

## Pullable Quartz Crystals

### Features

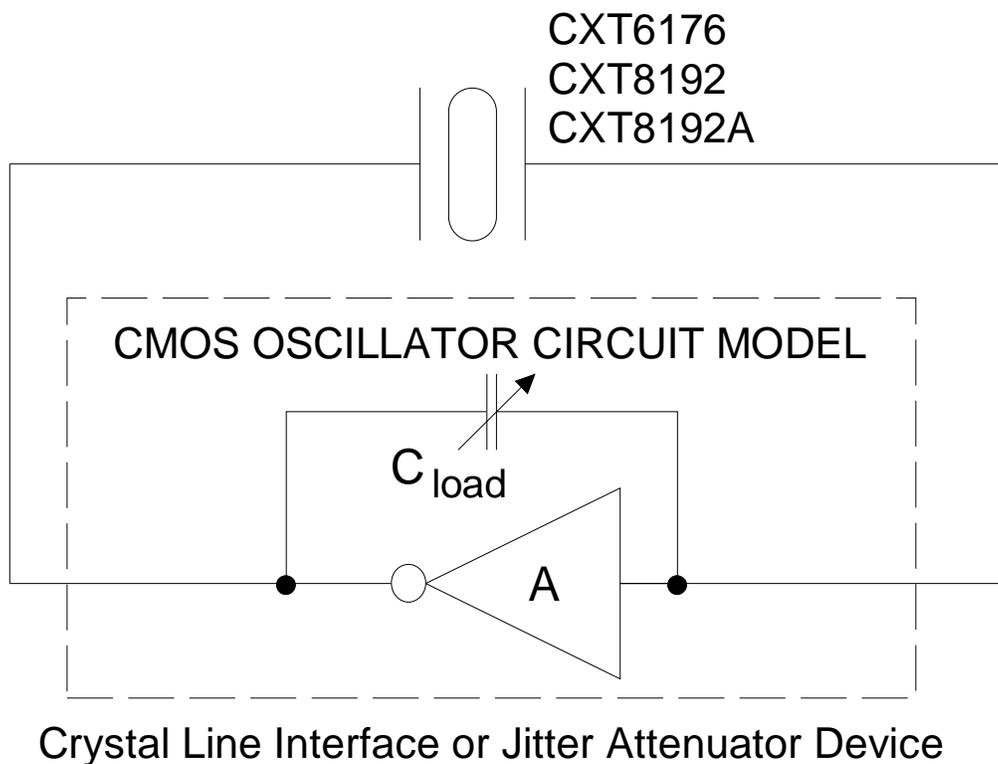
- Provides Jitter Attenuation Function for the Following T1/E1 Line Interface Units  
  
CS61304A, CS61305A, CS61535A,  
CS61574A, CS61575, CS61577
- Provides Jitter Attenuation Function for the CS61600 Jitter Attenuator

### General Description

The CXT6176 and CXT8192 pullable quartz crystals ensure proper jitter attenuation and frequency tolerance for Crystal Semiconductor's line interface and jitter attenuator devices. The CXT6176 is designed for use in 1.544 MHz T1 applications and the CXT8192 is designed for use in 2.048 MHz E1 applications. The CXT8192A is a specialized tight tolerance crystal designed to meet the CTR12 jitter attenuation requirements for E1 applications when used with the CS61575, CS61304A, and CS61305A line interface devices.

### ORDERING INFORMATION

CXT6176: HC-49 Package, -40 to +85 °C  
 CXT6176U:HC-49U/N Package, -40 to +85 °C  
 CXT8192: HC-49 Package, -40 to +85 °C  
 CXT8192U:HC-49U/N Package, -40 to +85 °C  
 CXT8192A:HC-49 Package, -40 to +85 °C



### Preliminary Product Information

This document contains information for a new product. Crystal Semiconductor reserves the right to modify this product without notice.

### CXT6176 Performance Specifications

Parameter		Min	Typ	Max	Units
Total Frequency Range	(Note 1)	-	370	390	ppm
Operating Frequency	$C_{load} = 11.6 \text{ pF}$	(Note 2) 6.176803	-	-	MHz
	$C_{load} = 19.0 \text{ pF}$	(Note 3) 6.175846	6.176000	6.176154	MHz
	$C_{load} = 37.0 \text{ pF}$	(Note 2) -	-	6.175197	MHz

### CXT8192 Performance Specifications

Parameter		Min	Typ	Max	Units
Total Frequency Range	(Note 1)	-	210	245	ppm
Operating Frequency	$C_{load} = 11.6 \text{ pF}$	(Note 2) 8.192410	-	-	MHz
	$C_{load} = 19.0 \text{ pF}$	(Note 3) 8.191795	8.192000	8.192205	MHz
	$C_{load} = 37.0 \text{ pF}$	(Note 2) -	-	8.191590	MHz

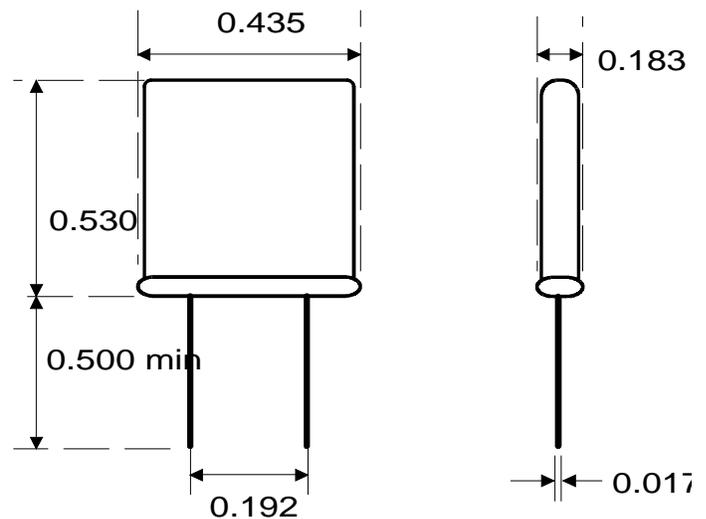
### CXT8192A Performance Specifications (Notes 4, 5)

Parameter		Min	Typ	Max	Units
Total Frequency Range	(Note 1)	-	160	190	ppm
Operating Frequency	$C_{load} = 11.6 \text{ pF}$	(Note 2) 8.192410	-	-	MHz
	$C_{load} = 19.0 \text{ pF}$	(Note 3) 8.191795	8.192000	8.192205	MHz
	$C_{load} = 37.0 \text{ pF}$	(Note 2) -	-	8.191590	MHz

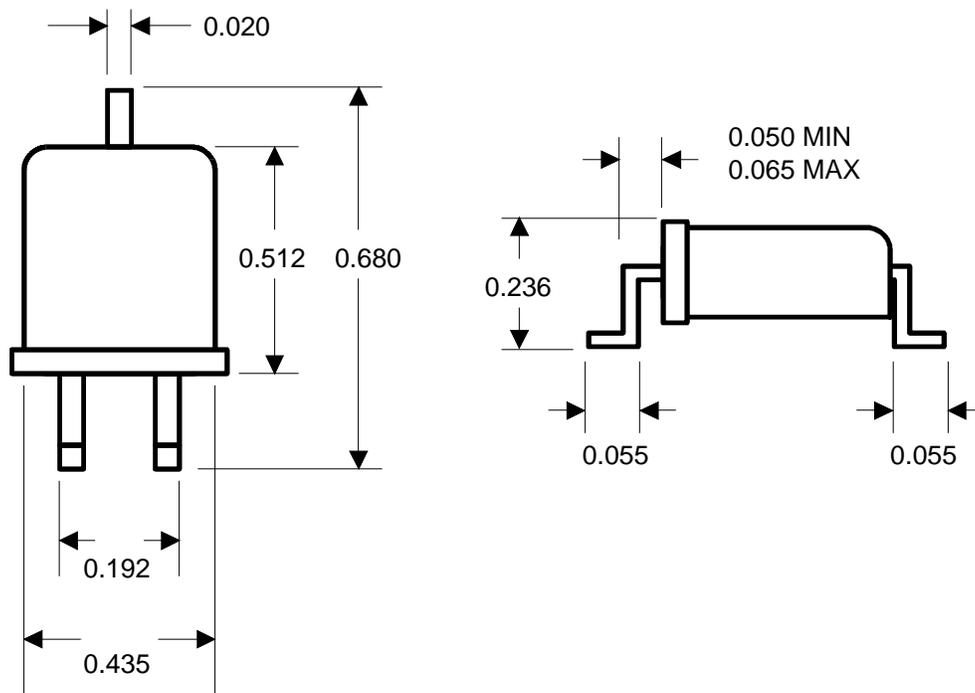
- Notes:
1. With  $C_{load}$  varying from 11.6 to 37.0 pF at a given temperature.
  2. Measured at -40 to 85 °C.
  3. Measured with Saunders 150D meter at 25 °C.
  4. The CXT8192A crystal is designed to meet CTR12 jitter attenuation requirements for E1 applications when used with the CS61575, CS61304A, and CS61305A line interface devices.
  5. Due to tighter total frequency range tolerances, the CXT8192A must be placed within 0.5 inches of device crystal pins and cut-outs should be made in power and ground planes beneath the crystal traces to minimize parasitic capacitance.

### General Specifications & Package Dimensions

Mode	Fundamental
Drive Level	2 mW (max)
Aging	5 ppm/yr. (max)
Shock	10 G's, 6 ms, 6 planes
Vibration	5 G's, 10 Hz to 500 Hz
Seal Leaks	$10^{-8}$ cc/sec in Helium
Solderability	per Mil. std. 202, method 208 (no preconditioning, RMA flux)
Thermal Shock	5 cycles, -55 to 125 °C, 1/2 cycle/hr. in air
Series Resistance (CXT6176, CXT8192)	40 $\Omega$ (max) at 50 $\mu$ W power
Series Resistance for CXT8192A	60 $\Omega$ (max) at 50 $\mu$ W power



All measurements are in inches  
 Package identifier: HC-49



All measurements are in inches  
Package identifier: HC-49U/N