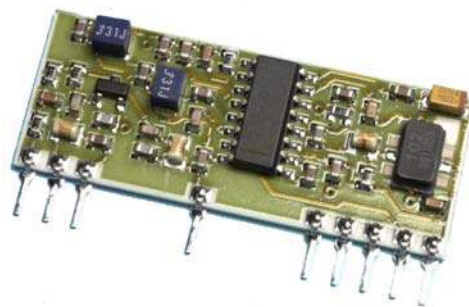


- Compact Hybrid Module.
- Ceramic Substrate
- Very High Frequency Stability
- Receiving Range Up To 100 Metres.
- CMOS/TTL Compatible Output.
- Single Supply Voltage 5V.
- Compatible with R.F. Solutions AM Transmitters.
- Compliant to ETS300-220
- **RRQ3 Version**
  - Sleep Mode
  - Sensitivity Typically  $-107$  dBm
  - 315 / 433 / 868MHz Available
- **RRQ5 Version**
  - Front End SAW Filter
  - Sensitivity Typically  $-110$  dBm
  - 433MHz Available

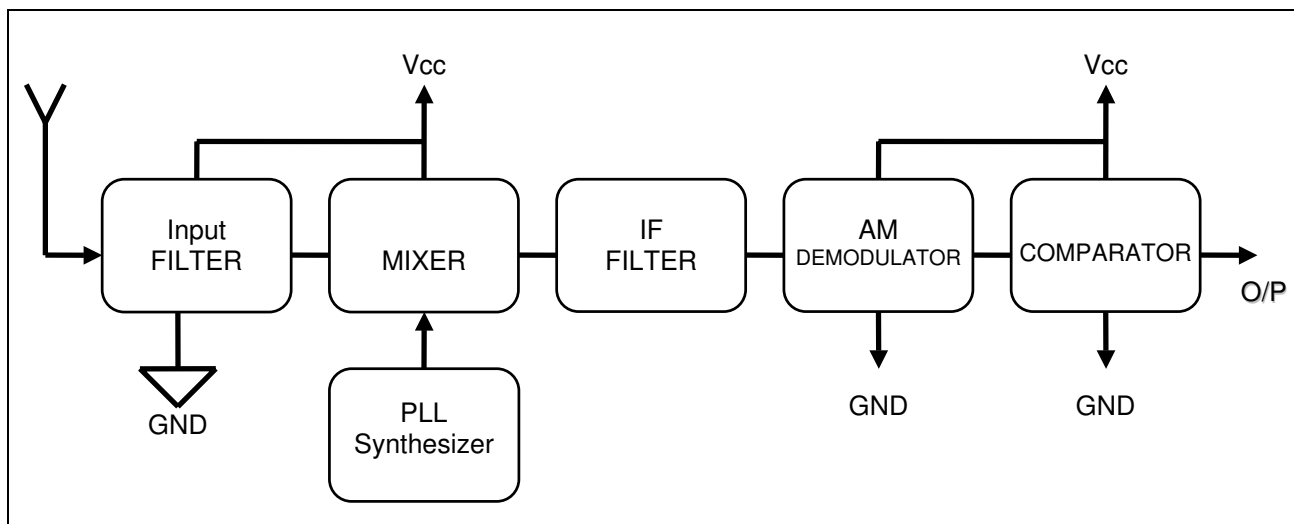


### Description

The RF Solutions AM Superheterodyne Receivers are compact modules, which can be used to capture undecoded data from any equivalent AM Transmitter, such as R.F. Solutions AM-RT4 range of transmitters. (See AM Transmitter datasheet).

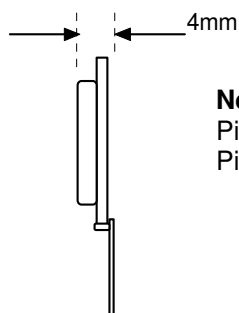
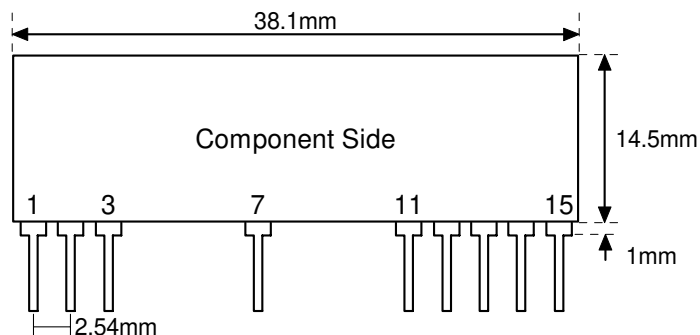
Receivers are manufactured on a ceramic substrate, the RRS3 incorporates an LC Filter, pre amplifier front end and PLL Synthesizer for high sensitivity and reduced EMC emissions. The RRQ5 incorporates a SAW Filter to provide a further increase in the module sensitivity. The modules show a very high frequency stability over a wide operating temperature even when subjected to mechanical vibrations or manual handling offering a very cost effective solution.

### Block diagram





## AM-RRQ3 Mechanical Dimensions



### Notes

Pins on 0.1" pitch  
Pin Dims :0.25 x 0.50mm

## Pin Descriptions

RRQ3	
Pin No	Pin Name
1	+Vcc
2	GND
3	DATA IN (Antenna)
7	GND
11	GND
12	+Vcc
13	RSSI (output)
14	DATA OUT
15	PD (Power Down input) 0 = Standby Mode ( $I_{standby}$ 100nA max) 5V = Normal Operation

## RSSI Output

RF In (dBm)	RSSI (V)
-120	1.20
-110	1.32
-100	1.50
-90	1.78
-80	2.06
-70	2.35
-60	2.62
-50	2.72
-40	2.75

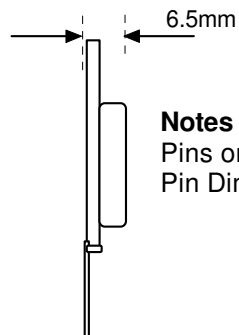
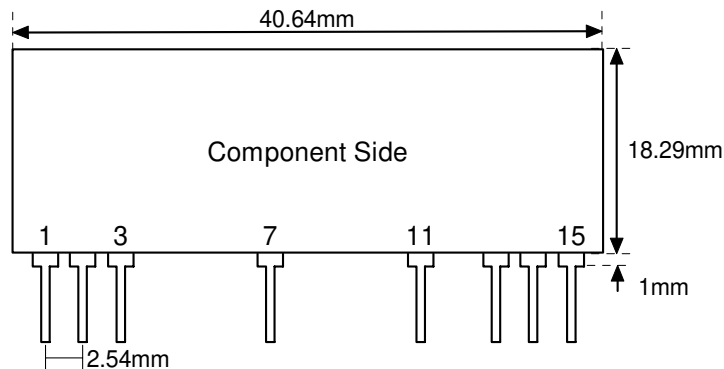
## Electrical Characteristics

Ambient temperature = 25°C.

Electrical Characteristics	Min	Typical	Max	Dimension
Supply Voltage (Vcc)	4.5	5	5.5	V
Supply Current		5	6	mA
Receiver Frequency 315MHz variants		315		MHz
Receiver Frequency 433MHz variants		433.92		MHz
Receiver Frequency 868MHz variants		868.35		MHz
Low Level Output Voltage (I=10uA)			0.8	V
High Level Output Voltage (I=200uA)	Vcc-1			V
Operating Temperature Range	-25		+80	°C
R.F Sensitivity (100% AM) at 315 / 433MHz		-106		dBm
R.F Sensitivity (100% AM) at 868MHz		-101		dBm
3dB Bandwidth		+/-150		KHz
Max Data Rate			4.8	KHz
Level of Emitted Spectrum			-70	dBm



### AM-RRQ5 Mechanical Dimensions



**Notes**  
Pins on 0.1" pitch  
Pin Dims :0.25 x 0.50mm

### Pin Descriptions

RRQ5	
Pin No	Pin Name
1	+Vcc
2	GND
3	DATA IN (Antenna)
7	GND
11	GND
13	RSSI (output)
14	DATA OUT
15	+Vcc

### RSSI Output

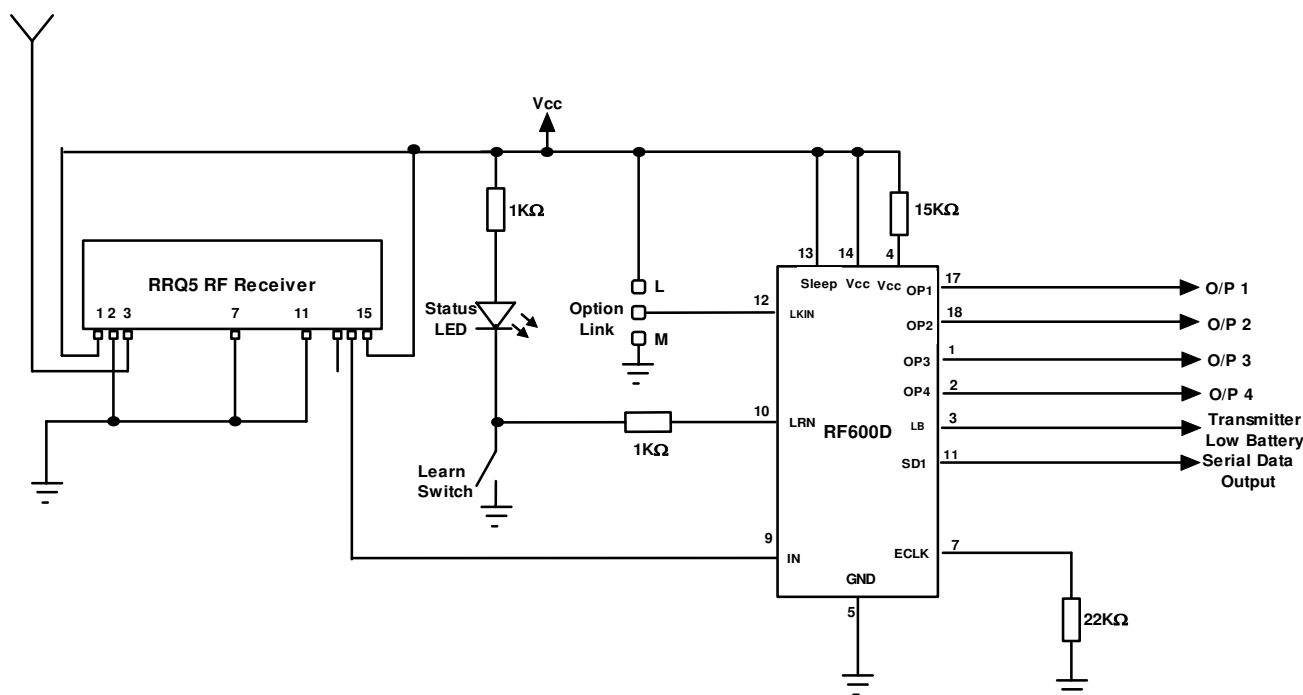
RF In (dBm)	RSSI (V)
-120	1.20
-110	1.32
-100	1.50
-90	1.78
-80	2.06
-70	2.35
-60	2.62
-50	2.72
-40	2.75

### Electrical Characteristics

Ambient temperature = 25°C.

Electrical Characteristics	Min	Typical	Max	Dimension
Supply Voltage (Vcc)	4.5	5	5.5	V
Supply Current		6	7	mA
Receiver Frequency 433MHz variants		433.92		MHz
Low Level Output Voltage (I=10uA)			0.8	V
High Level Output Voltage (I=200uA)	Vcc-1			V
Operating Temperature Range	-25		+80	°C
R.F Sensitivity (100% AM)	-108	-110		dBm
3dB Bandwidth		+/-150		KHz
Max Data Rate			4.8	KHz
Level of Emitted Spectrum			-70	dBm

## Application Circuit



### Notes

- Do not use Veroboard or Stripboard to mount the module!
- Ensure the supply is stable (ideally <10mVpk ripple).
- Keep the module away from other EMF generating components.
- Mount the antenna as close to the module as possible.

### Part numbering

<b>AM-RRQ3-315</b>	Receiver Module 315MHz
<b>AM-RRQ3-433</b>	Receiver Module 433MHz
<b>AM-RRQ3-868</b>	Receiver Module 868MHz
<b>AM-RRQ5-433</b>	Receiver Module, SAW Filter, 433MHz

Should you require further assistance, please call:

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**Tel +44 (0)1273 898 000. Fax +44 (0)1273 480 661.**

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**<http://www.rfsolutions.co.uk>**

*RF Solutions is a member of the Low Power Radio Association.*