



# Crystal Oscillator

## Features

- All metal welded package
- Wide frequency range from 32 KHz ~ 210 MHz
- CMOS IC circuit construction built in with Tristate function
- HCMOS/ TTL compatible in general application
- RoHS Compliant Standard

## CXO-100, 200, 225, 600, 800 & 825

**Table 1: Electrical Specifications**

Parameters	Variant	
	HCMOS	TTL
<b>Series:</b> CXO-100 (Full size, DIL14) CXO-200 & CXO-225 (Full size, DIL14) CXO-600 (Half size, DIL8) CXO-800 & CXO-825 (Half size, DIL8)	■	■
<b>Frequency Range:</b> 32 KHz ~ 210 MHz	■	■
<b>Output Drive:</b> 50 pF (max.) 1 to 10 TTL gates	■	■
<b>Logic Levels:</b> '0' = 0.4 V (max.) '1' = 2.4 V (min.) '0' = 0.1 V <sub>cc</sub> (max.) '1' = 0.9 V <sub>cc</sub> (min.)	■	■
<b>Rise/ Fall Time:</b> (Between Logic '0' & Logic '1' Level) 10 ns (max.)	■	■
<b>Start up Time:</b> 10 ms (max.)	■	■
<b>Duty Cycle:</b> 40% to 60% @ 1.4 V dc 40% to 60% @ ½ V <sub>cc</sub>	■	■
<b>Output Waveform:</b> Square Wave	■	■
<b>Frequency Stability (with respect to 25 ± 2°C)</b> Select from Table 2	□	□
<b>Operating Temperature Range (OTR):</b> Select from Table 2	□	□
<b>Supply Voltage, V<sub>cc</sub>:</b> Select from Table 3 +5.0 V dc (± 10%) +3.3 V dc (± 10%)	■	■
<b>Supply Current: For 5 Volts,</b> 30 mA (max.) (32 KHz ~ 24 MHz) 40 mA (max.) (24 MHz ~ 50 MHz) 50 mA (max.) (50 MHz ~ 80 MHz) 80 mA (max.) (80 MHz ~ 210 MHz)	■	■
<b>Supply Current: For 3.3 Volts,</b> 15 mA (max.) (32 KHz ~ 24 MHz) 20 mA (max.) (24 MHz ~ 50 MHz) 25 mA (max.) (50 MHz ~ 80 MHz) 40 mA (max.) (80 MHz ~ 120 MHz) 50 mA (max.) (120 MHz ~ 210 MHz)	■	■
<b>Tristate Function:</b> Output is Enabled when Pin 1 is 2 V dc (min.) or 'Open' Output is Disabled when Pin 1 is 0.8 V dc (max.) or 'Ground'	■	■
<b>Aging @ 25°C:</b> ± 5 ppm (max.) for First Year	■	■
<b>Storage Temperature Range:</b> -55°C to +125°C	■	■

■ Standard, □ Optional – please specify required code(s) when ordering.

## Mechanical Specifications

	Full Size	Half Size
<b>Top View</b>		
<b>Front View</b>		
<b>Bottom View</b>		

▲ All dimensions are in mm. Tolerance is ± 0.1 mm, unless otherwise specified. Sharp edges indicates Pin 1.

Pin Configuration for Full Size-DIL 14		Pin Configuration for Half Size-DIL 8	
1	No Connection (or) E/ D Control (Optional)	1	No Connection (or) E/ D Control (Optional)
7	Ground	4	Ground
8	Output	5	Output
14	DC Input	8	DC Input



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**Table 2: Frequency Stability/ OTR Code**

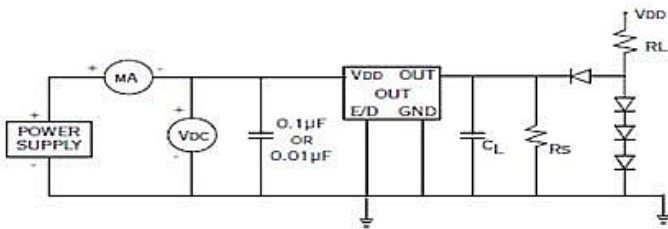
OTR Code	Stability Codes		D	E	F	G	M	K
	Frequency Stability		± 10 ppm	± 15 ppm	± 20 ppm	± 25 ppm	± 50 ppm	± 100 ppm
A	Operating Temperature Range	0°C to +50°C						
B		0°C to +60°C						
F		0°C to +70°C						
D		-10°C to +60°C						
E		-10°C to +70°C						
C		-20°C to +70°C						
G		-30°C to +80°C						
H		-30°C to +85°C						
I		-40°C to +85°C						
J		-40°C to +90°C						
K		-55°C to +105°C						
L		-55°C to +125°C						

■ Denotes Available □ Denotes not Available

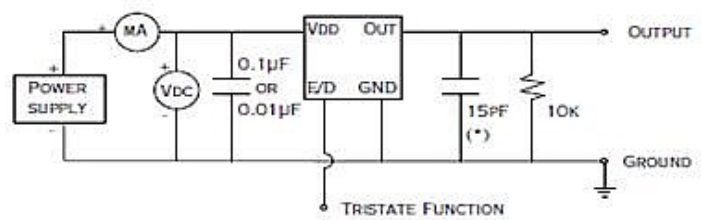
**Table 3**

Supply Voltage	5 V		3.3 V
Series	CXO-100	CXO-600	CXO-225
	CXO-200	CXO-800	CXO-825

**Typical Test Circuit For TTL Logic**



**Typical Test Circuit For HCMOS Logic**



(\*)CL INCLUDES THE LOADING EFFECT OF THE OSCILLOSCOPE PROBE

(\*)CL INCLUDES PROBE AND JIG CAPACITANCE

LOAD	CL(*)	RL	RS
6 TTL	12 pF	430 Ω	10 kΩ
10 TTL	20 pF	270 Ω	6 kΩ

**Marking Details:**

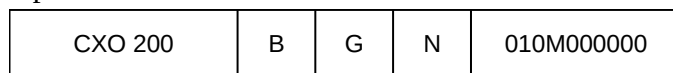
Example 1: CXO200BGN010M000000  
 AE CXO 200 BG  
 10.000 MHz  
 YEAR WEEK

Example 2: CXO200BGT010M000000  
 AE CXO 200 BGT  
 10.000 MHz  
 YEAR WEEK

Example 3: CXO600LMN001M000000  
 AE  
 CXO 600  
 1.000 MHz  
 LM YEAR WEEK

**Ordering Information**

**Example**



**Part Number: AE CXO200BGN010M000000**

Specifications subject to change without notice

Rev. Date: 26<sup>th</sup> Februaury 2021

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

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Page 2 of 2

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