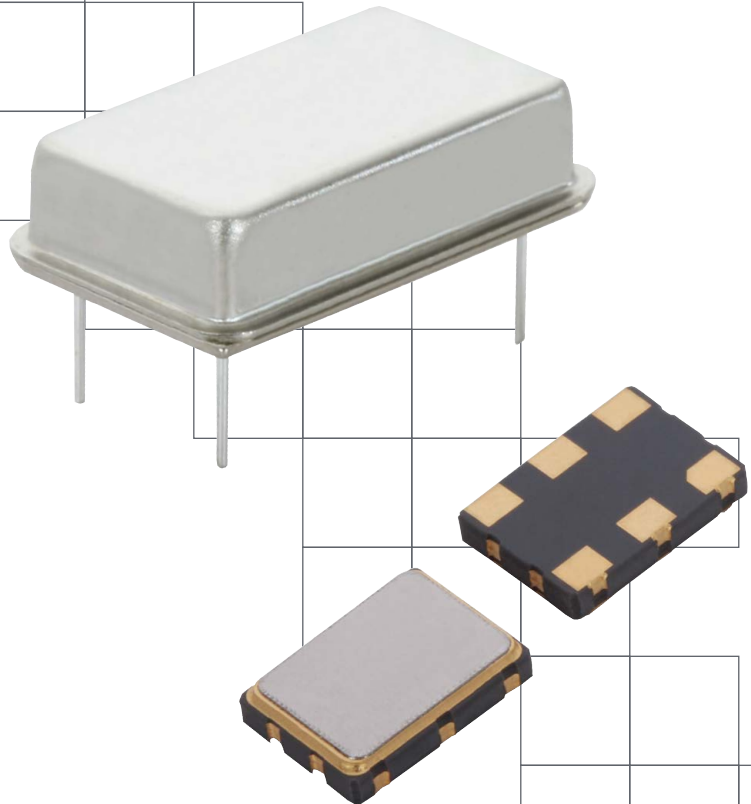


# Clock Oscillators



Connect



Your Partner in  
Smart Solutions

# Clock Oscillators

CTS offers the widest array of Crystal Oscillators (XOs) in the industry. From the smallest packages to the highest frequency (greater than 1.0GHz), with a choice of outputs including CMOS, LVPECL, LVDS and SINE WAVE, we have a solution for even the most challenging applications. CTS is one of the few frequency control suppliers who offers a wide product breadth of parts including products with phase jitter of less than 0.1 ps over all conditions. Whether you need a simple reference clock or are developing a mission critical system, we have the right crystal oscillators to help. Our team will help you select the right clock oscillators in packages as small as 2.5 × 2.0mm.



## Standard Clock Oscillators

Our highly popular Crystal Clock Oscillator [XO] consists of a leadless ceramic package, oscillator IC and a high Q quartz resonator.

## Low Jitter & High Frequency Clock Oscillators

CTS' high frequency clock oscillators are low cost, high performance designs supporting differential LVPECL, LVDS outputs or single-end HCMOS output.

## High Reliability / High Temp / Military Grade Clock Oscillators

CTS' high reliability timing devices are designed to function in extreme environmental conditions such as operating temperatures of  $-55^{\circ}\text{C}\sim+200^{\circ}\text{C}$ ; shock up to 1500G and vibration tolerance up to 20G.



# Standard Clock Oscillators

» Package Type: 6xx, CB & TC Models - Leadless Castellated Ceramic, SMD; MXO Models - Metal Can, Thru-Hole  
 » Stability & Temperature Range:  $\pm 20$  ppm standard range  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$   
 $\pm 25$ ,  $\pm 50$ ,  $\pm 100$  ppm extended range  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$

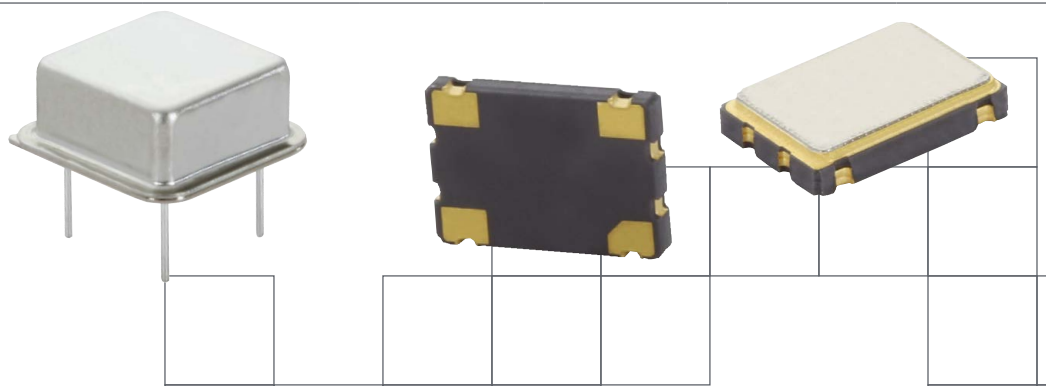
Model	Features	Package Size [mm]	Output Logic	Frequency Range [MHz]	Phase Jitter [ps Max]	Supply Voltage
625	General Purpose, 4-Pad, Output Enable	2.5 x 2.0 x 1.0	HCMOS	1.0 - 110	<1	1.8V 2.5V 3.3V
632	General Purpose, 4-Pad, Output Enable	3.2 x 2.5 x 1.0	HCMOS	1.0 - 125	<1	1.8V 2.5V 2.8V 3.3V 5.0V
636	General Purpose, 4-Pad, Output Enable	5.0 x 3.2 x 1.3	HCMOS/TTL	1.0 - 160	<1	3.3V 5.0V
CB3 CB3LV	General Purpose, 4-Pad, Output Enable	7.0 x 5.0 x 1.8	HCMOS/TTL	1.0 - 200	<1	3.3V 5.0V
CB2V5	General Purpose, 4-Pad, Output Enable	7.0 x 5.0 x 1.8	HCMOS	1.0 - 125	<1	2.5V
CB1V8	General Purpose, 4-Pad, Output Enable	7.0 x 5.0 x 1.8	HCMOS	1.0 - 70	<1	1.8V

## Real Time Clocks

TC25	Real Time Clock, Frequency [RTC], 4-pad, Output Enable	2.5 x 2.0 x 1.0	HCMOS	0.032768	1	1.5V 1.8V 2.5V 3.3V
TC32	Real Time Clock, Frequency [RTC], 4-pad, Output Enable	3.2 x 2.5 x 1.2	HCMOS	0.032768	1	1.5V 1.8V 2.5V 3.3V
TC50	Real Time Clock, Frequency [RTC], 4-pad, Output Enable	5.0 x 3.2 x 1.3	HCMOS	0.032768	1	1.5V 1.8V 2.5V 3.3V
TC70	Real Time Clock, Frequency [RTC], 4-pad, Output Enable	7.0 x 5.0 x 1.6	HCMOS	0.032768	1	1.5V 1.8V 2.5V 3.3V

## Metal Can / Thru-Hole

MXO45 MXO45T	General Purpose, DIP-14 [4-pin], Tristate Option	20.8 x 13.2	HCMOS/TTL	1.0 - 200	1	5.0V
MXO45HS MXO45HST	General Purpose, DIP-8 [4-pin], Tristate Option	13.2 x 13.2	HCMOS/TTL	1.0 - 200	1	5.0V
MXO45LV MXO45TLV	General Purpose, DIP-14 [4-pin], Tristate Option	20.8 x 13.2	HCMOS	1.0 - 200	1	3.3V
MXO45HSLV MXO45HSTLV	General Purpose, DIP-8 [4-pin], Tristate Option	13.2 x 13.2	HCMOS	1.0 - 200	1	3.3V



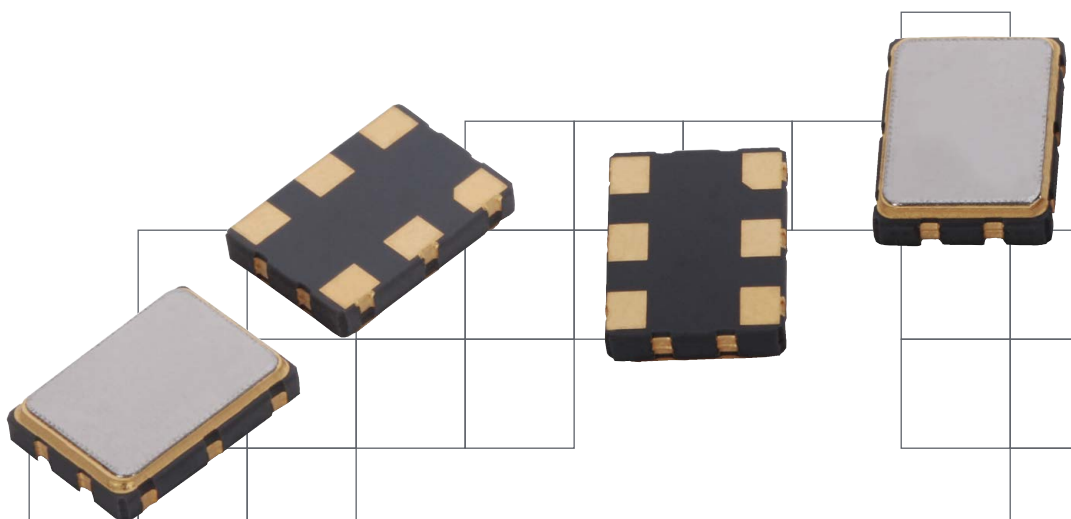
# Low Jitter & High Frequency Clock Oscillators

» Package Type: Leadless Castellated Ceramic, SMD

» Stability & Temperature Range:  $\pm 20$  ppm standard range  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$

$\pm 25$ ,  $\pm 50$ ,  $\pm 100$  ppm extended range  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$

Model	Features	Package Size [mm]	Output Logic	Frequency Range [MHz]	Phase Jitter [fs Max]	Supply Voltage
634C 634P/L	Advanced PLL Low Jitter, 6-Pad, Output Enable, Fund & 3rd OT	3.2 x 2.5 x 1.1	HCMOS LVPECL LVDS	10 - 250 10 - 1000	600	2.5V 3.3V
654C 654P/L	Advanced PLL Low Jitter, 6-Pad, Output Enable, Fund & 3rd OT	5.0 x 3.2 x 1.4	HCMOS LVPECL LVDS	10 - 250 10 - 1000	600	2.5V 3.3V
656C 656P/L	Advanced PLL Low Jitter, 6-Pad, Output Enable, Fund & 3rd OT	7.0 x 5.0 x 2.0	HCMOS LVPECL LVDS	10 - 250 10 - 1000	600	2.5V 3.3V
633	General Purpose Very Low Jitter, 6-Pad, Output Enable, Fund & 3rd OT	3.2 x 2.5 x 1.2	LVPECL LVDS	10 - 220	500	2.5V 3.3V
653	General Purpose Very Low Jitter, 6-Pad, Output Enable, Fund & 3rd OT	5.0 x 3.2 x 1.4	LVPECL LVDS	10 - 320	500	2.5V 3.3V
637	General Purpose Very Low Jitter, 6-Pad, Output Enable, Fund & 3rd OT	7.0 x 5.0 x 2.0	LVPECL LVDS	10 - 320	500	2.5V 3.3V
655	General Purpose Ultra Low Jitter, 6-Pad, Output Enable, Fund & 3rd OT	5.0 x 3.2 x 1.4	LVPECL LVDS	80 - 170	100 Typ 200 Max	2.5V 3.3V
638	General Purpose Ultra Low Jitter, 6-Pad, Output Enable, Fund & 3rd OT	7.0 x 5.0 x 2.0	LVPECL LVDS	80 - 170	100 Typ 200 Max	2.5V 3.3V
VF901480	Ultra Low Jitter, Small Footprint	7.5 x 5.5 x 3.0	LVPECL LVDS	10 - 320	55	3.3V
VF901380	Ultra Low Jitter, Economic Solution	9.0 x 9.5 x 3.0	LVPECL LVDS	19 - 200	55	3.3V
VF901377	Ultra Low Jitter, High Performance Frequency Translator	9 x 14 x 3	LVPECL LVDS	8K - 200	35	3.3V
VF900990	Ultra Low Jitter	9 x 14 x 6	LVPECL LVDS	19 - 200	22	3.3V

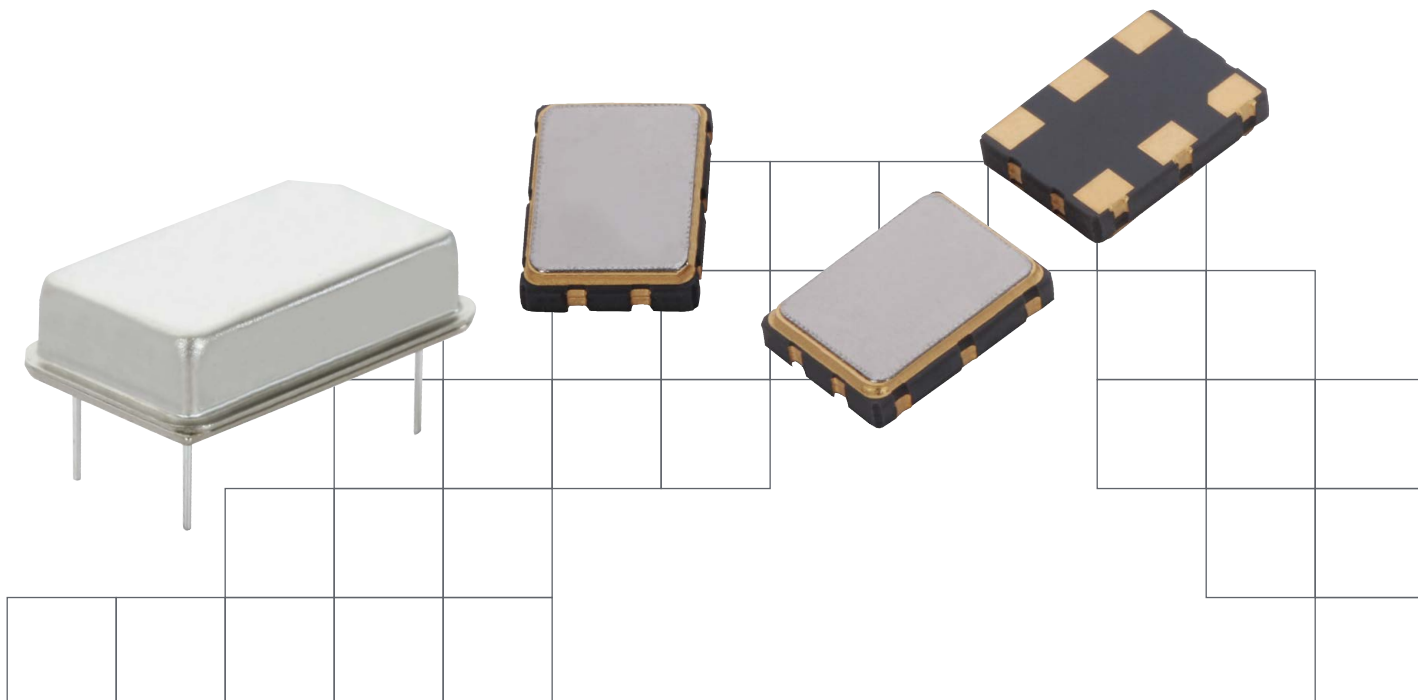


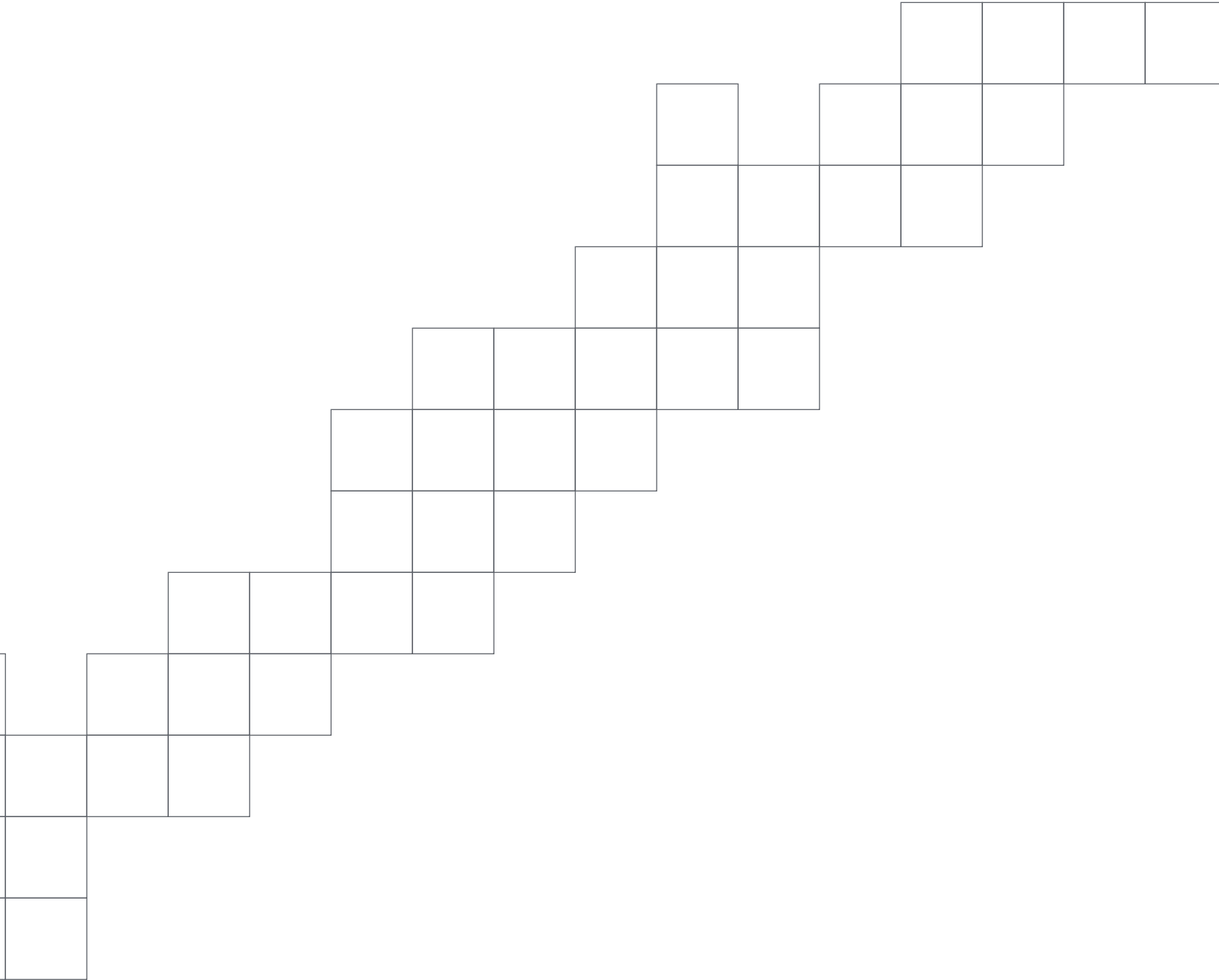
# High Reliability/High Temp/Military Grade Clock Oscillators

- » Package Type: 680 & VFH Models - Leadless Castellated Ceramic, SMD; H & M Models - Metal Can, Thru-Hole
- » Output Logic: VFH230C & VFH240C - LVPECL LVDS, all other models HCMOS
- » Ruggedized

Model	Features	Package Size [mm]	Frequency Range [MHz]	Phase Jitter [ps Max]	Total Stability	Supply Voltage	Temperature Range
680	4-pad, Tristate Option, High Reliability, MIL-STD-883, MIL-STD-202, Military grade 145° Pre-Aged	7.0 x 5.0	0.02 - 100	1	±35ppm ±40ppm ±50ppm ±75ppm ±100ppm ±125ppm	1.8V 2.8V 3.3V 5.0V	Many options up to -55°C - 200°C
T5321 T5421	4-pad, Tristate Option, High Reliability, MIL-STD-883, MIL-STD-202, Military grade, 168HR Class B Burn-In	7.0 x 5.0	1.0 - 100	1	±25ppm ±50ppm ±75ppm	3.3V	-55°C - 85°C -55°C - 125°C
T5621 T5721	4-pad, Tristate Option, High Reliability, MIL-STD-883, MIL-STD-202, Military grade, 168HR Class B Burn-In	7.0 x 5.0	0.016 - 100	1	±25ppm ±50ppm ±75ppm	5.0V	-55°C - 85°C -55°C - 125°C -55°C - 200°C
T7250 T9250	4-pad, Tristate Option, High Reliability, MIL-STD-883, MIL-STD-202, Military grade, 175° Pre-Aged	7.0 x 5.0	0.02 - 100	1	±25ppm ±50ppm ±75ppm ±100ppm ±150ppm ±250ppm ±500ppm	3.3V	Many options up to -55°C - 200°C
VFH2121	4-pad, Tristate Option, High Reliability, MIL-STD-883, MIL-STD-202, Military grade	7.0 x 5.0	0.5 - 125	6	±25ppm ±50ppm ±75ppm	3.3V 5V	-55°C - 85°C -55°C - 125°C
VFH3225	4-pad, Tristate Option, High Reliability, MIL-STD-883, MIL-STD-202, Military grade	3.2 x 2.5	25 - 160	1	±50ppm ±100ppm	1.8V 2.5V 2.8V 3.3V	-55°C - 125°C
VFH2321	4-pad, Tristate Option, High Reliability, MIL-STD-883, MIL-STD-202, Military grade	7.0 x 5.0	0.85 - 165	1	±25ppm ±50ppm ±75ppm	1.8V	-55°C - 85°C -55°C - 125°C
VFH230C	6-pad, Tristate Option, High Reliability, MIL-STD-883 MIL-STD-202, Military grade, Shock & Vibration Resistant	7.0 x 5.0	0.75 - 800	5	±25ppm ±50ppm ±75ppm ±100ppm	3.3V	-55°C - 85°C -55°C - 125°C
VFH240C	6-pad, Tristate Option, High Reliability, MIL-STD-883 MIL-STD-202, Military grade	7.0 x 5.0	9.5 - 640	0.5	±25ppm ±50ppm ±75ppm	2.5V 3.3V	-40°C - 85°C -55°C - 85°C -55°C - 125°C

Model	Features	Package Size [mm]	Frequency Range [MHz]	Phase Jitter [ps Max]	Total Stability	Supply Voltage	Temperature Range
<b>Metal Can / Thru-Hole</b>							
H1254	Tristate Option, Shock & Vibration Resistant	13.2 x 13.2	0.02 - 150	-	±75ppm ±100ppm ±180ppm ±250ppm ±500ppm	5.0V	-55°C - 200°C
H3254	Tristate Option, Shock & Vibration Resistant	13.2 x 13.2	0.02 - 150	-	±75ppm ±100ppm ±180ppm ±250ppm ±500ppm	5.0V	-55°C - 200°C
M1254	Tristate Option, Shock & Vibration Resistant	20.8 x 13.2	0.02 - 150	-	±75ppm ±100ppm ±180ppm ±250ppm ±500ppm	5.0V	-55°C - 200°C
M3254	Tristate Option, Shock & Vibration Resistant	20.8 x 13.2	0.02 - 150	-	±75ppm ±100ppm ±180ppm ±250ppm ±500ppm	5.0V	-55°C - 200°C
M5500	14-pin, 4-pin option, Half-size option, High Reliability, MIL-STD-883, MIL-STD-202, Military grade, Shock & Vibration Resistant	20.32 x 12.62	0.000001 - 120	5	±50ppm ±75ppm	5.0V	-55°C - 85°C -55°C - 125°C -55°C - 200°C





## Contact Sales

North America  
T: +1 (800) 982-5737

Asia  
T: +65-6481-1466

All Other Regions  
T: +1 (508) 435-6831

[frequencysales@ctscorp.com](mailto:frequencysales@ctscorp.com)

[www.ctscorp.com](http://www.ctscorp.com)  