

The ECS-6000MV is our smallest VCTCXO crystal oscillator with a total volume of 0.13cc. This oscillator is ideal for PHS, cellular telephone and GPS equipment applications.

## FEATURES

- Low profile of 2.0 mm maximum height
- 3 V operation (optional)
- Voltage control function (optional)
- Industry standard footprint
- Tape & Reel (1,000 pcs)

## PART NUMBERING GUIDE

PART NUMBER *	WAVEFORM	CONTROL OPTION	VOLTAGE
ECS-6000MV	Clipped Sine Wave	No Voltage Control	5V
VECS-6000MV	Clipped Sine Wave	Voltage Control	5V
ECS-6000MV-3	Clipped Sine Wave	No Voltage Control	3V
VECS-6000MV-3	Clipped Sine Wave	Voltage Control	3V

\* Complete part number to include frequency. (i.e. ECS-6000MV-120) (-120 = 12MHz)

## STANDARD FREQUENCIES

12.0000MHz, 12.6000MHz, 12.8000MHz,  
13.0000MHz, 14.4000MHz, 15.3600MHz,  
19.2000MHz, 19.6800MHz

## OPERATING CONDITIONS/ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITION	MINIMUM	TYPICAL	MAXIMUM	UNITS	
FREQUENCY RANGE	$f_0$	10.0		20.0	MHz	
TEMPERATURE RANGE	@ -30C ~ +75°C		±2.5ppm		PPM	
STORAGE TEMPERATURE	$T_{STG}$	-40		+85	°C	
INPUT VOLT. CHANGE	@ $V_{CC} \pm 5\%$		±0.3ppm		PPM	
AGING	per year @ 25°C		±1.0ppm		PPM	
OUTPUT LOAD CHANGE	@ 10kΩ ±10% w/ 10pF		±0.2ppm		PPM	
INPUT CURRENT	(SW-A=OFF) without Load			2.0 mA	mA	
OUTPUT	LEVEL	0.8			Vp-p	
	LOAD	10kΩ//10pF			pF	
	WAVEFORM	Clipped Sine Wave				
VOLTAGE CONTROL	( $V_{CC}/2 \pm 1V$ to $V_{CC}/2 \pm 2V$ DC)	-4		+4	PPM	
INTERNAL TRIMMER		-1		+1	PPM	
OPERATING CONDITIONS	OPERATING TEMP.	-30°		+75°	C	
	STORAGE TEMP.	-40°		+85°	C	
	INPUT VOLTAGE	$V_{CC}$		+3V, +3.3V, 3.7V, +4.0V or +5.0V	V	
	INPUT VOLTAGE	(RATING OF ABSOLUTE MAX.)	-0.5V		+7.0V	V DC
	CONTROL VOLTAGE			$V_{CC}/2 \pm 1V$ ~ $V_{CC}/2 \pm 2V$ DC	V	

## PACKAGE DIMENSIONS (mm)

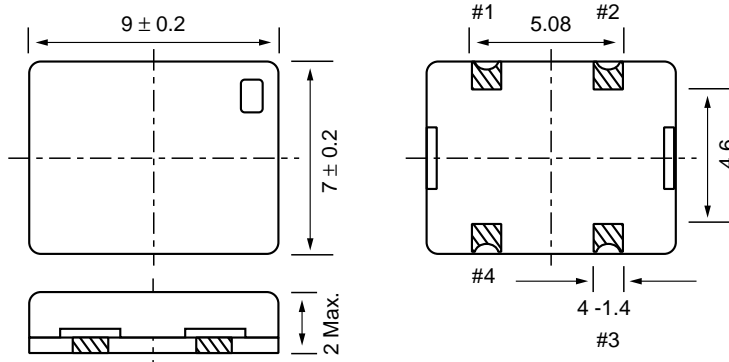


Figure 1) ECS-6000MV – Top, Side and Bottom views

PIN CONNECTIONS		
Terminal	ECS	VECS
#1	N.C.	Vcont.
#2	GND	GND
#3	OUTPUT	OUTPUT
#4	+Vcc	+Vcc

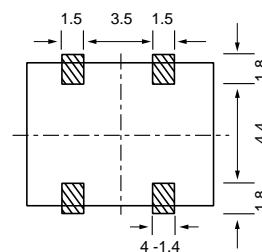


Figure 2) ECS-6000MV – Land Pattern