



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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- ▶ Low Voltage HCMOS
- ▶ 3.2 x 2.5 mm Footprint
- ▶ Low current consumption
- ▶ Pb Free/RoHS Compliant

ECS-2325/2333

SMD CLOCK OSCILLATOR

ECS-2325 (2.5V) and ECS-2333 (3.3V) subminiature SMD oscillators. Ideal for today's high density applications.

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	ECS-2325 (+2.5V)			ECS-2333 (+3.3V)			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Frequency Range		1.000		95.000	1.000		95.000	MHz
Operating Temperature	Standard	-10		+70	-10		+70	°C
	Extended (N Option)	-40		+85	-40		+85	°C
Storage Temperature		-55		+100	-55		+100	°C
Supply Voltage	VDD	+2.25	+2.5	+2.75	+2.97	+3.3	+3.63	VDC
Frequency Stability *	Option A			± 100			± 100	ppm
	Option B			± 50			± 50	ppm
	Option C			± 25			± 25	ppm
Input Current	0.75 to 20 MHz			5			7	mA
	20.1 to 40 MHz			9			13	mA
	40.1 to 60 MHz			11			19	mA
	60.1 to 95 MHz			14			24	mA
Stand-by Current	Pin 1 = VIL			10			10	µA
Output Symmetry	@ 50% VDD level			40/60			45/55	%
Rise and Fall Times	10% VDD to 90% level			10			10	ns
"0" level	VOL			10% VDD			10% VDD	VDC
"1" level	VOH	90% VDD			90% VDD			VDC
Output Load	CMOS			15			15	pF
Disable delay time				150			150	ns
Enable/Startup time				10			10	ms
Aging				± 5			± 5	ppm

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

DIMENSIONS (mm)

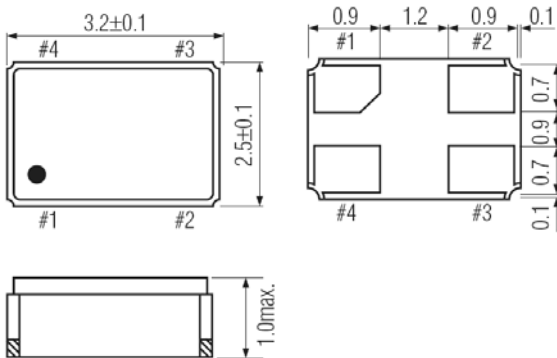


Figure 1) Top, Side and Bottom views

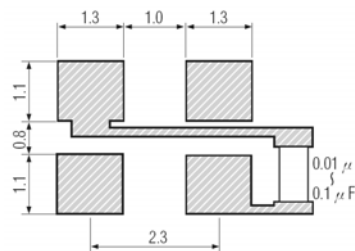


Figure 2) Suggested Land Pattern

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-2333-200-BN

ECS	Series	Frequency Abbreviation	Stability	Temperature
	2325 = +2.5V 2333 = +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