

# VW-M Type

## 5.0 x 3.2 mm SMD Voltage Controlled Crystal Oscillator

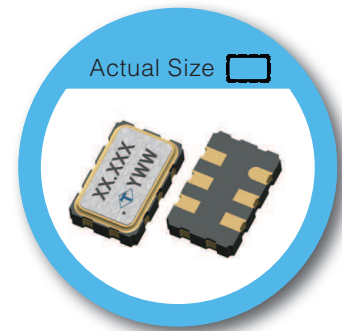
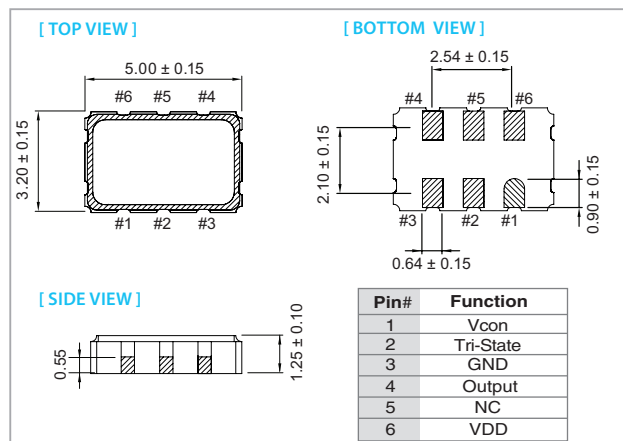
### FEATURE

- Typical 5.0 x 3.2 x 1.25 mm 6 pads ceramic SMD package.
- Tight symmetry (45 to 55%) available.
- Output frequency up to 250 MHz.
- Tri-state enable/disable

### TYPICAL APPLICATION

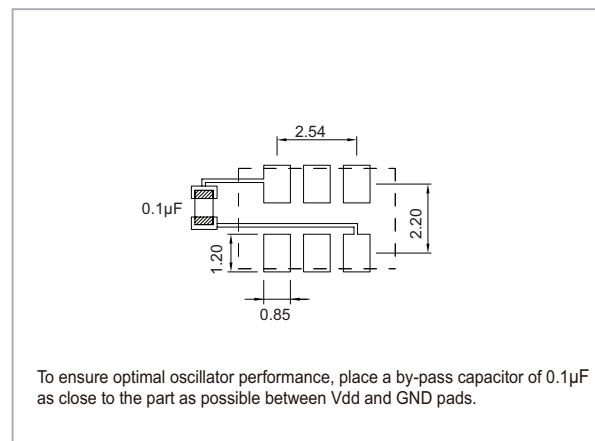
- Set-top Box, HDTV
- WiMAX/WLAN
- xDSL/ VoIP, Cable modem

### DIMENSION (mm)



**RoHS Compliant**

### SOLDER PAD LAYOUT (mm)



### ELECTRICAL SPECIFICATION

Parameter	2.5V / 3.3 V		Unit
	Min.	Max.	
Supply Voltage Variation (V <sub>DD</sub> )	V <sub>DD</sub> -5%	V <sub>DD</sub> +5%	V
Frequency Range	10	250	MHz
Absolute Pulling Range (APR)	±50	-	ppm
Control Voltage Range	0.3	3.0	V
Supply Current			
10 MHz ≤ F <sub>o</sub> < 160 MHz	-	40	mA
160 MHz ≤ F <sub>o</sub> ≤ 250 MHz	-	50	
Output Level (CMOS)			
Output High (Logic "1")	2.97	-	V
Output Low (Logic "0")	-	0.33	
Transition Time: Rise/Fall Time+			
10 MHz ≤ F <sub>o</sub> ≤ 250 MHz	-	2	nSec
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	
Period Jitter (Pk-Pk)	-	150	pSec
RMS Phase Jitter (Integrated 12kHz~20MHz) (At Integer Mode)	-	1	pSec
Linearity	-	10	%
Modulation Bandwidth (BW)	10	-	kHz
Input Impedance	1000	-	kΩ
Phase Noise@155.52MHz			
100 Hz	-	-75	dBc/Hz
1 kHz	-	-105	
10 kHz	-	-125	
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<sub>DD</sub>, 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 (1<sup>st</sup> year), shock, and vibration

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