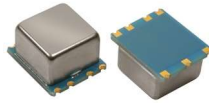


# OCO-SMAH

## SMD OCXO HCMOS



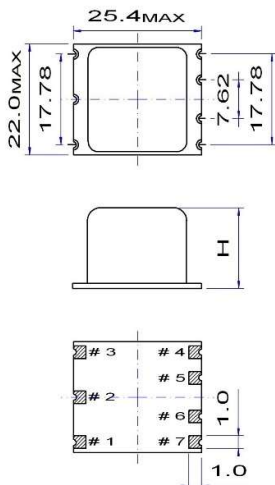
### Features

- Frequency: 10.000 MHz to 40.000 MHz
- Supply Voltage option: 3.3V 5.0V & 12.0V

Parameter	Specification		
	OCO-SMAH3	OCO-SMAH5	OCO-SMAH12
Frequency Range	10.000 ~ 40.000 MHz		
Standard Frequencies	10MHz	12.8MHz	13MHz 16.384MHz 20MHz
<b>Operating Temperature Range</b>	<b>Code</b>	<b>EH</b>	<b>GH</b>
	°C	0 / +60	-10 / +60
		<b>JK</b>	<b>NK</b>
		-20 / +70	-40 / +70
		<b>NN</b>	<b>Z</b>
		-40 / +85	Custom
<b>Frequency Stability</b>	<b>Code</b>	<b>50n</b>	<b>20n</b>
vs <b>Operating Temperature Range</b> *Note 2		$\leq \pm 50 \times 10^{-9}$	$\leq \pm 20 \times 10^{-9}$
vs. Supply Voltage change [ Vdc ] $\pm 5\%$		$\leq \pm 3 \times 10^{-9}$	
vs. Load change $\pm 5\%$		$\leq \pm 3 \times 10^{-9}$	
vs. Aging after 30 days of operation *Note 2		$F_n \leq 19\text{MHz} : \leq \pm 3 \times 10^{-8} / \text{year}$	$F_n > 19\text{MHz} : \leq \pm 1 \times 10^{-7} / \text{year}$
Short term Stability for Fo 10MHz *Note 2		$\leq 1 \times 10^{-11}$ @ 1s	
Output waveform	<b>HCMOS</b>		
<b>Supply Voltage [ Vdc ]</b>	<b>+3.3 V <math>\pm 5\%</math></b>	<b>+5.0 V <math>\pm 5\%</math></b>	<b>+12.0 V <math>\pm 5\%</math></b>
Output Level	$V_{OL} < 0.4V$ $V_{OH} > 2.4V$	$V_{OL} < 0.5V$ $V_{OH} > 4.0V$	$V_{OL} < 0.5V$ $V_{OH} > 4.5V$
Output Load	10k $\Omega$ / 15pF		
<b>Supply Voltage [ Vdc ]</b>	<b>+3.3 V <math>\pm 5\%</math></b>	<b>+5.0 V <math>\pm 5\%</math></b>	<b>+12.0 V <math>\pm 5\%</math></b>
Steady-state current consumption @ +25 °C	< 320 mA	< 215 mA	< 90 mA
Warm-up current consumption @ +25 °C	< 800 mA	< 530 mA	< 220 mA
Warm-up time @ +25 °C	< 180s		< $\pm 1 \times 10^{-7}$
<b>Electronic Frequency Control [ EFC ] range</b>	> $\pm 4 \times 10^{-7}$ positive slope		
Voltage Control [ Vc ]	0 ~ +2.8 V	0 ~ +4.5 V	0 ~ +5.0 V
Reference voltage output [ Vref ]	+2.8 V	+4.5 V	+5.0 V
<b>Phase Noise @ 10MHz [ dBc/Hz ]</b>	<b>Vdc +3.3 V</b>	<b>Vdc +5.0 V</b>	<b>Vdc +12.0 V</b>
	<b>1 Hz</b>	$\leq -85$	$\leq -90$
	<b>10 Hz</b>	$\leq -115$	$\leq -120$
	<b>100 Hz</b>	$\leq -130$	$\leq -135$
	<b>1 kHz</b>	$\leq -140$	$\leq -145$
	<b>10 kHz</b>	$\leq -145$	$\leq -150$
Storage temperature range	-55 ~ +85 °C		
<b>Environmental test</b>			
Vibration	acceleration: 5 g; 10 Hz up to 500 Hz and down to 10 Hz; all 3 axes		
Shock	75 g, half-sine, 3 ms		

Note 1: unless otherwise specified conditions are @ 25°C still air

Note 2: all combination not possible (consult factory)



### Pin function

- 1 # Vc.
- 2 # Vref.
- 3 # Vdc.
- 4 # RF output
- 5 # Not connected
- 6 # Not connected
- 7 # GND

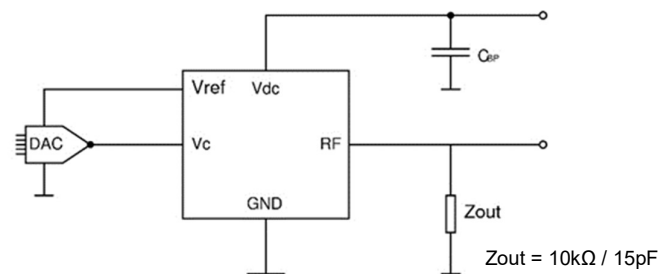
H = 12.5 mm

### Ordering Guide:

#### OCO-SMAH5-JK20n-10MHz

Vdc OTR

### Connection circuit



Zout = 10k $\Omega$  / 15pF