

- ▶ 3.3 or 5.0V version
- ▶ 5 x 7 mm Footprint
- ▶ Low power consumption
- ▶ RoHS Compliant (Note 7 Exemption)



# ECS-3951C/3953C

## SMD CLOCK OSCILLATOR

ECS-3951C (5V) and ECS-3953C (3.3V) miniature SMD crystal controlled, low current clock oscillator in a ceramic SMD package.

### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

| PARAMETERS            | CONDITIONS           | ECS-3951C (+5V) |      |           | ECS-3953C (+3.3V) |      |           | UNITS |
|-----------------------|----------------------|-----------------|------|-----------|-------------------|------|-----------|-------|
|                       |                      | MIN             | TYP  | MAX       | MIN               | TYP  | MAX       |       |
| Frequency Range       |                      | 1.000           |      | 80.000    | 1.000             |      | 125.000   | MHz   |
| Operating Temperature | Standard             | 0               |      | +70       | 0                 |      | +70       | °C    |
|                       | Extended (N Option)  | -40             |      | +85       | -40               |      | +85       | °C    |
| Storage Temperature   |                      | -55             |      | +125      | -55               |      | +125      | °C    |
| Supply Voltage        |                      | +4.5            | +5.0 | +5.5      | +3.0              | +3.3 | +3.6      | VDC   |
| Frequency Stability * | Standard             |                 |      | ± 100     |                   |      | ± 100     | ppm   |
|                       | Option B             |                 |      | ± 50      |                   |      | ± 50      | ppm   |
|                       | Option C             |                 |      | ± 25      |                   |      | ± 25      | ppm   |
| Input Current         | 1.8 to 30.0 MHz      |                 |      | 10        |                   |      | 8         | mA    |
|                       | 30.1 to 35.0 MHz     |                 |      | 15        |                   |      | 8         | mA    |
|                       | 35.1 to 50.0 MHz     |                 |      | 30        |                   |      | 12        | mA    |
|                       | 50.1 to 66.0 MHz     |                 |      | 30        |                   |      | 15        | mA    |
|                       | 66.1 to 80.0 MHz     |                 |      | 50        |                   |      | 30        | %     |
| Output Symmetry       | @ 50% VDD level      |                 |      | 40/60     |                   |      | 40/60     | %     |
| Rise and Fall Times   | 10% VDD to 90% level |                 |      | 10        |                   |      | 15        | ns    |
| "0" level             | VOL                  |                 |      | 10% * Vcc |                   |      | 10% * Vcc | VDC   |
| "1" level             | VOH                  | 90% * Vcc       |      |           | 90% * Vcc         |      |           | VDC   |
| Output Load           | HCMOS                |                 |      | 15        |                   |      | 15        | pF    |
| Startup time          | 1.8 to 36.0 MHz      |                 |      | 5         |                   |      | 5         | ms    |
|                       | 36.1 to 80.0 MHz     |                 |      | 10        |                   |      | 10        | ms    |
| Output Current        | VOL=0.5V/0.33V       |                 |      | 4         |                   |      | 4         | mA    |
|                       | VOL=4.5V/2.97V       |                 |      | -4        |                   |      | -4        | mA    |
| Enable/Disable Time   |                      |                 |      | 100       |                   |      | 150       | ns    |

### DIMENSIONS (mm)

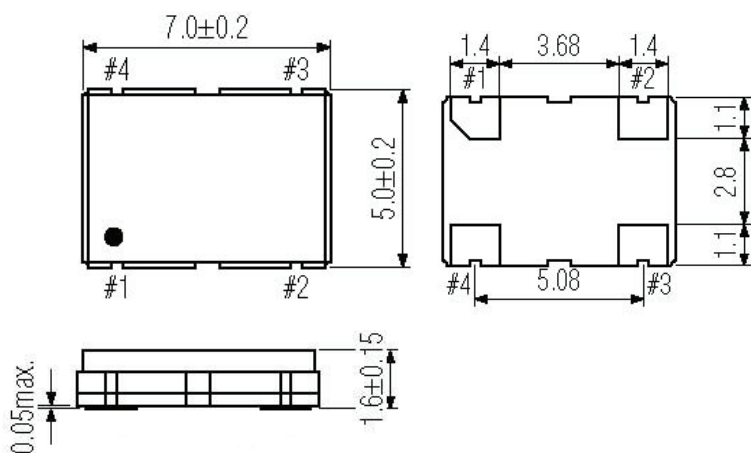


Figure 1) Top, Side and Bottom views

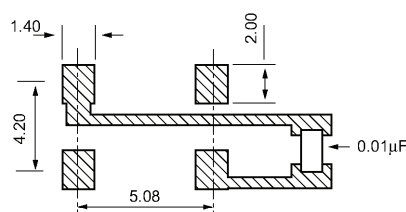


Figure 2) Suggested Land Pattern

### Pin Connections

|        |              |
|--------|--------------|
| Pin #1 | Tri-State ** |
| Pin #2 | Ground       |
| Pin #3 | Output       |
| Pin #4 | Vcc          |

### Tri-State Control Voltage

|                |                |
|----------------|----------------|
| Pad 1          | Pad 3          |
| Open           | Oscillation    |
| Vcc x 0.9 Min. | Oscillation    |
| Vcc x 0.1 Max. | No Oscillation |

\* Note: Inclusive of 25°C tolerance, operating temperature, input voltage change, load change, shock and vibration.

\*\* Note: Internal pullup resistor from pin 1 to 4 allows active output if pin 1 is left open.

### PART NUMBERING GUIDE: Example ECS-3953C-500-B

| ECS | - Series                       | - Frequency Abbreviation                        | - Stability                                       | Temperature                                             |
|-----|--------------------------------|-------------------------------------------------|---------------------------------------------------|---------------------------------------------------------|
|     | 3951C = +5.0V<br>3953C = +3.3V | 500 = 50.000 MHz<br>See Frequency Abbreviations | Blank = ± 100 ppm<br>B = ± 50 ppm<br>C = ± 25 ppm | Blank = 0 ~ +70°C<br>M = -20 ~ +70°C<br>N = -40 ~ +85°C |

ECS-3953C is also compatible with a supply voltage of +3.0V DC ±0.3V