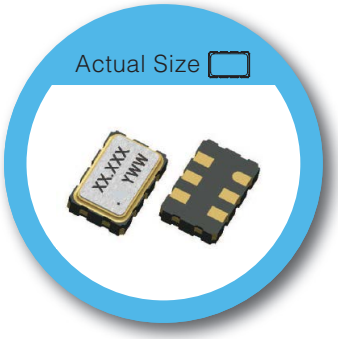
V F Type
5.0 x 3.2mm SMD Voltage Controlled Crystal Oscillator



RoHS Compliant

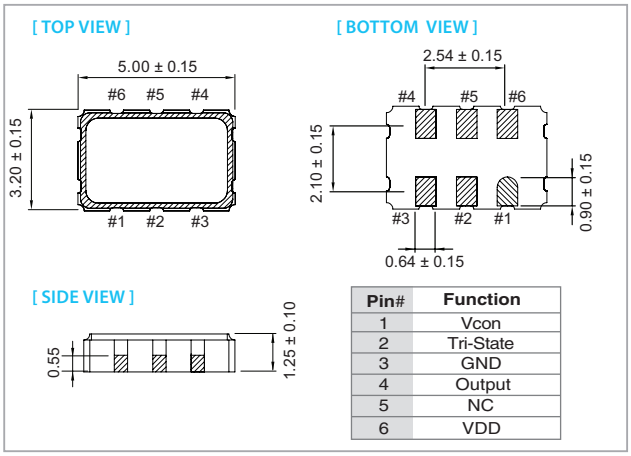
FEATURE

- Typical 5.0 x 3.2 x 1.25 mm 6 pads ceramic SMD package.
- Tight symmetry (45 to 55%) available.
- Operating temperature up to 105°C
- Tri-state enable/disable

TYPICAL APPLICATION

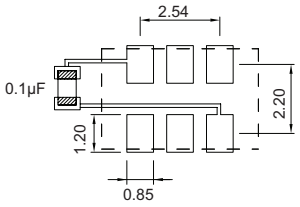
- Set-top Box, HDTV
- WiMAX/WLAN
- xDSL/ VoIP, Cable modem

DIMENSION (mm)



Pin#	Function
1	Vcon
2	Tri-State
3	GND
4	Output
5	NC
6	VDD

SOLDER PAD LAYOUT (mm)



To ensure optimal oscillator performance, place a by-pass capacitor of 0.1μF as close to the part as possible between Vdd and GND pads.

ELECTRICAL SPECIFICATION

Parameter		3.3V Min	3.3V Max.	Unit
Supply Voltage Variation (VDD)		VDD-5%	VDD+5%	V
Frequency Range		1.5	170	MHz
Standard Frequency		19.44, 38.4		
Absolute Pulling Range (APR)		±50	–	ppm
Control Voltage Range		0.3	3.0	V
Supply Current	1.5 MHz ≦ Fo < 20 MHz	–	10	mA
	20 MHz ≦ Fo < 50 MHz	–	20	
	50 MHz ≦ Fo≦ 170 MHz	–	30	
Output Level	Output High (Logic"1")	2.97	–	V
	Output Low (Logic"0")	–	0.33	
Transition Time: Rise/Fall Time+				
	1.5 MHz ≦ Fo < 20 MHz	–	5	nSec
	20 MHz ≦ Fo < 50 MHz	–	4	
	50 MHz ≦ Fo≦ 170 MHz	–	3	
Start Time		–	2	mSec
Tri-State (input to Pin 2)				
	Enable (High voltage or floating)	2.31	–	V
	Disable (Low voltage or GND)	–	0.99	
Linearity		–	10	%
Modulation Bandwidth (BW)				
	1.5 MHz ≦ Fo≦ 170 MHz	15	–	kHz
Input Impedance		10000	–	kΩ
Period Jitter (Pk-Pk)		–	40	pSec
RMS Phase Jitter (Integrated 12 kHz ~ 20 MHz)		–	1	pSec
Phase Noise@38.4 MHz	100 Hz	-100		dBc/Hz
	1 kHz	-133		
	10 kHz	-140		
Aging (@ 25°C 1st year)		–	±3	ppm
Storage Temp. Range		-55	125	°C

Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position.
+ Transition times are measured between 10% and 90% of VDD, with an output load of 15pF.

FREQ. STABILITY vs. TEMP. RANGE

Temp. (°C) \ ppm	±25	±50
-10 ~ +60	○	○
-20 ~ +70	○	○
-40 ~ +85	×	○
-40 ~ +105	×	○

* ○: Available △:Conditional X: Not available
* Inclusive of calibration @ 25 °C, operating temperature range, input voltage variation, load variation, aging (1st year), shock, and vibration

Note: not all combination of options are available. Other specifications may be available upon request.