

# VW Type

## 5.0 x 3.2mm SMD Voltage Controlled Crystal Oscillator

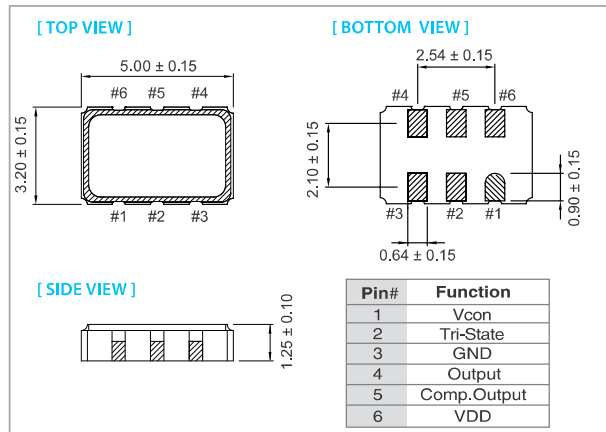
### FEATURE

- 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

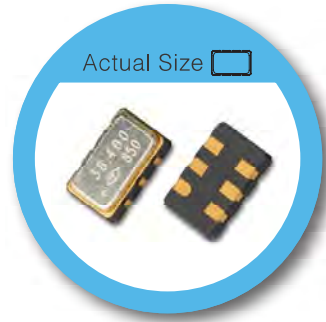
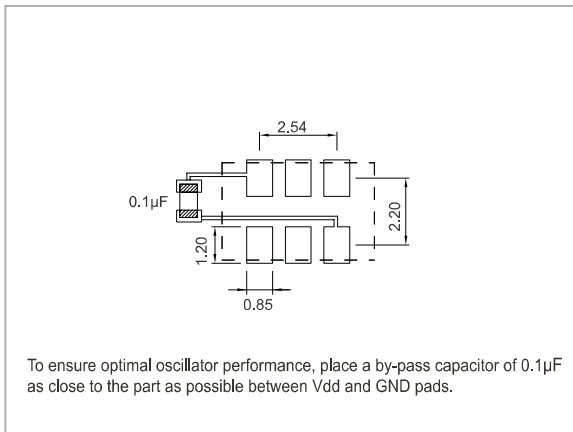
### TYPICAL APPLICATION

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

### DIMENSION (mm)



### SOLDER PAD LAYOUT (mm)



RoHS Compliant

### ELECTRICAL SPECIFICATION

Parameter	3.3V		Unit
	Min	Max.	
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
	20 MHz ≤ Fo < 50 MHz	-	20
	50 MHz ≤ Fo ≤ 170 MHz	-	30
Output Level	Output High (Logic"1")	2.97	-
	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 ≤ 170 MHz	-	3
Start Time	-	2	mSec
Tri-State (input to Pin 2)	Enable (High voltage or floating)	2.31	-
	Disable (Low voltage or GND)	-	0.99
Linearity	-	10	%
Modulation Bandwidth (BW)	1.5 MHz ≤ Fo ≤ 170 MHz	15	-
			-
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 (1<sup>st</sup> year), shock, and vibration