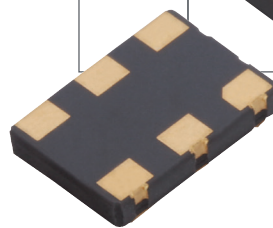
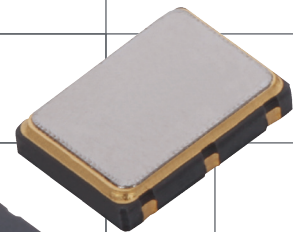
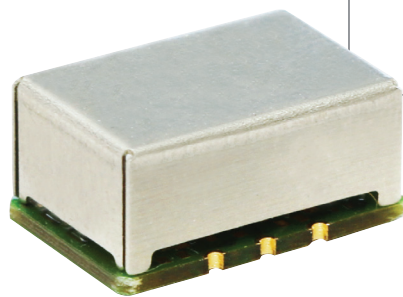


VCXO



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Smart Solutions

# VCXO

CTS' broad portfolio of Voltage Controlled Crystal Oscillators [VCXOs] provides solutions with tight stabilities, superior phase noise and phase jitter performance, frequencies to 1.0GHz and multiple package size options. Our designs employ high frequency fundamental mode crystals, hermetically sealed or FR4 based packages and support PECL, LVPECL, LVDS and HCMOS outputs. Predominately used within a phase locked loop [PLL] device, a VCXO provides the tuning function that synchronizes a transceiver output to an input source, maintaining phase lock, cleaning noisy signals with high jitter levels; yielding a signal that keeps data integrity intact.

## Low Jitter & High Frequency

CTS' high frequency Voltage Controlled Crystal Oscillators [VCXOs], highlight unique design techniques that allow our VCXOs to achieve the best jitter performance in the market, even at frequencies reaching 1.0GHz. Customers may design their own PLL circuits or work with our engineers to customize a design to fit specific application needs.

## General Purpose

CTS also offers a wide array of VCXO solutions for applications that function with less stringent performance requirements. These products provide our customers options for low cost designs, good phase noise and jitter performance, wide pull range options and support for differential PECL, LVPECL and LVDS outputs or single-end HCMOS output.

## High Reliability/High Temperature/Military Grade

CTS' high reliability timing devices are designed to function in extreme environmental conditions such as operating temperatures of -55°C to +125°C; shock up to 1500G and vibration tolerance up to 20G.

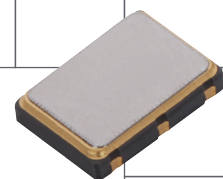
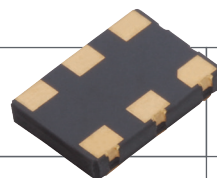
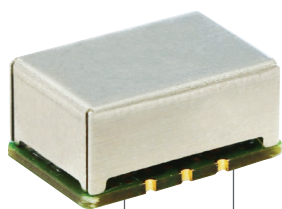


# Low Jitter & High Frequency VCXOs

» Package Type: Leadless Ceramic, SMD [5032, 7050]; Shielded FR-4 Module, SMD [9.0mm x 14.0mm]

» Stability & Temperature Range:  $\pm 20$ ppm standard ranges  $-10^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$ ,  $0^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  or  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$   
 $\pm 25$ ,  $\pm 30$ ,  $\pm 50$ ppm extended range  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$

Model	Features	Package Size [mm]	Output Logic	Frequency Range [MHz]	Phase Jitter [Max]	Absolute Pull Range	Supply Voltage
R3306	Ultra-Low Jitter Tristate Control Modulation BW 20kHz Min	7.0 x 5.0	HCMOS	1.5 - 100	150fs	$\pm 100$ ppm	3.3V
315	Very Low Jitter Fundamental Crystal Output Enable	5.0 x 3.2	HCMOS	100 - 170	500fs [50fs typical @ 156.25MHz]	$\pm 50$ ppm	3.3V
317	Very Low Jitter Fundamental Crystal Output Enable	7.0 x 5.0	HCMOS	100 - 170	500fs [50fs typical @ 156.25MHz]	$\pm 50$ ppm	3.3V
345	Very Low Jitter Fundamental Crystal Output Enable	5.0 x 3.2	LVPECL	100 - 250	500fs [90fs typical @ 156.25MHz]	$\pm 50$ ppm	3.3V
347	Very Low Jitter Fundamental Crystal Output Enable	7.0 x 5.0	LVPECL	100 - 250	500fs [90fs typical @ 156.25MHz]	$\pm 50$ ppm	3.3V
375	Very Low Jitter Fundamental Crystal Output Enable	5.0 x 3.2	LVDS	100 - 250	500fs [70fs typical @ 156.25MHz]	$\pm 50$ ppm	2.5V 3.3V
377	Very Low Jitter Fundamental Crystal Output Enable	7.0 x 5.0	LVDS	100 - 250	500fs [70fs typical @ 156.25MHz]	$\pm 50$ ppm	2.5V 3.3V
VFVX301	Very Low Jitter High Frequency Output Enable	7.0 x 5.0	LVPECL LVDS	38 - 800	500fs	$\pm 150$ ppm	2.5V 3.3V
VFVX100	Very Low Jitter $K_{VCO} = 35$ ppm/V Typ Output Enable Package Height <6.75mm	9.0 x 14.0	LVPECL PECL	200 - 1,000	500fs	$\pm 20$ ppm	3.3V 5.0V
VFVX120	Very Low Jitter Negative Output Enable Package Height <6.75mm	9.0 x 14.0	LVPECL PECL	19 - 200	500fs	$\pm 50$ ppm	3.3V 5.0V
VFVX130	Very Low Jitter Negative Enable Output Control with Pull-Down Resistor	9.0 x 14.0	HCMOS/TTL	19 - 200	500fs	$\pm 35$ ppm	3.3V 5.0V



## General Purpose VCXOs

» Package Type: Leadless Ceramic, SMD [5032, 7050]; J-Lead Ceramic, SMD [9.0mm x 14.0mm]

» Stability & Temperature Range:  $\pm 20$ ppm standard ranges 0°C to +70°C, -20°C to +70°C  
 $\pm 25$ ,  $\pm 50$ ppm extended range -40°C to +85°C

Model	Features	Package Size [mm]	Output Logic	Frequency Range [MHz]	Phase Jitter [Max]	Absolute Pull Range	Supply Voltage
353	Low Jitter Output Enable	5.0 x 3.2	HCMOS/TTL	1.0 - 80	<1ps	$\pm 50$ ppm	2.5V 3.3V 5.0V
357	Low Jitter Output Enable	7.0 x 5.0	HCMOS/TTL	1.5 - 80, 122.88	<1ps	$\pm 50$ ppm $\pm 80$ ppm $\pm 100$ ppm	3.3V 5.0V
335	Low Jitter Output Enable	7.0 x 5.0	LVPECL LVDS	19.44 - 212.5	700fs	$\pm 50$ ppm $\pm 100$ ppm	2.5V 3.3V
VF230V	High Frequency Tristate Control	7.0 x 5.0	LVPECL LVDS	0.75 - 800	<5ps	$\pm 50$ ppm $\pm 100$ ppm	3.3V
VF594	Extra-Wide Pull Range Option	9.0 x 14.0	HCMOS/TTL	1.54 - 160	<1ps	$\pm 50$ ppm to $\pm 100$ ppm	3.3V 5.0V
VF594-T	Extra-Wide Pull Range Option Tristate Control	9.0 x 14.0	HCMOS/TTL	1.54 - 160	<1ps	$\pm 50$ ppm to $\pm 100$ ppm	3.3V 5.0V
VF596	Wide Pull Range Option	9.0 x 14.0	LVPECL PECL	19.44 - 200	<1ps	$\pm 50$ ppm to $\pm 500$ ppm	3.3V 5.0V
VF596-E	Wide Pull Range Option Negative Enable Output Control	9.0 x 14.0	LVPECL PECL	12.5 - 200	<1ps	$\pm 50$ ppm to $\pm 500$ ppm	3.3V 5.0V

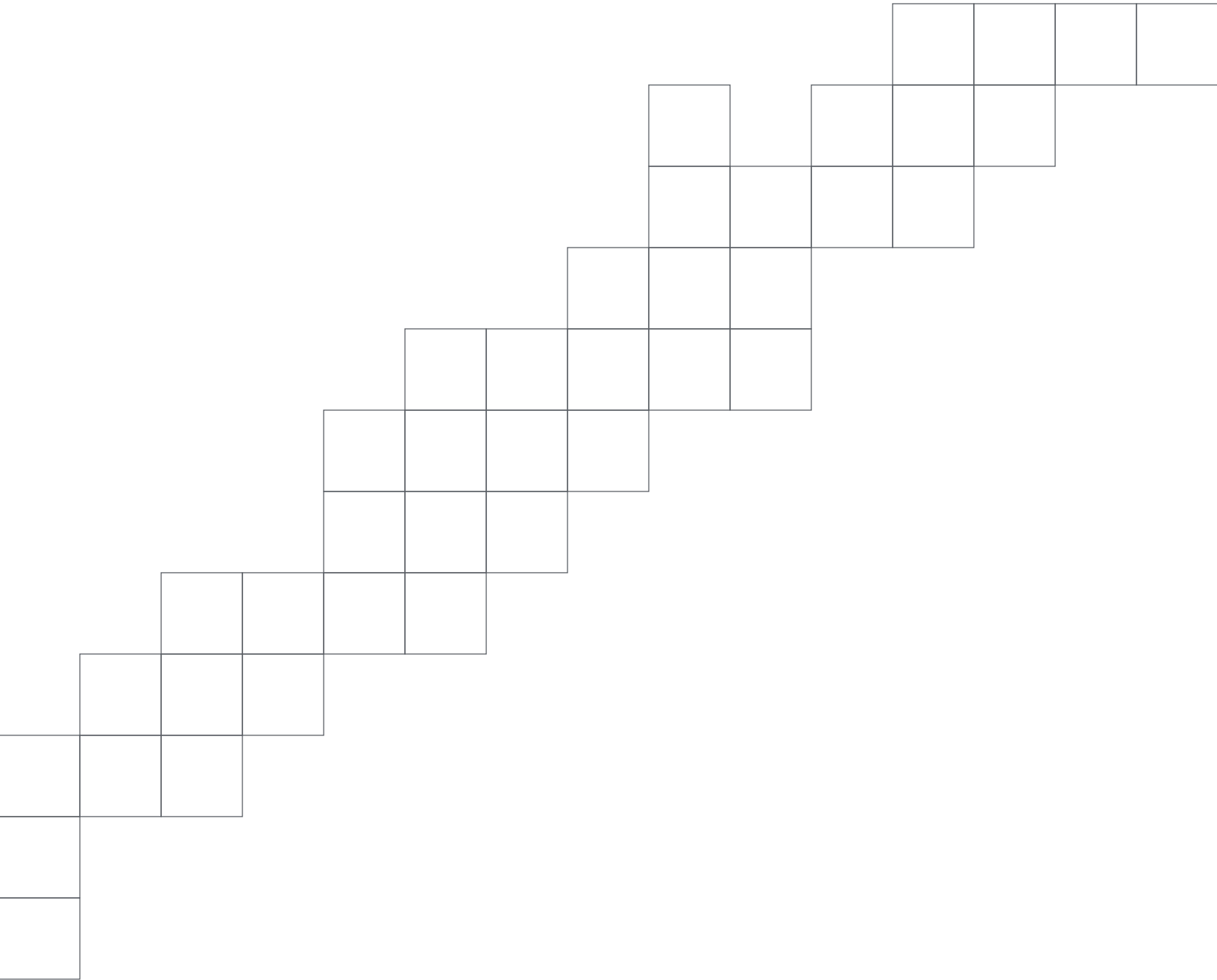
## High Reliability/High Temp Range/Military Grade VCXOs

» Package Type: Leadless Ceramic, SMD [7050]; Metal Can, Thru-Hole [20.32mm x 12.62mm]

» Output Logic: HCMOS/TTL

» Input Voltage: 3.3V or 5.0V, VFH5070 and VFHV570; 5.0V, M6306

Model	Features	Package Size [mm]	Frequency Range [MHz]	Phase Jitter [Max]	Absolute Pull Range	Total Stability	Temperature Range
VFH5070	Hi-Rel Extremely Low Jitter	7.0 x 5.0	1.0 - 80	200fs	$\pm 100$ ppm	$\pm 30$ ppm $\pm 50$ ppm	-55°C - 85°C -55°C - 125°C
VFHV570	Hi-Rel Military Grade MIL-STD-883/MIL-STD-202 Extremely Low Jitter Input Impedance Option for 100k Ohm & 5M Ohm Rugged Design	7.0 x 5.0	1.0 - 80	200fs	$\pm 50$ ppm $\pm 65$ ppm $\pm 100$ ppm	$\pm 30$ ppm $\pm 50$ ppm	0°C - 175°C -40°C - 175°C -55°C - 85°C -55°C - 125°C
M6306	Hi-Rel Military Grade MIL-STD-883/MIL-STD-202 Shock & Vibration Resistant Rugged Design Tri-State Control	20.32 x 12.62	1.0 - 35	<15ps	$\pm 50$ ppm	$\pm 75$ ppm	-55°C - 125°C



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