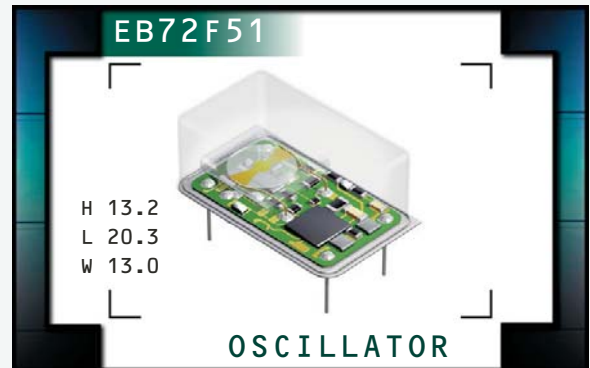


# EB72F51 Series

- Oven Controlled Crystal Oscillator (OCXO)
- AT-Cut
- HCMOS output
- 3.3V supply voltage
- 14 pin DIP package
- External control voltage option available
- Stability to  $\pm 200$ ppb
- Custom lead length, gull wing options available



## 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	$\pm 1.0$ ppm or $\pm 500$ ppb Maximum
vs. Temperature Stability	at Nominal V <sub>DD</sub> and V <sub>C</sub>	$\pm 200$ ppb, $\pm 280$ ppb, or $\pm 500$ ppb Maximum
vs. V <sub>DD</sub>	V <sub>DD</sub> $\pm 5\%$	$\pm 50$ ppb Maximum
vs. Load	V <sub>load</sub> $\pm 5\%$	$\pm 50$ ppb Maximum
vs. Aging (1 Day)	after 72 Hours of Operation	$\pm 30$ 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	1.6 Watts Maximum
	During Warm Up, at 25°C	2.5 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	
<b>Frequency Deviation</b>	Referenced to F <sub>0</sub> at V <sub>C</sub> = 1.65V <sub>DC</sub> ; V <sub>DD</sub> =3.3V <sub>DC</sub> over OTR	$\pm 5$ 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>Linearity</b>	$\pm 10\%$ Maximum	
<b>Input Impedance</b>	10kOhms Typical	
<b>Typical Phase Noise (at 12.800MHz)</b>	at 10Hz Offset	-95dBc/Hz
	at 100Hz Offset	-120dBc/Hz
	at 1kHz Offset	-135dBc/Hz
	at 10kHz Offset	-140dBc/Hz

MANUFACTURER ECLIPTEK CORP.	CATEGORY OSCILLATOR	SERIES EB72F51	PACKAGE 14 pin DIP	VOLTAGE 3.3V	CLASS OS2A	REV. DATE 05/07
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## PART NUMBERING GUIDE

**EB72F51 C 10 B V 2 - 20.000M - CL125**

**INITIAL TOLERANCE**

C=±1.0ppm  
D=±500ppb

**FREQUENCY STABILITY**

2 Digit Code Per Table 1

**OPERATING TEMPERATURE RANGE (OTR)**

1 Letter Code Per Table 1

**AVAILABLE OPTIONS**

Blank=None (Standard)  
CLXXX=Custom Lead Length  
G=Full Size Gull Wing

**FREQUENCY**

**DUTY CYCLE**

2=50%±5%

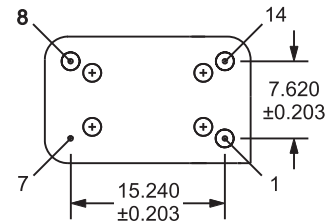
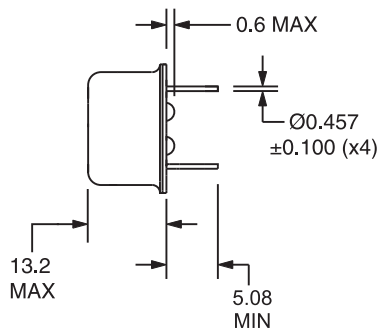
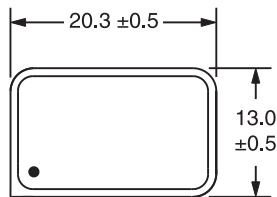
**VOLTAGE CONTROL OPTION**

N=None (No Connect on Pin 1)  
V=Voltage Control on Pin 1

**TABLE 1: PART NUMBERING CODES**

Operating Temperature Range	Code	Frequency Stability X Denotes Availability		
		±200ppb	±280ppb	±500ppb
		20	28	50
0°C to +50°C	A	X	X	X
0°C to +70°C	B		X	X
-20°C to +70°C	C			X

**MECHANICAL DIMENSIONS**  
ALL DIMENSIONS IN MILLIMETERS



Pin 1: No Connect or Voltage Control  
Pin 7: Case Ground  
Pin 8: Output  
Pin 14: Supply Voltage

**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

**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

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