


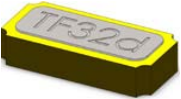








# Short form Frequency Clocks, Crystals and Oscillators










## Crystal Resonators

Model Name	Description	Picture	Frequency Range (MHz)	Calibration Tolerance	Temperature Stability	Aging	Temperature Range	E.S.R. Maximum	Package Size
Model 445	Low Cost Glass Seal Crystal		Oct-50	± 20 ppm (std) (± 30 ppm Available)	± 30 ppm (std) (Also Available ± 50, ± 20, and ± 15 ppm)	≤ ± 3 ppm/yr Typical	-20°C to 70°C or -40°C to 85°C	100 - 30 Ohm (frequency dependent)	5.0 x 3.2 x 1.35mm 0.197 x 0.126 x 0.053 inch
TF32 Series	Low Cost Tuning Fork Crystal		32.7680 kHz	± 20 ppm (std) (Also Available ± 50, ± 30, and ± 10 ppm)	-0.030 ± 0.01ppm/°C <sup>2</sup> Temp Coefficient	≤ ± 3 ppm (first year)	-40°C to 85°C	70k Ohms	3.2 x 1.5 x 0.80 mm 0.126 x 0.059 x 0.031 inch
TF20 Series	Low Cost Tuning Fork Crystal		32.7680 kHz	± 20 ppm (std) (Also Available ± 50, ± 30, and ± 10 ppm)	-0.030 ± 0.01ppm/°C <sup>2</sup> Temp Coefficient	≤ ± 3 ppm (first year)	-40°C to 85°C	90k Ohms	2.0 x 1.2 x 0.60 mm 0.079 x 0.047 x 0.024 inch
Model 425	Low Cost SMT Quartz Crystal		16 - 54	± 30 ppm (std) (Also Available ± 20, ± 15, and ± 10 ppm)	± 50 ppm (std) (Also Available ± 40, ± 30, ± 20, ± 15 and ± 10 ppm)	≤ ± 5 ppm (first year)	-20°C to 70°C or -40°C to 85°C	100 - 60 Ohm (frequency dependent)	2.5 x 2.0 x 0.65 mm 0.098 x 0.079 x 0.026 inch
Model 403	Low Cost SMT Quartz Crystal		Dec-50	± 30 ppm (std) (Also Available ± 20, ± 15, and ± 10 ppm)	± 50 ppm (std) (Also Available ± 40, ± 30, ± 20, ± 15 and ± 10 ppm)	≤ ± 5 ppm (first year)	-20°C to 70°C or -40°C to 85°C	150 - 60 Ohm (frequency dependent)	3.2 x 2.5 x 0.80 mm 0.126 x 0.098 x 0.031 inch
Model 405	Low Cost SMT Quartz Crystal		Dec-50	± 30 ppm (std) (Also Available ± 20, ± 15, and ± 10 ppm)	± 50 ppm (std) (Also Available ± 40, ± 30, ± 20, ± 15 and ± 10 ppm)	≤ ± 5 ppm (first year)	-20°C to 70°C or -40°C to 85°C	50 Ohm	5.0 x 3.2 x 0.9 mm 0.197 x 0.126 x 0.035 inch
Model 406	SMT Reference Quartz Crystal		Oct-50	± 30 ppm (std) (Also Available ± 20, ± 15, and ± 10 ppm)	± 50 ppm (std) (Also Available ± 40, ± 30, ± 20, ± 15 and ± 10 ppm)	≤ ± 5 ppm (first year)	-20°C to 70°C or -40°C to 85°C	80 Ohm	6 x 3.5 x 1.20 mm 0.236 x 0.138 x 0.047 inch
Model 407	SMT Reference Quartz Crystal		Aug-50	± 30 ppm (std) (Also Available ± 20, ± 15, and ± 10 ppm)	± 50 ppm (std) (Also Available ± 40, ± 30, ± 20, ± 15 and ± 10 ppm)	≤ ± 5 ppm (first year)	-20°C to 70°C or -40°C to 85°C	80 Ohm	7.0 x 5.0 x 1.20 mm 0.276 x 0.197 x 0.047 inch










## Crystal Resonators

Model Name	Description	Picture	Frequency Range (MHz)	Calibration Tolerance	Temperature Stability	Aging	Temperature Range	E.S.R. Maximum	Package Size
ATS-SM Series	SMT Standard HC-49/SHORT Quartz Crystal		3.2 - 64	± 30 ppm	± 50 ppm	< ± 5 ppm (per year)	-20°C to 70°C or -40°C to 85°C	150 - 30 Ohm (frequency dependent)	12.30 x 4.83 x 4.30 mm 0.484 x 0.190 x 0.169 inch
ATS Series	TH Standard HC-49/SHORT Quartz Crystal		3.2 - 64	± 30 ppm	± 50 ppm	< ± 5 ppm (per year)	-20°C to 70°C or -40°C to 85°C	150 - 30 Ohm (frequency dependent)	10.85 x 4.50 x 3.68 mm 0.427 x 0.177 x 0.145 inch
MP Series	TH Standard HC-49/U Quartz Crystal		1.8 - 64	± 30 ppm	± 50 ppm	< ± 5 ppm (per year)	-20°C to 70°C or -40°C to 85°C	750 - 35 Ohm (frequency dependent)	10.85 x 13.46 x 4.50 mm 0.427 x 0.530 x 0.177 inch
MP-SMMC Series	SMT HC-49/SMD Metal Clip 3 <sup>rd</sup> Lead Quartz Crystal		1.8 - 64	± 30 ppm	± 50 ppm	< ± 5 ppm (per year)	-20°C to 70°C or -40°C to 85°C	750 - 35 Ohm (frequency dependent)	10.85 x 17.15 x 5.52 mm 0.427 x 0.675 x 0.217 inch
<b>OBSOLETE PRODUCT:</b>									
MP-SM Series	SMT Standard HC-49/SMD Top Wire 3 <sup>rd</sup> Lead Quartz Crystal		1.8 - 64	± 30 ppm	± 50 ppm	< ± 5 ppm (per year)	-20°C to 70°C or -40°C to 85°C	750 - 35 Ohm (frequency dependent)	10.85 x 17.15 x 5.52 mm 0.427 x 0.675 x 0.217 inch
ATP-SM Series	SMT Standard Plastic Quartz Crystal		3.5 - 40	± 50 ppm	± 50 ppm	< ± 10 ppm (per year)	-20°C to 70°C	200 - 50 Ohm (frequency dependent)	12.50 x 4.60 x 3.70 mm 0.492 x 0.181 x 0.146 inch



## Clock Oscillators

Model Name	Description	Picture	Frequency Range	Stability	Output Logic	Temperature Range	Supply Voltage	Package Size
Model 625	SMT General Purpose Clock Oscillator		1.0 - 50	± 50 ppm	CMOS	-10 to 70° C or -40°C to 85°C	1.8V ± 10% 2.5V ± 10% 2.8V ± 10% 3.3V ± 10%	2.5 x 2.0 x 1.0mm 0.098 x 0.079 x 0.039 inch
Model 632	SMT General Purpose Clock Oscillator		1.0 - 75	± 50 ppm	CMOS/TTL	-10 to 70° C	1.8V ± 10% 2.5V ± 10% 2.8V ± 10% 3.3V ± 10%	3.2 x 2.5 x 1.2 mm 0.126 x 0.098 x 0.047 inch
Model 636	SMT General Purpose Clock Oscillator		1.0 - 125	± 100 ppm ± 50 ppm ± 25 ppm ± 20 ppm	CMOS/TTL	-20 to 70°C or -40°C to 85°C	1.8V ± 10% 2.5V ± 10% 3.3V ± 10% or 5V ± 10%	5.0 x 3.2 x 1.3 mm 0.197 x 0.126 x 0.051 inch
CB3 CB3LV	SMT General Purpose Clock Oscillator		1.5 - 160	± 100 ppm ± 50 ppm ± 25 ppm ± 20 ppm	CMOS/TTL	-20 to 70°C or -40°C to 85°C	3.3V ± 10% or 5V ± 10%	7.0 x 5.0 x 1.8 mm 0.276 x 0.197 x 0.071 inch
CB3-S4 CB3LV-S4	SMT Stratum 4 Clock Oscillator		1.5 - 80	± 32 ppm (Stratum 4)	CMOS/TTL	-20 to 70°C or -40°C to 85°C	3.3V ± 10% or 5V ± 10%	7.5 x 5.0 x 1.8 mm 0.295 x 0.197 x 0.071 inch
CB1V8	SMT General Purpose Clock Oscillator		1.0 - 70	± 100 ppm ± 50 ppm ± 25 ppm ± 20 ppm	CMOS/TTL	-20 to 70°C or -40°C to 85°C	1.8V ± 10%	7.0 x 5.0 x 1.8 mm 0.276 x 0.197 x 0.071 inch
CB2V5	SMT General Purpose Clock Oscillator		1.0 - 125	± 100 ppm ± 50 ppm ± 25 ppm ± 20 ppm	CMOS/TTL	-20 to 70°C or -40°C to 85°C	2.5V ± 10%	7.0 x 5.0 x 1.8 mm 0.276 x 0.197 x 0.071 inch







## Clock Oscillators

Model Name	Description	Picture	Frequency Range	Stability	Output Logic	Temperature Range	Supply Voltage	Package Size
Model 635	SMT High Frequency Fundamental Clock Oscillator		19.44 - 212.5	± 100 ppm ± 50 ppm ± 25 ppm	LVPECL LVDS	0 to 70°C or -40°C to 85°C	3.3V ± 5% 2.5V ± 5%	7.0 x 5.0 x 2.0 mm 0.197 x 0.276 x 0.079 inch
Model 658	SMT High Frequency Multiplier Clock Oscillator		38 - 750	± 100 ppm ± 50 ppm ± 25 ppm	HCMOS LVPECL LVDS	0 to 70°C or -40°C to 85°C	3.3V ± 5% 2.5V ± 5%	7.0 x 5.0 x 2.0 mm 0.197 x 0.276 x 0.079 inch
MXO45HS MXO45HST	TH General Purpose Clock Oscillator		1 - 105	± 100 ppm ± 50 ppm ± 25 ppm ± 20 ppm	CMOS/TTL	-20 to 70°C or -40°C to 85°C	5V ± 10%	13.2 x 13.2 x 5.5 mm 0.520 x 0.520 x 0.217 inch
MXO45 MXO45T	TH General Purpose Clock Oscillator		1 - 105	± 100 ppm ± 50 ppm ± 25 ppm ± 20 ppm	CMOS/TTL	-20 to 70°C or -40°C to 85°C	5V ± 10%	13.2 x 20.8 x 5.1 mm 0.520 x 0.820 x 0.200 inch
MXO45HSLV MXO45HSTLV	TH General Purpose Clock Oscillator		1.0 - 50	± 100 ppm ± 50 ppm ± 25 ppm ± 20 ppm	CMOS/TTL	-20 to 70°C or -40°C to 85°C	3.3V ± 10%	13.2 x 13.2 x 5.5 mm 0.520 x 0.520 x 0.217 inch
MXO45LV MXO45TLV	TH General Purpose Clock Oscillator		1.0 - 50	± 100 ppm ± 50 ppm ± 25 ppm ± 20 ppm	CMOS/TTL	-20 to 70°C or -40°C to 85°C	3.3V ± 10%	13.2 x 20.8 x 5.1 mm 0.520 x 0.820 x 0.200 inch



## TCXO's (Temperature Compensated Crystal Oscillators)

The following catalog products are recommended for new applications. If the product required is not shown, we may have a customized product for your application. Please contact your CTS Representative for availability.


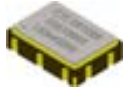

Model Name	Description	Picture	Frequency Range (MHz)	Temp. Stability	Temp. Range	Output	Supply Voltage	Package Size
532	General Purpose TCXO or VCTCXO		10 - 40 [See datasheet for standard frequencies available]	Options Available from $\pm 0.5$ ppm to $\pm 2.5$ ppm	-10 to +60°C -20 to +70°C -30 to +85°C -40 to +85°C	Clipped Sinewave	2.8V, 3.0V, 3.3V, 5.0V	5.0mm x 3.2mm
533	General Purpose TCXO or VCTCXO		10 - 40 [See datasheet for standard frequencies available]	Options Available from $\pm 2.5$ ppm, $\pm 4.0$ ppm and $\pm 5.0$ ppm	-10 to +60°C -20 to +70°C -30 to +85°C -40 to +85°C	CMOS	2.8V, 3.0V, 3.3V	5.0mm x 3.2mm
549	General Purpose and SONET Min		10.0 - 20.0	$\pm 1.0$ ppm	-40 to +85°C	CMOS	3.3V, or 5V	9mm x 14mm
574	Stratum 3		10.0 - 20.0	$\pm 0.28$ ppm	0 to +70°C	CMOS	3.3V, or 5V	9mm x 14mm
575	General Purpose TCXO or VCTCXO		10 - 40 [See datasheet for standard frequencies available]	Options Available from $\pm 0.5$ ppm to $\pm 5.0$ ppm	-10 to +60°C -20 to +70°C -30 to +85°C -40 to +85°C	Clipped Sinewave	2.8V, 3.0V, 3.3V, 5.0V	7mm x 5mm
576	General Purpose TCXO or VCTCXO		10 - 40 [See datasheet for standard frequencies available]	Options Available from $\pm 0.5$ ppm to $\pm 5.0$ ppm	-10 to +60°C -20 to +70°C -30 to +85°C -40 to +85°C	CMOS	2.8V, 3.0V, 3.3V, 5.0V	7mm x 5mm



## VCXO's (Voltage Controlled Crystal Oscillators)

The following catalog products are recommended for new applications. If the product required is not shown, we may have a customized product for your application. Please contact your CTS Representative for availability.

One or more of these products are covered by U.S. Patent No. 6,661,295. Other foreign patents pending.

Model Name	Description	Picture	Frequency (MHz)	Absolute Pull Range	Output Logic	Frequency Deviation Slope	Temp. Range	Supply Voltage	Package Size
325	Low Phase Noise High Performance	--	15.0 - 160	Application Specific	CMOS, PECL LVDS	Application Specific	-40°C to 85°C	3.3V or 5V	9mm x 14mm
335	Low Phase Noise Low Jitter Output Enable		19.44 - 212.5	±50 to ±100 ppm	LVPECL LVDS	--	0°C to 70°C or -40°C to 85°C	3.3V or 2.5V	7mm x 5mm
33510005	Enhanced Performance Hih Frequency Fundamental Design		155.52	±50 ppm	LVPECL	50 - 120 ppm/V	-40°C to 85°C	3.3V	7mm x 5mm
357	Low Phase Noise Std Performance		1.5 - 77.76	±50 to ±100 ppm	HCMOS TTL Compatible	--	-20°C to 70°C or -40°C to 85°C	3.3V or 5.0V	7mm x 5mm

## VCSO's (Voltage Controlled SAW Oscillators)

One or more of these products are covered by U.S. Patent No. 6,653,906. Other U.S. and foreign patents pending.

Model Name	Output Frequency MHz	Absolute Pull Range	Output Logic	Typical Positive Gain Transfer	RMS phase jitter 50 kHz - 80 kHz	Supply Voltage	Temp. Range	Package Size
VCS571	460 - 1000	± 50 ppm	LVPECL	180 ppm/V	0.16 psec	3.3V	-40 to 85°C	5 x 7.5 mm
VCS573	600 - 1000	± 50 ppm	LVPECL	350 ppm/V	0.10 psec	3.3V	-40 to 85°C	5 x 7.5 mm
VCS941	460 - 1000	± 50 ppm	LVPECL	180 ppm/V	0.16 psec	3.3V	-40 to 85°C	9 x 14 mm
VCS943	600 - 1000	± 50 ppm	LVPECL	350 ppm/V	0.10 psec	3.3V	-40 to 85°C	9 x 14 mm



## OCXO's (Oven Controlled Crvstal Oscillators)

The following catalog products are recommended for new applications. If the product required is not shown, we may have a customized product for your application. Please contact your CTS Representative for availability.

Model Name	Description	Quartz Crystal	Freq. (MHz)	Temp. Stability	Temp. Range	Aging	Ouput	Supply Voltage	Package Size
1914	Miniature OCXO Picocells, Repeaters, Test and Measurement	AT Cut	10.0, 12.8 16.384, 19.2 19.44, 20.0 22.0, 25.0	0.100ppm 0.280ppm pk to pk	0° to +70°C -40° to +85°C	±5ppb/day ±2.5ppm 15 years	HCMOS	3.3V or 5.0V	9x14x7mm
1915	Miniature OCXO for GSM and CDMA femtocells	AT Cut	19.2, 13, 26	50ppb 150ppb pk to pk	+30° to +55°C +5° to +65°C	±5ppm 5 years	LVC MOS	3.3V	9x14x5.5mm
03-42126	Stratum 3, GR1244 compliant Zarlink recommended for use in Stratum 3 and 1588 applications	AT Cut	20.0MHz	±125ppb ±250ppb	0° to +70°C -40° to +85°C	±3.5ppb 20 years	HCMOS	3.3V or 5.0V	DIL 13x20x11mm
112	Stratum 3 GR1244 Compliant	AT Cut	10.0, 12.8, 16.384, 20.0	±280ppb	-40° to +85°C	±3.5ppm 20 years	HCMOS	3.3V or 5.0V	22x25x13mm
114	Stratum 3 GR1244 Compliant	AT Cut	10.0, 12.8, 16.384, 20.0	±280ppb	-40° to +85°C	±3.5ppm 20 years	HCMOS	3.3V or 5.5V	DIL 13x20x11mm
117	Stratum 3 Plus GR1244 Compliant	AT Cut	10.0, 12.8, 16.384, 20.0	±125ppb ±250ppb	0° to +70°C -40° to +85°C	±3.5ppm 20 years	HCMOS	3.3V or 5.0V	1"x1" 25x25x13mm
1180026	Stratum 3E GR1244 compliant - Zarlink recommended for Stratum 3E and 1588 ToP applications	SC Cut	20.0MHz	10ppb pk-pk	0° to +70°C -40° to +85°C	±1ppb/day ±1ppm/20 years	HCMOS	3.3V or 5.0V	1"x1" 26x26mm
118	Low Phase Noise Stratum 3E or BTS Reference	SC Cut	10.0, 10.24, 12.8, 13.0, 15.0, 16.384, 20.0, 26.0, 32.768	±8ppb	-0° to +70°C -40° to +85°C	<1ppb/day	HCMOS	3.3V or 5.0V	1"x1" 25x25x13mm
1190100	Stratum 3E Reference Recommended for 1588 Timing over Packet Applications Zarlink recommended	SC Cut	20.0MHz	10ppb pk-pk	-20° to +70°C -40° to +85°C	<1ppb/day	HCMOS	3.3V or 5.0V	22x25.4x12mm
119	Small, Surface Mount Low Phase Noise BTS Referencet Test and Measurement	SC Cut	10.0, 12.8, 13.0, 16.384, 19.44, 20.0, 25.6, 26.0	±10ppb ±20ppb	0° to +70°C -40° to +85°C	±1ppb/day ±100ppb/1st year	HCMOS Sine	3.3V or 5.0V	2.2x25.4x12mm



## OCXO's (Oven Controlled Crystal Oscillators)

The following catalog products are recommended for new applications. If the product required is not shown, we may have a customized product for your application. Please contact your CTS Representative for availability.

Model Name	Description	Quartz Crystal	Freq. (MHz)	Temp. Stability	Temp. Range	Aging	Ouput	Supply Voltage	Package Size
1380100	Stratum 3E Reference Recommended for 1588 Timing over Packet Applications Zarlink recommended	SC Cut	20.0MHz	10ppb pk-pk	-20° to +70°C -40° to +85°C	<1ppb/day	HCMOS	3.3V	DIL 13x20x9mm 13x20x11SMT
196	Low Phase Noise Stratum 3E or BTS Reference	SC Cut	10, 12, 12.8, 13, 16, 16.384, 19.44, 20, 26, 32.768, 38.88	±5ppb ±15ppb	-10° to +70°C -40° to +85°C	<1ppb/day	HCMOS Sine Vref Available	3.3, 5.0, 12.0V	36x27x13.5mm
121	High Performance Double Oven Reference	SC Cut	5.0, 10.0	0.4ppb pk to pk	-5° to +70°C	<0.1ppb/day	Sine Vref Available	12V	51x51x25mm
125	High Performance Super Single (Compensated) Reference	SC Cut	5.0, 10.0	<1ppb pk to pk	-10° to +80°C	<0.1ppb/day	Sine	12V	51x51x15mm

**Note: OXCO specifications are generally application specific. Please contact your CTS representative to review requirements.**



## Modules

The following catalog products are recommended for new applications. If the product required is not shown, we may have a customized product for your application. Please contact your CTS Representative for availability.

### *Frequency Translator/Jitter Attenuators*

Model Name	Input Freq.	Output Freq.	Output Logic	Input Freq. Tracking	Jitter Attenuation @ 1kHz	RMS Jitter Generation 12 kHz - 50 MHz	Supply Voltage	Temp. Range	Package Size
VCP3036A	77.76 MHz	77.76 MHz	LVPECL	+/- 32 ppm	30 dB	0.4 psec typ.	3.3V	-40°C to 85°C	15.8mm SQ SMT
VCP3020A	19.44 MHz	155.52 MHz	LVPECL	+/- 32 ppm	30 dB	0.4 psec typ.	3.3V	-40°C to 85°C	15.8mm SQ SMT
VCP3026A	38.88 MHz	155.52 MHz	LVPECL	+/- 32 ppm	27 dB	0.4 psec typ.	3.3V	-40°C to 85°C	15.8mm SQ SMT
VCP3028X	77.76 MHz	155.52 MHz	LVPECL	+/- 32 ppm	6 dB (1)	0.4 psec typ.	3.3V	-40°C to 85°C	15.8mm SQ SMT
VCP3033A	155.52 MHz	155.52 MHz	LVPECL	+/- 32 ppm	30 dB	0.4 psec typ.	3.3V	-40°C to 85°C	15.8mm SQ SMT
VCP3021X	19.44 MHz	622.08 MHz	LVPECL	+/- 32 ppm	30 dB	0.4 psec typ.	3.3V	-40°C to 85°C	15.8mm SQ SMT
VCP3006X	77.76 MHz	622.08 MHz	LVPECL	+/- 32 ppm	4 dB (1)	0.4 psec typ.	3.3V	-40°C to 85°C	15.8mm SQ SMT
VCP3007B	155.52 MHz	622.08 MHz	LVPECL	+/- 32 ppm	30 dB	0.4 psec typ.	3.3V	-40°C to 85°C	15.8mm SQ SMT
VCP3003A	622.08 MHz	622.08 MHz	LVPECL	+/- 32 ppm	17 dB	0.4 psec typ.	3.3V	-40°C to 85°C	15.8mm SQ SMT

Note1: This design utilizes a non peaking transfer function

### *Clock Generators*

Model Name	Input Freq.	Output Freq.	Output Logic	Capture/ Pull in Range	Free Run Frequency	RMS Phase Jitter 12 kHz - 20 MHz	Supply Voltage	Temp. Range	Package Size
VCT2001A	8 kHz	77.76 MHz	HCMOS	+/- 25 ppm	+/- 20 ppm	0.7 psec typ.	3.3V	0°C to 70°C	19.8mm x 21.1mm
VCT2000A	8 kHz	155.52 MHz	LVPECL	+/- 25 ppm	+/- 20 ppm	0.7 psec typ.	3.3V	0°C to 70°C	19.8mm x 21.1mm

Note: Selectable inputs and loss of lock or reference alarms



## Modules

The following catalog products are recommended for new applications. If the product required is not shown, we may have a customized product for your application. Please contact your CTS Representative for availability.

### VCOs (Voltage Controlled Oscillators)

Model Name	Output Freq. (MHz)	Tuning Voltage	Tuning Sensitivity	Typical Phase Noise @ 10 kHz	Max. Current	Output Power (nom.)	Supply Voltage	Temp. Range	Package Size
VCO3077	380 - 400	0.5 to 4.7V	11 MHz/V	-110 dBc/Hz	20 mA	6 dBm	5V	-30°C to 85°C	12.7mm SQ SMT
VCO3027	530 - 670	1.0 to 4.5V	50 MHz/V	-110 dBc/Hz	32 mA	0 dBm	5V	-40°C to 85°C	12.7mm SQ SMT
VCO3037	610 - 710	0.5 to 4.5V	37 MHz/V	-100 dBc/Hz	32 mA	0 dBm	5V	-40°C to 85°C	12.7mm SQ SMT
VCO3113	870 - 894	0.5 to 4.5V	13 MHz/V	-104 dBc/Hz	25 mA	0 dBm	5V	-35°C to 85°C	12.7mm SQ SMT
VCO3123	1050 - 1086	0.5 to 4.5V	17 MHz/V	-107 dBc/Hz	25 mA	0 dBm	7.4V	-35°C to 85°C	12.7mm SQ SMT
VCO3139	1260 - 1350	1 to 12V	10 MHz/V	-106 dBc/Hz	25 mA	4 dBm	5V	-40°C to 85°C	12.7mm SQ SMT
VCO3134	1300 - 1350	0.5 to 4.5V	30 MHz/V	-100 dBc/Hz	15 mA	5 dBm	5V	-40°C to 85°C	12.7mm SQ SMT
VCO3124	1540 - 1615	0.5 to 4.5V	34 MHz/V	-104 dBc/Hz	25 mA	0 dBm	5V	-35°C to 85°C	12.7mm SQ SMT
VCO3112	1930 - 1990	0.5 to 4.5V	34 MHz/V	-101 dBc/Hz	30 mA	0 dBm	5V	-35°C to 85°C	12.7mm SQ SMT
VCO3152	2200 - 2400	1 to 19V	16 MHz/V	-98 dBc/Hz	40 mA	5 dBm	8V	-40°C to 85°C	12.7mm SQ SMT
VCO3178	2240 - 2340	0.5 to 4.5V	30 MHz/V	-103 dBc/Hz	30 mA	3 dBm	5V	-40°C to 85°C	12.7mm SQ SMT
VCO3129	2345 - 2590	0.5 to 4.5V	95 MHz/V	-95 dBc/Hz	30 mA	1 dBm	5V	-40°C to 85°C	12.7mm SQ SMT
VCO3179	2430 - 2530	0.5 to 4.5V	31 MHz/V	-103 dBc/Hz	30 mA	3 dBm	5V	-40°C to 85°C	12.7mm SQ SMT
VCO3126	2490 - 2560	0.5 to 4.5V	30 MHz/V	-110 dBc/Hz	30 mA	0 dBm	5V	-35°C to 85°C	12.7mm SQ SMT
VCO3148	2662 - 3028	0 to 15V	55 MHz/V	-98 dBc/Hz	26 mA	0 dBm	5V	-40°C to 85°C	12.7mm SQ SMT
VCO3142	2750 - 2950	1 to 10V	28 MHz/V	-90 dBc/Hz	40 mA	5 dBm	5V	-40°C to 85°C	12.7mm SQ SMT
VCO3180	3130 - 3230	0.5 to 4.5V	36 MHz/V	-103 dBc/Hz	30 mA	3 dBm	5V	-40°C to 85°C	12.7mm SQ SMT
VCO3132	3180 - 3710	1 to 12V	56 MHz/V	-93 dBc/Hz	30 mA	0 dBm	5V	-40°C to 85°C	12.7mm SQ SMT
VCO3181	3500 - 3600	0.5 to 4.5V	36 MHz/V	-103 dBc/Hz	30 mA	3 dBm	5V	-40°C to 85°C	12.7mm SQ SMT
VCO3137	3660 - 3960	1 to 19V	30 MHz/V	-93 dBc/Hz	40 mA	5 dBm	8V	-40°C to 85°C	12.7mm SQ SMT
VCO3133	3930 - 4200	1 to 11V	45 MHz/V	-93 dBc/Hz	30 mA	0 dBm	5V	-40°C to 85°C	12.7mm SQ SMT
VCO3143	4015 - 4215	1 to 10V	28 MHz/V	-90 dBc/Hz	40 mA	5 dBm	5V	-40°C to 85°C	12.7mm SQ SMT

Note: VCO specifications are generally application specific. Please contact your CTS representative to review requirements.



## Modules

The following catalog products are recommended for new applications. If the product required is not shown, we may have a customized product for your application. Please contact your CTS Representative for availability.

### VCO/PLL Synthesizers

Model Name	Ouput Freq.	Comparison Freq.	Typical Locktime	Typical Phase Noise @ 10 kHz	Typical Phase Noise @ 1MHz	Ouput Power (nom.)	Supply Voltage	Temp. Range	Package Size
VCP3108B	170 MHz	40 kHz	--	-100 dBc/Hz	-150 dBc/Hz	6.5 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3025B	255.36 MHz	960 kHz	--	-104 dBc/Hz	-140 dBc/Hz	0 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3101B	286.5 MHz	1500kHz	--	-105 dBc/Hz	-145 dBc/Hz	5 dBm	5V / 3.3V	-40°C to 85°C	20.3X14.8mm SMT
VCP3089B	335 MHz	1000 kHz	--	-104 dBc/Hz	-144 dBc/Hz	3 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3040B	341.76 MHz	1500kHz	--	-104 dBc/Hz	-144 dBc/Hz	5 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3103B	491.52 MHz	960 kHz	--	-100 dBc/Hz	-140 dBc/Hz	5 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3074B	760.6 - 795.4 MHz	200 kHz	0.4 msec	-109 dBc/Hz	-149 dBc/Hz	5 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3099B	824 - 849 MHz	19.2 MHz	40 msec	-105 dBc/Hz	-146 dBc/Hz	5 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3100B	869 - 894 MHz	19.2 MHz	40 msec	-104 dBc/Hz	-145 dBc/Hz	5 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3050B	984.9 - 1017.9 MHz	30 kHz	20 msec	-113 dBc/Hz	-147 dBc/Hz	0 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3049C	1014.5 -1047.5 MHz	1000 kHz	20 msec	-103 dBc/Hz	-144 dBc/Hz	0 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3048C	1081 - 1114 MHz	1000 kHz	20 msec	-103 dBc/Hz	-144 dBc/Hz	0 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3082B	1099.4 - 1134.2 MHz	200 kHz	0.4 msec	-103 dBc/Hz	-143 dBc/Hz	5 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3083B	1543 - 1618 MHz	200 kHz	0.4 msec	-102 dBc/Hz	-142 dBc/Hz	5 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3076B	1630 - 1706 MHz	200 kHz	0.4 msec	-100 dBc/Hz	-140 dBc/Hz	5 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3052B	1653 - 1719 MHz	1000 kHz	20 msec	-94 dBc/Hz	-134 dBc/Hz	0 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3053B	1681 - 1746 MHz	50 kHz	20 msec	-100 dBc/Hz	-135 dBc/Hz	0 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3088B	1730 - 1790 MHz	200 kHz	15 msec	-92 dBc/Hz	-138 dBc/Hz	3 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3097B	1920 - 1980 MHz	200 kHz	10 msec	-91 dBc/Hz	-136 dBc/Hz	0 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3054B	2083.6 - 2148.6 MHz	1000 kHz	20 msec	-96 dBc/Hz	-139 dBc/Hz	0 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3085C	2110 - 2170 MHz	200 kHz	30 msec	-96 dBc/Hz	-136 dBc/Hz	5 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3109B	2232 - 2293 MHz	50 kHz	30 msec	-96 dBc/Hz	-141 dBc/Hz	5 dBm	5V / 3.3V	-40°C to 85°C	20.3X14.8mm SMT
VCP3013B	2256 - 2317 MHz	50 kHz	35 msec	-95 dBc/Hz	-135 dBc/Hz	0 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT
VCP3092B	2559 - 2561 MHz	500 kHz	20 msec	-90 dBc/Hz	-138 dBc/Hz	0 dBm	5V	-40°C to 85°C	20.3X14.8mm SMT



## RF Front-End Modules

The following catalog products are recommended for new applications. If the product required is not shown, we may have a customized product for your application. Please contact your CTS Representative for availability.

These products are covered by one or more U.S. and foreign patents pending.

### *FEM Modules*

P/Ns	Rx	Tx	Function
VFM1001A	1920 - 1980 MHz	2110 - 2170 MHz	20 dBm UMTS FEM
VFM1003A	1920 - 1980 MHz	2110 - 2170 MHz	"Rx path only" UMTS FEM
VFM1004A	1920 - 1980 MHz	2110 - 2170 MHz	24 dBm UMTS FEM
VFM1017A	1920 - 1980 MHz	2110 - 2170 MHz	7 dBm UMTS FEM
VFM1019C	1920 - 1980 MHz	2110 - 2170 MHz	24 dBm UMTS FEM w/ pre-driver
VFM1061A	1920 - 1980 MHz	2110 - 2170 MHz	17 dBm UMTS FEM
VFM1033A	2496 - 2692 MHz	2496 - 2692 MHz	22 dBm WiMax FEM
VFM1037A	2300 - 2400 MHz	2300 - 2400 MHz	23 dBm WiBro FEM
VFM1066A	880 - 915 MHz	869 - 894 MHz	20 dBm EGSM FEM
VFM1067A	925 - 960 MHz	880 - 915 MHz	20 dBm EGSM FEM
VFM1064A	880 - 915 MHz	925 - 960 MHz	EGSM Rx module
VFM1068A	824 - 849 MHz	869 - 894 MHz	GSM Rx module
VFM1069A	1710 - 1785 MHz	1805 - 1880 MHz	DCS Rx module
VFM1070A	1850 - 1910 MHz	1930 - 1990 MHz	PCS Rx module
<b>Under development...</b>			
VFM1072A	2496 - 2692 MHz	2496 - 2692 MHz	30 dBm WiMax FEM
VFM1073A	3300 - 3800 MHz	3300 - 3800 MHz	30 dBm WiMax FEM