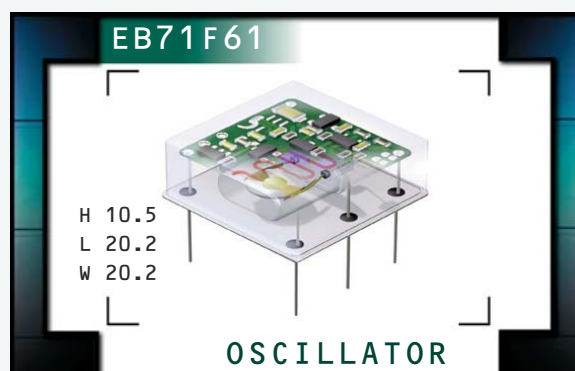


# EB71F61 Series

- Oven Controlled Crystal Oscillator (OCXO)
- AT-Cut Crystal
- HCMOS output
- 5.0V supply voltage
- 5 pin DIP package
- External control voltage
- Stability to  $\pm 50\text{ppb}$



## 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	$\pm 1.0\text{ppm}$ or $\pm 500\text{ppb}$ Maximum
vs. Temperature Stability	at Nominal $V_{DD}$ and $V_C$	$\pm 50\text{ppb}$ , $\pm 80\text{ppb}$ , $\pm 100\text{ppb}$ , $\pm 200\text{ppb}$ , $\pm 280\text{ppb}$ , or $\pm 500\text{ppb}$ Maximum
vs. Vdd	$V_{DD} \pm 5\%$	$\pm 20\text{ppb}$ Maximum
vs. Load	$V_{load} \pm 5\%$	$\pm 20\text{ppb}$ Maximum
vs. Aging (1 Day)	after 72 Hours of Operation	$\pm 3.0\text{ppb}$ Maximum
vs. Aging (1 Year)	after 72 Hours of Operation	$\pm 500\text{ppb}$ Maximum
vs. Aging (10 Years)	after 72 Hours of Operation	$\pm 3.0\text{ppm}$ Maximum
<b>Crystal Cut</b>		AT-Cut
<b>Warm Up Time</b>	to $\pm 500\text{ppb}$ of Final Frequency at 1 Hour at 25°C	3 Minutes 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>	$I_{OH} = -8\text{mA}$	$V_{DD} - 0.5V_{DC}$ Minimum
<b>Output Voltage Logic Low (<math>V_{OL}</math>)</b>	$I_{OL} = +8\text{mA}$	0.5V <sub>DC</sub> 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	$\pm 5\text{ppm}$ 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		-75dBc/Hz
10Hz Offset		-100dBc/Hz
100Hz Offset		-130dBc/Hz
1kHz Offset		-140dBc/Hz
10kHz Offset		-150dBc/Hz

## PART NUMBERING GUIDE

EB71F61 D 10 B V 2 - 20.000M

## INITIAL TOLERANCE

C=±1.0ppm  
D=±500ppb

## FREQUENCY STABILITY

2 Digit Code Per Table 1

## OPERATING TEMPERATURE RANGE

1 Letter Code Per Table 1

## FREQUENCY

## DUTY CYCLE

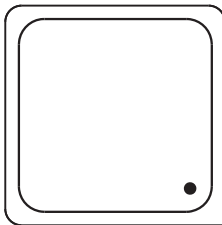
2=50% ±5%

## VOLTAGE CONTROL OPTION

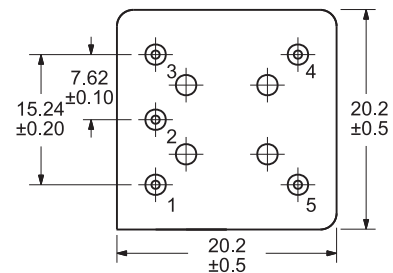
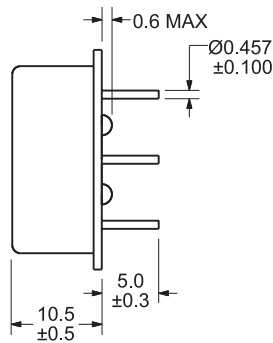
V=Voltage Control on Pin 4 and Reference  
Voltage Output on Pin 5

TABLE 1: PART NUMBERING CODES

Operating Temperature Range			FREQUENCY STABILITY X Denotes availability				
			±50ppb	±80ppb	±100ppb	±200ppb	±280ppb
	Code	05	08	10	20	28	50
0°C to +50°C	A	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  
OSCILLATORSERIES  
EB71F61PACKAGE  
5 pin DIPVOLTAGE  
5.0VCLASS  
OS2BREV. DATE  
05/07