



### Features

- All metal welded package.
- High precision characteristic covering up to wide frequency range from 0.25MHz up to 180MHz.
- 5V / 3.3V operating voltage.
- CMOS output.
- 3-state function.
- 14-Pin DIP (Full size) / 8-Pin DIP (Half-Size Package)
- Applications: Telecommunications, Mobile communications, Avionics, Test equipments, Electronic instruments, etc.
- Low phase noise and jitter.



### Electrical Specifications

Type		THRU-HOLE CRYSTAL OSCILLATOR	
Output Type	CMOS		
Output Load	15pF	15pF, 50pF	
Oscillation Mode	Fundamental / 3rd Overtone		
Supply Voltage	3.3V	5.0V	
Frequency Range	0.25MHz~180MHz		
Overall Frequency stability*	±10ppm, ±20ppm, ±25ppm, ±50ppm, ±100ppm		
Operating Temperature Range	-20~+70°C, -40~+85°C, or specify		
Storage Temperature Range	-55~+125°C		
Rise(Tr) / Fall(Tf) Time(AT 0.1Vdd~0.9Vdd)	5ns Max.		
Input Current	0.25MHz~9.999MHz	15mA Max.	10mA Max.
	10.00MHz~23.999MHz	15mA Max.	10mA Max.
	24.00MHz~49.999MHz	30mA Max.	20mA Max.
	50.00MHz~79.999MHz	40mA Max.	20mA Max.
	80.00MHz~180.000MHz	50mA Max.	30mA Max.
Symmetry(AT ½ Vdd)	45~60%		
Start-up Time	10ms Max		

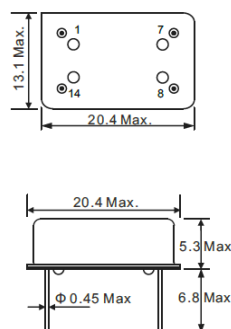
### Ordering Information

KODF	012000M	15	50	50	A	
Product Code	Frequency Range	Output Load	Supply Voltage	Frequency Stability	Operating Temperature	
KODF/ KODH	12.000MHz	15=15pF	33=3.3V 50=5.0V	50=±50ppm A0=±100ppm	A:-20~+70°C B:-10~+70°C C:-40~+85°C	D:-40~+125°C E:-10~+60°C F:-30~+70°C

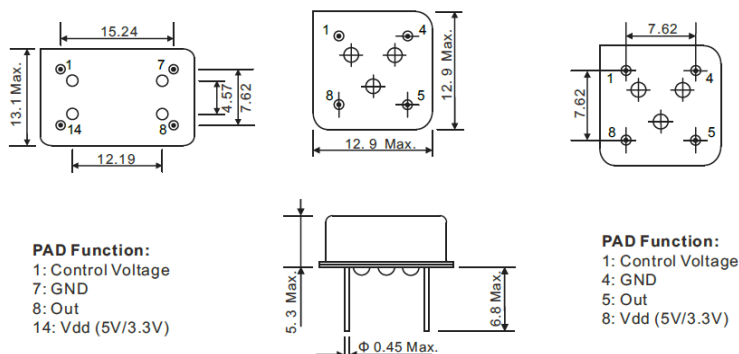
### Dimension

Units:mm

KODF



KODH



**PAD Function:**  
1: Control Voltage  
7: GND  
8: Out  
14: Vdd (5V/3.3V)

**PAD Function:**  
1: Control Voltage  
4: GND  
5: Out  
8: Vdd (5V/3.3V)