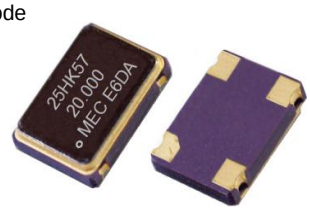
Crystal Oscillators [Ultra Low Current] — CMOS output

HK _ _	Ultra Low Current	SMD	CMOS	1.8 V	2.5 V	3.3 V	Min. 250 KHz	Max. 50 MHz

Features

- Less than 1.7 mA current consumption for 27 MHz at 1.8V and less than 2 uA in disabled mode
- Designed for hand-held consumer electronic devices requiring a low current consumption
- Phase noise is -130 dBc/Hz at 10 KHz offset
- 1.8 V, 2.5V or 3.3V supply voltage



RoHS Compliance

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

Model [Output Logic]		" HK " series [LVCMOS]					
Type		HK53 [5.0 * 3.2 * 1.2 mm]			HK57 [7.0 * 5.0 * 1.4 mm]		
Frequency Range		0.37 ~ 50.0 MHz			0.25 ~ 50.0 MHz		
Input Voltage Range (V_{DD})		+1.8 V ± 10%	+2.5 V ± 10%	+3.3 V ± 10%	+1.8 V ± 10%	+2.5 V ± 10%	+3.3 V ± 10%
Output Voltage High " 1 " (V_{OH})		+ 1.4 V (min.)	+ 2.0 V (min.)	+ 2.4 V (min.)	+ 1.4 V (min.)	+ 2.0 V (min.)	+ 2.4 V (min.)
Output Voltage Low " 0 " (V_{OL})		+ 0.2 V (max.)	+ 0.3 V (max.)	+ 0.4 V (max.)	+ 0.2 V (max.)	+ 0.3 V (max.)	+ 0.4 V (max.)
Current Consumption mA , (typical)	10.000 MHz	- - -	- - -	- - -	0.7 mA	1.0 mA	1.5 mA
	13.500 MHz	- - -	- - -	- - -	0.9 mA	1.3 mA	1.9 mA
	16.000 MHz	1.1 mA	1.6 mA	2.2 mA	1.1 mA	1.6 mA	2.2 mA
	20.945 MHz	1.4 mA	1.9 mA	2.6 mA	1.4 mA	1.9 mA	2.6 mA
	25.000 MHz	1.6 mA	2.2 mA	3.1 mA	1.6 mA	2.2 mA	3.1 mA
	27.000 MHz	1.7 mA	2.4 mA	3.3 mA	1.7 mA	2.4 mA	3.3 mA
	30.000 MHz	2.0 mA	2.8 mA	3.8 mA	2.0 mA	2.8 mA	3.8 mA
	38.000 MHz	2.3 mA	3.3 mA	4.5 mA	2.3 mA	3.3 mA	4.5 mA
	50.000 MHz	2.7 mA	4.0 mA	5.0 mA	2.7 mA	4.0 mA	5.0 mA
Rise Time (Tr) / Fall Time (Tf)		4 n sec. (typical) when measured from (10% V_{DD} ↔ 90% V_{DD})					
Fanout (Drive Capability)		12 mA (typical)					
Duty Cycle (at 50% of wave form)		50% ± 5% . measured at +1.4V VD.C.					
Start -up Time (Ts)		10 m sec. (typical) ; V_{DD} reaches 1.62 V					
Load		15 pF					
Voltage Sensitivity		± 0.8 ppm (typical) with 10% variation of V_{DD}					

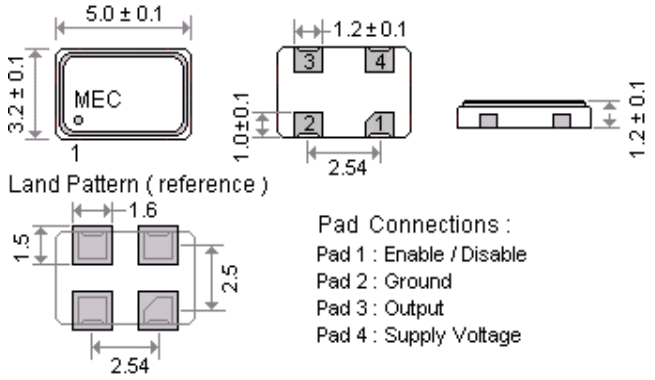
Frequency Stability Codes	Frequency Stability over Operating Temperature Range	± 25 ppm	± 50 ppm	± 100 ppm	If non-standard , please enter the desired stability after the " C " or " I " . For example : " C20 " ± 20 ppm over -10°C to +70°C ; " I30 " ± 30 ppm over -40°C to +85°C
	Commercial (*-10°C to +70°C*)	*A*	*B*	*C*	
	Industrial (*-40°C to +85°C*)	*D*	*E*	*F*	

Storage Temperature	- 50°C to 100°C
Aging	± 5 ppm per year (max.)
Tri-state Function on pad No. 1	When connected to ground : Output is disabled (oscillator is off) When not connected or connected to logic high : Clock output Disable time is 10 m sec. (typical) Enable time (when ground is removed from pad 1) is 10 m sec. max.

Outline Dimensions (Unit : mm) , Suggested pad Layout for SMDs

[Please check the hold type and part No. with page 3 .]

[HK53]



[HK57]