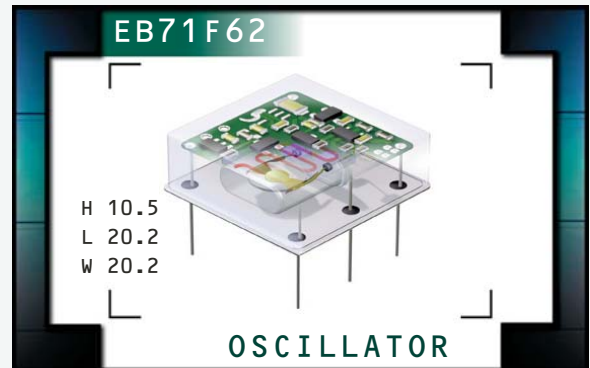


# EB71F62 Series

- Oven Controlled Crystal Oscillator (OCXO)
- SC-Cut Crystal
- HCMOS output
- 5.0V supply voltage
- 5 pin DIP package
- External control voltage
- Stability to  $\pm 20$ ppb



## ELECTRICAL SPECIFICATIONS

|  |  |  |
|--|--|--|
| <b>Frequency Range</b>                                 | 10.000MHz, 12.288MHz, 12.800MHz, 16.000MHz, 19.440MHz, or 20.000MHz      |  |
| <b>Operating Temperature Range (OTR)</b>               | 0°C to 50°C, 0°C to 70°C, or -20°C to 70°C                               |  |
| <b>Storage Temperature Range</b>                       | -55°C to 125°C   |  |
| <b>Supply Voltage (<math>V_{DD}</math>)</b>            | 5.0V <sub>DC</sub> $\pm 5\%$   |  |
| <b>Frequency Tolerance / Stability</b>                 |  |  |
| vs. Initial Tolerance                                  | at Nominal $V_{DD}$ and $V_C$ , at 25°C                                  | $\pm 500$ ppb or $\pm 300$ ppb Maximum   |
| vs. Temperature Stability                              | at Nominal $V_{DD}$ and $V_C$  | $\pm 20$ ppb, $\pm 30$ ppb, $\pm 50$ ppb, $\pm 80$ ppb, $\pm 100$ ppb, $\pm 200$ ppb, or $\pm 280$ ppb Maximum |
| vs. Vdd  | $V_{DD} \pm 5\%$   | $\pm 20$ ppb Maximum   |
| vs. Load   | $V_{load} \pm 5\%$   | $\pm 20$ ppb Maximum   |
| vs. Aging (1 Day)                                      | after 72 Hours of Operation  | $\pm 2.0$ ppb Maximum  |
| vs. Aging (1 Year)                                     | after 72 Hours of Operation  | $\pm 100$ ppb Maximum  |
| vs. Aging (10 Years)                                   | after 72 Hours of Operation  | $\pm 500$ ppb Maximum  |
| <b>Crystal Cut</b>                                     | SC-Cut   |  |
| <b>Warm Up Time</b>                                    | to $\pm 100$ ppb of Final Frequency at 1 Hour at 25°C                    | 3 Minute Maximum   |
| <b>Power Consumption</b>                               | at Steady State, at 25°C   | 1.2 Watts Maximum  |
|  | During Warm Up, at 25°C  | 3.6 Watts Maximum  |
| <b>Output Voltage Logic High (<math>V_{OH}</math>)</b> | $I_{OH} = -8$ mA   | $V_{DD} - 0.5V_{DC}$ Minimum   |
| <b>Output Voltage Logic Low (<math>V_{OL}</math>)</b>  | $I_{OL} = +8$ mA   | $0.5V_{DC}$ Maximum  |
| <b>Rise Time / Fall Time</b>                           | Measured at 20% to 80% of Waveform                                       | 6nSec Maximum  |
| <b>Duty Cycle</b>                                      | Measured at 50% of Waveform  | 50 $\pm 5$ (%)   |
| <b>Load Drive Capability</b>                           |  | 15pF HCMOS Load Maximum  |
| <b>Frequency Deviation</b>                             | Referenced to $F_0$ at $V_C = 2.5V_{DC}$ ; $V_{DD} = 5.0V_{DC}$ over OTR | $\pm 1.0$ ppm Minimum  |
| <b>Control Voltage Range</b>                           |  | 0.0V <sub>DC</sub> to $V_{DD}$   |
| <b>Control Voltage (<math>V_C</math>)</b>              |  | 2.5V <sub>DC</sub> $\pm 2.5V_{DC}$   |
| <b>Transfer Function</b>                               |  | Positive Transfer Characteristic   |
| <b>Reference Voltage Output</b>                        |  | 4.5V <sub>DC</sub> $\pm 0.3V_{DC}$ (Pin 5)   |
| <b>Linearity</b>                                       |  | $\pm 10\%$ Maximum   |
| <b>Input Impedance</b>                                 |  | 10kOhms Typical  |
| <b>Typical Phase Noise (at 12.800MHz)</b>              | 1Hz Offset   | -90dBc/Hz  |
|  | 10Hz Offset  | -100dBc/Hz   |
|  | 100Hz Offset   | -130dBc/Hz   |
|  | 1kHz Offset  | -145dBc/Hz   |
|  | 10kHz Offset   | -150dBc/Hz   |

|                                |                        |                   |                      |                 |               |                    |
|--------------------------------|------------------------|-------------------|----------------------|-----------------|---------------|--------------------|
| MANUFACTURER<br>ECLIPTEK CORP. | CATEGORY<br>OSCILLATOR | SERIES<br>EB71F62 | PACKAGE<br>5 pin DIP | VOLTAGE<br>5.0V | CLASS<br>OS2J | REV. DATE<br>05/07 |
|--------------------------------|------------------------|-------------------|----------------------|-----------------|---------------|--------------------|

# PART NUMBERING GUIDE

**EB71F62 D 10 B V 2 - 20.000M**

**INITIAL TOLERANCE**

D=±500ppb  
E=±300ppb

**FREQUENCY STABILITY**

2 Digit Code Per Table 1

**OPERATING TEMPERATURE RANGE**

1 Letter Code Per Table 1

**FREQUENCY**

**DUTY CYCLE**

2=50% ±5%

**VOLTAGE CONTROL OPTION**

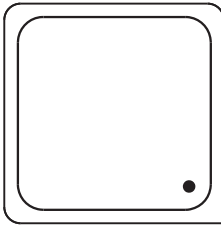
V=Voltage Control on Pin 4 and Reference Voltage Output on Pin 5

**TABLE 1: PART NUMBERING CODES**

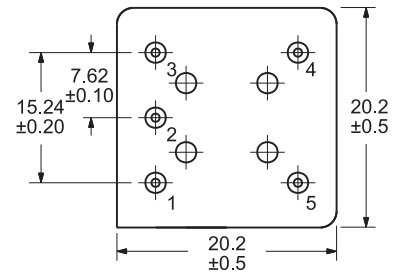
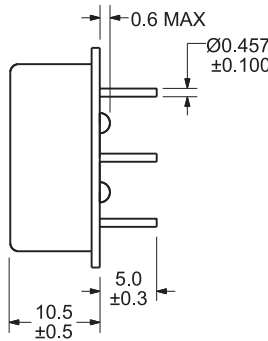
| Operating Temperature Range | FREQUENCY STABILITY<br>X Denotes availability |        |        |        |        |         |         |         |
|-----------------------------|---|--------|--------|--------|--------|---------|---------|---------|
|                             |   | ±20ppb | ±30ppb | ±50ppb | ±80ppb | ±100ppb | ±200ppb | ±280ppb |
|                             | Code  | 02     | 03     | 05     | 08     | 10      | 20      | 28      |
| 0°C to +50°C                | A   | X      | X      | X      | X      | X       | X       | X       |
| 0°C to +70°C                | B   |        | X      | X      | X      | X       | X       | X       |
| -20°C to +70°C              | C   |        |        | X      | X      | X       | X       | X       |

**MECHANICAL DIMENSIONS**

ALL DIMENSIONS IN MILLIMETERS



- Pin 1: Supply Voltage
- Pin 2: Output
- Pin 3: Case/Ground
- Pin 4: Voltage Control
- Pin 5: Reference Voltage Output



**ENVIRONMENTAL/MECHANICAL SPECIFICATIONS**

Characteristic

Specification

|                              |                                       |
|------------------------------|---------------------------------------|
| Gross Leak Test              | MIL-STD-883, Method 1014, Condition C |
| Mechanical Shock             | MIL-STD-202, Method 213, Condition C  |
| Vibration                    | MIL-STD-883, Method 2007, Condition A |
| Lead Integrity               | MIL-STD-883, Method 2004              |
| Solderability                | MIL-STD-883, Method 2002              |
| Temperature Cycling          | MIL-STD-883, Method 1010              |
| Resistance to Soldering Heat | MIL-STD-883, Method 210               |
| Resistance to Solvents       | MIL-STD-883, Method 215               |

**MARKING SPECIFICATIONS**

Line 1: ECLIPTEK

Line 2: XX.XXX M

Frequency in MHz  
(5 Digits Maximum + Decimal)

Line 3: XX Y ZZ

Week of Year  
Last Digit of Year  
Ecliptek Manufacturing Identifier

Note: Pin 1 shall be designated with a dot

MANUFACTURER  
ECLIPTEK CORP.

CATEGORY  
OSCILLATOR

SERIES  
EB71F62

PACKAGE  
5 pin DIP

VOLTAGE  
5.0V

CLASS  
OS2J

REV. DATE  
05/07