emc-radio-integration.pdf

Technical Characteristics

TXARF09 Transmitters

Frequency	433.9 MHz / ARF6374F & H 433.4 MHz / ARF6374G
Developped power / ANT. Out.	10 mW / 50?
Modulation	FSK 25 kHz
Digital Input / TXData	2,5 to 9 V
NB : Transmitter is off ($I < 100$ nA) when TXEnable = 0.	
TxEnable : Input Load 5 k? ???	
Operating voltage / VCC	3 V \pm 10% / ARF6374H 5 V \pm 10% / ARF6374F & G
Consumption	< 25 mA
Dimensions	46 x 18 x 3

NB : Electrically & Pin compatible with Old ARF4006F & G & H Transmitters

RXARF09 Receivers

Frequency	433.9 MHz / ARF6370A 433.4 MHz / ARF6370B
Sensitivity / ANT. In.	1.5 μ V (-104 dBm)
Demodulation	FSK
Bandwidth	300 kHz
Digital Output / RXData	0 / VCC (10 k Ω Impedance)
RSSI range / RSSI	From 1,15 to 1,55 V
Stand by mode	Valid when PWRDN = 1
Settling Time	< 3 ms
Operating voltage / VCC	2.7 to 6 V
Consumption	8 mA / 5 V
Dimensions	40 x 20 x 6

NB : Electrically & Pin compatible with Old ARF4005A & B Receivers

Complete set

Outdoor range	400 m
Indoor range	60 m
Binary data rate	2400 / 9600 bps eq NRZ
Operating Temperature	- 20 to + 70 °C
Regulating standards	Radio : RTTE Direct. (EN 300 220-3) EMC : EN 301 489 -1 & -3