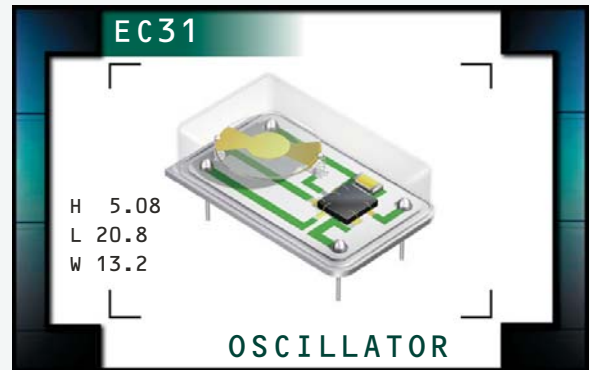


EC31 Series



- RoHS Compliant (Pb-free)
- Voltage Controlled Crystal Oscillator (VCX0)
- 5.0V Supply Voltage
- HCMOS/TTL output
- 14 pin DIP package
- Stability to ± 20 ppm
- Wide frequency and pull range



ELECTRICAL SPECIFICATIONS

Frequency Range (MHz)		1.000MHz to 155.520MHz
Operating Temperature Range		0°C to 70°C or -40°C to 85°C
Storage Temperature Range		-55°C to 125°C
Supply Voltage (V_{DD})		5.0V _{DC} $\pm 5\%$
Aging (at 25°C)		± 5 ppm / year Maximum
Load Drive Capability		10TTL Load or 15pF HCMOS Load Maximum
Start Up Time		10 mSeconds Maximum
Frequency Deviation / Control Voltage	2.5V _{DC} $\pm 2.0V_{DC}$ Positive Transfer Characteristic,	± 50 ppm Minimum
	2.5V _{DC} $\pm 2.0V_{DC}$ Positive Transfer Characteristic,	± 100 ppm Minimum
	2.5V _{DC} $\pm 2.0V_{DC}$ Positive Transfer Characteristic,	± 150 ppm Minimum
	2.5V _{DC} $\pm 2.5V_{DC}$ Positive Transfer Characteristic, or	± 200 ppm Minimum
Linearity		$\pm 20\%$, $\pm 15\%$, $\pm 10\%$ Maximum, or $\pm 5\%$ Maximum (not avail. w/ ± 200 ppm Freq. Dev.)
Input Current	1.000MHz to 20.000MHz	20mA Maximum
	20.001MHz to 30.000MHz	40mA Maximum
	30.001MHz to 155.520MHz	50mA Maximum
Frequency Tolerance / Stability	Inclusive of Operating Temperature Range, Supply Voltage, and Load	± 100 ppm, ± 50 ppm, ± 25 ppm, or ± 20 ppm Maximum (0°C to 70°C only)
Output Voltage Logic High (V_{OH})	w/TTL Load	2.4V _{DC} Minimum
	w/HCMOS Load	$V_{DD} - 0.5V_{DC}$ Minimum
Output Voltage Logic Low (V_{OL})	w/TTL Load	0.4V _{DC} Maximum
	w/HCMOS Load	0.5V _{DC} Maximum
Duty Cycle	at 1.4V _{DC} w/TTL Load; at 50% of Waveform w/HCMOS Load	50 ± 10 (%) (Standard)
	at 1.4V _{DC} w/TTL Load and w/HCMOS Load	50 ± 5 (%) (Optional)
Rise Time / Fall Time	0.4V _{DC} to 2.4V _{DC} w/TTL Load; 20% to 80% of Waveform w/HCMOS Load	5 nSeconds Maximum
Period Jitter: Absolute	Freq. Deviation Options Blank, A or B	± 100 pSeconds Max ≤ 44.736 MHz
	Freq. Deviation Options C	± 100 pSeconds Max ≤ 30.000 MHz
		± 200 pSeconds Max > 30.000 MHz
	Freq. Deviation Options Blank, A or B	± 200 pSeconds Max > 44.736 MHz
Period Jitter: One Sigma	Freq. Deviation Options Blank, A or B	± 25 pSeconds Max ≤ 44.736 MHz
	Freq. Deviation Options C	± 25 pSeconds Max ≤ 30.000 MHz
		± 50 pSeconds Max > 30.000 MHz
	Freq. Deviation options Blank, A or B	± 50 pSeconds Max > 44.736 MHz

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	EC31	14 pin DIP	5.0V	OS13	08/06

PART NUMBERING GUIDE

EC31 00 T A 15 ET - 24.000M - G

FREQUENCY TOLERANCE / STABILITY

00=±100ppm Maximum (Standard)
45=±50ppm Maximum, 25=±25ppm Maximum
20=±20ppm Maximum

DUTY CYCLE

Blank=50 ±10(%) (Standard), T=50 ±5(%)

FREQUENCY DEVIATION

Blank=±50ppm Minimum (Standard)
A=±100ppm Minimum
B=±150ppm Minimum,
C=±200ppm Minimum (2.5V_{DC} ±2.5V_{DC})

AVAILABLE OPTIONS

Blank=None (Standard)
CLXXX=Custom Lead Length (See Page 133)
G=Full Size Gull Wing (See Page 132)

FREQUENCY

OPERATING TEMP. RANGE

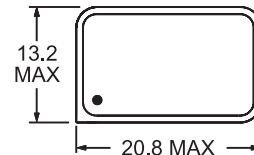
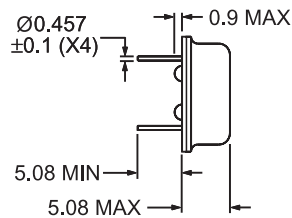
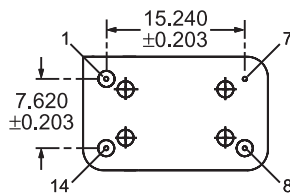
Blank=0°C to 70°C (Standard)
ET=-40°C to 85°C

LINEARITY

Blank=20% Maximum (Standard)
05=5% Maximum, 10=10% Maximum
15=15% Maximum

NOTES

MECHANICAL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



Pin 1: Control Voltage (V_c)
Pin 7: Case Ground

Pin 8: Output
Pin 14: Supply Voltage

ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

Characteristic	Specification
Seal Integrity	Bubble test in Perfluorocarbon at +125°C ±5°C for 60 seconds minimum.
Solderability	Sn63 Solder dip at +230°C ±5°C for 5 seconds/95% coverage.
Marking Permanency	10 Strokes with brush after 1 minute soak in solvent, 3 times.
Shock	Random drop on hard wooden plate 3 times from a height of 20cm.
Vibration	Frequency with an amplitude of 1.5mm sweeping between 10Hz to 55Hz within 1 minute (approximately) for 2 hours minimum on each axis (X, Y and Z) for a total of 6 hours.

MARKING SPECIFICATIONS

Line 1: ECLIPTEK

Line 2: EC31

Series Designator

Line 3: XX.XXX M.

Frequency in MHz
(5 Digits Maximum + Decimal)

Line 4: XX Y ZZ

Week of Year
Last Digit of Year
Ecliptek Manufacturing Identifier

Note: Pin 1 shall be designated with a dot

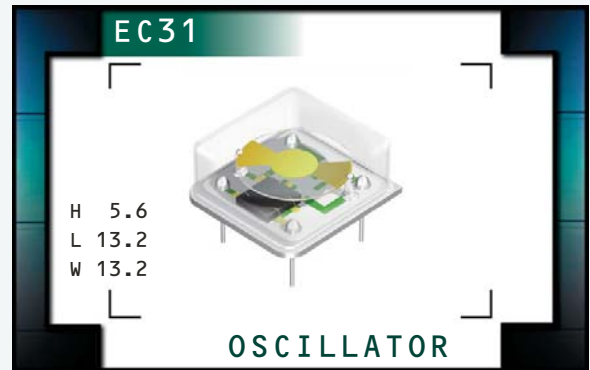
MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	EC31	14 pin DIP	5.0V	OS13	08/06

EC31 Series



ECLIPTEK[®]
CORPORATION

- RoHS Compliant (Pb-free)
- Voltage Controlled Crystal Oscillator (VCXO)
- 5.0V Supply Voltage
- HCMOS/TTL output
- 8 pin DIP package
- Stability to ± 20 ppm
- Wide frequency and pull range



NOTES

ELECTRICAL SPECIFICATIONS

Frequency Range (MHz)	1.000MHz to 44.736MHz	
Operating Temperature Range	0°C to 70°C or -40°C to 85°C	
Storage Temperature Range	-55°C to 125°C	
Supply Voltage (V_{DD})	5.0V _{DC} $\pm 5\%$	
Aging (at 25°C)	± 5 ppm / year Maximum	
Load Drive Capability	10TTL Load or 15pF HCMOS Load Maximum	
Start Up Time	10 mSeconds Maximum	
Frequency Deviation / Control Voltage	2.5V _{DC} ± 2.0 V _{DC} Positive Transfer Characteristic,	± 50 ppm Minimum
	2.5V _{DC} ± 2.0 V _{DC} Positive Transfer Characteristic,	± 100 ppm Minimum
	2.5V _{DC} ± 2.0 V _{DC} Positive Transfer Characteristic,	± 150 ppm Minimum
Linearity	$\pm 20\%$, $\pm 15\%$, $\pm 10\%$ Maximum, or $\pm 5\%$ Maximum	
Input Current	1.000MHz to 20.000MHz	20mA Maximum
	20.0001MHz to 30.000MHz	40mA Maximum
	30.001MHz to 44.736MHz	50mA Maximum
Frequency Tolerance / Stability	Inclusive of Operating Temperature Range, Supply Voltage, and Load	± 100 ppm, ± 50 ppm, ± 25 ppm, or ± 20 ppm Maximum (0°C to 70°C Only)
Output Voltage Logic High (V_{OH})	w/TTL Load	2.4V _{DC} Minimum
	w/HCMOS Load	V _{DD} - 0.5V _{DC} Minimum
Output Voltage Logic Low (V_{OL})	w/TTL Load	0.4V _{DC} Maximum
	w/HCMOS Load	0.5V _{DC} Maximum
Duty Cycle	at 1.4V _{DC} w/TTL Load; at 50% of Waveform w/HCMOS Load	50 ± 10 (%) (Standard)
	at 1.4V _{DC} w/TTL Load and HCMOS Load	50 ± 5 (%) (Optional)
Rise Time / Fall Time	0.4V _{DC} to 2.4V _{DC} w/TTL Load; 20% to 80% of Waveform w/HCMOS Load	5 nSeconds Maximum
Period Jitter: Absolute	± 100 pSeconds Maximum	
Period Jitter: One Sigma	± 25 pSeconds Maximum	

MANUFACTURER
ECLIPTEK CORP.

CATEGORY
OSCILLATOR

SERIES
EC31

PACKAGE
8 pin DIP

VOLTAGE
5.0V

CLASS
OS18

REV. DATE
08/06

PART NUMBERING GUIDE

EC31 00 HST A 15 ET - 24.000M - G TR

FREQUENCY TOLERANCE / STABILITY

00=±100ppm Maximum (Standard)
 45=±50ppm Maximum, 25=±25ppm Maximum
 20=±20ppm Maximum

PACKAGE

HS=Half Size 8 Pin DIP

DUTY CYCLE

Blank=50 ±10(%) (Standard), T=50 ±5(%)

FREQUENCY DEVIATION

Blank=±50ppm Minimum (Standard)
 A=±100ppm Minimum
 B=±150ppm Minimum

PACKAGING OPTIONS

Blank=Bulk (Standard)
 TR=Tape & Reel (only offered with
 Half Size G and Half Size G2 Options)

AVAILABLE OPTIONS

Blank=None (Standard)
 CLXX=Custom Lead Length (See Page 133)
 G=Half Size Gull Wing (See Page 132)
 G2=Alternate Half Size Gull Wing (See Page 132)

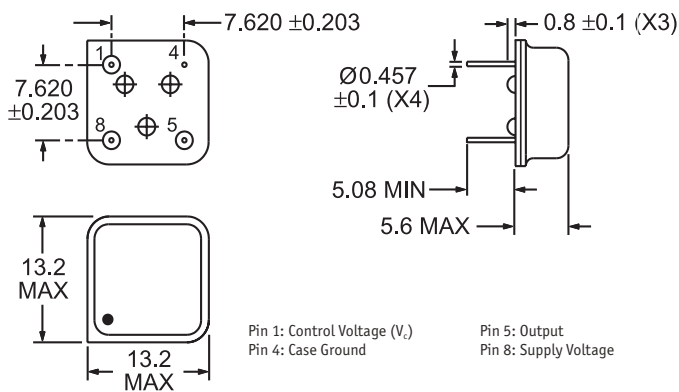
FREQUENCY

OPERATING TEMP. RANGE
 Blank=0°C to 70°C (Standard)
 ET=-40°C to 85°C

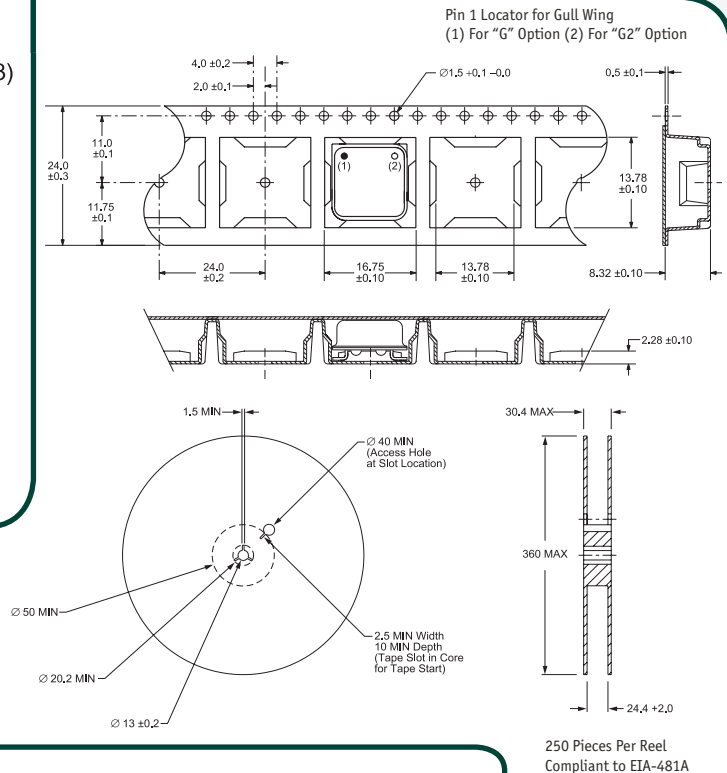
LINEARITY

Blank=20% Maximum (Standard)
 05=5% Maximum, 10=10% Maximum
 15=15% Maximum

MECHANICAL DIMENSIONS
 ALL DIMENSIONS IN MILLIMETERS



TAPE AND REEL DIMENSIONS
 ALL DIMENSIONS IN MILLIMETERS



MARKING SPECIFICATIONS

Line 1: ECLIPTEK
 Line 2: EC31 Series Designator
 Line 3: XX.XXX M Frequency in MHz (5 Digits Maximum + Decimal)
 Line 4: XX Y Z Week of Year, Last Digit of Year, Ecliptek Manufacturing Identifier

Note: Pin 1 shall be designated with a dot

ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

Characteristic	Specification
Seal Integrity	Bubble test in Perfluorocarbon at +125°C ±5°C for 60 seconds minimum.
Solderability	Sn63 Solder dip at +230°C ±5°C for 5 seconds/95% coverage.
Marking Permanency	10 Strokes with brush after 1 minute soak in solvent, 3 times.
Shock	Random drop on hard wooden plate 3 times from a height of 20cm.
Vibration	Frequency with an amplitude of 1.5mm sweeping between 10Hz to 55Hz within 1 minute (approximately) for 2 hours minimum on each axis (X, Y and Z) for a total of 6 hours.

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	EC31	8 pin DIP	5.0V	OS18	08/06