



# ECS-1633

## SMD CLOCK OSCILLATOR



ECS-1633 (+3.3V) subminiature SMD oscillators. Ideal for today's high density applications.

### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

| PARAMETERS            | CONDITIONS           | ECS-1633 (+3.3V) |      |         | UNITS |
|-----------------------|----------------------|------------------|------|---------|-------|
|                       |                      | MIN              | TYP  | MAX     |       |
| Frequency Range       |                      | 1.500            |      | 80.000  | MHz   |
| Operating Temperature | Standard             | -10              |      | +70     | °C    |
|                       | Extended (N Option)  | -40              |      | +85     | °C    |
| Storage Temperature   |                      | -55              |      | +100    | °C    |
| Input Voltage         | VDD                  | +3.135           | +3.3 | +3.465  | VDC   |
| Frequency Stability * | Option A             |                  |      | ± 100   | ppm   |
|                       | Option B             |                  |      | ± 50    | ppm   |
|                       | Option C             |                  |      | ± 25    | ppm   |
| Input Current         | 1.500 to 19.90 MHz   |                  |      | 6.0     | mA    |
|                       | 20.0 to 39.9 MHz     |                  |      | 7.0     | mA    |
|                       | 40.0 to 49.9 MHz     |                  |      | 8.0     | mA    |
|                       | 50.0 to 80.0 MHz     |                  |      | 9.0     | mA    |
| Stand-by Current      | Pin 1 = VIL          |                  |      | 10.0    | µA    |
| Output Symmetry       | @ 50% VDD Level      |                  |      | 45/55   | %     |
| Rise and Fall Times   | 10% VDD to 90% level |                  |      | 5       | 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)

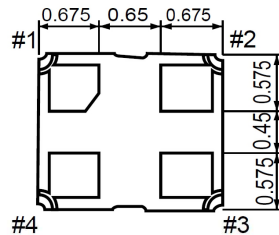
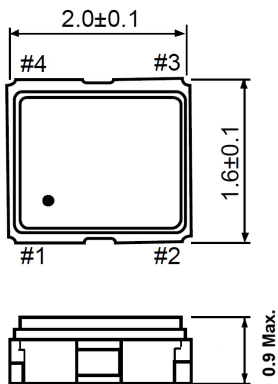


Figure 2) Suggested Land Pattern

#### 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)

Figure 1) Top, Side and Bottom views

### PART NUMBERING GUIDE: Example ECS-1633-200-BN-TR

|            |                 |   |   |   |                     |
|------------|-----------------|---|---|---|---------------------|
| <b>ECS</b> | <b>- Series</b> | <b>- Frequency Abbreviation</b>                 | <b>- Stability</b>                            | <b>Temperature</b>  | <b>Packaging</b>    |
|            | 1633 = +3.3V    | 200 = 20.000 MHz<br>See Frequency Abbreviations | A = ± 100 ppm<br>B = ± 50 ppm<br>C = ± 25 ppm | Blank = -10 ~ +70°C<br>M = -20 ~ +70°C<br>N = -40 ~ +85°C | TR =<br>Tape & Reel |