VT Type
7.0 x 5.0 mm SMD Voltage Controlled Crystal Oscillator

Actual Size

RoHS Compliant

FEATURE
- Typical 7.0 x 5.0 x 1.75 mm 6 pads ceramic SMD package.
- Tight symmetry (45 to 55%) available.
- Tri-state enable/disable

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

DIMENSION (mm)

[TOP VIEW]

7.00±0.20
5.00±0.20
#6 #5 #4
#1 #2 #3

[BOTTOM VIEW]

5.08±0.20
#4 #5 #6
3.81±0.20
#3 #2 #1
1.40±0.20
1.27±0.20

[SIDE VIEW]

1.75±0.15

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

SOLDER PAD LAYOUT (mm)

5.08
0.1µF
2.00
1.80
4.00

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.
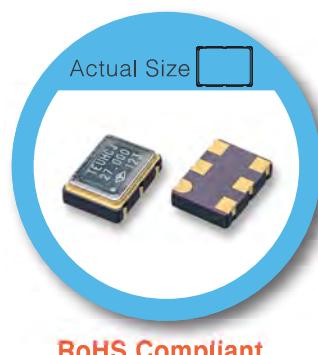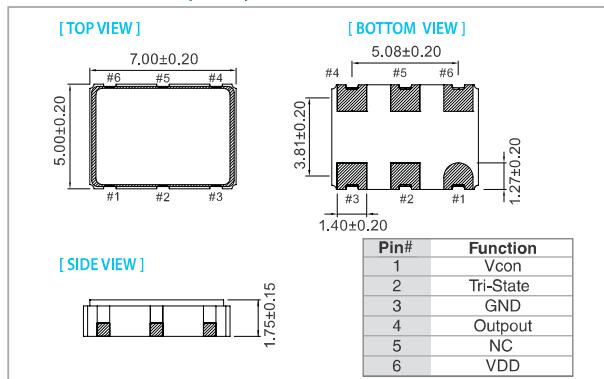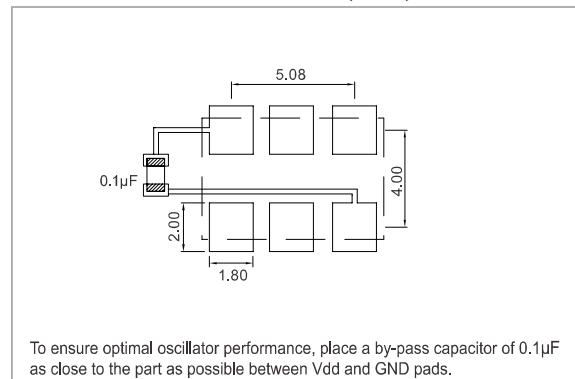
ELECTRICAL SPECIFICATION

Parameter	3.3 V		Unit
	Min.	Max.	
Supply Voltage Variation (VDD)	V_{DD}-5%	V_{DD}+5%	V
Frequency Range	1.5	170	MHz
Standard Frequency	10,20,25,27,32.768,35.328,38.88,61.44,122.88, 153.6		
Absolute Pulling Range (APR)	±50	—	ppm
Control Voltage Range	0.3	3.0	V
Supply Current 1.5 MHz ≤ Fo < 20 MHz	—	10	
20 MHz ≤ Fo < 50 MHz	—	20	
50 MHz ≤ Fo ≤ 80 MHz	—	30	mA
80 MHz < Fo < 160 MHz	—	40	
160 MHz ≤ Fo ≤ 170 MHz	—	50	
Output Level (CMOS)			
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	
20 MHz ≤ Fo < 50 MHz	—	4	
50 MHz ≤ Fo ≤ 80 MHz	—	3	nSec
80 MHz < Fo ≤ 170 MHz	—	2	
Start Time	—	5	mSec
Tri-State(Input to Pin 2)			
Enable (High voltage or floating)	2.31	—	V
Disable (Low voltage or GND)	—	0.99	
Period Jitter (Pk-Pk)	—	40	pSec
RMS Phase Jitter (Integrated 12kHz~20MHz)	—	1	pSec
Linearity	—	10	%
Modulation Bandwidth (BW)			
1.5 MHz ≤ Fo ≤170 MHz	15	—	kHz
Input Impedance			
1.5 MHz ≤ Fo ≤ 170 MHz	10000	—	kΩ
Phase Noise@30.72MHz 100 Hz	-115		
1 kHz	-135		dBc/Hz
10 kHz	-150		
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 V_{DD}, with an output load of 15pF.

FREQ. STABILITY vs. TEMP. RANGE

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

* ○: 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.