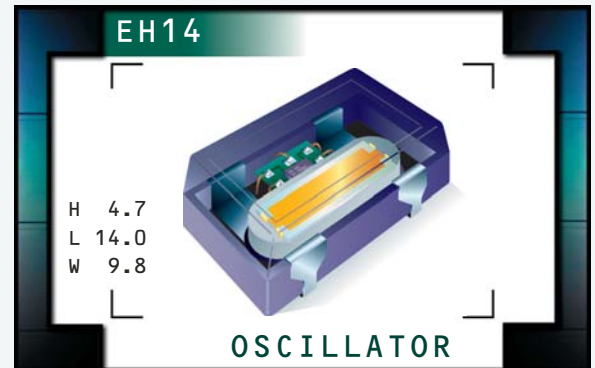


# EH14 Series

- Plastic surface mount package
- 5.0V supply voltage
- HCMOS/TTL output
- Stability to 20ppm
- Available in tube or tape and reel



## NOTES

### ELECTRICAL SPECIFICATIONS

|                                                        |                                                                                                          |                                                                                                                                        |
|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Frequency Range</b>                                 |                                                                                                          | 1.000MHz to 155.520MHz                                                                                                                 |
| <b>Operating Temperature Range</b>                     |                                                                                                          | 0°C to 70°C or -40°C to 85°C                                                                                                           |
| <b>Storage Temperature Range</b>                       |                                                                                                          | -55°C to 125°C                                                                                                                         |
| <b>Supply Voltage (<math>V_{DD}</math>)</b>            |                                                                                                          | 5.0V <sub>DC</sub> ±10%                                                                                                                |
| <b>Input Current</b>                                   |                                                                                                          | 50mA Maximum (Unloaded)                                                                                                                |
| <b>Frequency Tolerance / Stability</b>                 |                                                                                                          | Inclusive of Operating Temperature Range, Supply Voltage, and Load<br>±100ppm, ±50ppm, ±25ppm, or<br>±20ppm Maximum (0°C to 70°C Only) |
| <b>Output Voltage Logic High (<math>V_{OH}</math>)</b> | w/TTL Load                                                                                               | 2.4V <sub>DC</sub> Minimum $I_{OH} = -16mA$                                                                                            |
|                                                        | w/HCMOS Load                                                                                             | $V_{DD} - 0.4V_{DC}$ Minimum $I_{OH} = -16mA$                                                                                          |
| <b>Output Voltage Logic Low (<math>V_{OL}</math>)</b>  | w/TTL Load                                                                                               | 0.4V <sub>DC</sub> Maximum $I_{OL} = +16mA$                                                                                            |
|                                                        | w/HCMOS Load                                                                                             | 0.5V <sub>DC</sub> Maximum $I_{OL} = +16mA$                                                                                            |
| <b>Duty Cycle (<math>V_{DD}=5.0V_{DC}</math>)</b>      | at 1.4V <sub>DC</sub> w/TTL Load; at 50% of waveform w/HCMOS Load (≤70.000MHz)                           | 50 ±10(%) (Standard)                                                                                                                   |
|                                                        | at 50% of waveform w/ TTL Load or w/HCMOS Load (>70.000MHz)                                              | 50 ±10(%) (Standard)                                                                                                                   |
|                                                        | at 50% of waveform w/TTL Load or w/HCMOS Load                                                            | 50 ±5(%) (Optional)                                                                                                                    |
|                                                        |                                                                                                          |                                                                                                                                        |
| <b>Rise Time / Fall Time</b>                           | 0.8V <sub>DC</sub> to 2.0 V <sub>DC</sub> w/TTL Load or 20% to 80% of Waveform w/HCMOS Load (≤70.000MHz) | 6 nSeconds Maximum                                                                                                                     |
|                                                        | 0.8V <sub>DC</sub> to 2.0 V <sub>DC</sub> w/TTL Load or 20% to 80% of Waveform w/HCMOS Load (>70.000MHz) | 4 nSeconds Maximum                                                                                                                     |
|                                                        |                                                                                                          |                                                                                                                                        |
| <b>Tri-State Input Voltage</b>                         | $V_{IH}$ : No Connection                                                                                 | Enables Output                                                                                                                         |
|                                                        | $V_{IH}$ : ≥2.2V <sub>DC</sub>                                                                           | Enables Output                                                                                                                         |
|                                                        | $V_{IL}$ : ≤0.8V <sub>DC</sub>                                                                           | Disables Output: High Impedance                                                                                                        |
| <b>Aging (at 25°C)</b>                                 |                                                                                                          | ±5ppm / year Maximum                                                                                                                   |
| <b>Start Up Time</b>                                   |                                                                                                          | 10 mSeconds Maximum                                                                                                                    |
| <b>Load Drive Capability</b>                           | ≤70.000MHz                                                                                               | 10TTL Load Maximum or 50pF HCMOS Load Max                                                                                              |
|                                                        | >70.000MHz                                                                                               | 5TTL Load Maximum or 15pF HCMOS Load Max                                                                                               |
| <b>Period Jitter: Absolute</b>                         |                                                                                                          | ±250pSec Maximum, ±100pSec Typical                                                                                                     |
| <b>Period Jitter: One Sigma</b>                        |                                                                                                          | ±50pSec Maximum, ±30pSec Typical                                                                                                       |

## PART NUMBERING GUIDE

**EH14 00 SJ ET TS - 24.000M TR**

### FREQUENCY TOLERANCE / STABILITY

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

### OPERATING TEMP. RANGE

Blank=0°C to 70°C, ET=-40°C to 85°C

### DUTY CYCLE

Blank=50±10(%) (Standard)  
T=50±5(%)

### AVAILABLE OPTIONS

Blank=Bulk (Standard)  
TR=Tape and Reel

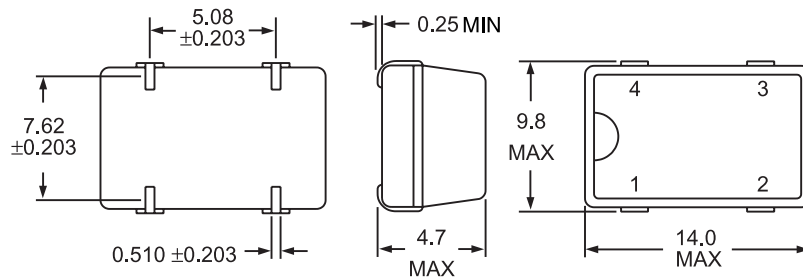
### FREQUENCY

### OUTPUT CONTROL FUNCTION

TS=Tri-State

### MECHANICAL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS

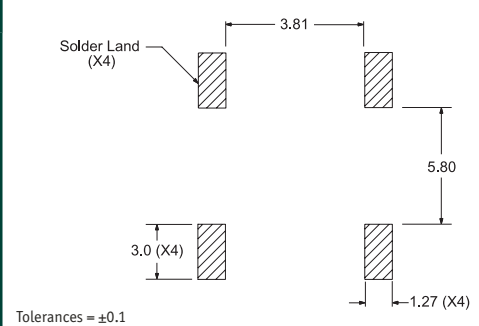


Pin 1: Tri-State  
Pin 2: Case Ground

Pin 3: Output  
Pin 4: Supply Voltage

### SUGGESTED SOLDER PAD LAYOUT

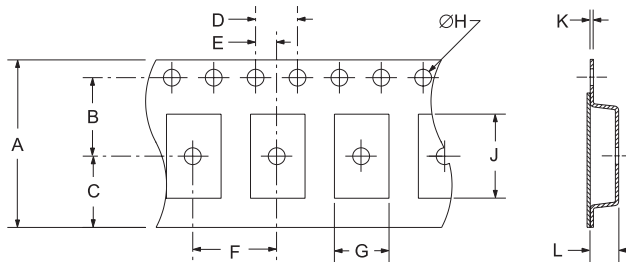
ALL DIMENSIONS IN MILLIMETERS



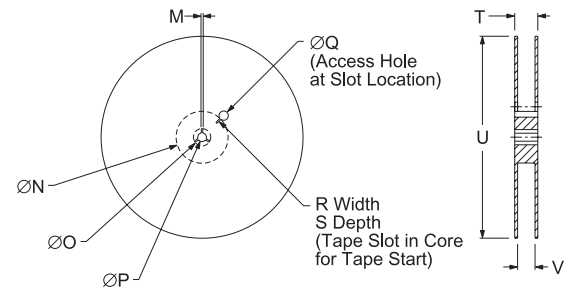
Tolerances = ±0.1

### TAPE AND REEL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS



| TAPE   | A      | B          | C         | D      | E     |
|--------|--------|------------|-----------|--------|-------|
|        | 24 ±.3 | 11.5 ±.1   | 10.75 ±.1 | 4 ±.2  | 2 ±.1 |
| F      | G      | H          | J         | K      | L     |
| 12 ±.2 | B0*    | 1.5 +.1-.0 | A0*       | .3 ±.1 | K0*   |



| REEL    | M       | N        | O        | P        | Q        |
|---------|---------|----------|----------|----------|----------|
|         | 1.5 MIN | 50 MIN   | 20.2 MIN | 13 ±.2   | 40 MIN   |
| R       | S       | T        | U        | V        | QTY/REEL |
| 2.5 MIN | 10 MIN  | 30.4 MAX | 360 MAX  | 24.4+2-0 | 1000     |

\*Compliant to EIA 481A

### ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

| Characteristic     | Specification                                                                                                                                                            |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Seal Integrity     | Bubble test in Perfluorocarbon at +125°C ±5°C for 60 seconds minimum (internal crystal only).                                                                            |
| 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: XX.XXX M

Frequency in MHz (5 Digits Maximum + Decimal)

Line 3: XX YY ZZ

Week of Year  
Last Digit of Year  
Ecliptek Manufacturing Identifier

| MANUFACTURER   | CATEGORY   | SERIES | PACKAGE | VOLTAGE | CLASS | REV. DATE |
|----------------|------------|--------|---------|---------|-------|-----------|
| ECLIPTEK CORP. | OSCILLATOR | EH14   | PLASTIC | 5.0V    | 0549  | 03/02     |