

- ▶ 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 | | 75.000 | 1.000 | | 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 | +2.25 | +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 75 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)

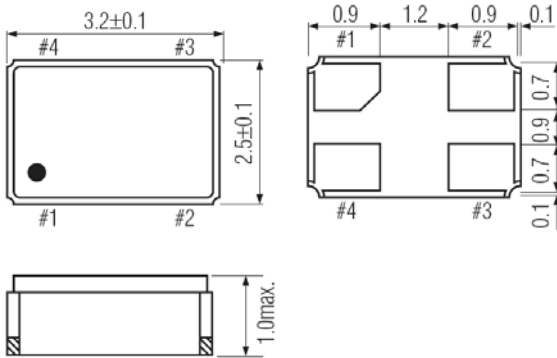


Figure 1) Top, Side and Bottom views

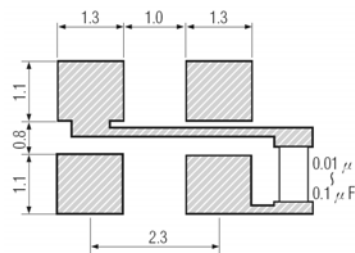


Figure 2) Suggested Land Pattern

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 |