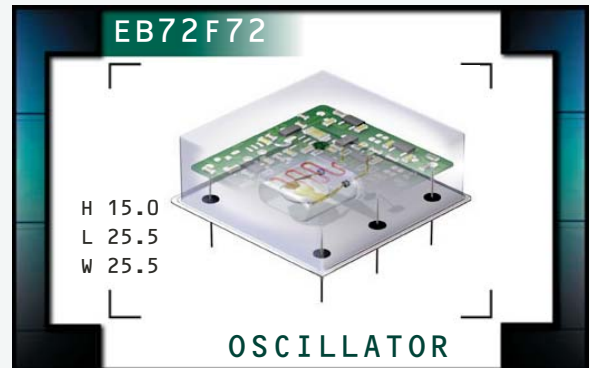


# EB72F72 Series

- Oven Controlled Crystal Oscillator (OCXO)
- SC-Cut Crystal
- HCMOS output
- 3.3V supply voltage
- 5 pin DIP package
- External control voltage
- Stability to  $\pm 30$ 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 (V<sub>DD</sub>)</b>	3.3V <sub>DC</sub> $\pm 5\%$	
<b>Frequency Tolerance / Stability</b>		
vs. Initial Tolerance	at Nominal V <sub>DD</sub> and V <sub>C</sub> , at 25°C	$\pm 500$ ppb or $\pm 300$ ppb Maximum
vs. Temperature Stability	at Nominal V <sub>DD</sub> and V <sub>C</sub>	$\pm 30$ ppb, $\pm 50$ ppb, $\pm 80$ ppb, $\pm 100$ ppb, $\pm 200$ ppb, or $\pm 280$ ppb Maximum
vs. V <sub>DD</sub>	V <sub>DD</sub> $\pm 5\%$	$\pm 20$ ppb Maximum
vs. Load	V <sub>load</sub> $\pm 5\%$	$\pm 20$ ppb Maximum
vs. Aging (1 Day)	after 72 Hours of Operation	2.0ppb 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 $\pm 50$ 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 (V<sub>OH</sub>)</b>	I <sub>OH</sub> = -4mA	2.6V <sub>DC</sub> Minimum
<b>Output Voltage Logic Low (V<sub>OL</sub>)</b>	I <sub>OL</sub> = +4mA	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 <sub>0</sub> at V <sub>C</sub> = 1.65V <sub>DC</sub> ; V <sub>DD</sub> = 5.0V <sub>DC</sub> over OTR	$\pm 0.5$ ppm Minimum
<b>Control Voltage Range</b>	0.0V <sub>DC</sub> to V <sub>DD</sub>	
<b>Control Voltage (V<sub>C</sub>)</b>	1.65V <sub>DC</sub> $\pm 1.65$ V <sub>DC</sub>	
<b>Transfer Function</b>	Positive Transfer Characteristic	
<b>Reference Voltage Output</b>	2.8V <sub>DC</sub> $\pm 0.2$ V <sub>DC</sub> (Pin 4)	
<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 ECLIPTEK CORP.	CATEGORY OSCILLATOR	SERIES EB72F72	PACKAGE 5 pin DIP	VOLTAGE 3.3V	CLASS OS2M	REV. DATE 05/07
--------------------------------	------------------------	-------------------	----------------------	-----------------	---------------	--------------------

# PART NUMBERING GUIDE

**EB72F72 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%

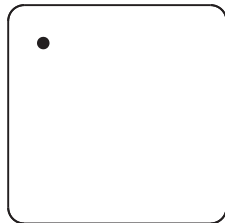
**VOLTAGE CONTROL OPTION**

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

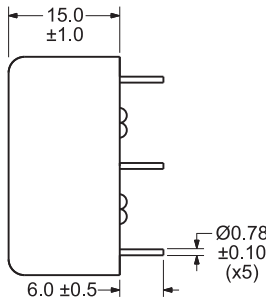
**TABLE 1: PART NUMBERING CODES**

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

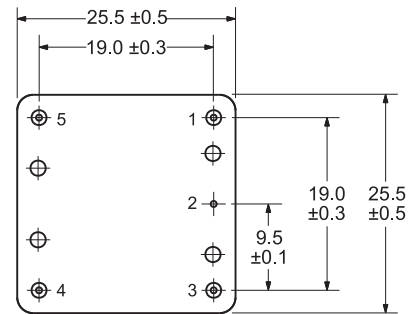
**MECHANICAL DIMENSIONS**  
ALL DIMENSIONS IN MILLIMETERS



Pin 1: Output  
Pin 2: Case/Ground  
Pin 3: Voltage Control



Pin 4: Reference Voltage Output  
Pin 5: Supply Voltage



**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  
Line 3: XX Y ZZ

Frequency in MHz  
(5 Digits Maximum + Decimal)

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 EB72F72	PACKAGE 5 pin DIP	VOLTAGE 3.3V	CLASS OS2M	REV. DATE 05/07
--------------------------------	------------------------	-------------------	----------------------	-----------------	---------------	--------------------