



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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# ECS-1633

## SMD CLOCK OSCILLATOR



ECS-1633 (+3.3V) subminiature SMD oscillators. Ideal for today's high density applications.

### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	ECS-1633 (+3.3V)			UNITS
		MIN	TYP	MAX	
Frequency Range		1.500		80.000	MHz
Operating Temperature	Standard	-10		+70	°C
	Extended (N Option)	-40		+85	°C
Storage Temperature		-55		+100	°C
Input Voltage	VDD	+3.135	+3.3	+3.465	VDC
Frequency Stability *	Option A			± 100	ppm
	Option B			± 50	ppm
	Option C			± 25	ppm
Input Current	1.500 to 19.90 MHz			6.0	mA
	20.0 to 39.9 MHz			7.0	mA
	40.0 to 49.9 MHz			8.0	mA
	50.0 to 80.0 MHz			9.0	mA
Stand-by Current	Pin 1 = VIL			10.0	µA
Output Symmetry	@ 50% VDD Level			45/55	%
Rise and Fall Times	10% VDD to 90% level			5	ns
"0" level	VOL			10% VDD	VDC
"1" level	VOH	90% VDD			VDC
Output Load	CMOS			15	pF
Disable delay				150	ns
Startup time				10	ms
Aging				±5	ppm

\* Note: Inclusive of +25°C tolerance, operating temperature, input voltage change, load change, shock and vibration.

### DIMENSIONS (mm)

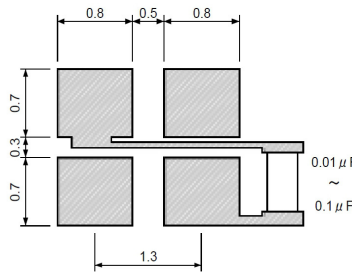
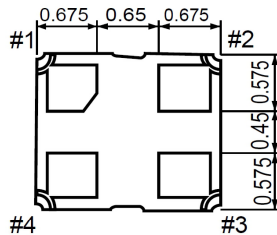
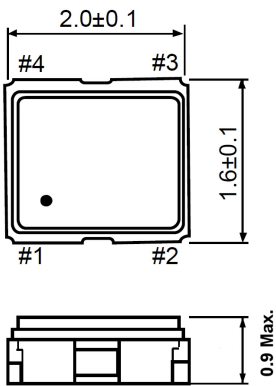


Figure 2) Suggested Land Pattern

Figure 1) Top, Side and Bottom views

Pin Connections	
Pin #1	Tri-State
Pin #2	Ground
Pin #3	Output
Pin #4	VDD

Tri-State Control Voltage	
Pad 1	Pad 3
Open	Oscillation
VIH 70% VDD Min	Oscillation
VIL 30% VDD Max	No Oscillation

Note: Internal crystal oscillation to be halted (Pin #1=VIL)

### PART NUMBERING GUIDE: Example ECS-1633-200-BN-TR

ECS	Series	Frequency Abbreviation	Stability	Temperature	Packaging
	1633 = +3.3V	200 = 20.000 MHz See Frequency Abbreviations	A = ± 100 ppm B = ± 50 ppm C = ± 25 ppm	Blank = -10 ~ +70°C M = -20 ~ +70°C N = -40 ~ +85°C	TR = Tape & Reel