

## SGTM10HP

Low Aging & Low Power Timing Module for MIL / Aero & General Industry

### PRODUCT OVERVIEW

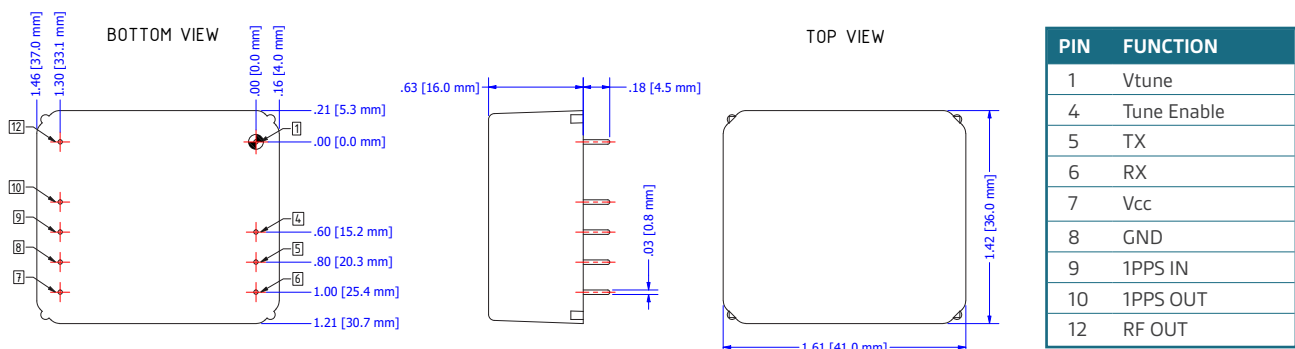
SGTM10HP is a low aging Timing module delivering a PPS, sine 50Ω or HCMOS output with a standard frequency of 10 MHz. Its core low aging and low power consumption makes it ideal for all applications with drastic precision timing constraints under GNSS denied area. The module consumes less than 550 mW at 25°C and shows a thermal sensitivity less than 15ppb across the full temperature range. A specific firmware brings its thermal sensitivity to ±1ppb (typ.) on demand.



### KEY FEATURES

- 10 MHz Sine 50 ohm or HCMOS output
- ±10 ppb or ±1 ppb (typ.) thermal sensitivity
- 550 mW at 25°C (typ.)
- ±0,2 ppb/day after 30 days (typ.)
- Pin-to-pin compatible replacement of Chip Scale Atomic Clock

### DIMENSIONS & PIN-OUT



### ORDERING INFORMATION

**SGTM 10HP - xxx - x - x5 - xx**

CODE	SPECIFICATION
8	8.192
<b>10</b>	<b>10</b>
16	16.384
20	20
32	32.768
40	40

CODE	SPECIFICATION
HP	SC-cut
Blank	AT-cut

CODE	SPECIFICATION
A	-10°C/+45°C
B	-30°C/+70°C
C	-40°C/+85°C

CODE	SPECIFICATION
3V3	3V3
5V0	5V0

CODE	SPECIFICATION
H	HCMOS
S	Sine 50Ω
C	Clipped Sine 10kΩ

CODE	SPECIFICATION
CO	Compensation OFF
CT	Thermal Compensation

CODE	SPECIFICATION
1	DIL14 Low
2	DIL14 High
3	Europack Low
<b>4</b>	<b>Europack High</b>
5	Encapsulated Europack
6	Encapsulated DIL14

**ELECTRICAL CHARACTERISTICS**

PARAMETERS	Unit	Min	Typ.	Max	Note	Comments
<b>Output Frequency</b>	MHz		10		1	
<b>Temperature Range</b>						
• Operating	°C	-30		+70		Ordering Code B
	°C	-40		+85		Ordering Code C
• Storage	°C	-55		+95		
<b>Supply Voltage</b>	V	4.75	5.0	5.25		
<b>Supply Current</b>						
• Warm-up	A		0.5	0.7	3	During 20s max @ 25°C / 40s max @ 5°C
• Steady state / -30°C	mA		170	190	1	Ordering Code B
• Steady state / +25°C	mA		110	120	1	Ordering Code B
• Steady state / +70°C	mA		50	60	1	Ordering Code B
• Steady state / -40°C	mA		200	240	1	Ordering Code C
• Steady state / +25°C	mA		120	130	1	Ordering Code C
• Steady state / +85°C	mA		55	70	1	Ordering Code C
<b>Frequency Stability</b>						
• Initial frequency accuracy	ppm		±0.05	±0.1	1	+25°C referred to nominal frequency
• Vs operating temperature range	ppb		±10	±15	1	Ordering Code B
	ppb		±15	±20		Ordering Code C
	ppb		±1	±2		Compensated version
• Vs supply voltage variation	ppb			±2	2	± 5%
• Vs load	ppb			±5	2	10kΩ // 15 pF load ±10%
• Short-term (τ=0.1s)	10 <sup>-11</sup>		0.5	1	2	Allan deviation @ 10 MHz
	10 <sup>-11</sup>		0.8	5	2	
• Aging						
	Per day	ppb	±0.2	±0.5	2	After 30 days
	First year	ppb		±50	2	
	After 10 years	ppb		±300	2	
• Acceleration sensitivity	ppb/G			±1	2	Worst direction
• Warm-Up Time	sec		60	120	3	to ± 1 ppm of final frequency (1 hour) at 25°C
	min		10	15	3	to ± 100 ppb of final frequency (1 hour) at 25°C
• Retrace	ppb			±10	3	24h work after 24 off
<b>Sinewave Output Parameters</b>					<b>HCMOS on request</b>	
• Load	Ω		50		3	
• Output Power (Standard)	dBm	+7	+9	+13	3	
• Harmonics	dBc			-35	3	
<b>1 PPS Output Parameters</b>						
• Load	pF		10		3	1 MΩ
• Rise \ Fall Time	ns			8	3	10% - 80%
• Signal Level - Vh	V	4			3	
• Signal Level - Vl	V			0.4	3	
• Level	V	0		5	3	3V3 on request
<b>1 PPS Input Parameters</b>						
• Format			Rising edge			
• Load	MΩ		1		3	
• Logic low level	V	< 0.4			3	
• Logic high level	V			2.4	3	3V3 on request
• Rise Time	ns			12	3	
<b>Serial Communications</b>						
• Protocol			RS-232			
• Format	V	0		5		CMOS ; 3V3 on request
• Baud Rate			57600		3	
<b>1 PPS accuracy 1σ</b>	ns		±10			
<b>Hold over stability</b>						
• T = 25°C	μs		±2.5	±5	3	Over 24h for CO and CT version and after 4 days power On with PPS-in-signal
• T = 25°C ± 5°C	μs		±2.5	±5	3	Over 24h for CT version and after 4 days power On with PPS-in-signal
• T = 25°C ± 20°C	μs		±3	±6	3	Over 24h for CT version and after 4 days power On with PPS-in-signal
• T = 25°C ± 20°C	μs		±150	±250	3	Over 15 days

<b>Weight</b>	grams	20
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**Notes**

1. Parameter inspected at 100% | 2. Parameter inspected by sampling | 3. Parameter guaranteed by design and characterization

**ENVIRONMENTAL CONDITIONS**

<b>Soldering instructions</b>	Hand soldering only, with recommended pins soldering temperature : 235°C ±5°C, t=10s ±0.5s (260°C max for 5s max) Reflow soldering and other soldering methods are prohibited
<b>Mounting instructions</b>	Pin receptacles mounted into PCB can be used. Reference example : 0338-0-15-XX-15-XX-10-0
<b>PCB cleaning/washing</b>	Not washable

**OCXO HERMETICITY**

Metallic housing hermetically sealed
Fine Leaks and Gross Leaks tests performed 100%

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