

ECS-2025 (2.5V) and ECS-2033 (3.3V) subminiature SMD oscillators. Ideal for today's high density applications.

Request a Sample

**OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS**

**ECS-2025/2033**

Parameters	Conditions	ECS-2025 (+2.5V)			ECS-2033 (+3.3V)			Units
		MIN	TYP	MAX	MIN	TYP	MAX	
<b>Frequency Range</b>		0.750		75.000	0.750		75.000	MHz
<b>Operating Temperature</b>	Standard	-10		+70	-10		+70	°C
	Extended (N Option)	-40		+85	-40		+85	°C
<b>Storage Temperature</b>		-55		+100	-55		+100	°C
<b>Supply Voltage</b>	VDD	+2.375	+2.5	+2.625	+3.135	+3.3	+3.465	VDC
<b>Frequency Stability*</b>	Option A			±100			±100	PPM
	Option B			±50			±50	PPM
	Option C			±25			±25	PPM
<b>Input Current</b>	0.75 ~ 20.0 MHz			5			7	mA
	20.1 ~ 40.0 MHz			9			13	mA
	40.1 ~ 60.0 MHz			11			19	mA
	60.1 ~ 75.0 MHz			14			24	mA
<b>Stand-by Current</b>	Pin 1 = VIL			10			10	µA
<b>Output Symmetry</b>	@50% VDD Level			40/60			45/55	%
	@50% VDD Level (**T Option)			45/55			-	
<b>Rise and Fall Times</b>	10% VDD to 90% Level			10			10	ns
<b>"0" Level</b>	VOL			10% VDD			10% VDD	VDC
<b>"1" Level</b>	VOH	90% VDD			90% VDD			VDC
<b>Output Load</b>	CMOS			15			15	pF
<b>Disable Delay Time</b>				150			150	ns
<b>Startup Time</b>				10			10	ms
<b>Aging</b>				±5			±5	PPM



- Low Voltage
- 2.5 x 2.0 mm Footprint
- Low Current Consumption
- PbFree/RoHS Compliant

\* Note: Inclusive of 25°C tolerance, operating temperature, input voltage change, load change, shock and vibration.  
\*\* Symmetry "T" option applies to ECS-2025 Series only.

**Part Numbering Guide: Example ECS-2033-200-BN-TR**

ECS - Series - Frequency Abbreviations - Stability Tolerance - Temperature - Output Symmetry - Packaging

ECS	2025 = +2.5V 2033 = +3.3V	200 = 20 MHz	A = ±100 ppm B = ±50 ppm C = ±25 ppm	Blank = -10 ~ +70°C M = -20 ~ +70°C N = -40 ~ +85°C U = -55 ~ +125°C	Blank = 40/60 **T = 45/55	TR = Tape & Reel 1K/Reel
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### Package Dimensions (mm)

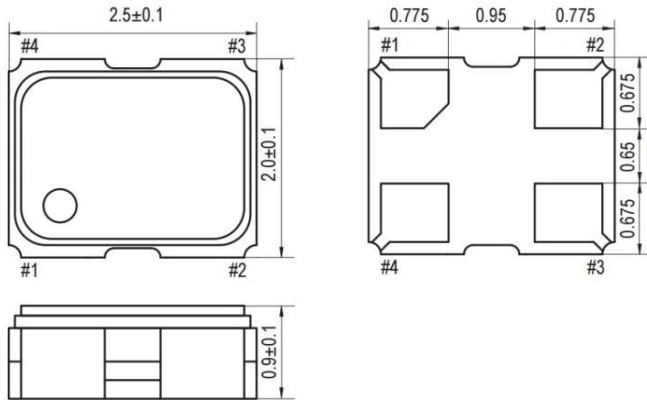


Figure 1) Top, Side, and Bottom views

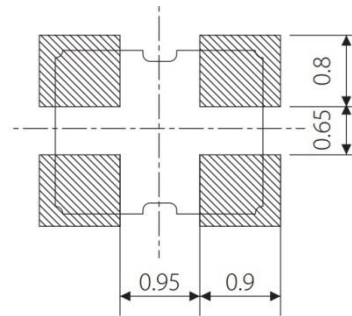


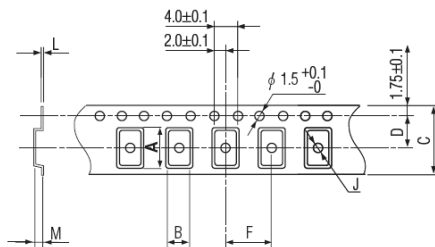
Figure 2) Land Pattern

Pin Connections	
#1	Tri-State
#2	Ground
#3	Output
#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)

### Tape Dimensions (mm)



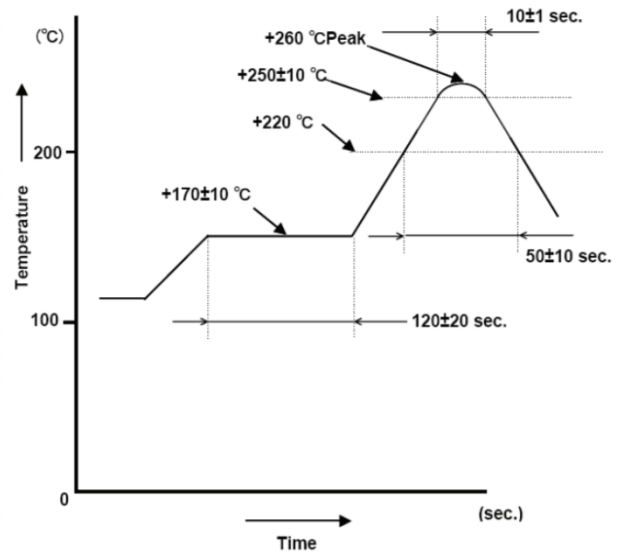
A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
2.8	2.3	8.0	3.5	4.0	1.0	0.25	1.1	180	1000pcs

Figure 3) Pocket Tape Dimensions

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

**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 4) Suggested Reflow Profile*

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