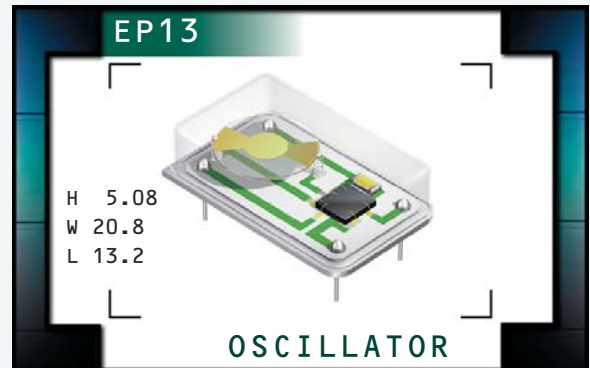


# EP13 Series

- EPO™ Programmable Oscillators
- 3.3V supply voltage
- 14 pin DIP package
- HCMOS output
- Stability to 50ppm
- Custom lead length, gull wing options available



## ELECTRICAL SPECIFICATIONS

<b>Frequency Range</b>		1.000MHz to 106.250MHz
<b>Operating Temperature Range</b>		-20°C to 70°C or -40°C to 85°C
<b>Storage Temperature Range</b>		-55°C to 125°C
<b>Supply Voltage (V<sub>DD</sub>)</b>		3.3V <sub>DC</sub> ±0.3V <sub>DC</sub>
<b>Input Current</b>		28mA Maximum (Unloaded)
<b>Disable Current (TS Option)</b>		16mA Maximum (Pin 1=Ground)
<b>Standby Current (PD Option)</b>		20µA Maximum (Pin 1=Ground)
<b>Frequency Tolerance / Stability</b>	Inclusive of all conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, First Year Aging at 25°C, Shock, and Vibration	±100ppm or ±50ppm Maximum
<b>Output Voltage Logic High (V<sub>OH</sub>)</b>	w/HCMOS Load	V <sub>DD</sub> -0.4V <sub>DC</sub> Minimum I <sub>OH</sub> =-8mA
<b>Output Voltage Logic Low (V<sub>OL</sub>)</b>	w/HCMOS Load	0.4V <sub>DC</sub> Maximum I <sub>OL</sub> =+8mA
<b>Rise Time / Fall Time</b>	20% to 80% of waveform w/HCMOS Load	4 nSeconds Maximum
<b>Duty Cycle</b>	at 50% of waveform w/HCMOS Load at 50% of waveform w/HCMOS Load (≤50.000MHz Only)	50 ±10(%) (Standard) 50 ±5(%) (Optional)
<b>Load Drive Capability</b>	≤50.000MHz >50.000MHz	30pF HCMOS Load Maximum 15pF HCMOS Load Maximum
<b>Output Control Function</b>	TS PD	Tri-State Power Down
<b>Output Control Function Input Voltage</b>	V <sub>IH</sub> : No Connection or ≥70% of V <sub>DD</sub> V <sub>IL</sub> : (TS Option) ≤20% of V <sub>DD</sub> V <sub>IL</sub> : (PD Option) ≤20% of V <sub>DD</sub>	Enables Output Disable Output: High Impedance Disable Output: Logic Low
<b>Aging (at 25°C)</b>		±5ppm / year Maximum
<b>Start Up Time</b>		10 mSeconds Maximum
<b>Period Jitter: Absolute</b>	≤33.000MHz >33.000MHz	±250pSec Max, ±100pSec Typical ±125pSec Max, ±75pSec Typical
<b>Period Jitter: One Sigma</b>	≤33.000MHz >33.000MHz	±50pSeconds Maximum ±40pSeconds Maximum

## PART NUMBERING GUIDE

### EP13 00 ET TS - 24.000M - CL125

**FREQUENCY TOLERANCE / STABILITY**

00=±100ppm Maximum (Standard)  
45=±50ppm Maximum

**OPERATING TEMP. RANGE**

Blank=-20°C to 70°C or ET=-40°C to 85°C

**DUTY CYCLE**

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

**AVAILABLE OPTIONS**

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

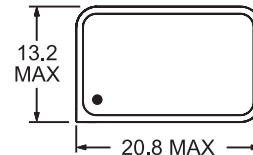
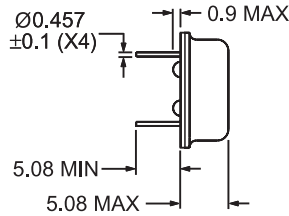
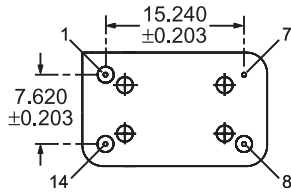
**FREQUENCY**

**OUTPUT CONTROL FUNCTION**

TS=Tri-State, PD=Power Down

## NOTES

**MECHANICAL DIMENSIONS**  
ALL DIMENSIONS IN MILLIMETERS



Pin 1: Tri-State or Power Down      Pin 8: Output  
Pin 7: Ground/Case Ground      Pin 14: Supply Voltage

**ENVIRONMENTAL/MECHANICAL SPECIFICATIONS**

Characteristic

Fine Leak Test  
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 A  
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: EP13 TS

Output Control Function  
PD = Power Down  
TS = Tri-State Enable High

Series Designator

Line 3: XX.XXX M

Frequency in MHz  
(5 Digits Maximum + Decimal)

Line 4: XX Y ZZ

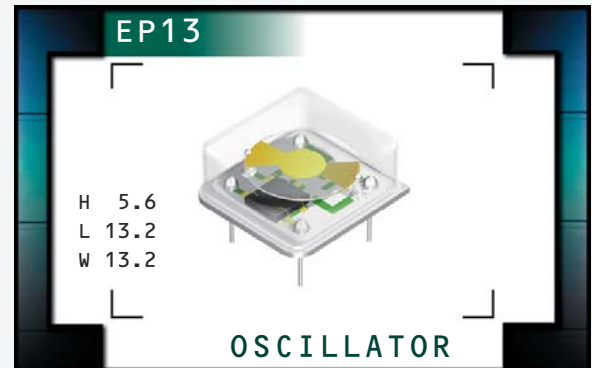
Week of Year  
Last Digit of Year  
Ecliptek Manufacturing Identifier

Note: Pin 1 shall be designated with a dot

MANUFACTURER ECLIPTEK CORP.	CATEGORY OSCILLATOR	SERIES EP13	PACKAGE 14 pin DIP	VOLTAGE 3.3V	CLASS OS44	REV. DATE 08/03
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# EP13 Series

- EPO™ Programmable Oscillators
- 3.3V supply voltage
- 8 pin DIP package
- HCMOS output
- Stability to 50ppm
- Custom lead length, gull wing options available



## ELECTRICAL SPECIFICATIONS

<b>Frequency Range</b>		1.000MHz to 106.250MHz
<b>Operating Temperature Range</b>		-20°C to 70°C or -40°C to 85°C
<b>Storage Temperature Range</b>		-55°C to 125°C
<b>Supply Voltage (V<sub>DD</sub>)</b>		3.3V <sub>DC</sub> ±0.3V <sub>DC</sub>
<b>Input Current</b>		28mA Maximum (Unloaded)
<b>Disable Current (TS Option)</b>		16mA Maximum (Pin 1=Ground)
<b>Standby Current (PD Option)</b>		20µA Maximum (Pin 1=Ground)
<b>Frequency Tolerance / Stability</b>	Inclusive of all conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, First Year Aging at 25°C, Shock, and Vibration	±100ppm or ±50ppm Maximum
<b>Output Voltage Logic High (V<sub>OH</sub>)</b>	w/HCMOS Load	V <sub>DD</sub> -0.4V <sub>DC</sub> Minimum I <sub>OH</sub> =-8mA
<b>Output Voltage Logic Low (V<sub>OL</sub>)</b>	w/HCMOS Load	0.4V <sub>DC</sub> Maximum I <sub>OL</sub> =+8mA
<b>Rise Time / Fall Time</b>	20% to 80% of waveform w/HCMOS Load	4 nSeconds Maximum
<b>Duty Cycle</b>	at 50% of waveform w/HCMOS Load at 50% of waveform w/HCMOS Load (≤50.000MHz Only)	50 ±10(%) (Standard) 50 ±5(%) (Optional)
<b>Load Drive Capability</b>	≤50.000MHz >50.000MHz	30pF HCMOS Load Maximum 15pF HCMOS Load Maximum
<b>Output Control Function</b>	TS PD	Tri-State Power Down
<b>Output Control Function Input Voltage</b>	V <sub>IH</sub> : No Connection or ≥70% of V <sub>DD</sub> V <sub>IL</sub> : (TS Option) ≤20% of V <sub>DD</sub> V <sub>IL</sub> : (PD Option) ≤20% of V <sub>DD</sub>	Enables Output Disable Output: High Impedance Disable Output: Logic Low
<b>Aging (at 25°C)</b>		±5ppm / year Maximum
<b>Start Up Time</b>		10 mSeconds Maximum
<b>Period Jitter: Absolute</b>	≤33.000MHz >33.000MHz	±250pSec Max, ±100pSec Typical ±125pSec Max, ±75pSec Typical
<b>Period Jitter: One Sigma</b>	≤33.000MHz >33.000MHz	±50pSeconds Maximum ±40pSeconds Maximum

MANUFACTURER ECLIPTEK CORP.	CATEGORY OSCILLATOR	SERIES EP13	PACKAGE 8 pin DIP	VOLTAGE 3.3V	CLASS OS45	REV. DATE 08/03
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## PART NUMBERING GUIDE

### EP13 00 HS ET TS - 24.000M - CL125 TR

**FREQUENCY TOLERANCE / STABILITY**

00=±100ppm Maximum (Standard)  
45=±50ppm Maximum

**PACKAGE**

HS=Half Size 8 Pin DIP

**OPERATING TEMP. RANGE**

Blank=-20°C to 70°C or ET=-40°C to 85°C

**DUTY CYCLE**

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

**PACKAGING OPTIONS**

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

**AVAILABLE OPTIONS**

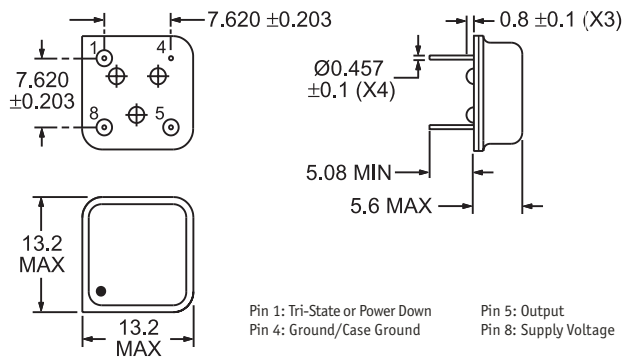
Blank=None (Standard)  
CLXXX=Custom Lead Length (See Page 133)  
G=Half Size Gull Wing (See Page 132)  
G2=Half Size Gull Wing (See Page 132)

**FREQUENCY**

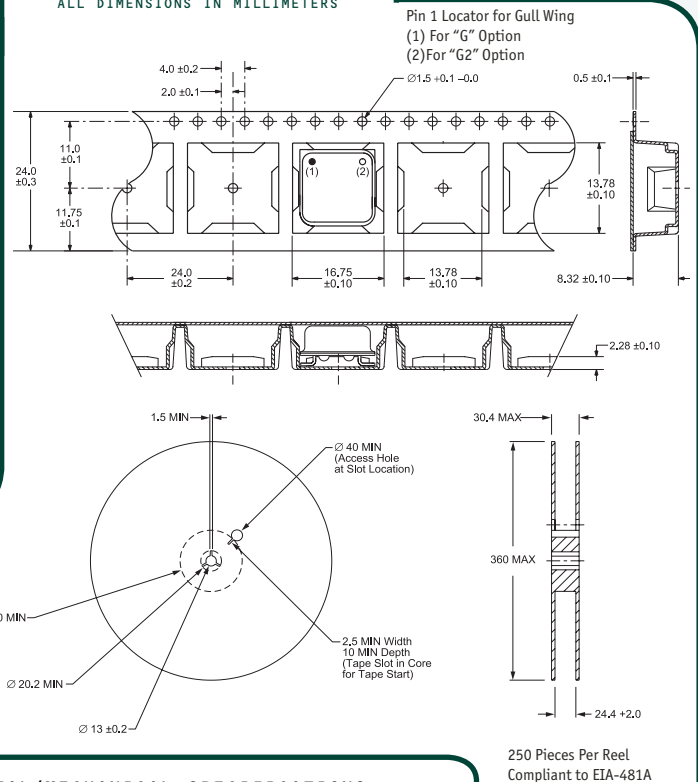
**OUTPUT CONTROL FUNCTION**

TS=Tri-State, PD=Power Down

**MECHANICAL DIMENSIONS**  
ALL DIMENSIONS IN MILLIMETERS



**TAPE AND REEL DIMENSIONS**  
ALL DIMENSIONS IN MILLIMETERS



**MARKING SPECIFICATIONS**

- Line 1: ECLIPTEK  
Line 2: EP13 TS  
Line 3: XX.XXX M  
Line 4: XX Y ZZ
- Output Control Function  
PD = Power Down  
TS = Tri-State Enable High
  - Series Designator
  - 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

**ENVIRONMENTAL/MECHANICAL SPECIFICATIONS**

Characteristic	Specification
Fine Leak Test	MIL-STD-883, Method 1014, Condition A
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

MANUFACTURER ECLIPTEK CORP.	CATEGORY OSCILLATOR	SERIES EP13	PACKAGE 8 pin DIP	VOLTAGE 3.3V	CLASS OS45	REV. DATE 08/03
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