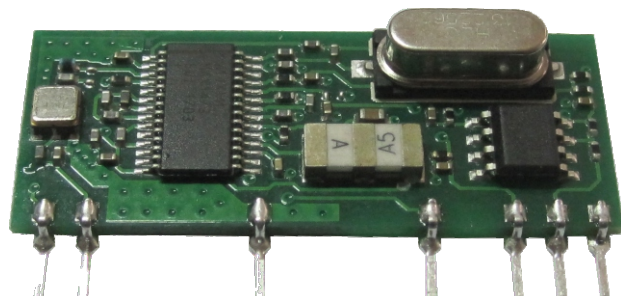


## AM Superhet Receiver Module

**RCASK4-434-CH** is an AM Superhet Radio Receiver with SAW Front End Filter to obtain high immunity to electromagnetic interference.

An output filter is realized to eliminate short impulses (<150 usec) that can be present in the received signal. Ideal for applications that needs high immunity for examples strong noise of motors with brushes or industrial noisy environments.



### Applications :

- Wireless security systems
- Home and building automation
- Automatic Measure Reading
- Remote Gate Control

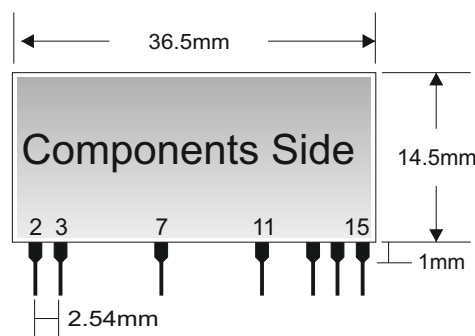
### Technical Characteristics

Characteristics		MIN	TYP	MAX	UNIT
V <sub>cc</sub>	Supply Voltage	4.5		5.5	Vdc
I <sub>s</sub>	Supply Current ( Operation mode )		7.5	9.0	mA
I <sub>s</sub>	Supply Current (Shut down mode)			100	nA
F	Frequency		433.92		MHz
D	Max Data Rate			4.8	Kbit/s
S	RF Sensitivity	-110	-113		dBm
B	3dB Bandwith		± 150		KHz
L	Level of emitted spectrum			-60	dBm
T	Power Up Time (from Power to stable data)			8	ms
T1	Power Up Time1 (from PD to stable data)			5	ms
TE	Operating Temperature Range	-25		+80	°C

### Pin Description

Pads	Name	Description
2	GND	Ground
3	IN	Antenna
7	GND	Ground
11	AGC	AGC Control (0=ON 1=OFF)
13	RSSI TP	RSSI - Test Point
14	OUT	Data Out
15	VCC	Power

### Mechanical Dimensions



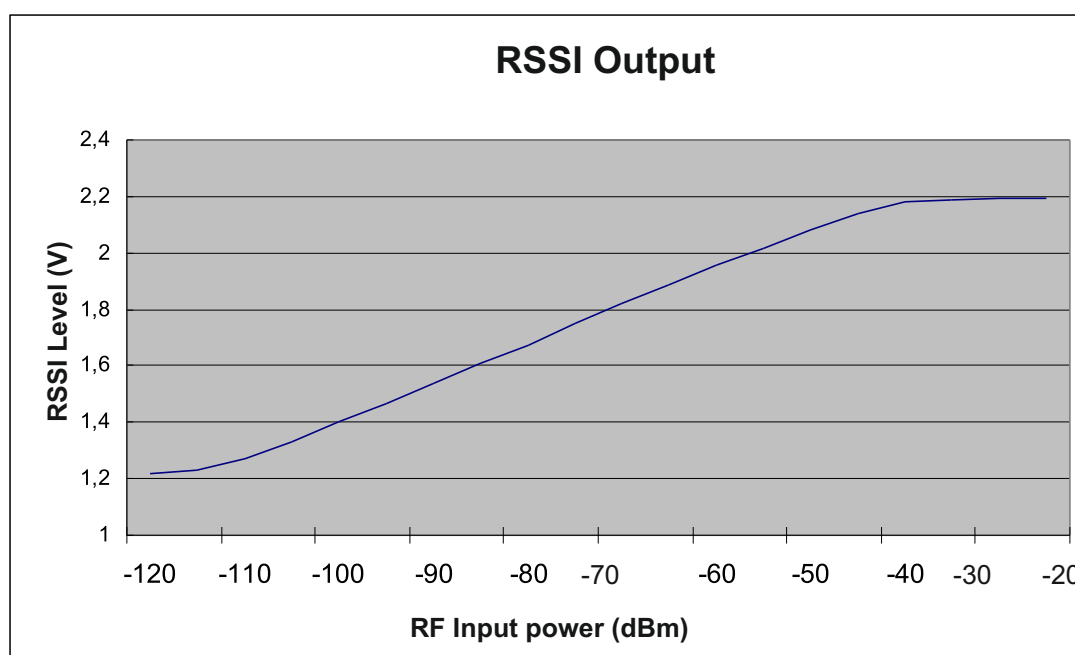
### AGC Automatic Gain Control (pin 11)

On the **RCASK4-434-CH** it's possible enable the Automatic Gain Control using the pin 11. Applying a low logic level the AGC is active, this allows to decode correctly the RF power in the range -114dBm / 0dBm. In this way the receiver function correctly with the maximum dynamic input signal.

If you apply a high logic level to the pin 11, the AGC is disabled and the receiver is set to work always with the highest sensitivity. If the input signal strenght is below a threshold power, the receiver operates in linear region, instead if the received power is higher, the receiver works in the saturation zone. This operation mode, can be used to understand if the transmitter is near to the receiver.

Here after there is presented the output trend of RSSI signal (pin 13= with the AGC (automatic gain control) disabled).

### RSSI Output (pin 13)



RSSI level related to RF Power received

In the figure above there is the evolution of the RSSI output voltage as a function of power input signal with AGC turned off (pin 11 to logic level high).

The curve was obtained by applying to the antenna input (pin 3) of the receiver the RF generator, that generate a modulated AM signal with 99% of modulation and square wave of 1KHz , and also by connecting between pin 13 and a GND a 10uF capacitor.

The probe used to make the measure has an 10M $\Omega$  of impedence.

The RSSI output has a linear zone for power input level up to -40dBm after which becomes a value of about 2.2 V fixed.

In the linear zone RSSI output is proportional to the power input signal , in this case it's possible use the output voltage at pin 13 as a measure of the signal received and then as measure of the distance from transmitter.

## Typical application

