



## Mini-T™ GG Multi-GNSS Disciplined Clock

### KEY FEATURES

- Multi-Constellation
- Simultaneous GPS and GLONASS tracking
- Extended temperature range (-40°C / +85°C)
- Holdover stability of  $\pm 5\mu\text{s}$  over 24 hour period @ 25°C
- Small foot print and low profile, suited for digital broadcast and small cells
- PPS and 10MHz output
- T-RAIM (Disciplined Clock Autonomous Integrity Monitoring) provides high PPS integrity

### Multi-GNSS Disciplined Clock

The Trimble® Mini-T™ GG is a multi-GNSS (GPS, GLONASS) Disciplined Clock, optimized to generate precise timing signal. Designed specifically for compact, high-volume applications. When operating in Over Determined Timing Mode the accuracy of pulse per second (PPS) is within 15 nanoseconds of GNSS/UTC.

### Synchronization for next generation

The Mini-T™ GG gives OEMs the opportunity to embed a low-cost precise time and frequency reference, in our smallest form-factor yet. Trimble created the Mini-T™ GG using clock technology proven in generations of deployed units used in 4G networks (LTE, WiMAX, HSPA+) and digital broadcasting applications. It utilizes the latest in GNSS technology, combined with a precision ovenized oscillator for near atomic clock precision timing

### Standard timing feature

The Mini-T™ GG includes many of Trimble's standard timing features, including the Disciplined Clock Autonomous Integrity Monitoring (T-RAIM) algorithm, and automatic self-survey. The Mini-T™ GG is factory default with the TSIP protocol that follows specific timing products and applications



### Proven Reliability

The Mini-T™ GG offers proven reliability and performance, will exceed your expectations, and enable you to provide your customers with the highest quality GNSS solution available today

The Mini-T™ GG GNSS Clock Board is offered with a standard 10 MHz output, but it is also available in custom frequencies.

# MINI-T™ GG MULTI-GNSS DISCIPLINED

## GENERAL SPECIFICATIONS

Receiving Signal.....GPS L1 & GLONASS G1  
Positioning System.....SPS, Timing  
Acquisition Channels.....24 Channels  
Tracking Channels.....24 Channels  
1 PPS Timing Accuracy .....15 ns (1 sigma)  
Holdover Stability.....<±5us over 24Hr period @ 25°C  
Horizontal Position Accuracy.....<6m (50%), <9m (90%)  
Vertical Position Accuracy.....<11m (50%), <18m (90%)  
Update Rate.....1 Hz  
Data Format.....TSIP or NMEA  
Typical Min Acq Sensitivity.....-150dBm cold start  
Typical Min Tracking Sensitivity ..... -160dBm  
Time to First Fix.....<46s (50%), <50s (90%) cold start  
Typical Time to Re-acquisition..... <2s (90%)

## INTERFACE CHARACTERISTICS

Serial Port.....1 serial port  
PPS / Even Second.....CMOS-compatible  
TTL-level pulse, once per second  
Protocols.....TSIP, NMEA 0183  
GNSS Input Connector.....SMA  
PPS Out.....SMA  
Frequency Out.....SMA  
I/O Connector.....2x15 Pin

## OSCILLATOR SPECIFICATIONS

Frequency Output.....10MHz  
Phase Noise.....-90dBc/Hz @ 1Hz  
-120dBc/Hz @ 10Hz  
-135dBc/Hz @ 100Hz  
-145dBc/Hz @ >1KHz

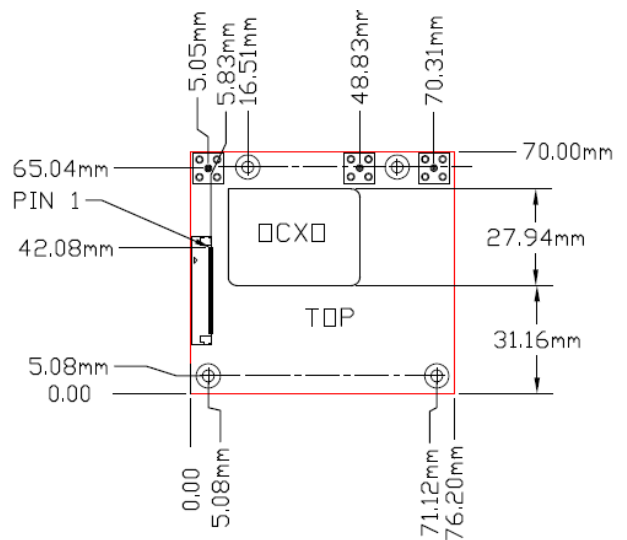
## ELECTRICAL CHARACTERISTICS

Supply Voltage Range..... 5.5V DC ±5%

## ENVIRONMENTAL SPECIFICATIONS

Operating Temperature.....-40°C to +85°C  
Vibration 0 008 g<sup>2</sup>/Hz..... 5 Hz to 20 Hz  
0 05 g<sup>2</sup>/Hz..... 20 Hz to 100 Hz  
-3 dB/octave.....100 Hz to 900 Hz  
Operating Humidity.....5%-95% RH non-condensing (+60°C)

## MECHANICAL DRAWING



## GENERAL INFORMATION & ACCESSORIES

Bullet GG, 5V DC with 32 dB gain

Visit [www.trimble.com/timing](http://www.trimble.com/timing) for part numbers and information about where to buy.

Parts of the product are patent protected.

Trimble has relied on representations made by its suppliers in certifying this product as RoHS-II compliant.

Specifications subject to change without notice.

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