

Product Introduction, *MEB-1280*

RoyalTek

Taoyuan, Taiwan

Topics

- **MEB-1280 Introduction**
 - Images & Dimension
 - Features
 - General Specification
 - Design Appendix

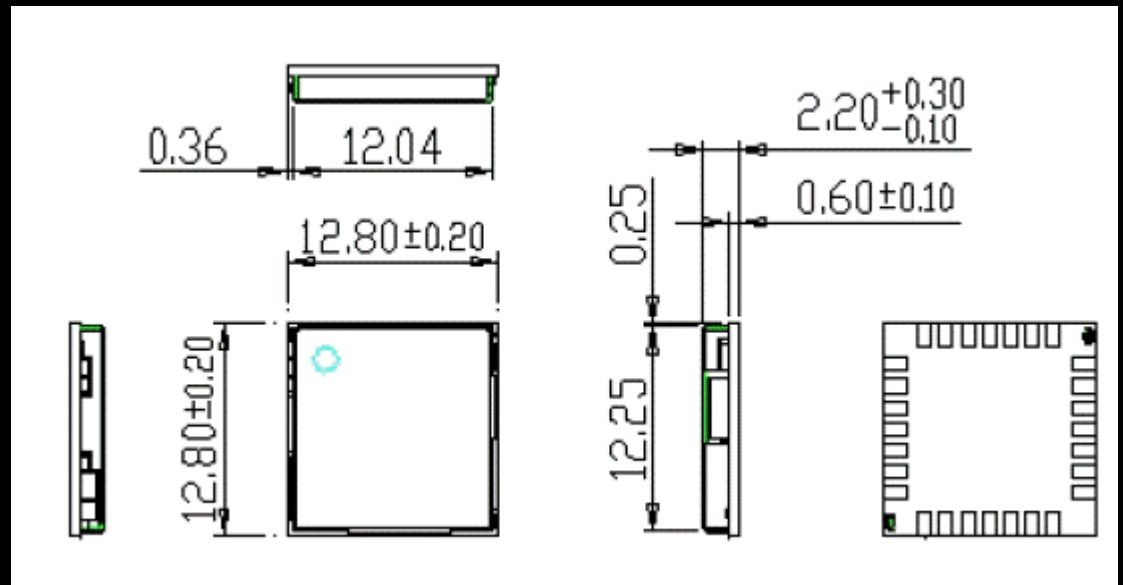
MEB-1280 Images & Dimension



Front View



Rear View



Dimension

Note,

the dimension is now customized for customers.

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MEB-1280 Features

- 32 parallel channels
- SMT type with stamp holes
- High quality stereo audio output
- **TCXO design**
- 0.1 second reacquisition time
- NMEA-0183 compliant protocol/ customize protocol
- Enhanced algorithm for navigation stability
- Excellent sensitivity for urban canyon and foliage environments.
- DGPS (WAAS, EGNOS) support
- **Auto recovery while RTC crashes**

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MEB-1280 General Specification (1)

GPS Receiver General Specification	
Chipset	MediaTek MT3318
Frequency	L1 1575.42MHz.
Code	C.A. Code.
Channels	32
Chipset Sensitivity	-130dBm (Acquisition)
Chipset cold start	36 sec @ open sky (Typical)
Chipset warm start	33 sec @ open sky (Typical)
Chipset hot start	1 sec @ open sky (Typical)
Reacquisition	<1sec typical
Position accuracy	3 meters at 2D RMS (w/o aid)
Maximum altitude	18,000 m
Maximum velocity	515 m/s
Update rate	1Hz

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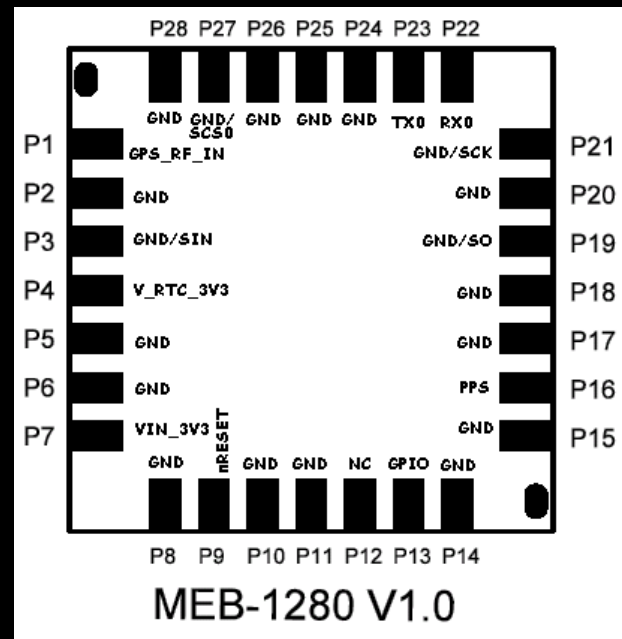
MEB-1280 General Specification (2)

Interface	
LNA	Not Applicable
I/O Pin	28pin
Mechanical requirements	
Dimension	12.8*12.8*2.2 (± 0.2) mm
Weight	≤ 0.8 grams
Power consumption	
Vcc	DC 3.3 $\pm 5\%$
Current	< 65mA@3.3V Typical. (Tracking mode) < 40mA@3.3V Typical. (Acquisition mode)
Environment	
Temperature	Operating temperature : -30 ~ +85°C Storage temperature : -40 ~ +85°C
Humidity	$\leq 95\%$

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MEB-1280 Design Appendix (1)

PIN Definition



Pin #	Signal Name	I/O	Description	Characteristics
1	GPS_RF_IN	I	GPS Signal Input	50 Ω @1.57542GHz
2	GND	G	Ground	Reference Ground
3	GND/SIN	G	Ground	Reference Ground/Serial Communication
4	V_RTC_3V3	I	Backup Voltage Supply	DC: +2.5V~3.6V, Current \leq 10uA
5	GND	G	Ground	Reference Ground

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MEB-1280 Design Appendix (2)

Pin #	Signal Name	I/O	Description	Characteristics
6	GND	G	Ground	Reference Ground
7	VIN_3V3	I	DC Supply Voltage Input	DC +3.3V±5%
8	GND	G	Ground	Reference Ground
9	nReset	I	Reset (Active Low)	$3.6V \geq V_{iH} \geq 2V$, $-0.3V \leq V_{iL} \leq 0.8V$
10	GND	G	Ground	Reference Ground
11	GND	G	Ground	Reference Ground
12	N.C.			
13	GPIO	I/O	General Purpose I/O	$3.6V \geq V_{iH} \geq 2V$, $-0.3V \leq V_{iL} \leq 0.8V$ $3.15V \geq V_{oH} \geq 2.4V$, $-0.3V \leq V_{oL} \leq 0.4V$
14	GND	G	Ground	Reference Ground
15	GND	G	Ground	Reference Ground
16	PPS	O	One Pulse per Second	$3.15V \geq V_{oH} \geq 2.4V$, $-0.3V \leq V_{oL} \leq 0.4V$
17	GND	G	Ground	Reference Ground
18	GND	G	Ground	Reference Ground

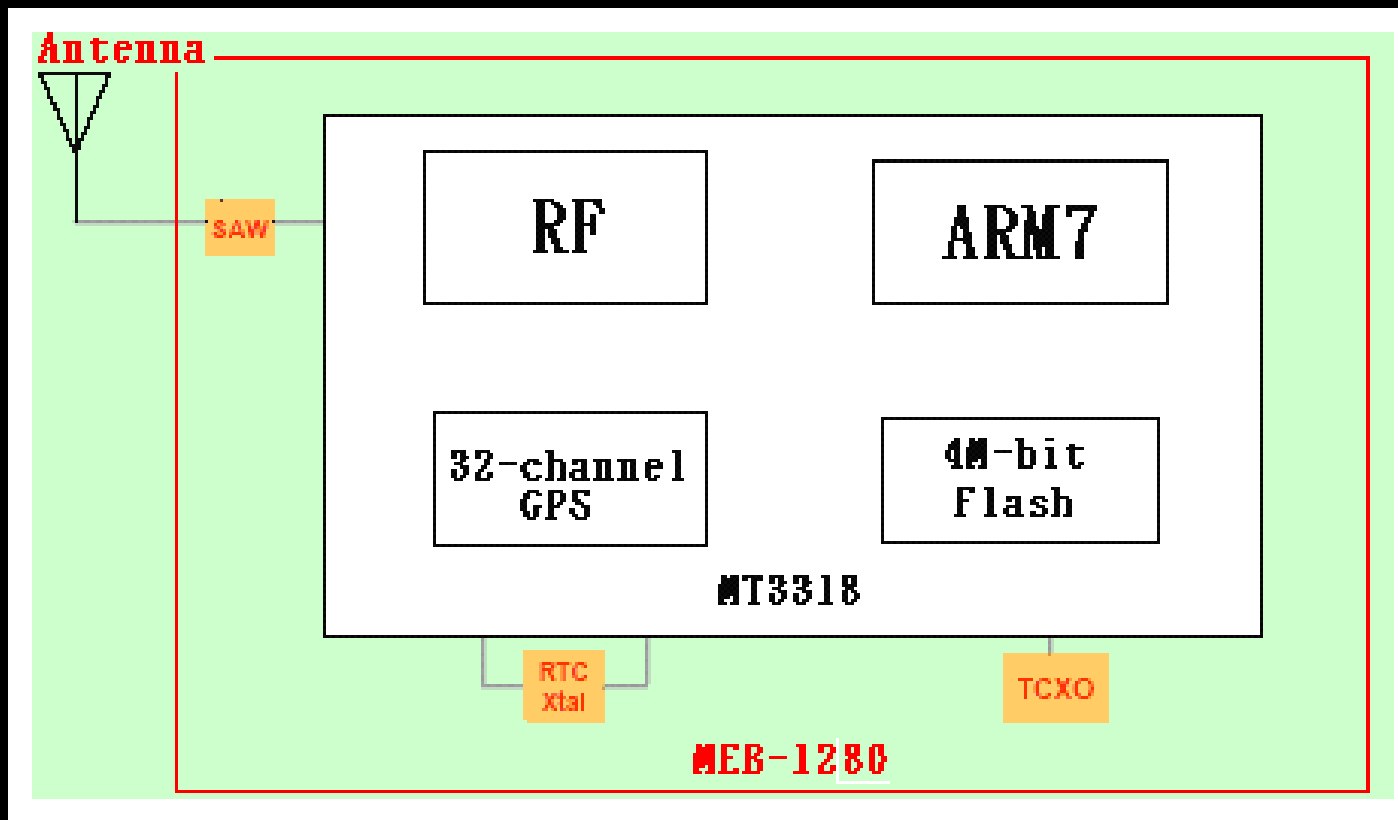
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MEB-1280 Design Appendix (3)

Pin #	Signal Name	I/O	Description	Characteristics
19	GND/S0	G	Ground	Reference Ground/Serial Communication
20	GND	G	Ground	Reference Ground
21	GND/SCK	G	Ground	Reference Ground/Serial Communication
22	TXBO	O	Serial Port B	$3.15V \geq V_{OH} \geq 2.4V, -0.3V \leq V_{OL} \leq 0.4V$
23	RXBO	I	Serial Port B	$3.6V \geq V_{IH} \geq 2V, -0.3V \leq V_{IL} \leq 0.8V$
24	GND	G	Ground	Reference Ground
25	GND	G	Ground	Reference Ground
26	GND	G	Ground	Reference Ground
27	GND/SCS0	G	Ground	Reference Ground/Serial Communication
28	GND	G	Ground	Reference Ground

MEB-1280 Design Appendix (4)

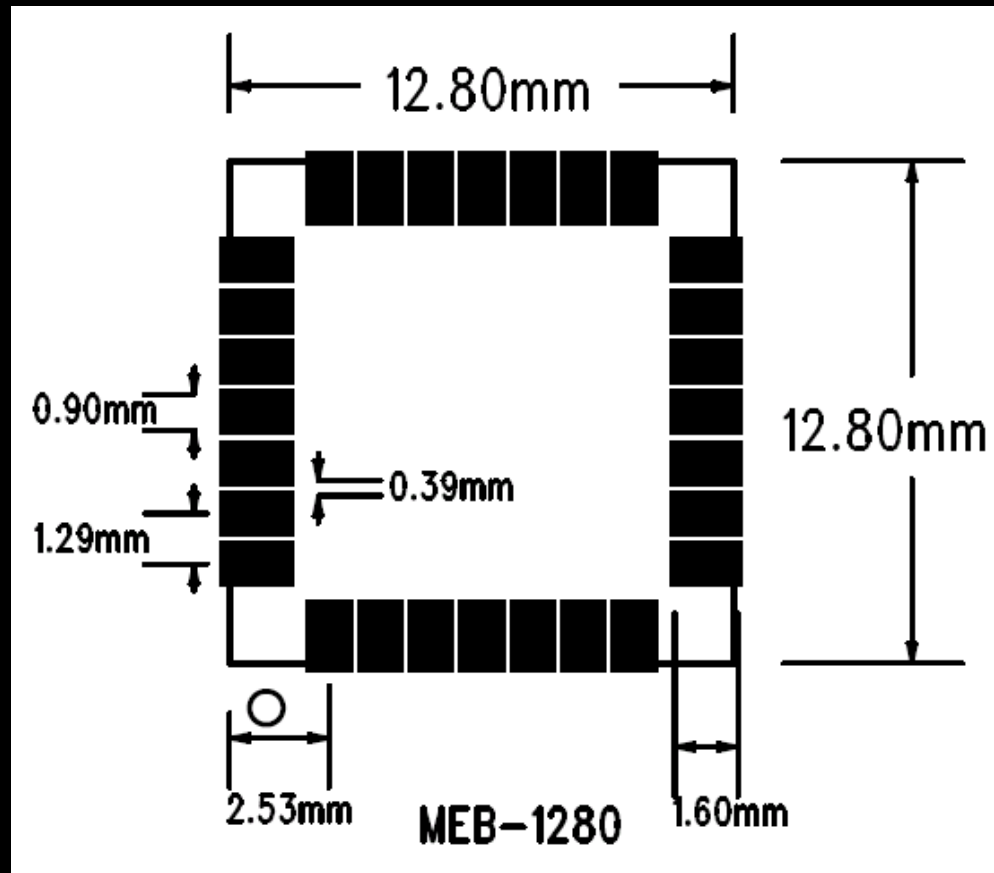
MEB-1280 Block Diagram



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MEB-1280 Design Appendix (5)

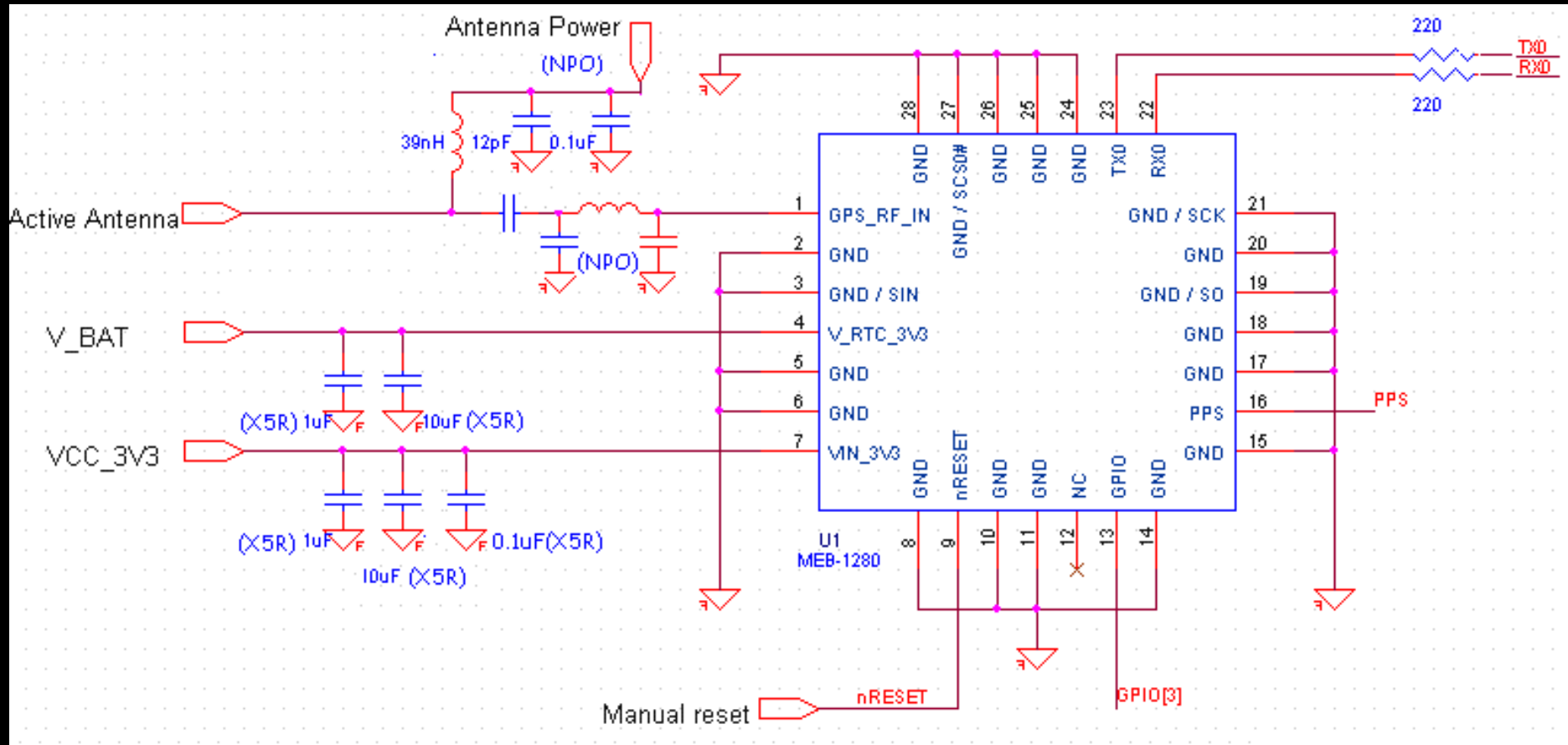
Recommend PAD Layout – Top View



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MEB-1280 Design Appendix (6)

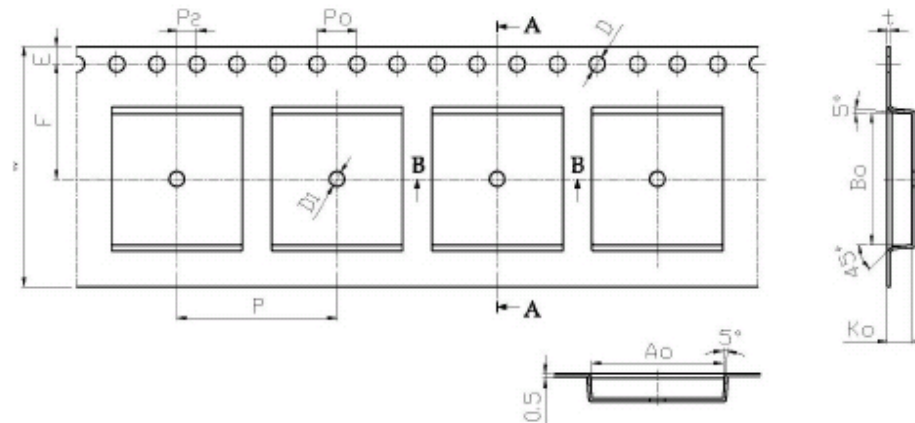
Reference of Application Circuit



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MEB-1280 Appendix (7)

Tape & Reel Package Info.



2.1 共同尺寸

外觀	規格	公差
W	24.00	±0.30
P	16.00	±0.10
E	1.75	±0.10
F	11.50	±0.10
P2	2.00	±0.10
D	1.50	+0.10 -0.00
D1	1.50	±0.10
P0	4.00	±0.10
10P0	40.00	±0.20

2.2 口袋尺寸

外觀	規格	公差
A0	13.10	±0.10
B0	13.10	±0.10
K0	2.50	±0.10
t	0.30	±0.05

- 1.10 sprocket hole pitch cumulative tolerance ±0.20mm.
- 2.Carrier camber not to exceed 1mm in 250mm
- 3.A0 and B0 measured on a plane 0.3mm above the bottom of the pocket.
- 4.Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
- 5.All dimensions meet EIA-481-B requirements.
- 6.Material: Clear Non Anti-Static Polystyrene.
 Black Anti -Static Polystyrene.
- 7.Packing length per 22" reel : 73.8 Meters.
- 8.Component load per 13" reel : 1500 pcs.

- 1.產品編號: 12812822
- 2.檢驗項目及規格:(單位:mm)
- 3.注意事項:尺寸標準以投影機為依據

MEB-1280 Appendix (8)

Evaluation Kit



Evaluation Board, MEV-1000



MEB-1000
on Adapter Board,

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MEB-1280 Design Appendix (9)

Test Program in Eval. Kit

The screenshot shows the Mini GPS application window with the following components and annotations:

- Other Application Pages:** A yellow box highlights the menu bar (Status, Setup, Channel, Test, About) and the status information panel (Date, Time, Lat, Lon, Alt, Fix Type, Spd, Track, PDOP, HDOP, VDOP).
- Sky Chart:** A circular sky chart showing satellite positions with numbers 3, 8, 11, 13, 16, 19, 23, 27.
- Signal Level:** A bar chart showing CNR (Carrier-to-Noise Ratio) for each satellite. The values are: 3 (43), 8 (31), 11 (47), 13 (44), 16 (40), 19 (47), 23 (44), 27 (45).
- TTF Commend:** A yellow box highlights the "Hot Start", "Warm Start", and "Cold Start" buttons.
- Message Bar:** A yellow box highlights the "COM2" dropdown, the "115200" dropdown, and the "Close" button.

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