**Scope**

# Synchronized Timing Module based on GPS



**APPLICATIONS**

Advanced timing and synchronization solution for:
- Femto cell Base station
- Wi-MAX and Wi-Bro (IEEE 802.16 d, e)
- Wi-Bro wave 2 & Wi-Bro Evolution
- CDMA, WCDMA and LTE base-stations
- Broadband, multi-service access products
- Core and access IP switches
- Game device based on Femto cell

## FEATURES

- Output signals phase coherent with GPS/UTC time
- Multiple clock outputs of various frequencies available, including multiples of E1/T1
- Advanced on-board GPS receiver
- GPS engine: 50 channel
- TTFF: 30sec/Cold start, 30sec/Warm start, 1sec/Hot start
- Tracking sensitivity: -160dBm typical
- Reacquisition: -160dBm typical
- Configurable to be Bellcore GR-1244-CORE Stratum level quality timing source up to Stratum 1
- Easily configurable in according to the customer request
- Option to include IEEE 1588 hardware assist block
- High MTBF

## SPECIFICATIONS

**Input reference frequency** : 1PPS and others available
**Output signals frequency** : 1PPS, 10MHz, 40.0MHz, 44.8MHz, multiples of E1/T1, others available
**Output waveform** : LVTTL/LVCMOS, HCMOS
**DPLL performance**
- Free run accuracy ……………… ±1.0 PPM(typical), ±4.6 PPM max.(Stratum 3) and others available
- Holdover stability ……………… $±10 \times 10^{-6}$/1 hours (typical), $±8 \times 10^{-6}$/24 hours available
- Lock accuracy …………………... $±1 \times 10^{-11}$ (typical)

**GPS performance**
- Accuracy of 1 PPS to UTC ……. ±50nSec RMS typical (without SA & 25°C)
- Position accuracy ………………2.5m CEP(50%)
- Tracking sensitivity …………….. -160 dBm min.
- L1 frequency ……………………. 1575.42MHz ±1.032MHz
- Back up battery …………………... 1 hours typical (3 hours available)

**Power supply**
- Voltage …………………………….5V±5%, 3.3V±5% available
- Power…………………………………<1W

**Environmental specifications**
- Operating temperature……………0 to 70°C (-40 to 85°C optional)
- Humidity……………………………95%

*\* Specifications subjects to change without notice.   Further frequencies, specifications and dimensions upon request possible.*   **Rev.:090501**

## Pin configuration

| Pin No. | Pin Name | I/O | Description | Note |
|---|---|---|---|---|
| 1 | Vcc | In | +5V DC, 3.3V available | |
| 2 | Vcc | In | +5V DC, 3.3V available | |
| 3 | Vcc | In | +5V DC, 3.3V available | |
| 4 | Vcc | In | +5V DC, 3.3V available | |
| 5 | GND | | Ground | |
| 6 | GND | | Ground | |
| 7 | *Reserved* | In/Out | | |
| 8 | *Reserved* | In/Out | | |
| 9 | *Reserved* | In/Out | | |
| 10 | *Reserved* | In/Out | | |
| 11 | *Reserved* | In/Out | | |
| 12 | *Reserved* | In/Out | | |
| 13 | *Reserved* | In/Out | | |
| 14 | *Reserved* | In/Out | | |
| 15 | *Reserved* | In/Out | | |
| 16 | Alarm | Out | Lock : low / Unlock :high | |
| 17 | *Reserved* | In/Out | | |
| 18 | *Reserved* | In/Out | | |
| 19 | *Reserved* | In/Out | | |
| 20 | *Reserved* | In/Out | | |
| 21 | Reset | In | Active Low | |
| 22 | 40.0MHz or 44.8MHz | Out | HCMOS | |
| 23 | TXD | Out | | GPS receiver TXD |
| 24 | *Reserved* | In/Out | | |
| 25 | RXD | In | | GPS receiver RXD |
| 26 | *Reserved* | In/Out | | |
| 27 | *Reserved* | In/Out | | |
| 28 | 1 PPS | Out | LVTTL/LVCMOS | |
| 29 | GND | | Ground | |
| 30 | GND | | Ground | |

*Note: Reserved pins can be configured upon customer request as an additional clock outputs.*

**VDD** (#1, #2, #3, #4)
- +5.0V DC power input.
- This is the main DC power supply input.
- It provides voltage to Timing module.

**GND** (#5, #6, #29, #30)
- It provides ground to Timing module.

**Alarm** (#16)
- When locked : Low
- When unlocked : High

**Reset** (#21)
- System reset

**Fout 2** (#22)
- 40.000MHz or 44.800MHz
- HCMOS output

**TXD** (#23)
- This is the main transmitting channel.
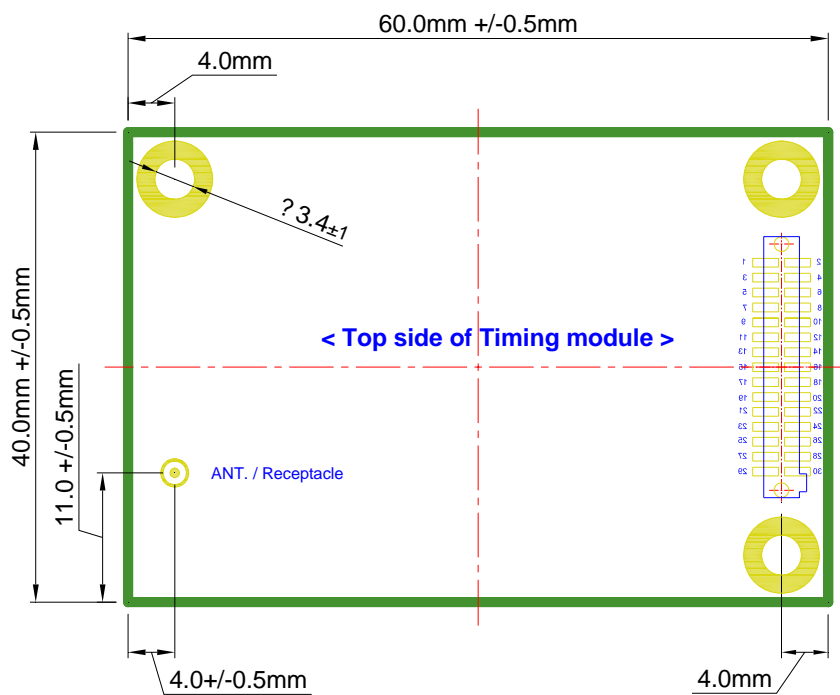
**RXD** (#25)
- This is the main receiving channel.

**Fout 1** (#28)
- 1PPS
- LVTTL/LVCMOS output

# Dimensions

60 x 40 x 11.5mm

Top side

60.0mm +/-0.5mm

4.0mm

? 3.4±1

40.0mm +/-0.5mm

11.0 +/-0.5mm

< Top side of Timing module >

ANT. / Receptacle

4.0+/-0.5mm

4.0mm

Board to Board connector : SFC-115-T2-F-D-A(2x5, 30 Pin)

Bottom side

60.0mm +/-0.5mm

4.0mm

4.0mm

< Bottom side of Timing module >

40.0mm +/-0.5mm

4.0mm