

# Clock Oscillator

# M Series



CMOS (Half & Full Size)

(Tri-State Function Optional)

### Features:

- All metal welded package
- Wide frequency range from 0.25MHz up to 180MHz
- CMOS Output
- Supply voltage of 5V and 3.3V available
- Half size: 12.9 x 12.9 x 5.3 max. (8 Pin DIP)
- Full size: 20.4 x 13.1 x 5.3 max. (14 Pin DIP)
- Custom specs are also available
- Low Phase Noise and Jitter
- **RoHs Compliant (Pb Free)**



### Electrical Specifications:

Model Type	Full Size		Half Size		
	M1	M2	M3	M4	
Fan Out Type	CMOS				
Supply Voltage	5.0V	3.3V	5.0V	3.3V	
Frequency Range	0.25MHz - 20MHz (Fundamental), > 20MHz - 180MHz (3rd O/T)				
Operating Temperature	-20°C ~ 70°C, -40°C ~ 85°C or Specify				
Storage Temperature Range	-55°C ~ +125°C				
Dimensions	20.4 x 13.1 x 5.3 mm (max.)		12.9 x 12.9 x 5.3 mm (max.)		
Frequency Range Input Current (max.)	0.25MHz - 9.999MHz	10 mA	15 mA	10 mA	15 mA
	10.00MHz - 23.999MHz	10 mA	15 mA	10 mA	15 mA
	24.00MHz - 49.999MHz	20 mA	30 mA	20 mA	30 mA
	50.00MHz - 79.999MHz	20 mA	40 mA	20 mA	40 mA
	80.00MHz - 180.000MHz	30 mA	50 mA	30 mA	50 mA
Frequency Stability	All Conditions	±10, ±20, ±25, ±50, ± 100ppm			
Symmetry	AT 1/2 Vdd	40 / 60% Standard (45 / 55% for tight symmetry)			
Output Voltage	Vol (max.)	0.4V / 0.5V	0.33V	0.4V / 0.5V	0.33V
	Voh (min.)	2.4V / 4.5V	2.97V	2.4V / 4.5V	2.97V
Rise / Fall Time	AT 0.1Vdd - 0.9Vdd	5ns max.			
Output Load	CMOS load max.	15pF / 50pF	15pF	15pF / 50pF	15pF
Start-up Time	Load Range	5ms max. (15pF) / 10ms (50pF)			

### Part Numbering System:

**M1 A — 4.000 B T X — —**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Series
- ② Frequency Stability
- ③ Frequency
- ④ Operating Temperature
- ⑤ Output Symmetry
- ⑥ Fan Output
- ⑦ Tri-State Option
- ⑧ Driving Ability Optional for CMOS Load max.

Series
M1: 14 pin / 5.0V
M2: 14 pin / 3.3V
M3: 8 pin / 5.0V
M4: 8 pin / 3.3V

Frequency Stability
A: ± 100ppm
B: ± 50ppm
C: ± 30ppm
D: ± 25ppm
E: ± 20ppm
H: ± 10ppm

Frequency
Unit : MHz

Code	Operating Temperature
B	-20 ~ 70°C
X	-40 ~ 85°C

Code	Output Symmetry
Nil	40% / 60%
T	45% / 55%

Code	Fan Output
X	CMOS

Code	Tri-State Option
Nil	Standard Pin #1 Open (N/C)
R	Tri-State Pin #1 (E/D)

Code	Driving Ability
Nil	15pF
50	50pF

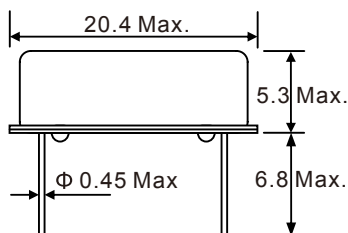
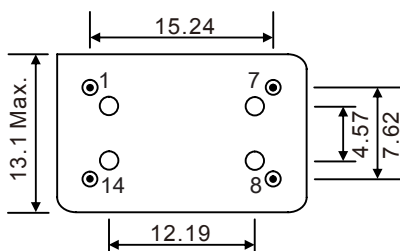
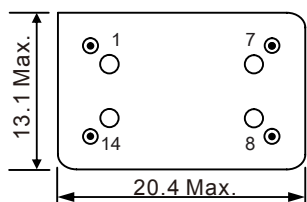
**Remark:** Specifications are subject to change without prior notice. Please confirm with our sales engineer.

CMOS (Half & Full Size)

(Tri-State Function Optional)

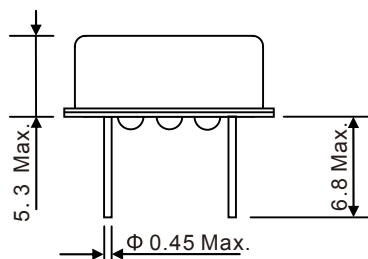
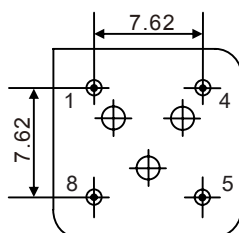
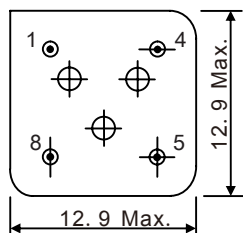
**Dimensions: (Units mm)**

**Full Size (M1 & M2)**



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

**Half Size (M3 & M4)**



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