

R-79F GPS Board

Data Sheet(v1.1)

GPS RECEIVER WITH ANTENNA

DATA SHEET

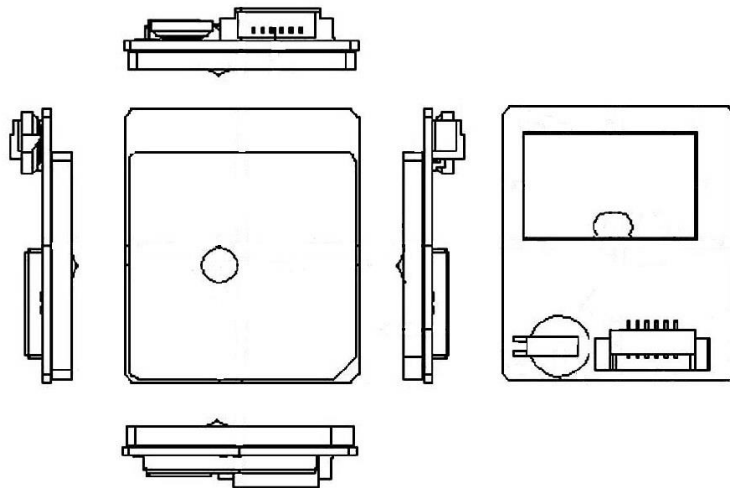


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1. Specifications

- Media Tek Inc. MT3339(R-39F) / MT3337(R-79F) solution
- 22 tracking / 66 acquisition-channel GPS receiver
- Supports up to 210 PRN channels
- Supports multi-GNSS incl. QZSS, SBAS ranging
- Supports WASS/EGNOS/MSAS/GAGAN
- Indoor and outdoor multi-path detection and compensation
- Pulse-per-second(PPS) GPS time reference
 - Adjustable high pulse width for R-39F : 1mS,100mS,200mS,....900ms
 - Fixed high pulse width for R-79F : 100mS
 - Typical accuracy : $\pm 10\text{nS}$
- 3D Fix LED Indicator
- WGS-84, NMEA 0183 standard V3.01 and backward compliance
 - R-39F : Message : GGA, GLL, GSA, GSV, RMC, VTG, ZDA by S/W selectable
 - Baud rate : 4800, 9600, 19200, 38400, 57600, 115200 by S/W selectable
 - R-79F : Message : GGA, GSA, GSV, RMC fixed
 - Baud rate : 4800, 9600, 38400, 115200 by H/W selectable
- Max. fixed update rate up to 10Hz for R-39F, 1Hz Fixed for R-79F
- Superior sensitivities
 - Acquisition : -148dBm(cold start) / -163dBm(hot start)
 - Tracking : -165dBm
- GPS receiver with antenna
 - Built-in regulators (LDO)
 - GPS receiver With Patch Antenna
 - Patch Antenna Size : 25(L)mm X 25(W)mm X 4(T)mm
 - Size : 30mm(L) X 26mm(W) X 9mm(T)
 - Weight : 14 grams

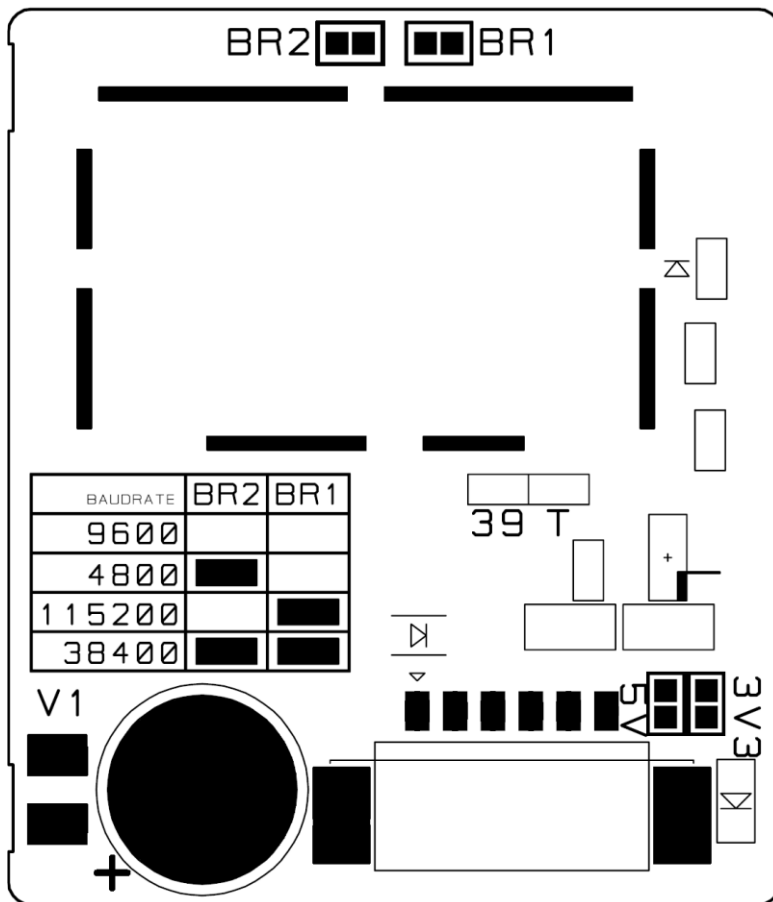
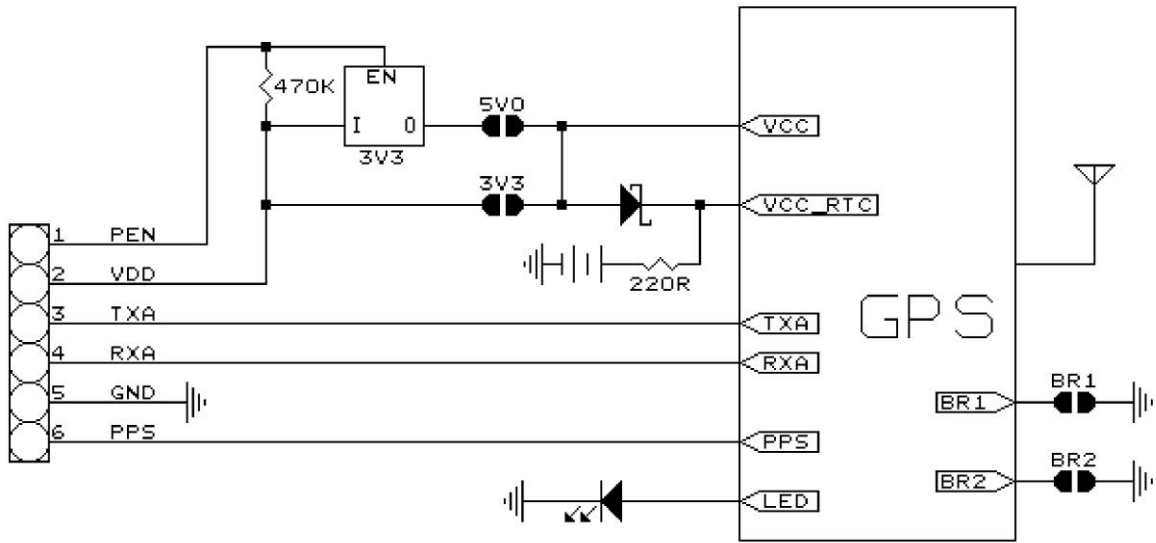
2. Input Start Commands

MESSAGE	COMMANDS
COLD START	\$PSRF101,0,0,0,0,0,0,0,12,4*10
WARM START	\$PSRF101,0,0,0,0,0,0,0,12,2*16
HOT START	\$PSRF101,0,0,0,0,0,0,0,12,1*15

3. Performance report

	Test Item	Test Result	UNIT	
1	Power Level -130dBm Spirent4500—(R-39F/79F)—Computer	CN Ratio 42	dB	
2	Cold TTFF (20 times)	-130dBm	31.1	SEC
		-140dBm	34.5	
		-146dBm	72.4	
		-148dBm	194.0	
3	Warm TTFF (20 times) Receiving at least 12.5min then start testing	-130dBm	30.7	SEC
		-140dBm	31.1	
		-146dBm	33.2	
		-148dBm	73.3	
4	Hot TTFF (20 times) Receiving at least 12.5min then start testing	-130dBm	0.5	SEC
		-140dBm	0.5	
		-146dBm	0.6	
		-148dBm	1.7	
		-150dBm	2.9	
		-155dBm	9.1	
		-160dBm	24.5	

4. Block Diagram



5. Pin Description

Pin no.	Name	Pin Description	I/O	Note
1	PEN		I	
2	VDD	Supply Voltage	I	H/W select option
3	TXA		O	
4	RXA		I	
5	GND	Ground		
6	PPS		O	

6. Absolute Maximum Ratings

Parameter		Min	Max	Unit
Power supply voltage(VDD)	5V0	-0.3	5.5	V
	3V3		3.6	
Input pin voltage	Pin no "1"	-0.3	VDD	V
I/O port voltage	Pin no "3"	-0.3	2.85	V
	Pin no "4"	-0.3	2.85	
	Pin no "6"	-0.3	2.85	
I/O port current			±10	mA
Storage temperature		-40	85	°C

Warning – Stressing the device beyond the “Absolute Maximum Ratings” may cause permanent damage. These are stress ratings only. Operation beyond “Operating conditions” is not recommended and extended exposure beyond the “Operating condition” may affect device reliability.

7. DC Characteristics (Test Temperature : 25°C)

Parameter		Condition	Min.	TYP	Max.	Unit
Operating supply voltage H/W select option	5V0	VDD port	3.6	5.0	5.5	V
	3V3		3.0	3.3	3.6	
Operating supply ripple voltage		VDD port			50	mV
Sustained supply current at 3D Fixed		VDD=3.6V~5.5V	15	16	17	mA
Peak supply current at GPS START		VDD=3.6V~5.5V			24	mA
Standby Backup input current		V_BAT=3.0V	5.0	6.5	15	uA
I/O INPUT level	High	VDD=3.6V~5.5V	1.96	2.8	3.0	V
	Low	VDD=3.6V~5.5V	-0.2		0.84	
I/O OUTPUT level	High	Ioh=2mA VDD=5.0V	2.4		2.8	V
	Low	Iol=2mA VDD=5.0V	0.1		0.4	
Back-up Time		24h charging	20	30	40	Days
Operating temperature		VDD=3.6V~5.5V	-10	25	+60	°C

* Operating Temperature

Electronics device : -40°C ~ +80°C

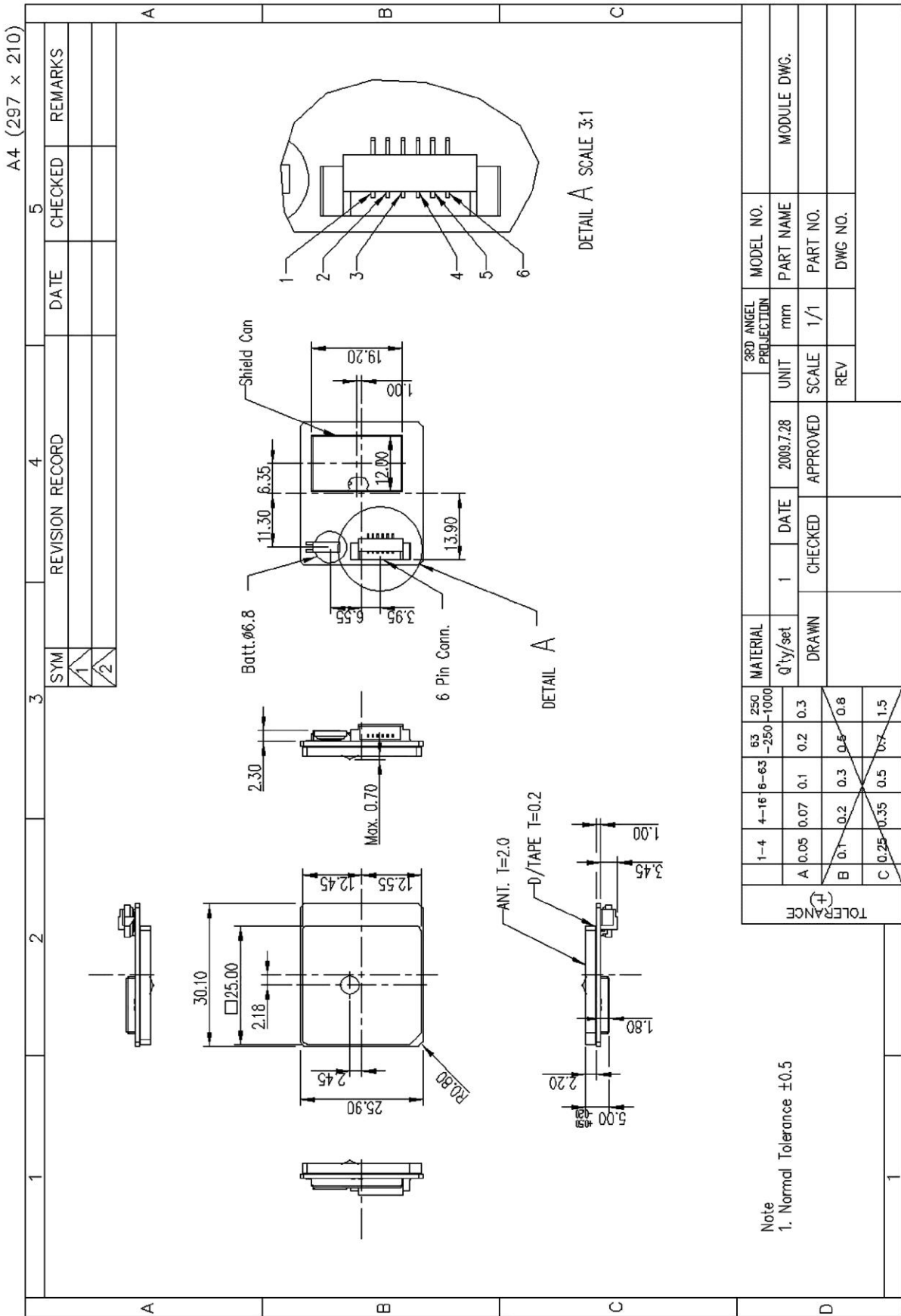
Back-up Battery : -10°C ~ +60°C

(Lithium-Ion Rechargeable Battery)

8. AC Characteristics (Test Temperature : 25 °C VDD = 5.0V RF Input : Conducted)

Parameter	Condition	Min	Typical	Max	Unit
RF_IN Input level				-40	dBm
RF_IN Input Impedance	Fo=1575.42MHz		50		Ω
Position error (Latitude, Longitude)	-130 dBm(SV 9EA in View) and DGPS on		5		m
Position error (Elevation)			50		m
Operational Limits	Altitude			18	Km
	Velocity			1,800	Km/h

9. Mechanical Specification



10. I/F Connector Specification (Wire_to_Board_Wafer)

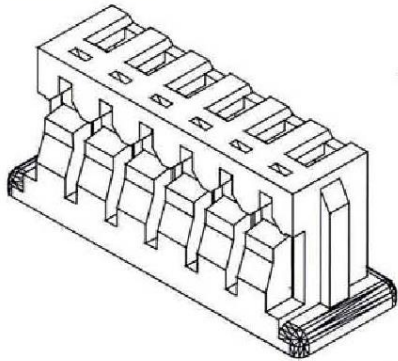
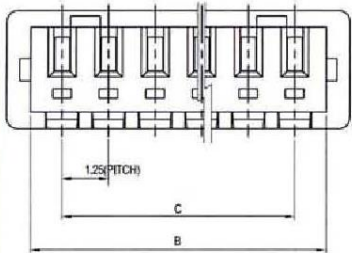
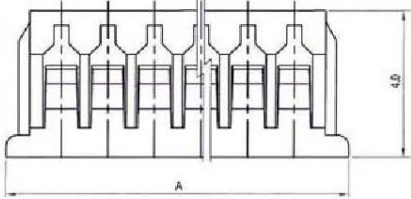
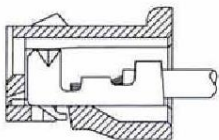
Wire to Board Wafer: <http://yeonho.com/pdf/12505WR.pdf> 12505WR-06A00

Wire to Board Housing: <http://yeonho.com/pdf/12505HS.pdf> 12505HS-06000

1.25mm (0.049") PITCH CONNECTOR

Wire-to-Board Housing

12505HS Series

TERMINAL ASSEMBLY DRAWING

Material

INO	DESCRIPTION	TITLE	MATERIAL
1	HOUSING	12505HS	PA66, UL 94V Grade

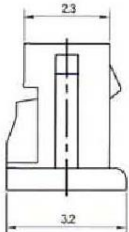
Available Pin

PARTS NO.	A	B	C
12505HS-02000	4.25	2.95	1.25
12505HS-03000	5.50	4.20	2.50
12505HS-04000	6.75	5.45	3.75
12505HS-05000	8.00	6.70	5.00
12505HS-06000	9.25	7.95	6.25
12505HS-07000	10.50	9.20	7.50
12505HS-08000	11.75	10.45	8.75
12505HS-09000	13.00	11.70	10.00
12505HS-10000	14.25	12.95	11.25
12505HS-11000	15.50	14.20	12.50
12505HS-12000	16.75	15.45	13.75
12505HS-13000	18.00	16.70	15.00
12505HS-14000	19.25	17.95	16.25
12505HS-15000	20.50	19.20	17.50

Specification

ITEM	SPEC
Voltage Rating	AC/DC 125V
Current Rating	AC/DC 1A
Operating Temperature	-25°C ~ +85°C
Contact Resistance	30mΩ MAX
Withstanding Voltage	AC250V/1min
Insulation Resistance	100MΩ MIN
Applicable Wire	AWG #28~#32
Applicable P.C.B	-
Applicable FPC/FFC	-
Solder Height	-
Crimp Tensile Strength	-
UL FILE NO	E108706

Application Terminal : 12505TS (32 Page)



AWG : #28 ~ #32