

Product Introduction, *MEB-1280*

RoyalTek

Taoyuan, Taiwan

Topics

- **MEB-1280 Introduction**
 - Images & Dimension
 - Features
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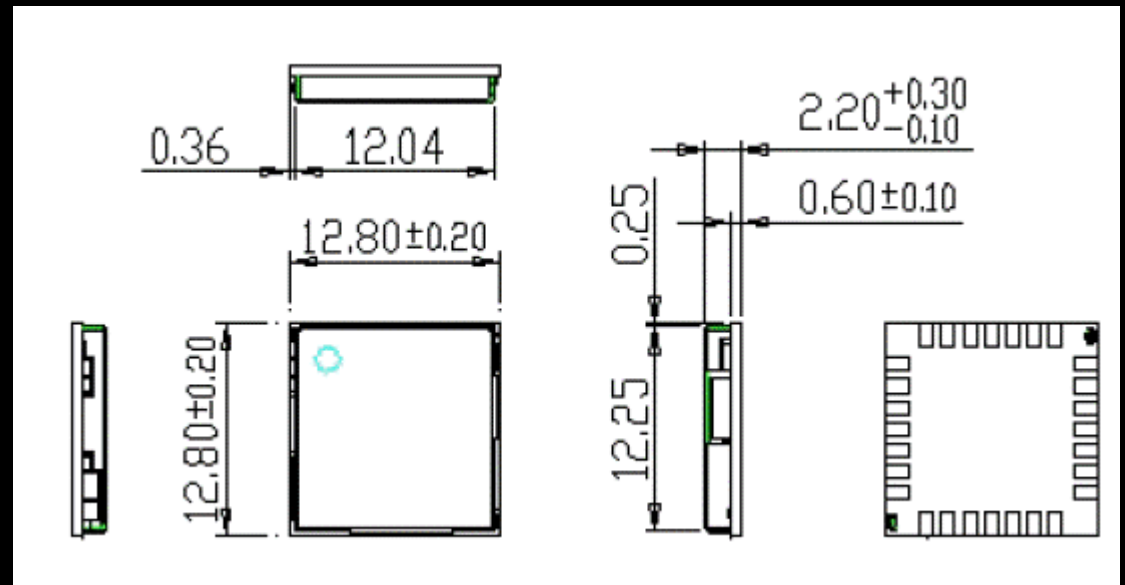
MEB-1280 Images & Dimension



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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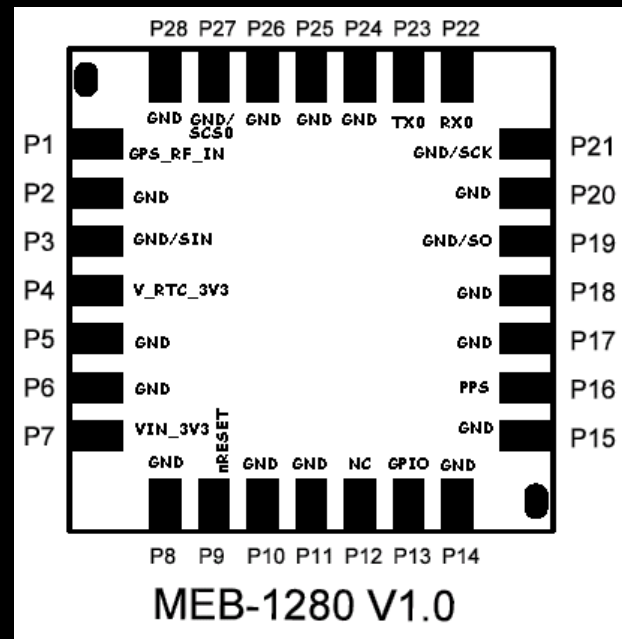
MEB-1280 General Specification (2)

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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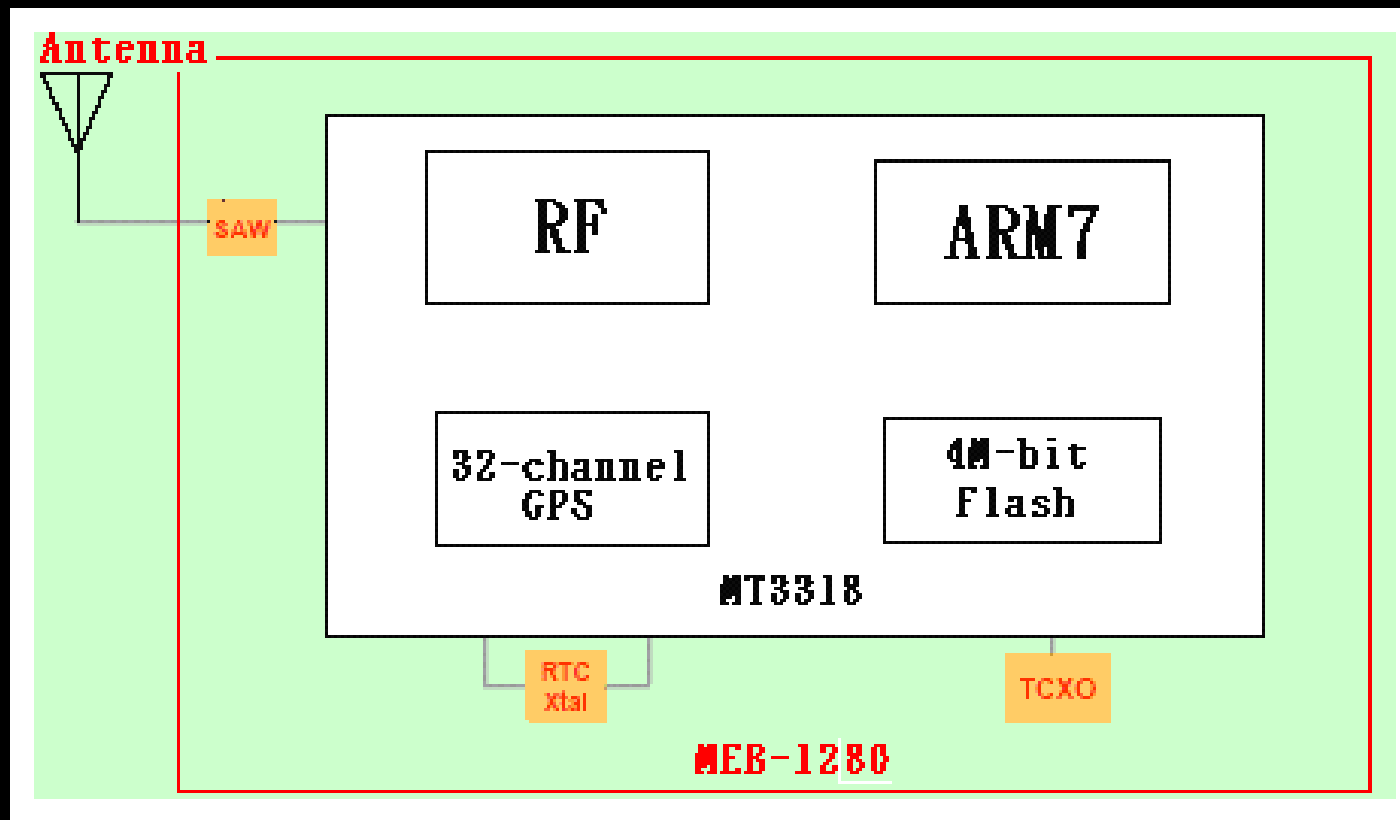
MEB-1280 Design Appendix (3)

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

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MEB-1280 Design Appendix (4)

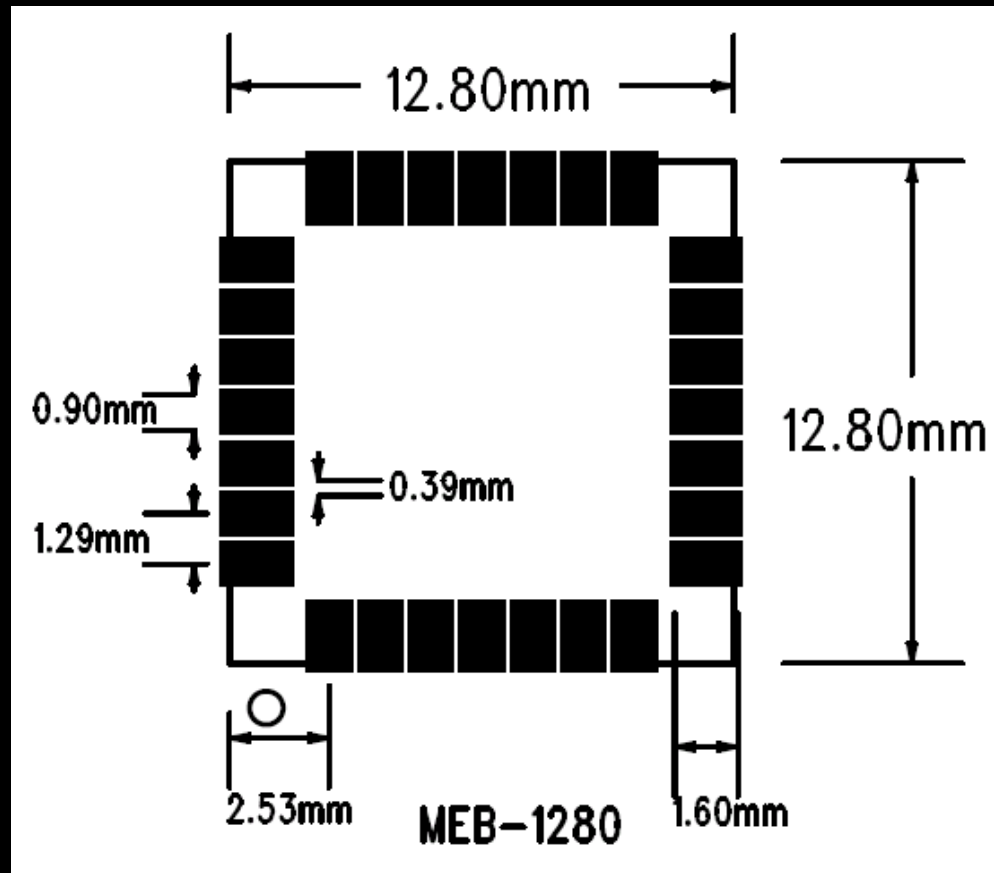
MEB-1280 Block Diagram



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MEB-1280 Design Appendix (5)

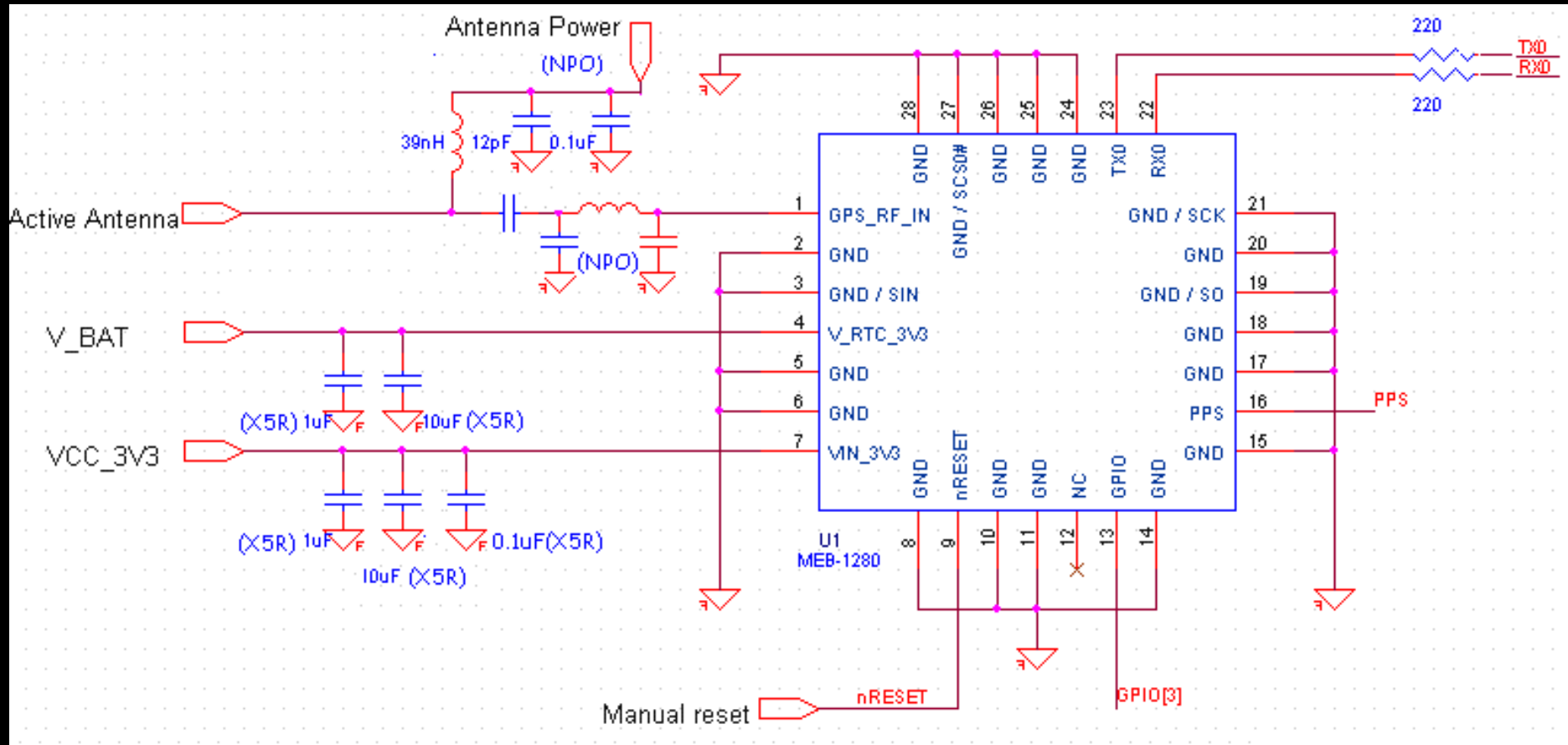
Recommend PAD Layout – Top View



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MEB-1280 Design Appendix (6)

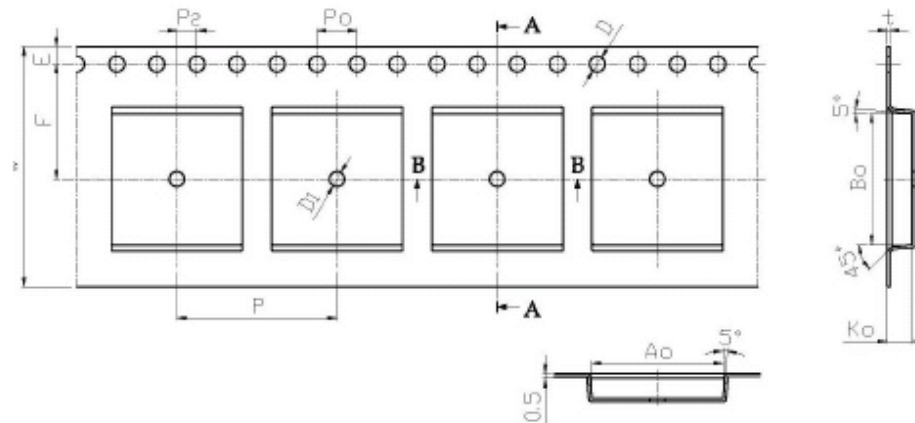
Reference of Application Circuit



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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

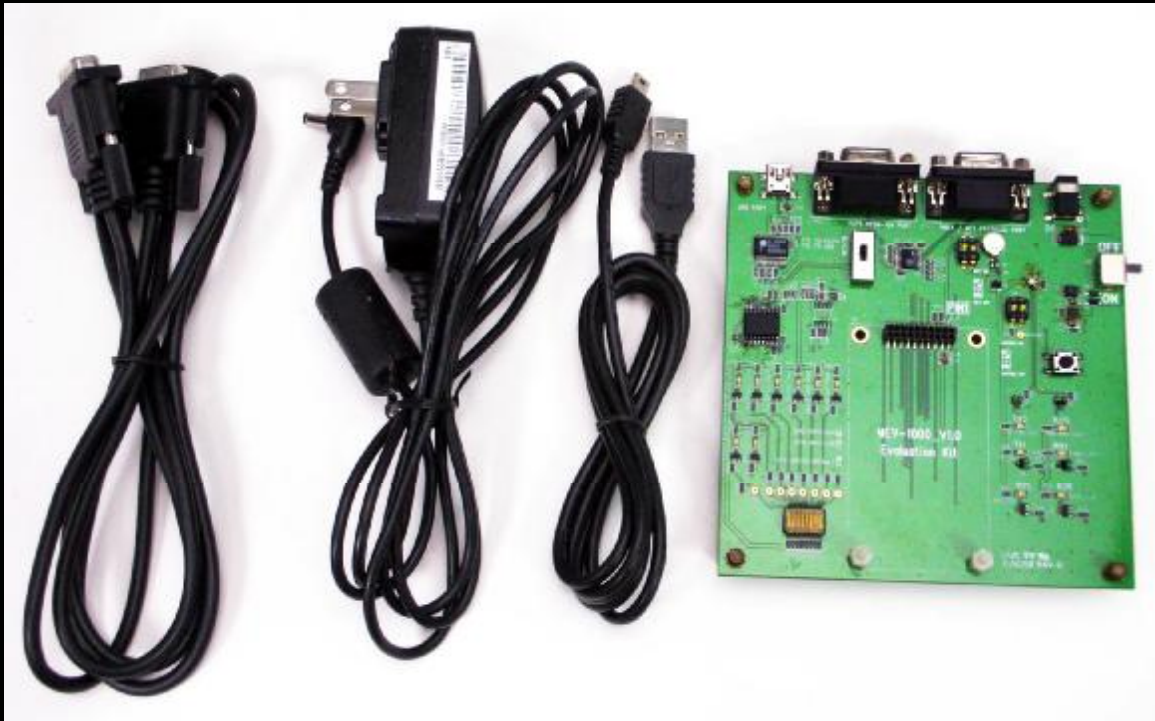
外觀	規格	公差
A0	13.10	± 0.10
B0	13.10	± 0.10
K0	2.50	± 0.10
t	0.30	± 0.05

- 1.10 sprocket hole pitch cumulative tolerance $\pm 0.20\text{mm}$.
2. Carrier camber not to exceed 1mm in 250mm
3. A_0 and B_0 measured on a plane 0.3mm above the bottom of the pocket.
4. K_0 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 several key components highlighted by yellow dashed arrows and labels:

- Other Application Pages:** Points to the menu bar (Status, Setup, Channel, Test, About).
- Sky Chart:** Points to the circular sky plot showing satellite positions (3, 8, 11, 13, 16, 19, 23, 27) relative to North (N), South (S), East (E), and West (W).
- GPS Status:** Points to the status panel on the right containing the following data:

Date :	2006/9/20
Time :	8:28:19.000
Lat :	N 24.77281 °
Lon :	E 121.02260 °
Alt :	181.7m
Fix Type :	3D SPS
Spd (km/hr) :	0.0
Track :	0.0°
PDOP :	2.6
HDOP :	1.2
VDOP :	2.3
- Signal Level:** Points to the CNR (Carrier-to-Noise Ratio) bar chart showing signal strength for each satellite. The data is as follows:

Satellite ID	CNR
3	43
8	31
11	47
13	44
16	40
19	47
23	44
27	45
- TTF Command:** Points to the buttons for Hot Start, Warm Start, and Cold Start.
- Message Bar:** Points to the communication settings, including COM2, 115200, and a Close button.

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