

# Product Introduction, *RSA-1500L*

**RoyalTek**

Taoyuan, Taiwan

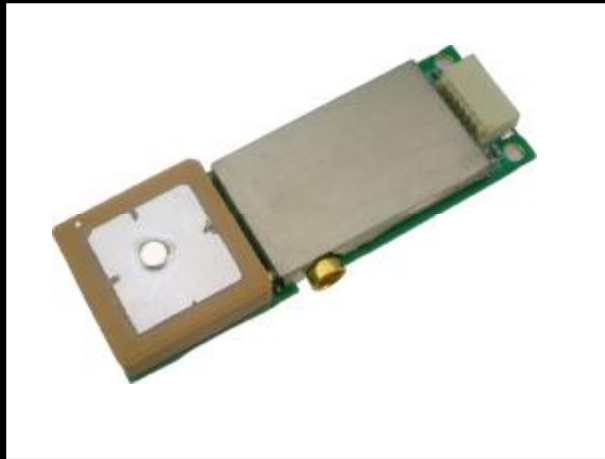
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# Topics

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- **RSA-1500L Introduction**
  - Images & Dimension
  - Features
  - General Specification
  - Design Appendix

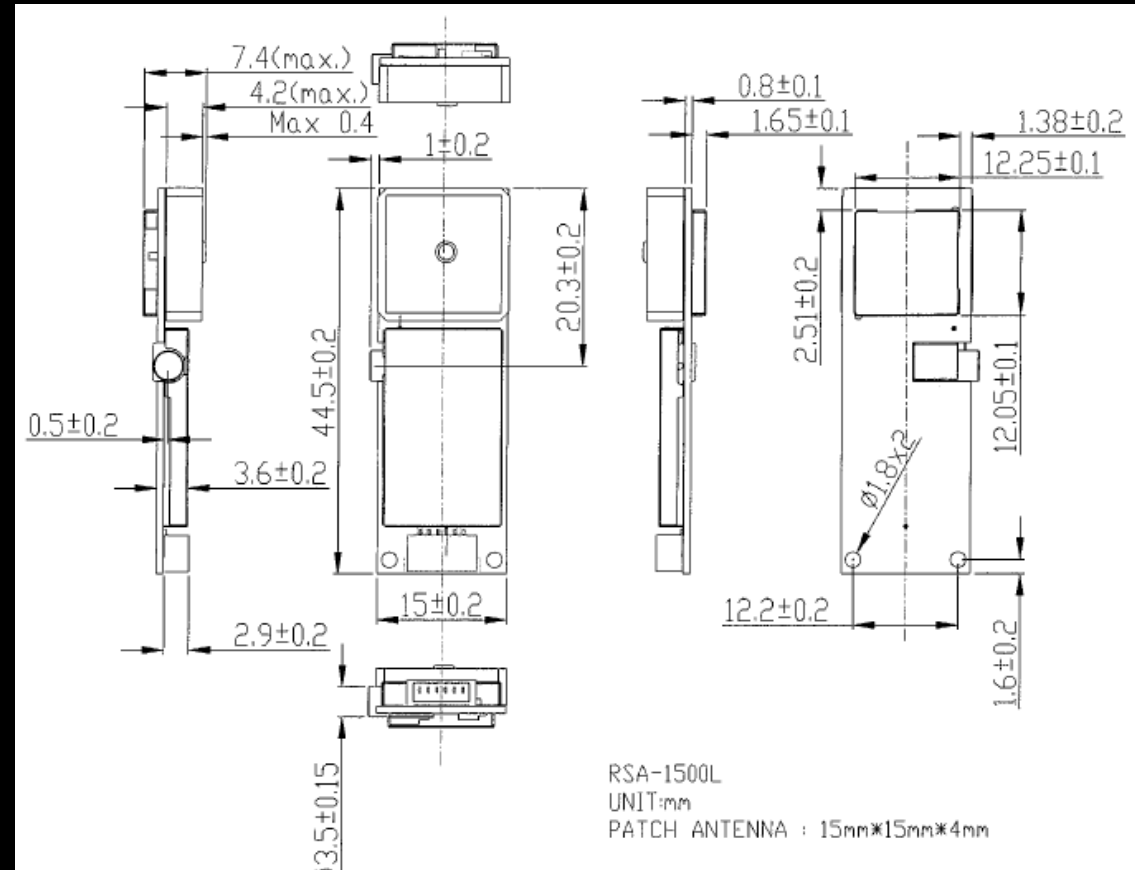
# RSA-1500L Images & Dimension



Front View



Rear View



Dimension

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# RSA-1500L Features

- 20 parallel channels
- **Build in Patch Antenna, LNA and Saw Filter**
- **Operable from 3.3V/48mA** in continuous mode.
- **Wire to board connector**
- **TCXO design**
- 0.1 second reacquisition time
- **Small form factor** with embedded SiRFstarIII single chip technology.
- NMEA-0183 compliant protocol/custom protocol.
- 4 Mbits Flash Memory
- Enhanced algorithm for navigation stability
- Excellent sensitive for urban canyon and foliage environments.
- SBAS (WAAS, EGNOS and MSAS) support
- Auto recovery while RTC crashes
- **Trickle power supported**

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# RSA-1500L General Specification (1)

GPS Receiver General Specification	
Chipset	SiRF Star III, GSC3f/LP
Frequency	L1 1575.42MHz.
Code	C.A. Code.
Channels	20
Chipset Sensitivity	-159dBm (Acquisition)
Chipset cold start	35 sec @ open sky (Typical)
Chipset warm start	35 sec @ open sky (Typical)
Chipset hot start	1 sec @ open sky (Typical)
Reacquisition	0.1sec typical
Position accuracy	3 meters at 2D RMS (w/o aid)
Maximum altitude	18,000 m
Maximum velocity	514 m/s
Update rate	1Hz

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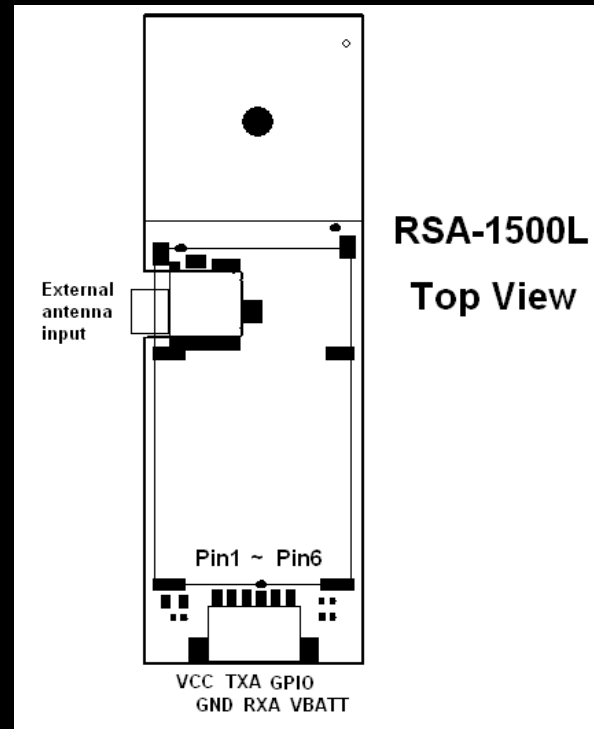
# RSA-1500L General Specification (2)

<b>Interface</b>	
LNA	25dB Gain. (Typical)
I/O Pin	6-pin
<b>Mechanical requirements</b>	
Dimension	44.5*15.2*7.4 ( $\pm 0.2$ ) mm
Weight	8.3 grams
<b>Power consumption</b>	
Vcc	DC 3.3 $\pm 5\%$
Current	< 50mA@3.3V Typical. (Tracking mode) < 48mA@3.3V Typical. (Acquisition mode)
<b>Environment</b>	
Temperature	Operating temperature : -20 ~ +85°C Storage temperature : -40 ~ +85°C
Humidity	$\leq 95\%$

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# RSA-1500L Design Appendix (1)

## PIN Definition



Pin #	Signal Name	I/O	Description	Characteristics
1	VCC	I	DC Supply Voltage Input	DC +3.3V±5%
2	GND	G	Ground	Reference Ground
3	TXA	O	Serial Port A	$2.85V \geq V_{OH} \geq 2.38V$ , $V_{OL} \leq 0.7V$
4	RXA	I	Serial Port A	$3.15V \geq V_{iH} \geq 2V$ , $-0.3V \leq V_{iL} \leq 0.86V$

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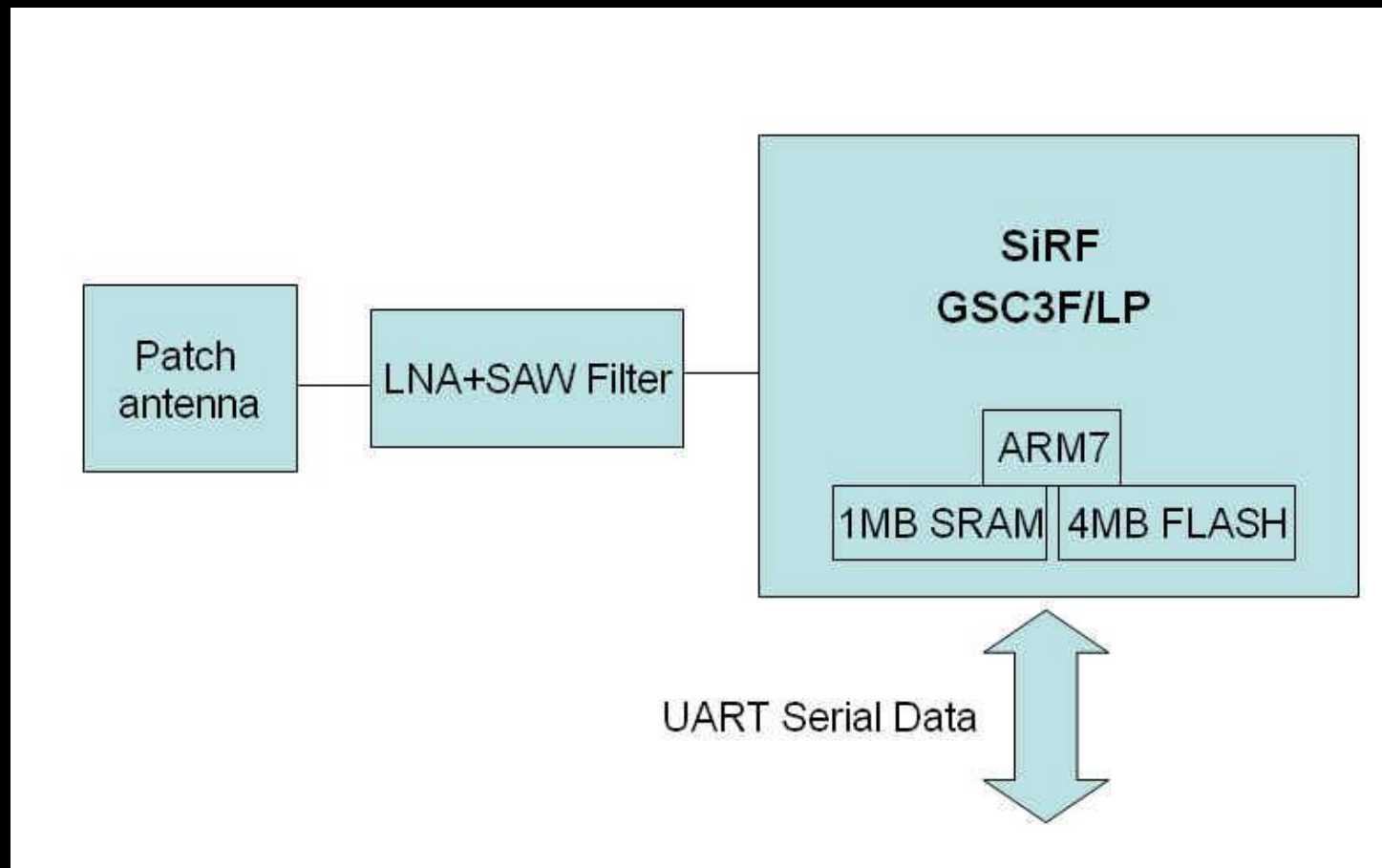
# RSA-1500L Design Appendix (2)

Pin #	Signal Name	I/O	Description	Characteristics
5	GPIO	I/O	General Purpose I/O	$3.15V \geq V_{iH} \geq 2V$ , $-0.3V \leq V_{iL} \leq 0.86V$ $2.85V \geq V_{OH} \geq 2.38V$ , $V_{OL} \leq 0.7V$
6	VBATT	I	Backup voltage supply	DC +2.5V~+3.6V Current $\leq 10\mu A$



# RSA-1500L Design Appendix (3)

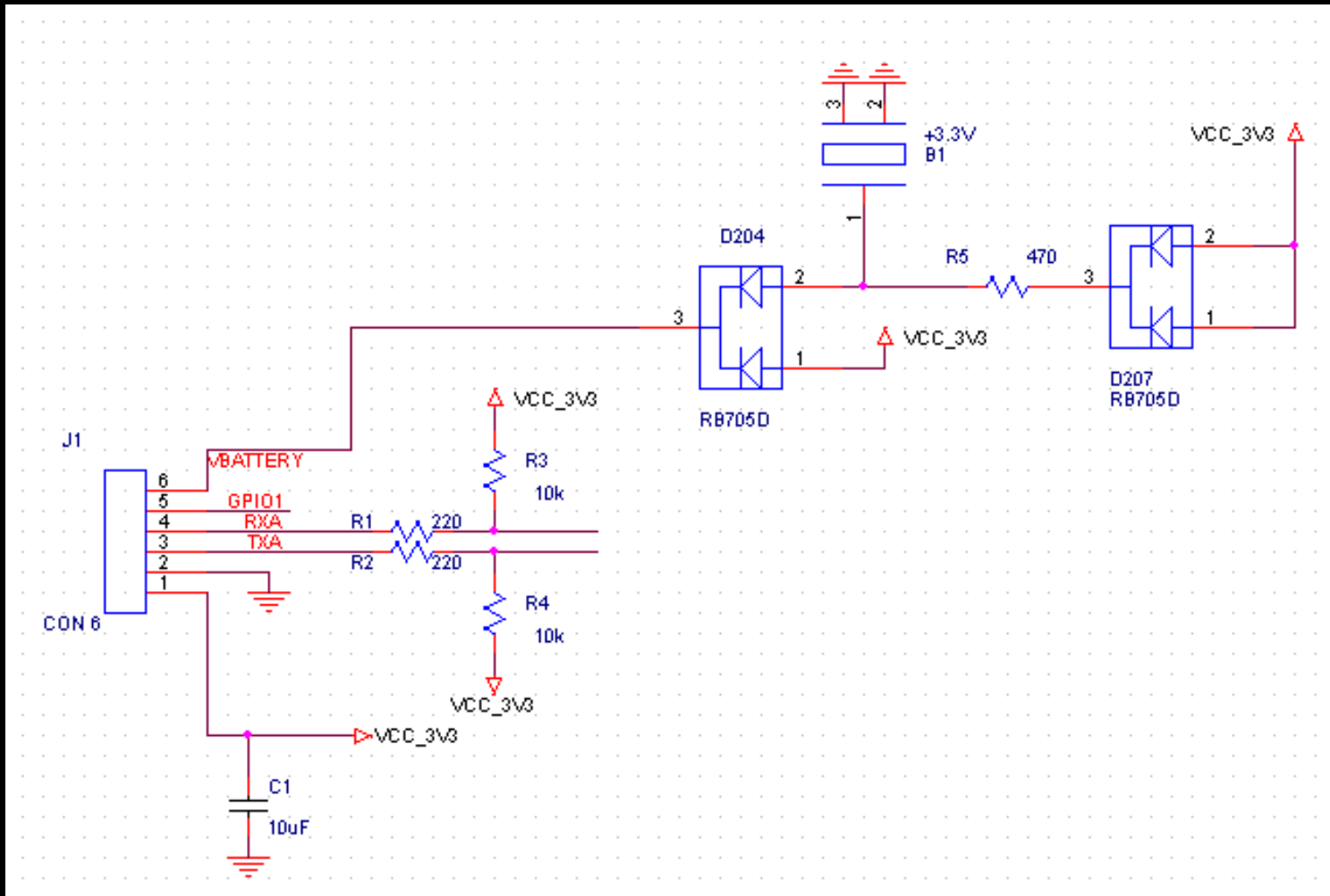
## RSA-1500L Block Diagram



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# RSA-1500L Design Appendix (4)

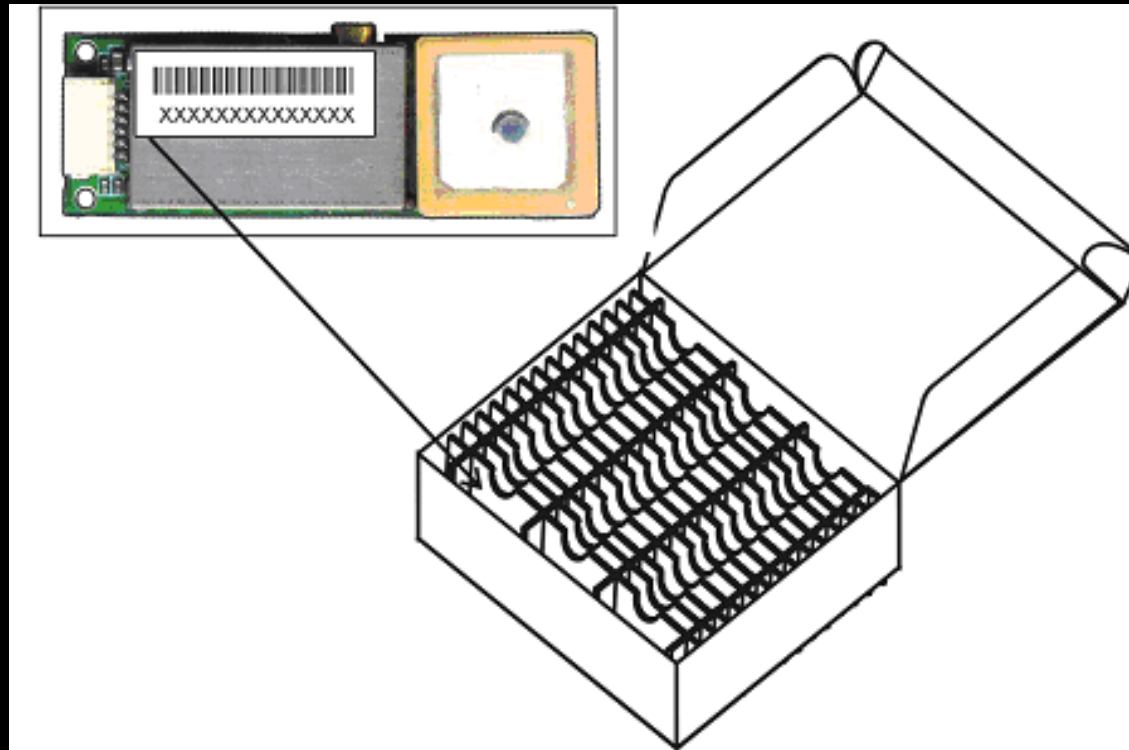
## Reference of Application Circuit



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# RSA-1500L Appendix (5)

## Package Info,



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