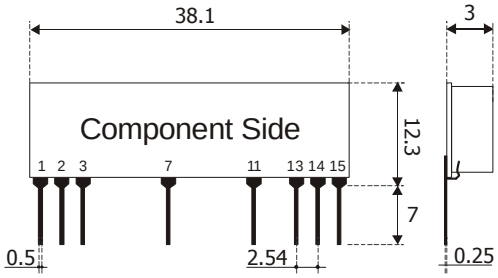
EN: This Datasheet/Document is presented by the manufacturer.

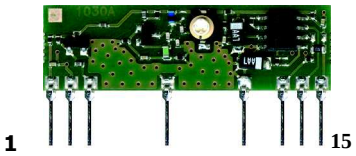
Please visit our website for pricing and availability at www.hestore.hu.

AC-RX2/CS Receiver

RF data receiver super-reactive ASK modulation, low cost and low consumption ideal for Microchip HCS KEELOQ™ decoder/encoder family.

Pin-out





Connections

Pin 2-7-11	**Ground**	GND Connections: Internally connected to a single ground plate
Pin 3	**Antenna**	50Ω impedence antenna connection
Pin 1-15	**+V**	Connection to the +5V ±0.5V supply positive pole
Pin 13	**Test Point**	Analog output of the demodulated signal. By connecting an oscillograph the entity and quality of the received RF signal can be seen.
Pin 14	**Data Out**	Receiver digital output. Apply loads over 10 KΩ

Technical features

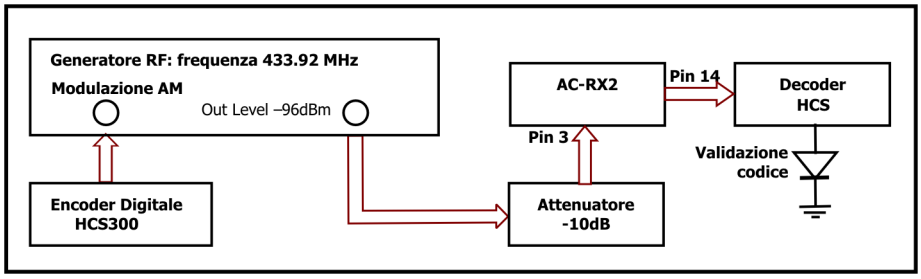
	Min	Tipico	Max	Unità	Annotazioni
Working centre frequency		433.92		MHz	
Voltage supply	4.5	5	5.5	V	
Absorbed current		3		mA	
RF sensitivity		-106		dBm	Vedi nota 1
-3 dB RF bandwidth		±2		MHz	
Square wave output			3	KHz	
Output low voltage			Gnd+0.4	V	Vedi nota 4
Output high voltage	V_S – 0.4			V	Vedi nota 4
RF spurious emissions in antenna		-65		dBm	Vedi nota 2
Switch-on time			2	s	Vedi nota 3
Operating temperature range	-20		+80	°C	
Dimension	38.1 x 12.3 x 3 mm				

Nota1: *Values have been obtained by applying the test system as per Fig. 1.*
Nota2: *The RF emission measure has been obtained by connecting the spectrum analyser directly to RX Pin 3.*
Nota3: *By switch-on time is meant the time required by the receiver to acquire the declared characteristics from the very moment the power supply is applied.*
Nota4: *Values obtained with 10KΩ maximum load applied.*

Le caratteristiche tecniche possono subire variazioni senza preavviso. La AUR°EL S.p.A non si assume la responsabilità di danni causati dall'uso improprio del dispositivo.

The declared technical features have been verified by applying the following test system:

Fig. 1



Device usage

In order to take advantage of the performances described in the technical specifications and to comply with the operating conditions which characterize the Certification, the receiver has to be fitted on a printed circuit, considering what follows:

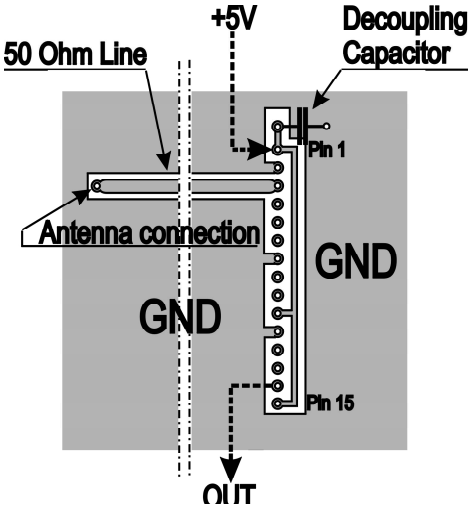
5V Supply voltage

1. The receiver must be supplied by a very low voltage source, safety protected against short circuits.
2. Maximum voltage variations allowed: ± 0.5 V.
3. De-coupling, next to the receiver, by means of a minimum 100.000 pF. ceramic capacitor.

Ground

1. It must surround at the best the welded area of the receiver. The circuit must be double layer, with throughout vias to the ground planes, approximately each 15 mm.
2. It must be properly dimensioned, specially in the antenna connection area, in case a radiating whip antenna is fitted in it (an area of approximately 50 mm radius is suggested.)

Fig.2 Suggested lay-out for the device correct usage



Le caratteristiche tecniche possono subire variazioni senza preavviso. La AUR°EL S.p.A non si assume la responsabilità di danni causati dall'uso improprio del dispositivo.

50 Ohm line

1. It must be the shortest as possible.
2. 1,8 mm wide for 1 mm thick FR4 printed circuits and 2,9 mm wide for 1,6 mm thick FR4 printed circuits. On the same side, it must be kept 2 mm away from the ground circuit.
3. On the opposite side a ground circuit area must be present.

Antenna connection

1. It may be utilized as the direct connection point for the radiating whip antenna.
2. It can bear the connection of the central wire of a 50 Ω coaxial cable. Be sure that the braid is welded to the ground in a close point.

Antenna

1. A **whip** antenna, 16,5 mm long and approximately 1 mm dia, brass or copper wire made, must be connected to the RF input of the receiver.
2. The antenna body must be keep straight as much as possible and it must be free from other circuits or metal parts (5 cm minimum suggested distance.)
3. It can be utilized either vertical or horizontal, provided the connection point between antenna and receiver input, is surrounded by a good ground plane.

N.B: As an alternative to the a.m. antenna it is possible to utilize the whip model manufactured by Aurel (see related Data Sheet ed Application Notes).
By fitting whip antennas too different from the described ones, the EC Certification is not assured.

Other components

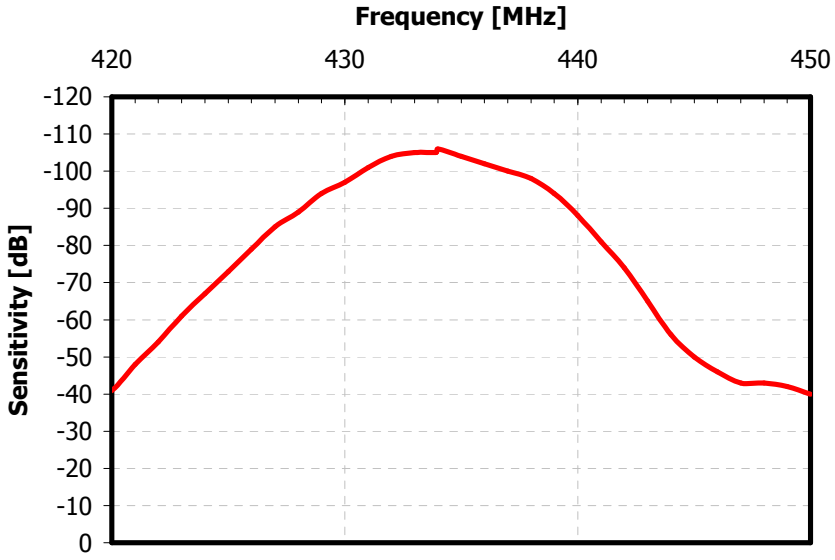
1. Keep the receiver separate from all other components of the circuit (more than 5 mm).
2. Keep particularly far away and shielded all microprocessors and their clock circuits.
3. Do not fit components around the 50 Ohm line. At least keep them at 5 mm distance.
4. If the Antenna Connection is directly used for a radiating whip antenna connection, keep at least a 5 cm radius free area. In case of coaxial cable connection then 5 mm radius will suffice.

Reference Rules

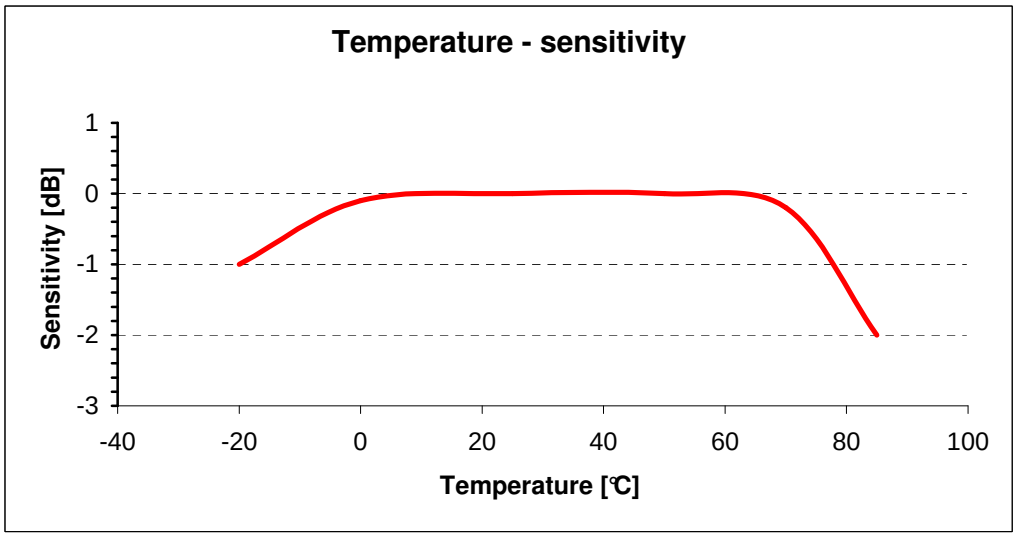
The **AC-RX2/CS** receiver is EC certified and in particular it complies with the European Rules ETSI **EN 300 220-2 V2.3.1 (2009-12)** in class 3 and **EN 301-489-3 V1.4.1 (2002-08)** in class 3, with max voltage supply. The equipment has been tested according to **rule EN 60950** and it can be utilized inside a special insulated housing that assures the compliance with the above mentioned rule. The receiver must be supplied by a very low voltage safety source protected against short circuits The use of the receiver module is foreseen inside housings that assure the overcoming of the rule **EN 61000-4-2** not directly applicable to the module itself. In particular, it is at the user' s care the insulation of the external antenna connection, and of the antenna itself since the RF output of the receiver is not built to directly bear the electrostatic charges foreseen by the a.m. rule.

Le caratteristiche tecniche possono subire variazioni senza preavviso. La AUR°EL S.p.A non si assume la responsabilità di danni causati dall'uso improprio del dispositivo.

Fig.3 Frequency - sensitivity plot

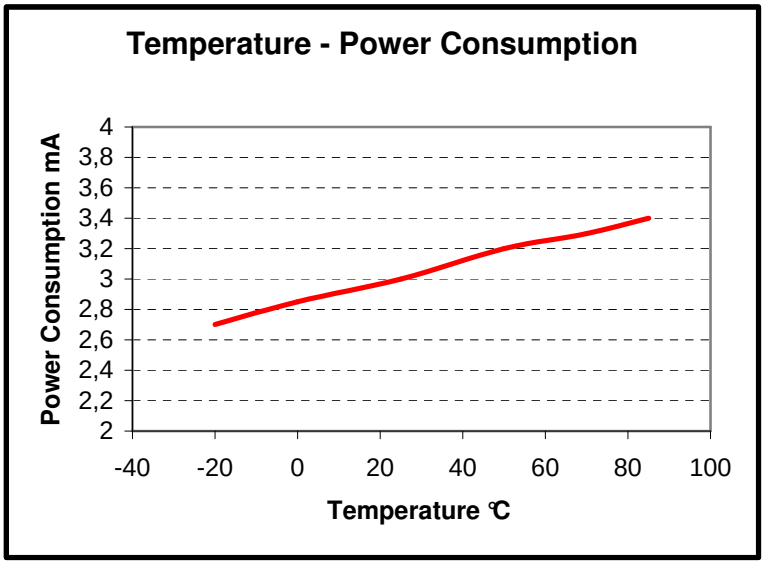


PLOT1
Plot was obtained using the test set up as in Fig.1 with variation of frequency and output level of RF generator

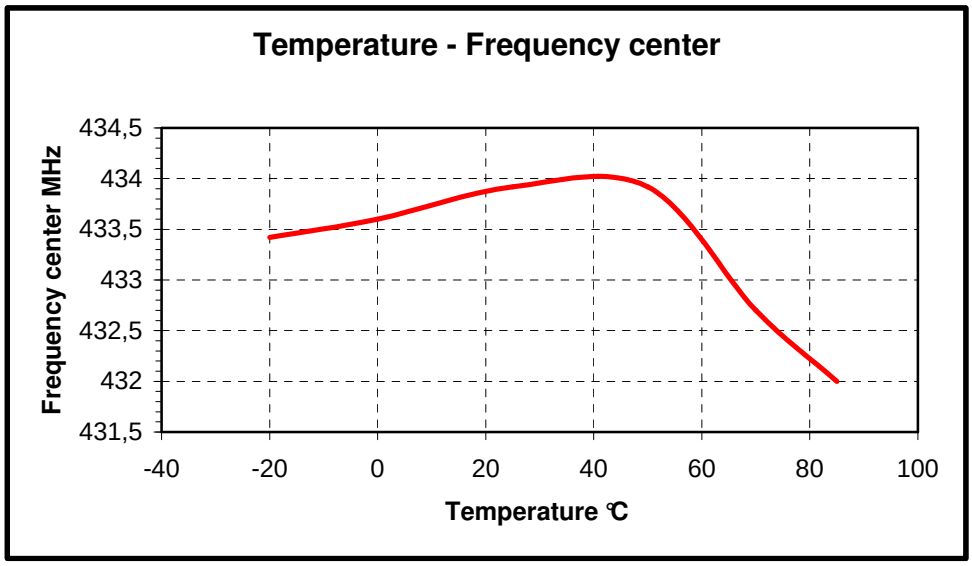


PLOT2
The declared technical features have been verified by applying the test system in FIG.1

Le caratteristiche tecniche possono subire variazioni senza preavviso. La AUR°EL S.p.A non si assume la responsabilità di danni causati dall'uso improprio del dispositivo.



PLOT3
The declared technical features have been verified by applying the test system in FIG.1



PLOT4
The declared technical features have been verified by applying the test system in FIG.1 and frequency center detection at –3dB.

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