

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

ECS-2025/2033



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

Parameters	Conditions	ECS-2025 (+2.5V)			ECS-2033 (+3.3V)			Units
		MIN	TYP	MAX	MIN	TYP	MAX	
Frequency Range		0.750		75.000	0.750		75.000	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	+2.375	+2.5	+2.625	+3.135	+3.3	+3.465	VDC
Frequency Stability*	Option A			±100			±100	PPM
	Option B			±50			±50	PPM
	Option C			±25			±25	PPM
Input Current	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
Stand-by Current	Pin 1 = VIL			10			10	µA
Output Symmetry	@50% VDD Level			40/60			45/55	%
	@50% VDD Level (**T Option)			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
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.

** 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 See Abbreviation table on Pg 3	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 = 1K TR3 = 3K Qty/Reel

Package Dimensions (mm)

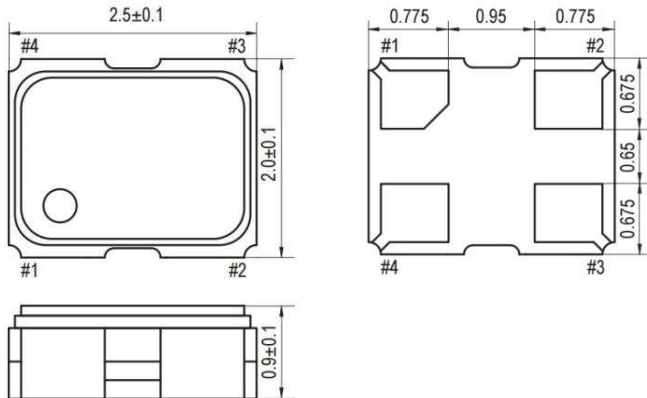


Figure 1) Top, Side, and Bottom views

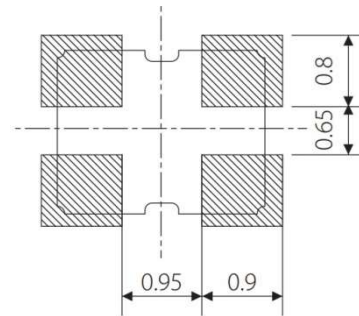


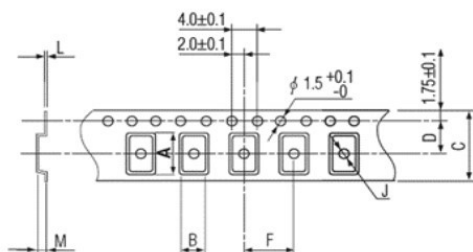
Figure 2) Land Pattern

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.
2.8	2.3	8.0	3.5	4.0	1.0	0.25	1.1	180

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	Code
3.579545 MHz	035
3.6864 MHz	036
4.000 MHz	040
6.000 MHz	060
7.3728 MHz	073
8.000 MHz	080
10.000 MHz	100
12.000 MHz	120
13.000 MHz	130
14.31818 MHz	143
14.7456 MHz	147.4
16.000 MHz	160
20.0000MHz	200
24.0000MHz	240
24.57600MHz	245.7
25.0000MHz	250
27.0000MHz	270
30.0000MHz	300
32.0000MHz	320
40.0000MHz	400
48.0000MHz	480
50.0000MHz	500
100.0000MHz	1000

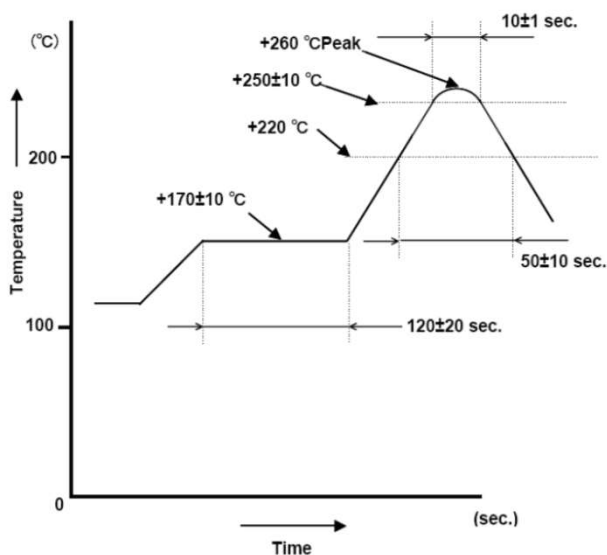


Figure 4) Suggested Reflow Profile