- Low Voltage HCMOS
- 2.5 x 2.0 mm Footprint
- Low current consumption
- Pb Free/RoHS Compliant

ECS-2018

SMD CLOCK OSCILLATOR

ECS-2018 (1.8V) subminiature SMD oscillators. Ideal for today's high density applications.

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	ECS-2018 (+1.8V)			UNITS
		MIN	TYP	MAX	
Frequency Range	Primary Output	0.750		50.000	MHz
Operating Temperature	Standard	-10		+70	°C
	Extended (N Option)	-40		+85	°C
Storage Temperature		-55		+100	°C
Input Voltage	VDD	+1.71	+1.80	+1.89	VDC
Frequency Stability *	Option A			± 100	ppm
	Option B			± 50	ppm
	Option C			± 25	ppm
Input Current	0.75 to 30 MHz			2.5	mA
	30.1 to 40 MHz			3.0	mA
	40.1 to 50 MHz			3.5	mA
Stand-by Current	Pin 1 = VIL			10	µA
Output Symmetry	@ 50% VDD Level			45/55	%
Rise and Fall Times	10% VDD to 90% level			10	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)

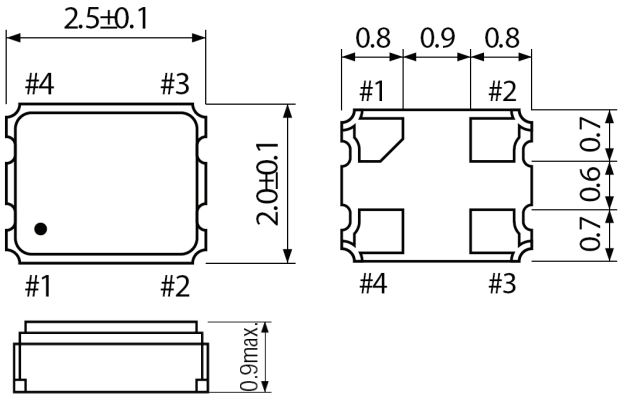

Figure 1) Top, Side and Bottom views

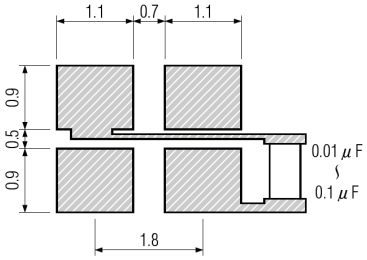

Figure 2) Suggested Land Pattern

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-2018-200-BN

ECS -	Series -	Frequency Abbreviation -	Stability	Temperature
	2018 = +1.8V	200 = 20.000 MHz See Frequency Abbreviations (Pg 2)	A = ± 100 ppm B = ± 50 ppm C = ± 25 ppm	Blank = -10 ~ +70°C M = -20 ~ +70°C N = -40 ~ +85°C

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Frequency Abbreviations

FREQUENCY MHz	CODE
3.579545	035
3.6864	036
4.000	040
6.000	060
7.3728	073
8.000	080
10.000	100
12.000	120
13.000	130
14.31818	143
14.7456	147.4
16.000	160
20.000	200
24.000	240
25.000	250
27.000	270
30.000	300
32.000	320
40.000	400
48.000	480
50.000	500

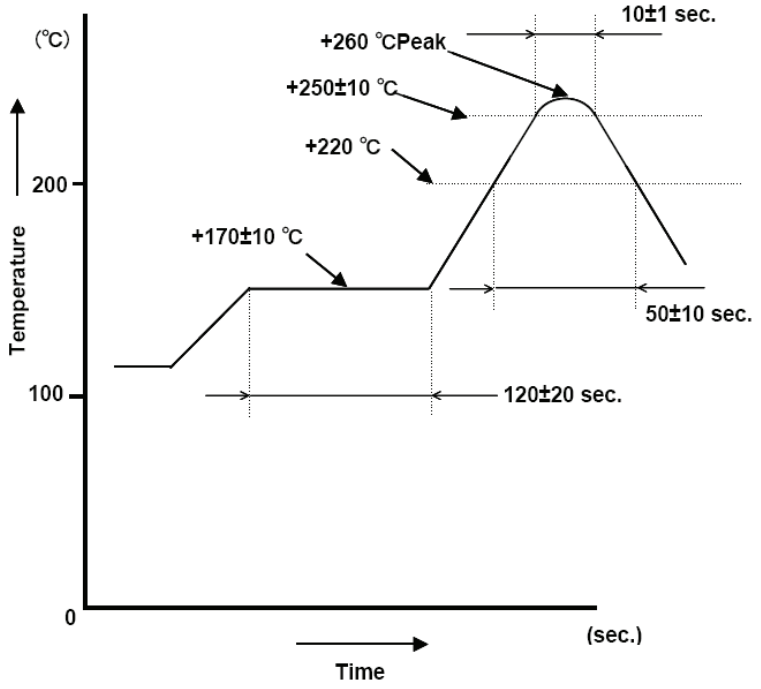
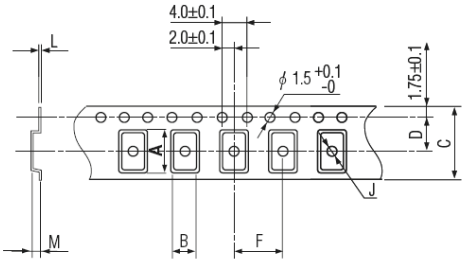


Figure 1) Suggested Reflow Profile

TAPE DIMENSIONS (mm)



A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
2.8	2.3	8.0	3.5	4.0	1.0	0.25	1.1	180	1000pcs

Package Data	
Item	**Description**
Lid	Metal
Base	Ceramic
Sealing	AuSn
Terminal	Tungsten (metalized)
Plating	Gold/Nickel (Surface)/(Under)
RoHS	Compliant (Pb Free)

Figure 2) Pocket Tape Dimensions

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