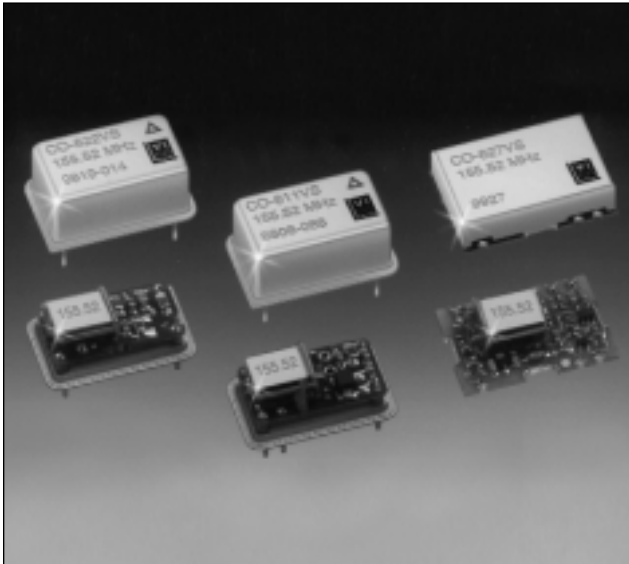


CO-600V Series Voltage Controlled Crystal Oscillators



Features

- 155.52 MHz Standard, Other Frequencies Available From 10 MHz to 160 MHz
- 155.52 MHz Prototypes Available In 2 Weeks
- Jitter Performance <1 ps rms @ 155.52 MHz
- Temperature Stability to ± 20 ppm -40°C to $+85^{\circ}\text{C}$.
- Aging: 10 ppm for 10 Years Typical
- ECL or PECL Output
- Complementary Output Available
- Package: Single DIP, Gull Wing, or True Surface Mount FR4.

Applications

- SONET/SDH and ATM Equipment
- Digital Switching
- Transport Systems
- Multiplexing Applications

Description

The model CO-600V Voltage Controlled Crystal Oscillator (VCXO) is available at frequencies from 10 MHz to 160 MHz. The units are ECL or PECL compatible and available in low profile, 4 pin and 5 pin single DIP, gull wing or FR4 packages. All have base dimensions of 20.32mm x 12.70mm (0.8" x 0.5"). Height is 10.8mm (.425"), 11.43mm (.45") and 5.72mm (.225") for the DIP, gull wing and FR4 package, respectively. Typical phase noise is -115 dBc at 1 kHz. The CO-600V VCXOs are ideal for SONET/SDH and ATM equipment, digital switching, transport systems and multiplexing applications requiring low jitter performance.

CO-600V Series Voltage Controlled Crystal Oscillators

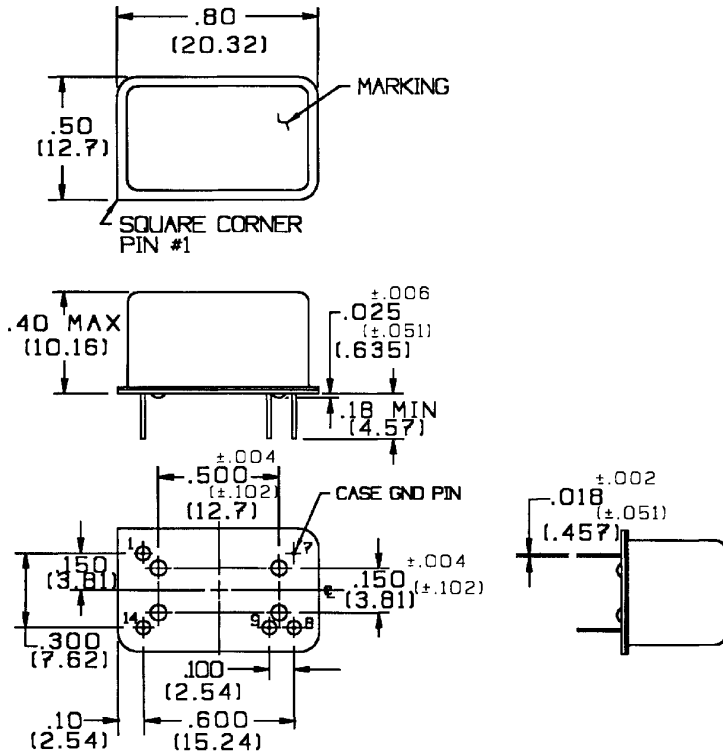
Performance Characteristics

Parameter	Characteristic																																				
Frequency:	155.52 MHz Standard (Other Frequencies Available from 10 MHz to 160 MHz)																																				
Aging (typical @ 155.52 MHz):	10 ppm for 10 years																																				
Jitter:	<1 ps rms from 12 KHz to 20 MHz @ 155.52 MHz																																				
Supply/Output (±5%)	<table> <tr> <td><u>Supply Voltage</u></td> <td><u>Output</u></td> </tr> <tr> <td>+3.3Vdc or +5.0Vdc</td> <td>PECL</td> </tr> <tr> <td>-4.5Vdc or -5.2Vdc</td> <td>ECL</td> </tr> </table>	<u>Supply Voltage</u>	<u>Output</u>	+3.3Vdc or +5.0Vdc	PECL	-4.5Vdc or -5.2Vdc	ECL																														
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+3.3Vdc or +5.0Vdc	PECL																																				
-4.5Vdc or -5.2Vdc	ECL																																				
Symmetry	40%/60% to 60%/40%																																				
Rise/Fall Time: (20-80%)	< 1.5 nanoseconds																																				
Current: (excluding output load current)	< 60 mA for single ended output due to internal pull down resistors < 50 mA for complementary output units (requires external loading)																																				
Deviation/Stability Codes	<table> <thead> <tr> <th><u>Code</u></th> <th><u>Temperature Range</u></th> <th><u>Temperature Stability</u></th> <th><u>*Minimum Deviation</u></th> </tr> </thead> <tbody> <tr> <td>A</td> <td>0/+50°C</td> <td>± 20 ppm</td> <td>± 50 ppm</td> </tr> <tr> <td>D</td> <td>0/+70°C</td> <td>± 20 ppm</td> <td>± 50 ppm</td> </tr> <tr> <td>E</td> <td>0/+70°C</td> <td>± 40 ppm</td> <td>± 100 ppm</td> </tr> <tr> <td>G</td> <td>-20/+70°C</td> <td>± 30 ppm</td> <td>± 60 ppm</td> </tr> <tr> <td>H</td> <td>-20/+70°C</td> <td>± 40 ppm</td> <td>± 100 ppm</td> </tr> <tr> <td>J</td> <td>-40/+85°C</td> <td>± 40 ppm</td> <td>± 60 ppm</td> </tr> <tr> <td>K</td> <td>-40/+85°C</td> <td>± 50 ppm</td> <td>± 100 ppm</td> </tr> <tr> <td>S</td> <td>-40/+85°C</td> <td>± 20 ppm</td> <td>± 50 ppm</td> </tr> </tbody> </table> <p>*Deviation is referenced to the specified output frequency. For example, in the ECL model CO-645VS at 155.52 MHz, at 25°C and -0.5V control, the frequency is at least 50ppm below 155.52 MHz and at -4.5V control, the frequency is at least 50ppm above 155.52 MHz (negative transfer function for ECL units).</p>	<u>Code</u>	<u>Temperature Range</u>	<u>Temperature Stability</u>	<u>*Minimum Deviation</u>	A	0/+50°C	± 20 ppm	± 50 ppm	D	0/+70°C	± 20 ppm	± 50 ppm	E	0/+70°C	± 40 ppm	± 100 ppm	G	-20/+70°C	± 30 ppm	± 60 ppm	H	-20/+70°C	± 40 ppm	± 100 ppm	J	-40/+85°C	± 40 ppm	± 60 ppm	K	-40/+85°C	± 50 ppm	± 100 ppm	S	-40/+85°C	± 20 ppm	± 50 ppm
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Control Voltage:	<table> <thead> <tr> <th><u>Supply Voltage</u></th> <th><u>Output</u></th> <th><u>Control Voltage & Transfer Function</u></th> </tr> </thead> <tbody> <tr> <td>+3.3 V</td> <td>PECL</td> <td>0.3 to 3.0 V positive</td> </tr> <tr> <td>+5.0 V</td> <td>PECL</td> <td>0.5 to 4.5 V positive</td> </tr> <tr> <td>-4.5 V</td> <td>ECL</td> <td>-0.5 to -4.5 V negative</td> </tr> <tr> <td>-5.2 V</td> <td>ECL</td> <td>-0.5 to -4.5 V negative</td> </tr> </tbody> </table>	<u>Supply Voltage</u>	<u>Output</u>	<u>Control Voltage & Transfer Function</u>	+3.3 V	PECL	0.3 to 3.0 V positive	+5.0 V	PECL	0.5 to 4.5 V positive	-4.5 V	ECL	-0.5 to -4.5 V negative	-5.2 V	ECL	-0.5 to -4.5 V negative																					
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Modulation Rate:	dc to 10 kHz standard dc to 100 kHz, 3 db response, optional																																				
Linearity	±10% BSL																																				
Phase Noise (Typical @ 155.52 MHz)	<table> <thead> <tr> <th><u>Offset</u></th> <th><u>Phase Noise</u></th> </tr> </thead> <tbody> <tr> <td>10 Hz</td> <td>-50 dBc/Hz</td> </tr> <tr> <td>100 Hz</td> <td>-80 dBc/Hz</td> </tr> <tr> <td>1 kHz</td> <td>-115 dBc/Hz</td> </tr> <tr> <td>10 kHz</td> <td>-135 dBc/Hz</td> </tr> <tr> <td>50 kHz</td> <td>-140 dBc/Hz</td> </tr> </tbody> </table>	<u>Offset</u>	<u>Phase Noise</u>	10 Hz	-50 dBc/Hz	100 Hz	-80 dBc/Hz	1 kHz	-115 dBc/Hz	10 kHz	-135 dBc/Hz	50 kHz	-140 dBc/Hz																								
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Size:	0.8" x 0.5" x 0.425" (20.32 x 12.70 x 10.8 mm) max seated height for DIP 0.8" x 0.5" x 0.45" (20.32 x 12.70 x 11.43 mm) max seated height for Gull Wing 0.8" x 0.540" x 0.225" (20.32 x 13.72 x 5.72 mm) max seated height for Surface Mount																																				

CO-600V Series Voltage Controlled Crystal Oscillators

Outline Drawings

THRU-HOLE



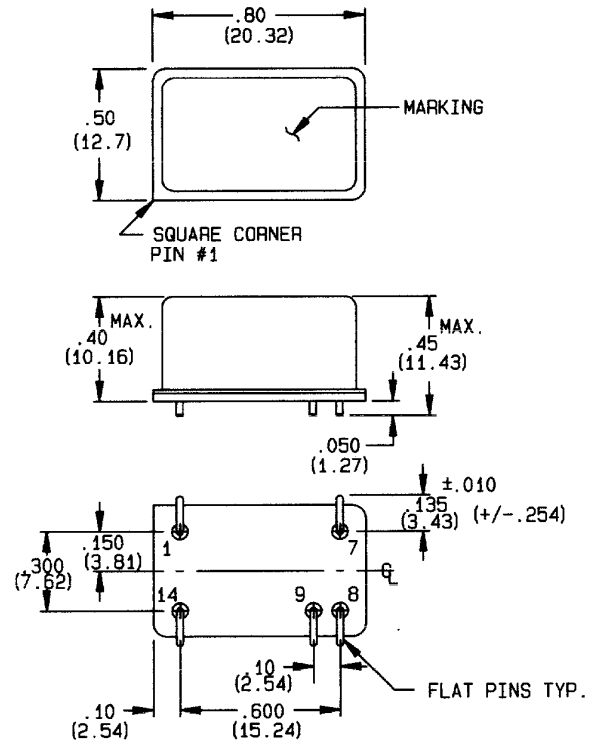
NOTES:

1. Pin numbers are for reference only. They do not appear on the unit.
2. Dimensions are in inches and (millimeters).

PIN	FUNCTION	
	PECL	ECL
1	VCXO	VCXO
7	GROUND	VEE
8	OUTPUT Q	Q
9*	OUTPUT \bar{Q}	\bar{Q}
14	VCC	GND

*Pin 9 present only on complementary output units

GULL WING



NOTES:

1. Pin numbers are for reference only. They do not appear on the unit.
2. Dimensions are in inches and (millimeters).

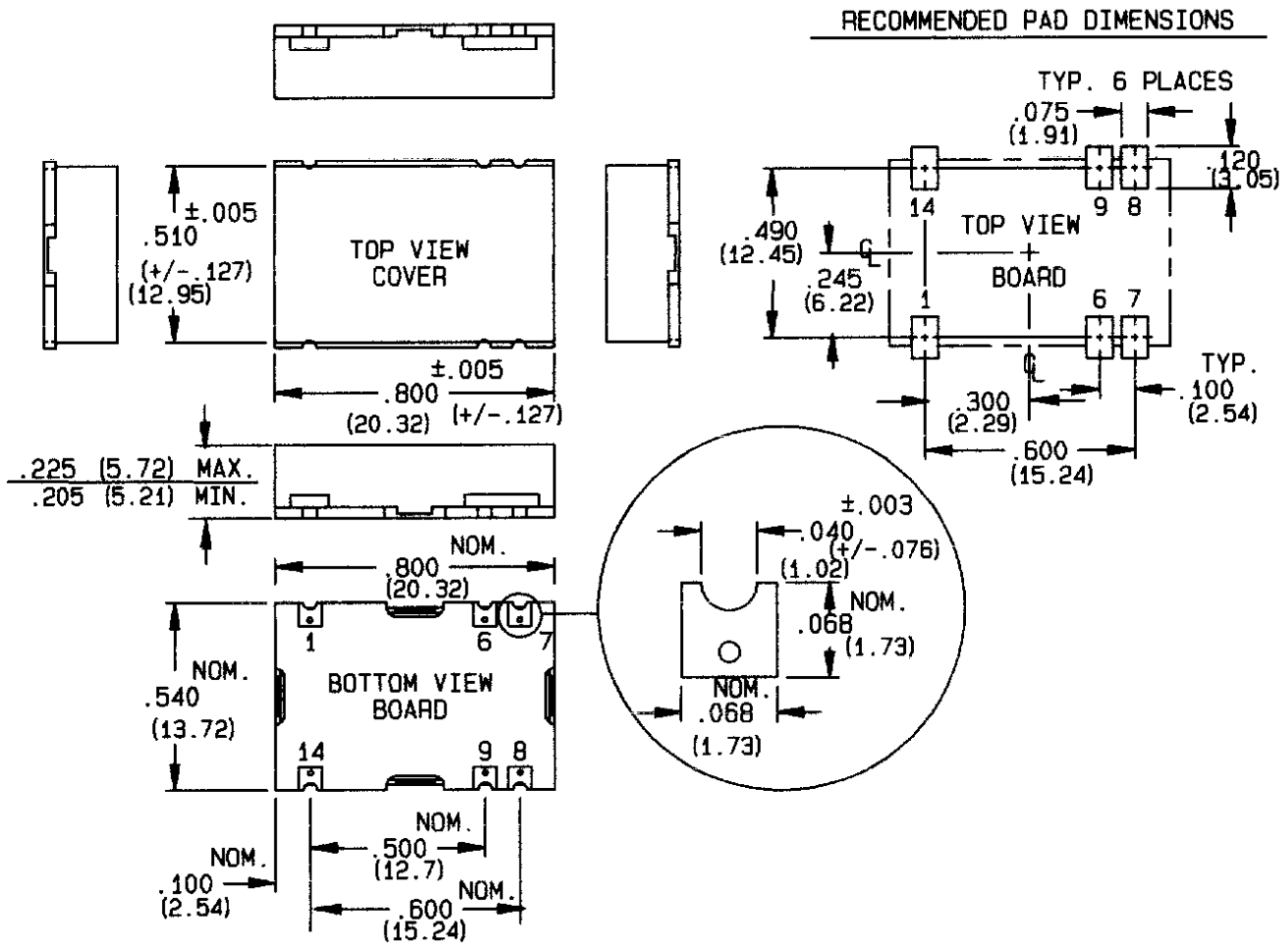
PIN	FUNCTION	
	PECL	ECL
1	VCXO	VCXO
7	GROUND	VEE
8	OUTPUT Q	Q
9*	OUTPUT \bar{Q}	\bar{Q}
14	VCC	GND

*Pin 9 present only on complementary output units

CO-600V Series Voltage Controlled Crystal Oscillators

Outline Drawing

Surface Mount, FR4



NOTES:

- Pin numbers are for reference only. They do not appear on the unit.
- Dimensions are in inches and (millimeters).

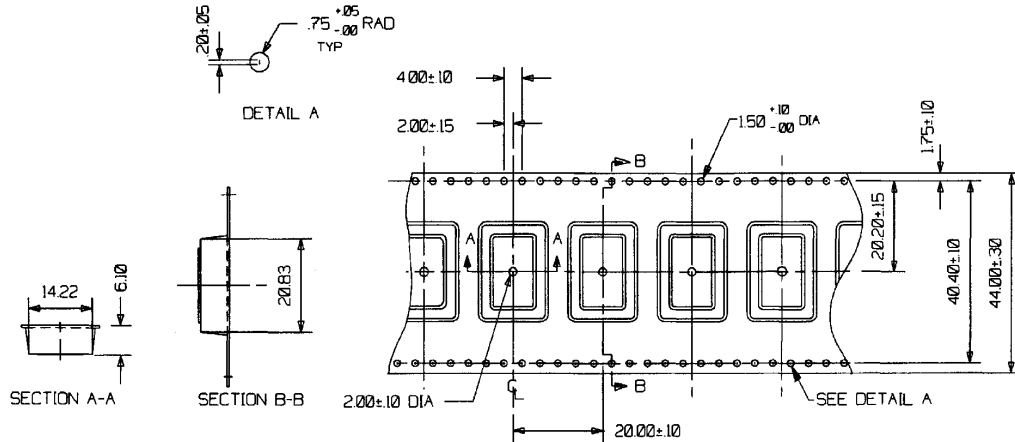
PIN	FUNCTION	
	PECL	ECL
1	VCXO	VCXO
6**	DISABLE	DISABLE
7	GND	VEE
8	OUTPUT SIGNAL, Q	Q
9*	OUTPUT SIGNAL, \bar{Q}	\bar{Q}
14	VCC	GND

*Pin 9 present only on complementary output units

**Disable = PECL high, oscillator shuts off. Floating or PECL is low normal operation.

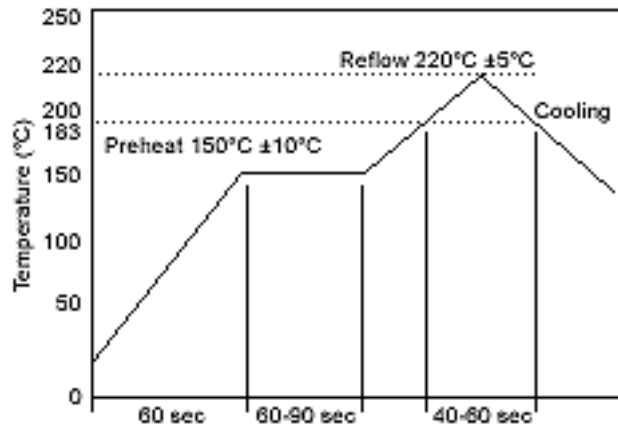
CO-600V Series Voltage Controlled Crystal Oscillators

Tape and Reel

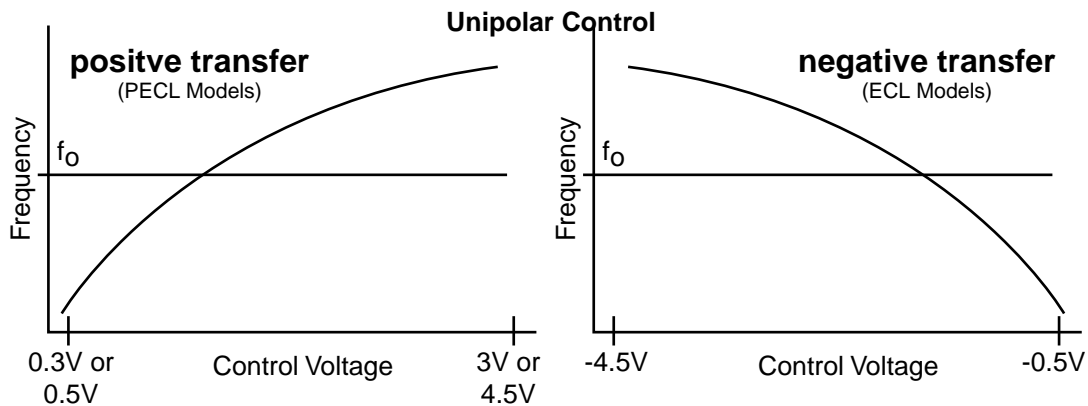


Notes: 1. For surface mount FR4 base package only. 2. Maximum number of units per reel is 425. (Please specify length of start & stop leaders).

Recommended Soldering Profile



VCXO Characteristics



CO-600V Series Voltage Controlled Crystal Oscillators

How To Order

CO-6 V @

Supply/Output

- 1 = 3.3V PECL
- 2 = 5.0V PECL
- 3 = -4.5V ECL
- 4 = -5.2V ECL

Package

- 1 = 4 pin DIP single ended output
- 2 = 4 pin gullwing, single ended output
- 4 = 5 pin DIP, complementary outputs
- 5 = 5 pin gullwing, complementary outputs
- 7 = Surface mount, FR4 base, complementary outputs.

(PECL currently available. Please ask if ECL is required)

Frequency

Deviation/Stability Code
(from page 2)

e.g. CO-612VS @ 155.52 MHz is a 3.3V PECL oscillator in a 4 pin gullwing package with a temperature stability of ± 20 ppm from -40°C to $+85^{\circ}\text{C}$ and a deviation of ± 50 ppm.

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www.vectron.com

For additional information please contact:



www.vectron.com

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Netherlands, Sweden, Switzerland, Tel: 49 (0) 72 63 6480 • Fax: 49 (0) 72 63 6196
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