



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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TF Type

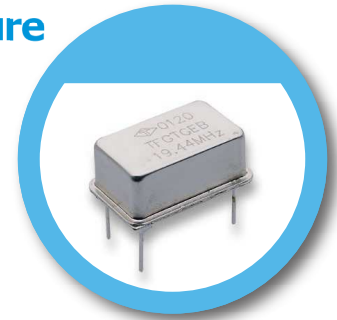
20.4 x 12.8 mm Voltage Controlled Temperature Compensated Crystal Oscillator

FEATURE

- Typical 20.4 x 12.8 x 7.8 mm.
- Hermetically Sealed 14 Pin DIP Package
- Double sealed metal case and high reliability
- VCTCXO available

TYPICAL APPLICATION

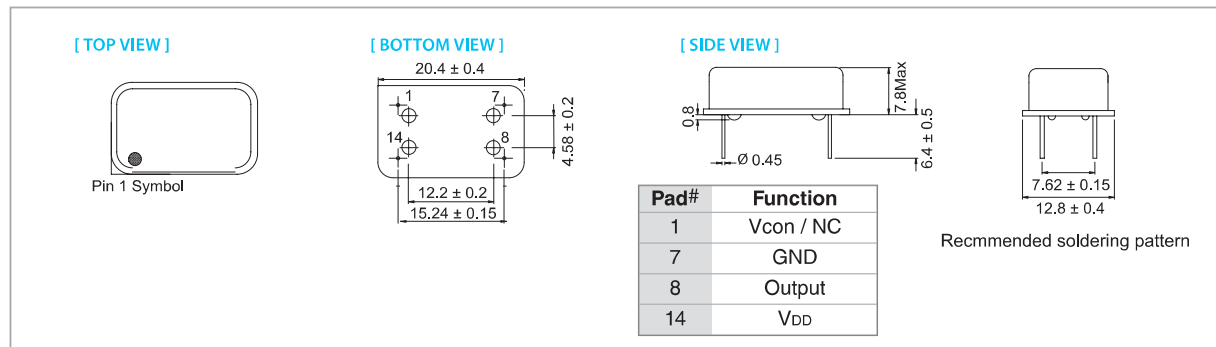
- Large-Scale equipment
- WLAN/WiMAX
- Military Communication Equipmet



RoHS Compliant

DIMENSION (mm)

SOLDER PAD LAYOUT (mm)



ELECTRICAL SPECIFICATION

Parameter	Clipped Sine Wave				CMOS				Unit
	3.3 V		2.8 V		3.3 V		2.8V		
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
Supply Voltage Variation (VDD) ±5%	3.135	3.465	2.66	2.94	3.135	3.465	2.66	2.94	V
Frequency Range	10	52	10	52	1.25	52	1.25	52	MHz
Frequency Tolerance*	-	±2.0	-	±2.0	-	±2.0	-	±2.0	ppm
Frequency Stability									
Vs Supply Voltage (±5%) change	-	±0.2	-	±0.2	-	±0.2	-	±0.2	ppm
Vs Load (±10%) change	-	±0.2	-	±0.2	-	±0.2	-	±0.2	ppm
Vs Aging (@ 1st year)	-	±1.0	-	±1.0	-	±1.0	-	±1.0	ppm
Supply Current					Only for clipped sine wave				
10 MHz ≤ Fo < 15 MHz	-	2.0	-	2.0					mA
15 MHz ≤ Fo < 26 MHz	-	3.0	-	3.0					
26 MHz ≤ Fo ≤ 52 MHz	-	4.0	-	4.0					
Output Level	0.8	-	0.8	-					Vp-p
Supply Current									
1.25 MHz ≤ Fo < 10 MHz					-	10	-	7	
10 MHz ≤ Fo < 15 MHz					-	15	-	10	
15 MHz ≤ Fo < 26 MHz					-	20	-	15	
26 MHz ≤ Fo ≤ 52 MHz					-	25	-	20	
Output Level	Only for CMOS								
Output High (Logic"1")					2.97 or 2.4	-	2.52 or 2.4	-	V
Output Low (Logic"0")					-	0.33 or 0.4	-	0.28 or 0.4	
Duty					40	60	40	60	%
Control Voltage Range (VCTCXO)	0.5	2.5	0.5	2.5	0.5	2.5	0.5	2.5	V
Pulling Range (VCTCXO)	±5.0		±5.0		±5.0		±5.0		ppm
VC Input Impedance (VCTCXO)	100	-	100	-	100		100		kΩ
Phase noise @ 13.0 MHz									
100 Hz		-115		-115		-115		-115	
1 kHz		-135		-135		-135		-135	
10 kHz		-148		-148		-148		-148	
Start Time	-	2	-	2	-	2	-	2	mSec
Storage Temp. Range	-55	125	-55	125	-55	125	-55	125	°C

Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position.

*Frequency at 25°C, 1 hour after reflow.

FREQ. STABILITY vs. TEMP. RANGE

Temp. (°C)	Output Logic	Clipped sine wave		CMOS	
		±0.5	±1.0	±0.5	±1.0
-20 ~ +70		○	○	○	○
-40 ~ +85		△	○	△	○

* ○ : Available △ : Conditional X : Not available

" Pulling Range < 10 ppm available

Note: not all combination of options are available. Other specifications may be available upon request.

Specifications subject to change without notice.

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