Low Power Crystal Oscillators — CMOS output

HG _ _	Low Power	CMOS	Thru-Hole	1.8V	2.5V	3.3V	5.0V	32.768 KHz

Features

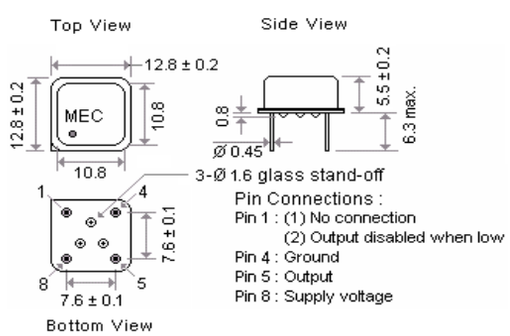
- Current consumption in the micro Amp (µA) range
- HG_ _ such as 32.768 KHz, provides a time base for a Real Time Clock
- Low current consumption
- Suitable for battery-operated devices such as data logging and portable test equipment

General specifications of all available packages , at Ta=+25°C , CL=15pF

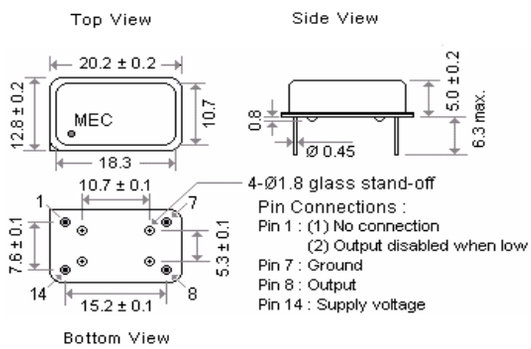
Model	" HG " series			
Supply Voltage (V_{DD})	+ 1.8 V ± 10%	+ 2.5 V ± 10%	+ 3.3 V ± 10%	+ 5.0 V ± 10%
Frequency Range	32.576 KHz			
Output Wave Form	CMOS (square wave)			
Frequency Tolerance (at 25°C)	± 10 ppm (Tolerance Code is " ***P*** ") ± 25 ppm (Tolerance Code is " ***A*** ")		± 50 ppm (Tolerance Code is " ***B*** ") ± 100 ppm (Tolerance Code is " ***C*** ")	
Frequency Stability	-100 ppm (typ.) over 0°C to +70°C			
	-160 ppm (typ.) over -40°C to +85°C			
Current Consumption	8 µA (max.)	10 µA (max.)	12 µA (max.)	15 µA (max.)
Output Logic High " 1 "	1.4 V (min.)	2.1 V (min.)	2.9 V (min.)	4.6 V (min.)
Output Logic Low " 0 "	0.4 V (max.)	0.4 V (max.)	0.4 V (max.)	0.4 V (max.)
Rise Time (Tr) & Fall Time (Tf)	200 nsec. (max.)			
Output Load	15 pF			
Start-up Time	1.0 sec. (typ.) ; 3.0 sec. (max.)			
Duty Cycle	50% ± 5% (typ.) ; 50% ± 10% (max.)			
Storage Temperature	-50°C to 125°C			
Aging at Ta=+25°C	±5 ppm per year (max.)			

Outline Dimensions (Unit : mm)

HG8



HG14



Part Number Format and Example

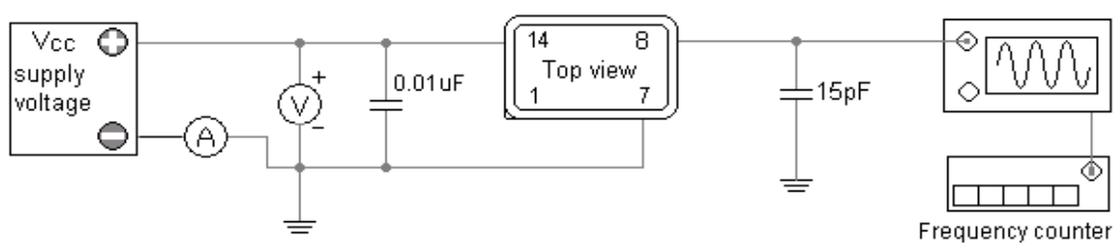
[1]	[2]		[4]		[5]
Supply Voltage	Holder Type	-	Frequency Tolerance (25 °C)	-	Center Frequency

Example	3	HG14	–	P	–	32.768K

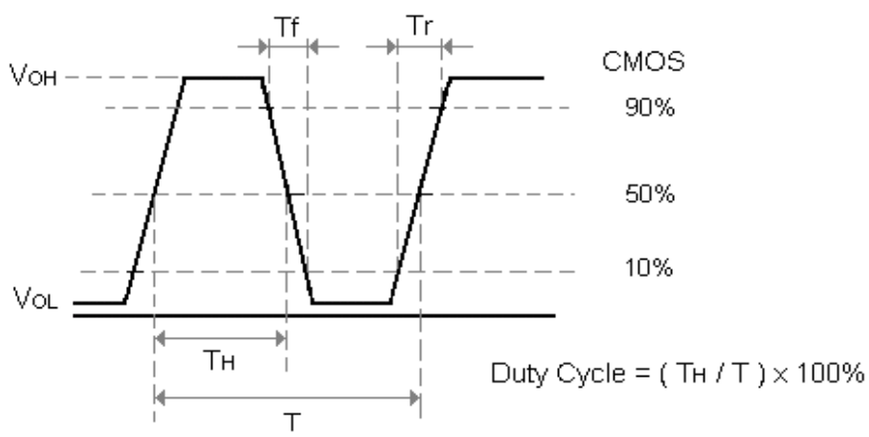
Ex : 3HG14 - P - 32.768K [+3.3V input voltage , Full size package 4 pins , Dip type , ±10 ppm frequency tolerance , 32.768 KHz]

[1]	Supply voltage	" 18 " for +1.8V ; " 25 " for +2.5V ; " 3 " for +3.3V ; " 5 " for +5.0V			
[2]	Holder Type	" 8 " Half size DIP (12.8 * 12.8) ; " 14 " Full size DIP (20.2 * 12.8)			
[3]	Frequency	± 10 ppm (Code is " P ")	± 25 ppm (Code is " A ")	± 50 ppm (Code is " B ")	± 100 ppm (Code is " C ")
[4]	Center Frequency				

HG - series Test Circuit



CMOS Output Waveform



Related Mercury Products :

● " **HA** " Series, at 32.768KHz, uses an AT-cut crystal to achieve ±25, ±50 or ±100 ppm frequency stabilitiesover both commercial or industrial temperature ranges with a low 32 µA current consumption at +3.3V.

● " **M572T** " Series TCXO & "**VM572T**" Series VCTCXO, are also available at a frequency of 32.768KHz. They are both temperature compensated and they can achieve a frequency stability of ±1.0~±2.5 ppm over commercial or industrial temperatures, with a current consumption of 3.5 mA at +3.3V.

● " **ME** " Series TCXO are also available at a frequency of 32.768KHz. They are both temperature compensated and they can achieve a frequency stability of ± 5.0 ppm over commercial or industrial temperatures, with a low current consumption of 1.3 µA at +3.3V.