



## Temperature Compensated Crystal Oscillators --TF/VTF



### SPECIFICATIONS:

Frequency Range(for TTL/CMOS output)	1.25MHz~36MHz	
Frequency Range(for Clipped Sine output)	10MHz~36MHz	
Operating Temperature	-10°C~60°C (Standard)	
Storage Temperature	-55°C~+125°C	
Frequency Stability	See Order Option	
Pulling Range	See Order Option	
Frequency Stability (Max):		
Vs Supply Voltage ( $\pm 5\%$ ) change	$\pm 0.2\text{ppm}$	
Vs Load ( $\pm 10\%$ ) change	$\pm 0.2\text{ppm}$	
Vs Aging(/year)	$\pm 1.0\text{ppm}$	
Supply Voltage ( $\pm 5\%VDD$ )	5.0V	2.8V
Supply Current for TTL/CMOS out put (mA max):		
1.2500MHz $\leq F < 10.000$ MHz	10	7
10.000MHz $\leq F < 15.000$ MHz	15	10
15.000MHz $\leq F < 26.000$ MHz	20	15
26.000MHz $\leq F \leq 36.000$ MHz	25	20
Supply Current for Clipped Sine out put (mA max):		
10.000MHz $\leq F < 15.000$ MHz	1.5	
15.000MHz $\leq F < 26.000$ MHz	2.0	
26.000MHz $\leq F \leq 36.000$ MHz	2.5	
Output Level (TTL/CMOS output):		
High Level ("1")	90%Vdd or 2.4V (min)	
Low Level ("0")	10% Vdd or 0.4V (max)	
Duty	40%~60%	
Output Level (for Clipped Sine output)	0.8Vp-p	
Start Time	2mS max	
Vc input impedance	100K $\Omega$ min	
Phase Noise @ 13.0MHz:		
100Hz	-110 dBc/Hz	
1KHz	-130 dBc/Hz	
10KHz	-140 dBc/Hz	



**Frequency Stability vs Temperature Range**

Stability (ppm) Temper.( °C)	±1.0 ppm	±1.5 ppm	±2.0 ppm	±2.5 ppm	±3.0 ppm
A0 = 0~+50	○	○	○	○	○
A07= 0~+70	○	○	○	○	○
A1= -10~+60	○	○	○	○	○
A2= -20~+70	※	○	○	○	○
A3= -30~+75	※	※	○	○	○
A4=-40~+85	—	※	○	○	○

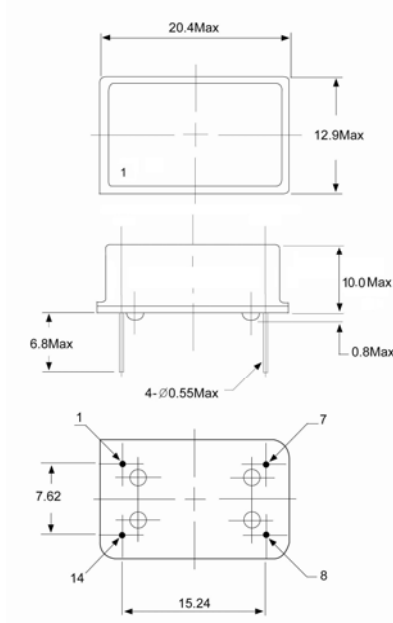
○: Available    ※: Available case by case    —: Not available

**ORDER OPTIONS:**

Type	Frequency (MHz)	Supply Voltage (V)	Pulling range (ppm)	Freq. Stability (ppm)	Operating Temp.(°C)	Output	Symmetry
TF	XX.XXX	V5 =5.0±5%VDD V2 =2.8±5%VDD	±5	±1.0	A0 = 0~55 A07= 0~+70 A1 = -10~+60 A2 = -20~+70 A3 = -30~+75 A4= -40~+85	T=TTL/CMOS CS=Clipped Sine Wave @10K Ω//10pF	S=50±5% Blank=50±10%
VTF			±8	±1.5			
			±10	±2.0			
			±12	±2.5			
			±15	±3.0			
			±20	±3.5			
			±25	±4.0			
	Blank = TCXO	±5.0					

i.e.: TF-12.8V5-1.5/A07-T → TCXO, Dip-14, 12.8MHz, 5V, Freq. Stability=1.5ppm, 0~+70°C, TTL/CMOS, 50±10%  
 VTF-14.7456V2-20-1.5/A2-CS → VCTCXO, Dip-14, 14.7456MHz, 2.8V, Pulling range=20ppm,  
 Freq. Stability=1.5ppm, -20~+70°C, Clipped Sine Wave, 50±10%

**OUTLINE DRAWING:**



PIN	FUNCTION
# 1	Vcon / NC
# 7	GROUND
# 8	OUTPUT
# 14	VDD