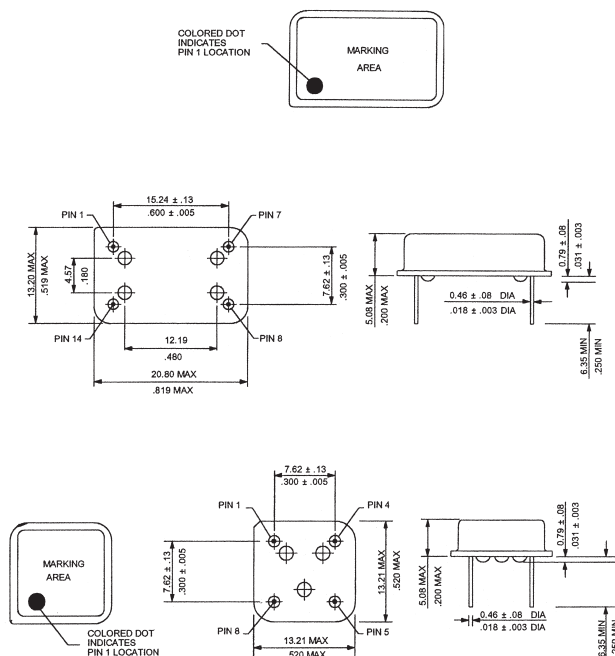


## HCMOS & TTL CLOCK OSCILLATORS



Series	C01	C013
Package	14 PIN DIP	8 PIN DIP
Frequency Range	500.00 KHz to 125.00 MHz	500.00 KHz to 125.00 MHz
Frequency Stability	CO1100: ±100 ppm CO1050: ±50 ppm CO1025: ±25 ppm	CO13100: ±100 ppm CO13050: ±50 ppm CO13025: ±25 ppm
Operating Temperature Range	0°C to +70°C Standard -40°C to +85°C Extended	0°C to +70°C Standard -40°C to +85°C Extended
Storage Temperature Range	-55°C to +125°C	-55°C to +125°C
Input		
Voltage	+5 VDC ±0.5 VDC	+5 VDC ±0.5 VDC
Current (Max)	500.00 KHz to 2.999 MHz: 30 mA 3.00 MHz to 31.999 MHz: 50 mA 32.00 MHz to 79.999 MHz: 70 mA 80.00 MHz to 125.00 MHz: 80 mA	500.00 KHz to 2.999 MHz: 30 mA 3.00 MHz to 31.999 MHz: 50 mA 32.00 MHz to 79.999 MHz: 70 mA 80.00 MHz to 125.00 MHz: 80 mA
Output		
Symmetry (At 1.4 VDC Level)	40 to 60% Normal 45 to 55% Tight	40 to 60% Normal 45 to 55% Tight
Rise and Fall Time (0.4-2.4 VDC)	Under 9 MHz: ±15 ns MAX 9 MHz to 32 MHz: ±10 ns MAX 32 MHz to 80 MHz: ±6 ns MAX 80 MHz to 125 MHz: ±4 ns MAX	Under 9 MHz: ±15 ns MAX 9 MHz to 32 MHz: ±10 ns MAX 32 MHz to 80 MHz: ±6 ns MAX 80 MHz to 125 MHz: ±4 ns MAX
Logic "0" Level	±0.5V Max, Sink to 16 mA	+0.5V Max, Sink to 16 mA
Logic "1" Level	±2.4V Min, Source 0.4 mA	±2.4V Min, Source 0.4 mA
Load	1 to 10 TTL Standard	1 to 10 TTL Standard

### PIN CONNECTION C01100 SERIES/C01300 SERIES

C01100 Series Pin	C01300 Series Pin	Connection
#1	#1	NC
#7	#4	GND
#8	#5	OUTPUT
#14	#8	+Vcc

### RALTRON CLOCK OSCILLATORS—TTL COMPATIBLE

Cat. No.	Frequency* (MHz)	Net Price
<b>HOLDER TYPE C01-TTL (14 PIN DIP)</b>		
CO1100-1.000-MHZ	1.000000	\$2.46
CO1100-1.8432-MHZ	1.843200	1.67
CO1100-2.4576-MHZ	2.457600	2.46
CO1100-3.6864-MHZ	3.686400	2.46
CO1100-4.000-MHZ	4.000000	1.16
CO1100-4.9152-MHZ	4.915200	2.46
CO1100-5.0688-MHZ	5.068800	2.46
CO1100-6.000-MHZ	6.000000	2.46
CO1100-6.144-MHZ	6.144000	2.46
CO1100-7.3728-MHZ	7.372800	1.16
CO1100-8.000-MHZ	8.000000	1.16
CO1100-10.000-MHZ	10.000000	1.16
CO1100-12.000-MHZ	12.000000	1.16
CO1100-14.31818-MHZ	14.318180	1.16
CO1100-16.000-MHZ	16.000000	1.16
CO1100-16.257-MHZ	16.257000	2.46
CO1100-18.432-MHZ	18.432000	1.16
CO1100-20.000-MHZ	20.000000	1.16
CO1100-24.000-MHZ	24.000000	1.16
CO1100-25.000-MHZ	25.000000	1.16
CO1100-32.000-MHZ	32.000000	2.46
CO1100-40.000-MHZ	40.000000	1.16
<b>HOLDER TYPE C013-TTL (8 PIN DIP)</b>		
CO13100-4.000-MHZ	4.000000	1.16
CO13100-8.000-MHZ	8.000000	1.16
CO13100-16.000-MHZ	16.000000	1.16

\*Other frequencies are available to special order. Minimum quantities may apply.

**NOTE:** "N" indicates normal symmetry (40%-60%). Replace with "T" for tight symmetry (45%-55%).

Series	C06	C012
Package	14 PIN DIP	8 PIN DIP
Frequency Range	500.00 KHz to 125.00 MHz	500.00 KHz to 125.00 MHz
Frequency Stability	CO6100: ±100 PPM CO6050: ±50 PPM CO6025: ±25 PPM	CO12100: ±100 PPM CO12050: ±50 PPM CO12025: ±25 PPM
Operating Temperature Range	0°C to +70°C Standard -40°C to +85°C Extended	0°C to +70°C Standard -40°C to +85°C Extended
Storage Temperature Range	-55°C to +125°C	-55°C to +125°C
Input		
Voltage	+5 VDC ±0.5 VDC	+5 VDC ±0.5 VDC
Current (Max)	500 KHz to 19.999 MHz: 20 mA 20 MHz to 34.999 MHz: 30 mA 35 MHz to 69.999 MHz: 40 mA 70 MHz to 125 MHz: 60 mA	500 KHz to 19.999 MHz: 20 mA 20 MHz to 34.999 MHz: 30 mA 35 MHz to 69.999 MHz: 40 mA 70 MHz to 125 MHz: 60 mA
Output		
Symmetry	40 to 60% Normal 45 to 55% Tight	40 to 60% Normal 45 to 55% Tight
Rise and Fall Time (0.5-4.5 VDC)	Under 24 MHz: ±10 ns MAX 24 MHz to 70 MHz: ±6 ns MAX 70 MHz to 125 MHz: ±3 ns MAX	Under 24 MHz: ±10 ns MAX 24 MHz to 70 MHz: ±6 ns MAX 70 MHz to 125 MHz: ±3 ns MAX
Logic "0" Level	±0.5 V Max. (10% VDD)	±0.5 V Max. (10% VDD)
Logic "1" Level	±4.5 V Min. (90% VDD)	±4.5 V Min. (90% VDD)
Load	15 pF or 10 LS TTL Standard	15 pF or 10 LS TTL Standard

### PIN CONNECTION C06100 SERIES/C012000 SERIES

C06100 Series Pin	C012000 Series Pin	Connection
#1	#1	NC
#7	#4	GND
#8	#5	OUTPUT
#14	#8	+Vcc

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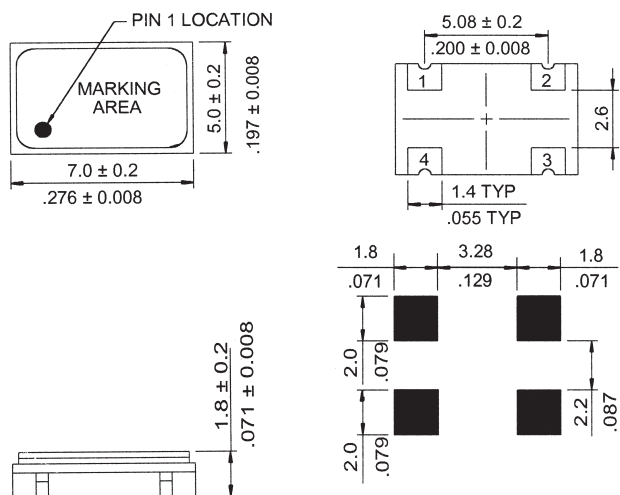
## RALTRON CLOCK OSCILLATORS—HCMOS COMPATIBLE

Cat. No.	Frequency* (MHz)	Net Price
<b>HOLDER TYPE CO6-HCMOS (14 PIN DIP)</b>		
CO6100-4.000-MHZ	4.000000	\$1.16
CO6100-6.000-MHZ	6.000000	1.16
CO6100-8.000-MHZ	8.000000	1.16
CO6100-12.000-MHZ	12.000000	1.16
CO6100-16.000-MHZ	16.000000	1.16
<b>HOLDER TYPE CO12-HCMOS (8 PIN DIP)</b>		
CO12100-4.000-MHZ	4.000000	1.16
CO12100-6.000-MHZ	6.000000	2.27
CO12100-8.000-MHZ	8.000000	1.16
CO12100-12.000-MHZ	12.000000	1.16
CO12100-16.000-MHZ	16.000000	1.16

\*Other frequencies are available to special order. Minimum quantities may apply.

NOTE: "N" indicates normal symmetry (40%-60%). Replace with "T" for tight symmetry (45%-55%).

## SURFACE MOUNT CLOCK OSCILLATORS



SOLDER PATTERN

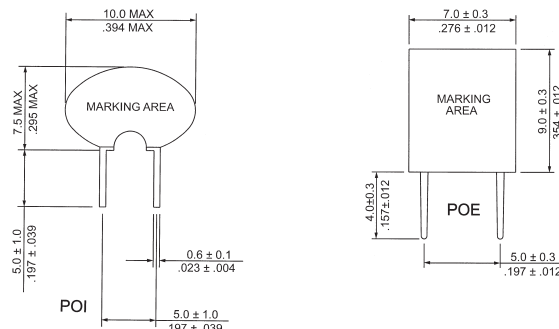
Series	CO43	CO46
Frequency Range	1.8432 MHz–50.0 MHz	50.00 MHz–125.00 MHz
Frequency Stability	CO4310: ±10 PPM CO4305: ±50 PPM	CO4610: ±100 PPM CO4605: ±50 PPM
Temperature Range		
Operating	–10°C to +70°C	–10°C to +70°C
Extended	–40°C to +85°C	–40°C to +85°C
Storage	–55°C to +125°C	–55°C to +125°C
Input		
Voltage	+3.3 VDC ±0.3 VDC	+3.3 VDC ±0.3 VDC
Current	25 mA MAX	25 mA MAX
Output		
Symmetry	40 to 60%: Normal 45 to 55%: Tight	40 to 60%: Normal 45 to 55%: Tight
Voltage		
Logic "0" Level	0.4 VDC MAX	0.5 VDC MAX
Logic "1" Level	0.9 X VCC MIN	2.8 VDC MIN
Load	5 TTL MAX or 20 pF MOS	5 TTL MAX or 15 pF MOS
Rise Time	6 ns	7 ns
Fall Time	6 ns	7 ns
Enable/Disable Function	PIN 1: High (+2.2 VDC Min) PIN 1: Low (+0.8 VDC Max)	PIN 3: Enabled PIN 3: Disabled (High Z)
Start-Up Time	10 ms MAX	15 ms MAX
Shock	1000 g, 0.35 ms, 1/2 SINEWAVE, 3 Shocks in 3 Axes	
Vibration	10 to 55 Hz Amplitude 1.5 mm, Cycle 1 Minute in 3 Axes for 1 Hour	

## CO66 SERIES SURFACE MOUNT CLOCK OSCILLATOR.

Cat. No.	Frequency (MHz)	Net Price
CO66510-1.8432MHZ	1.84300	\$3.49
CO66510-2.000MHZ	2.000000	3.49
CO66510-3.6864MHZ	3.68600	3.49
CO66510-4.000MHZ	4.000	3.49
CO66510-7.3728MHZ	7.372800	3.49
CO66510-8.000MHZ	8.000000	3.49
CO66510-11.0592MHZ	11.059200	3.49
CO66510-14.7456MHZ	14.745600	3.49
CO66510-16.000MHZ	16.000000	3.49
CO66510-18.432MHZ	18.43200	3.49
CO66510-24.000MHZ	24.000000	3.49
CO66510-32.000MHZ	32.000000	3.49
CO66510-33.333MHZ	33.33300	3.49
CO66510-33.8688MHZ	33.8688	3.49
CO66510-40.000MHZ	40.000000	3.49
CO66510-44.2368MHZ	44.236800	3.49
CO66510-50.000MHZ	50.000000	3.49

Packaging: 330mm reel diam., 24 mm tape width, 12 mm pitch. Quantity: 1000 pieces per reel.

## CERAMIC RESONATORS



FEATURES: Wide frequency range. Low cost. Excellent temperature stability.

Cat. No.	Frequency	Net Price
POI-1.000MHZ	1.000000 MHz	\$ .20
POI-2.000MHZ	2.000000 MHz	.20
POI-4.000MHZ	4.000000 MHz	.20
POI-6.000MHZ	6.000000 MHz	.20
POC-4.000MHZ	4.000000 MHz	.20
POC-8.000MHZ	8.000000 MHz	.20
POE-B-455KHZ	455kHz	.20

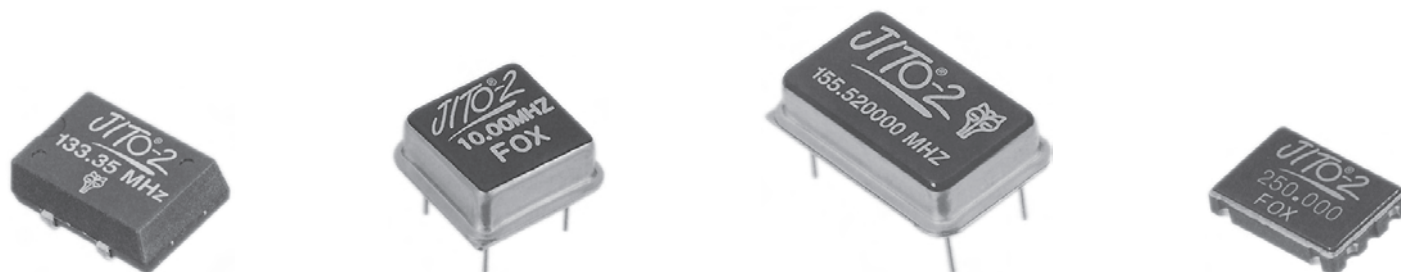
## RALTRON. GLOBAL EXPERTS IN FREQUENCY MANAGEMENT

Raltron offers the most comprehensive line of frequency management solutions in the market, including through hole and surface mount crystals, oscillators, filters, ceramic resonators, VCXO's, TCXO's, OCXO's and complete timing solutions for every application.

All Raltron facilities worldwide are certified ISO9001 which assures that our products are manufactured to global quality standards and allows us to provide the best quality solutions at the most competitive prices.

## FEATURES:

- Voltage Control Crystal Oscillators in thru-hole and SMD packages (1MHz–2.4GHz)
- Ultra Miniature TCXO's—RTxx-174 and RTxx-204 packages
- Custom design TCXO's and OCXO's power your specifications
- Application Specific Crystals for Blue Tooth and WLAN (low SMD profile with tight stabilities)
- Total Frequency Solutions—Synchronization Modules
- Economical Ceramic Resonators—KHz and MHz Values



## FOX JITO®-2 JUST-IN TIME OSCILLATORS®

**FEATURES:** Quantity shipments in 10 business days or less for custom or standard frequency oscillators. Custom prototypes and test samples shipped immediately. Custom and standard frequencies 144kHz to 300MHz. 20-100 PPM stability. Phase jitter comparable to fixed frequency oscillators. 3.3 or 5 volts; -40° to +85°C operating range; SMD and thru-hole. Perfect for JIT and BTO. Ideal for OEMs, CEMs and developers. Total ordering/scheduling flexibility. **Contact your Electro Sonic Sales Representative for more information.**

### JITO®-2 ORDERING INFORMATION

Use the part description guide below to order the JITO®-2 OSCILLATOR you need

**JITO®-2 - B C 3 A M C - 106.250000**

Frequency (MHz)

C = Custom  
(or leave blank)

#### Package Style:

**A** = 14 Pin DIP  
**B** = 8 Pin DIP  
**D** = MIN-6 (5x7.5x1.5mm  
6 Pad SMD)  
**P** = Plastic (10x13x5mm)

#### Type:

**C** = HCMOS  
**P** = PECL  
**S** = HCMOS/Standby  
(D & P Pkg. only)  
**X** = 2<sup>nd</sup> HCMOS Output/÷2  
(D Pkg. only)  
**Y** = 2<sup>nd</sup> HCMOS Output/÷4  
(D Pkg. only)  
**Z** = 2<sup>nd</sup> HCMOS Output/÷8  
(D Pkg. only)

#### Supply Voltage:

**5** = +5.0V  
**3** = +3.3V

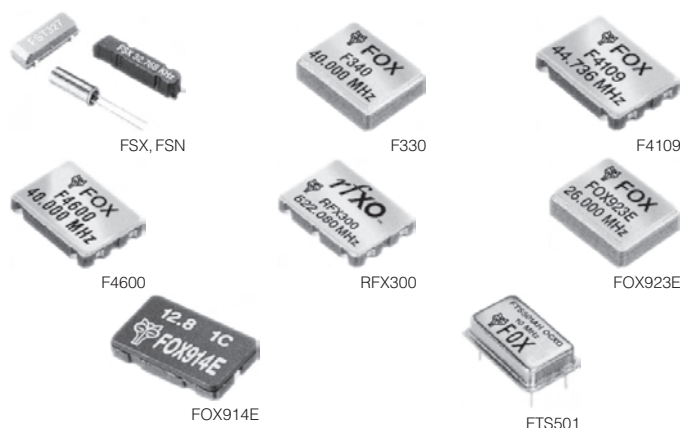
#### Stability:

**A** = ±100ppm  
**B** = ±50ppm  
**C** = ±30ppm  
**D** = ±25ppm  
**E** = ±20ppm\*\*

#### Temperature Range:

**F** = -20°C to +70°C  
**M** = -40°C to +85°C

NOTE: For assistance selecting the proper JITO®-2 oscillator for your specific application, an Electro Sonic sales representative can help you.



## FSX AND FSN SERIES

7 × 1.5MM (FSX), 3.2 × 1.2MM (FSN) 32.768 KHZ WATCH CRYSTAL

**FEATURES:** Tolerance PPM: ±20. Stability PPM: -0.04. Temperature range: -10°C to +60°C, (-40°C to +85°C optional). Miniature packages. Long term stability.

Cat. No.	Net Price
FSX327	\$2.49
FSN327	1.95

## F330 SERIES

3.2 × 2.5MM 3.3V HCMOS OSCILLATORS

**FEATURES:** PPM: ±100, ±50, ±25, ±20. Temperature range: -10°C to +70°C, (-40°C to +85°C optional). Low current standby. Pb free.

Cat. No.	Frequency (MHz)	Net Price
F335-1.8432MHz	1.843200	\$20.26
F335-3.6864MHz	3.686400	20.26
F335-4.000MHz	4.000000	20.26
F335-8.000MHz	8.000000	20.26
F335-10.000MHz	10.000000	20.26
F335-11.0592MHz	11.059200	20.26
F335-12.000MHz	12.000000	20.26
F335-18.432MHz	18.432000	20.26
F335-20.000MHz	20.000000	20.26
F338-22.000MHz	22.000000	20.26
F335-24.000MHz	24.000000	20.26
F335-24.576MHz	24.576000	20.26
F335-25.000MHz	25.000000	20.26
F335-27.000MHz	27.000000	20.26
F335-32.000MHz	32.000000	20.26
F335-40.000MHz	40.000000	20.26
F335-44.000MHz	44.000000	20.26
F335-48.000MHz	48.000000	20.26
F335-50.000MHz	50.000000	20.26

## F4100 SERIES

7 × 5MM 3.3V HCMOS OSCILLATORS

**FEATURES:** PPM: ±100, ±50, ±25, ±20. Temperature range: -10°C to +70°C, (-40°C to +85°C optional). Low current standby. Pb free.

Cat. No.	Frequency (MHz)	Net Price
F4105-75.000MHz	75.000000	\$43.65
F4105-77.76MHz	77.760000	43.65
F4105-80.000MHz	80.000000	43.65
F4105-90.000MHz	90.000000	43.65
F4105-100.000MHz	100.000000	10.91
F4105-106.250MHz	106.250000	10.91
F4105-125.000MHz	125.000000	10.91

## F4600 SERIES

7 × 5MM 3.3V LV-PECL OSCILLATORS

**FEATURES:** PPM: ±100, ±50, ±25, ±20. Temperature range: -10°C to +70°C, (-40°C to +85°C optional). E/D function. Pb free.

Cat. No.	Frequency (MHz)	Net Price
F4600-100.000MHz	100.000000	\$87.29
F4605-106.250MHz	106.000000	87.29
F4605-125.000MHz	125.000000	87.29
F4605-155.520MHz	155.520000	93.53
F4605-156.250MHz	156.250000	93.53

## RFX0 SERIES

7 × 5MM 3.3V LV-PECL, XO (RFX300), VCXO (RFV300) OSCILLATORS

**FEATURES:** PPM: ±25, ±20. Temperature range: -10°C to +70°C, (-40°C to +85°C optional). Extremely low jitter. Pb free.

Cat. No.	Frequency (MHz)	Net Price
RFX300-622.080MHz	622.080000	\$82.61
RFX300-1000.000MHz	1000.000000	115.35
RFX300-1250.000MHz	1250.000000	115.35
RFV300-622.080MHz	622.080000	82.61
RFV300-1000.000MHz	1000.000000	115.35
RFV300-1250.000MHz	1250.000000	115.35

## FOX923E SERIES

3.2 × 2.5 × 1.2MM 3V VCTCXO OSCILLATORS

**FEATURES:** PPM: ±2.5 Temperature range: -20°C to +75°C, clipped sine output. Pb free.

Cat. No.	Frequency (MHz)	Net Price
FOX923E-13.000MHz	13.000000	\$96.64
FOX923E-14.440MHz	14.400000	96.64
FOX923E-19.200MHz	19.200000	96.64
FOX923E-19.440MHz	19.440000	96.64
FOX923E-20.000MHz	20.000000	96.64
FOX923E-26.000MHz	26.000000	96.64

## FOX914E SERIES

5 × 3.2 × 1.5MM 3.0V OSCILLATORS

**FEATURES:** Temperature range: -20°C to +75°C, clipped sine output. Pb free.

Cat. No.	Frequency (MHz)	Net Price
FOX914E-12.800MHz	12.800000	\$14.03
FOX914E-13.000MHz	13.000000	10.13
FOX914E-14.440MHz	14.400000	10.13
FOX914E-19.200MHz	19.200000	10.13
FOX914E-19.440MHz	19.440000	10.13
FOX914E-20.000MHz	20.000000	10.13
FOX914E-26.000MHz	26.000000	10.13

## FTS501AH SERIES

5V 14 PIN DIP HCMOS OCXO OSCILLATORS

**FEATURES:** Temperature range: -0°C to +70°C. PPB: ±250. HCMOS/TTL output. Meets stratum III.

Cat. No.	Frequency (MHz)	Net Price
FTS501AH-10.000MHz	10.000000	\$349.00
FTS501AH-12.800MHz	12.800000	349.00
FTS501AH-13.000MHz	13.000000	349.00
FTS501AH-19.440MHz	19.440000	349.00
FTS501AH-20.000MHz	20.000000	349.00
FTS501AH-20.480MHz	20.480000	349.00
FTS501AH-26.000MHz	26.000000	349.00
FTS501AH-32.768MHz	32.768000	349.00
FTS501AH-38.880MHz	38.880000	349.00
FTS501AH-40.000MHz	40.000000	349.00