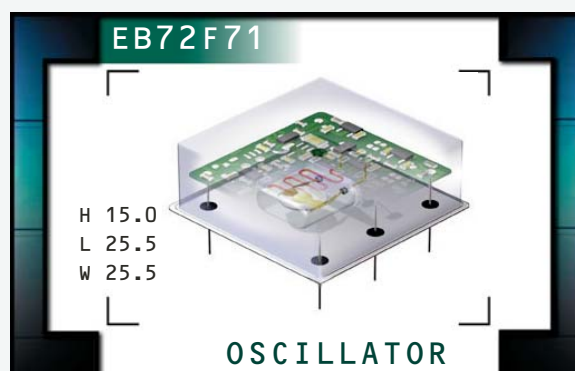


# EB72F71 Series

- Oven Controlled Crystal Oscillator (OCXO)
- AT-Cut Crystal
- HCMOS output
- 3.3V supply voltage
- 5 pin DIP package
- External control voltage
- Stability to  $\pm 80$ 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>	3.3V <sub>DC</sub> $\pm 5\%$	
<b>Frequency Tolerance / Stability</b>		
vs. Initial Tolerance	at Nominal $V_{DD}$ and $V_C$ , at 25°C	$\pm 1.0$ ppm or $\pm 500$ ppb Maximum
vs. Temperature Stability	at Nominal $V_{DD}$ and $V_C$	$\pm 80$ ppb, $\pm 100$ ppb, $\pm 200$ ppb, $\pm 280$ ppb, or $\pm 500$ 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	$\pm 3.0$ ppb Maximum
vs. Aging (1 Year)	after 72 Hours of Operation	$\pm 500$ ppb Maximum
vs. Aging (10 Years)	after 72 Hours of Operation	$\pm 3.0$ ppm Maximum
<b>Crystal Cut</b>	AT-Cut	
<b>Warm Up Time</b>	to $\pm 500$ 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>	$I_{OH} = -4$ mA	2.6V <sub>DC</sub> Minimum
<b>Output Voltage Logic Low (<math>V_{OL}</math>)</b>	$I_{OL} = +4$ mA	0.4V <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 $V_C = 1.65V_{DC}$ ; $V_{DD} = 5.0V_{DC}$ over OTR	$\pm 5$ ppm Minimum
<b>Control Voltage Range</b>	0.0V <sub>DC</sub> to $V_{DD}$	
<b>Control Voltage (<math>V_C</math>)</b>	1.65V <sub>DC</sub> $\pm 1.65V_{DC}$	
<b>Transfer Function</b>	Positive Transfer Characteristic	
<b>Reference Voltage Output</b>	2.8V <sub>DC</sub> $\pm 0.2V_{DC}$ (Pin 4)	
<b>Linearity</b>	$\pm 10\%$ Maximum	
<b>Input Impedance</b>	10kOhms Typical	
<b>Typical Phase Noise (at 12.800MHz)</b>	1Hz Offset	-70dBc/Hz
	10Hz Offset	-95dBc/Hz
	100Hz Offset	-120dBc/Hz
	1kHz Offset	-135dBc/Hz
	10kHz Offset	-140dBc/Hz

MANUFACTURER ECLIPTEK CORP.	CATEGORY OSCILLATOR	SERIES EB72F71	PACKAGE 5 pin DIP	VOLTAGE 3.3V	CLASS OS2E	REV. DATE 05/07
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## PART NUMBERING GUIDE

EB72F71 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

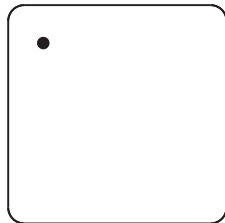
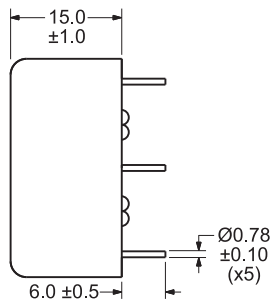
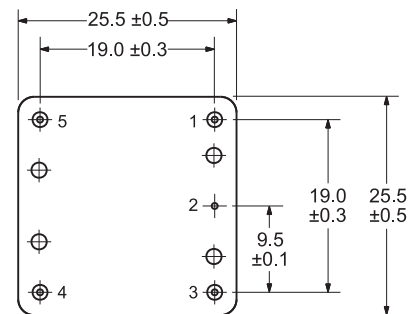
V=Voltage Control on Pin 3 and Reference  
Voltage Output on Pin 4

TABLE 1: PART NUMBERING CODES

Operating Temperature Range	Code	FREQUENCY STABILITY X Denotes availability				
		±80ppb	±100ppb	±200ppb	±280ppb	±500ppb
		08	10	20	28	50
0°C to +50°C	A	X	X	X	X	X
0°C to +70°C	B		X	X	X	X
-20°C to +70°C	C				X	X

## MECHANICAL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS

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

## ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

## Characteristic

Gross Leak Test  
Mechanical Shock  
Vibration  
Lead Integrity  
Solderability  
Temperature Cycling  
Resistance to Soldering Heat  
Resistance to Solvents

## Specification

MIL-STD-883, Method 1014, Condition C  
MIL-STD-202, Method 213, Condition C  
MIL-STD-883, Method 2007, Condition A  
MIL-STD-883, Method 2004  
MIL-STD-883, Method 2002  
MIL-STD-883, Method 1010  
MIL-STD-883, Method 210  
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  
EB72F71PACKAGE  
5 pin DIPVOLTAGE  
3.3VCLASS  
OS2EREV. DATE  
05/07