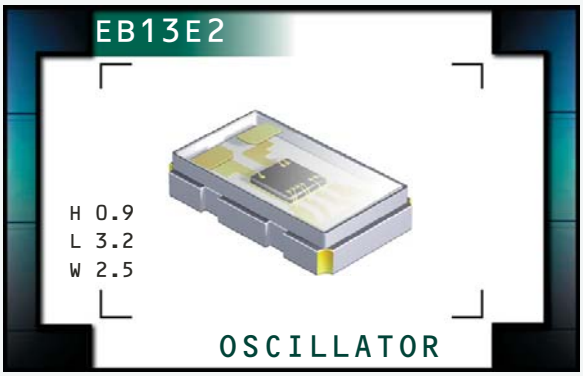
# EB13E2 Series

- RoHS Compliant (Pb-Free)
- Ceramic SMD package
- 3.3V Supply Voltage
- LVHCMOS output
- Stability to ±25ppm
- Standby Function
- Available on Tape and Reel




NOTES

## ELECTRICAL SPECIFICATIONS

| | | |
|---|---|---|
| **Frequency Range ($F_O$)** | 1.8432MHz, 2.5MHz, 2.765MHz, 3MHz, 3.072MHz, 3.125MHz, 3.25MHz, 3.5795MHz, 3.6864MHz, 3.75MHz, 4MHz, 4.032MHz, 4.125MHz, 5MHz, 5.5MHz, 5.53MHz, 6MHz, 6.144MHz, 6.25MHz, 6.75MHz, 7.159MHz, 7.25MHz, 7.3728MHz, 8MHz, 8.064MHz, 8.25MHz, 8.2944MHz, 10MHz, 11.059MHz, 11.2896MHz, 12MHz, 12.288MHz, 12.8MHz , 13MHz, 13.5MHz, 14.3181MHz, 14.31818MHz, 14.746MHz, 15MHz, 16MHz, 16.9344MHz, 20MHz, 22MHz, 22.1184MHz, 24MHz, 24.576MHz, 25MHz, 26MHz, 27MHz, 28.375MHz, 28.636MHz, 29.4912MHz, 30MHz, 32MHz, 33MHz, 33.333MHz, 40MHz, 41.010MHz, 44MHz, 48MHz, 50MHz, 54MHz, 64MHz, 66MHz, 66.6666MHz, 72MHz, and 75MHz | |
| **Operating Temperature Range (OTR)** | | -20°C to 70°C<br>-40°C to 85°C |
| **Storage Temperature Range (STR)** | | -55°C to 125°C |
| **Supply Voltage ($V_{DD}$)** | | 3.3$V_{DC}$ ±5% |
| **Input Current ($I_{DD}$)** | 1.8432MHz to 20.000MHz<br>20.001MHz to 40.000MHz<br>40.001MHz to 60.000MHz<br>60.001MHz to 75.000MHz | 7mA Maximum<br>13mA Maximum<br>19mA Maximum<br>24mA Maximum |
| **Frequency Tolerance/Stability** | 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, ±50ppm, or ±25ppm Maximum |
| **Output Voltage Logic High ($V_{OH}$)** | | 90% of $V_{DD}$ Minimum ($I_{OH}$ = -4mA) |
| **Output Voltage Logic Low ($V_{OL}$)** | | 10% of $V_{DD}$ Maximum ($I_{OL}$ = +4mA) |
| **Rise Time / Fall Time ($T_R$/$T_F$)** | 20% to 80% of Waveform | 5 nSeconds Maximum |
| **Duty Cycle (SYM)** | at 50% of Waveform | 50 ±5(%) |
| **Load Drive Capability ($C_{LOAD}$)** | | 15pF HCMOS Load Maximum |
| **Tri-State Input Voltage** | No Connection<br>$V_{IH}$: ≥80% of $V_{DD}$<br>$V_{IL}$: ≤20% of $V_{DD}$ | Enables Output<br>Enables Output<br>Disables Output: High Impedance |
| **Standby Current** | Disabled Output: High Impedance | 10µA Maximum |
| **Start Up Time ($T_S$)** | | 10 mSeconds Maximum |
| **RMS Phase Jitter** | $F_J$ = 12kHz to 20MHz | 1 pSeconds Maximum |

| MANUFACTURER | CATEGORY | SERIES | PACKAGE | VOLTAGE | CLASS | REV. DATE |
|---|---|---|---|---|---|---|
| ECLIPTEK CORP. | OSCILLATOR | EB13E2 | CERAMIC | 3.3V | OS5A | 12/07 |

# PART NUMBERING GUIDE

**EB13E2 E 2 H - 40.000M TR**

**FREQUENCY TOLERANCE / STABILITY**
C=±100ppm Maximum over -20°C to +70°C
D=±50ppm Maximum over -20°C to +70°C
E=±25ppm Maximum over -20°C to +70°C
G=±100ppm Maximum over -40°C to +85°C
H=±50ppm Maximum over -40°C to +85°C
J=±25ppm Maximum over -40°C to +85°C

**PACKAGING OPTIONS**
Blank=Bulk, TR=Tape and Reel (Standard)

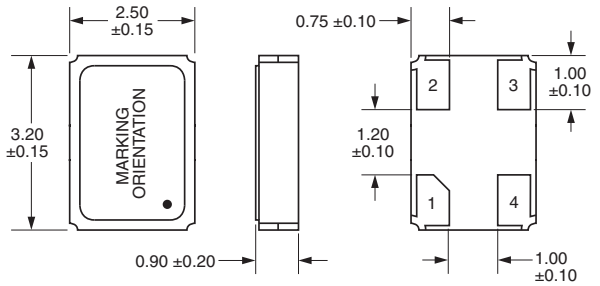
**FREQUENCY**

**OUTPUT CONTROL FUNCTION**
H=Tri-State

**DUTY CYCLE**
2=50 ±5(%)

## MECHANICAL DIMENSIONS

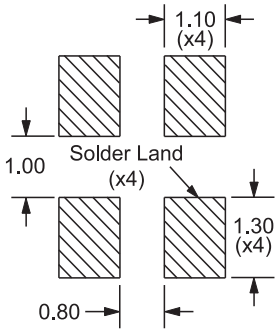
ALL DIMENSIONS IN MILLIMETERS




Pin 1: Tri-State
Pin 2: Case Ground
Pin 3: Output
Pin 4: Supply Voltage

## SUGGESTED SOLDER PAD LAYOUT

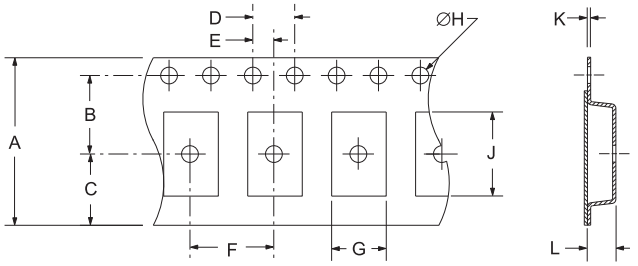
ALL DIMENSIONS IN MILLIMETERS

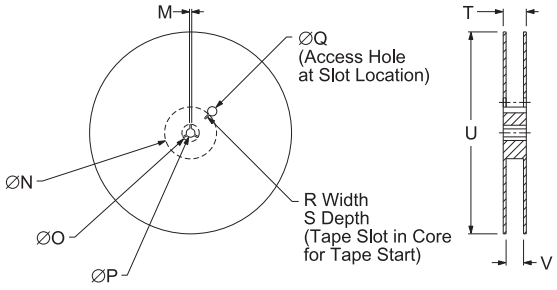



Tolerances= ±0.1

## TAPE AND REEL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS




| TAPE | A | B | C | D | E |
|---|---|---|---|---|---|
| | 8.0±0.2 | 3.5±0.1 | 2.75±0.1 | 4.0±0.1 | 2.0±0.1 |
| F | G | H | J | K | L |
| 4.0±0.1 | 2.7±.1 | 1.55 +0.5 | 3.4±.1 | 0.25 ±0.05 | 1.4±.1 |

| REEL | M | N | O | P | Q |
|---|---|---|---|---|---|
| | 1.5 MIN | 50 MIN | 20.2 MIN | 13.0±0.5 | 40 MIN |
| R | S | T | U | V | QTY/REEL |
| 2.5 MIN | 10 MIN | 14.4 MAX | 180 MAX | 8.4+1.5-0 | 1,000 |

*Compliant to EIA 481A

## ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

| PARAMETER | Specification |
|---|---|
| ESD Susceptibility | MIL-STD-883, Method 3015, Class 1, HBM: 1500V |
| Fine Leak Test | MIL-STD-883, Method 1014, Condition A |
| Flammability | UL94-V0 |
| Gross Leak Test | MIL-STD-883, Method 1014, Condition C |
| Mechanical Shock | MIL-STD-883, Method 2002, Condition B |
| Moisture Resistance | MIL-STD-883, Method 1004 |
| Moisture Sensitivity | J-STD-020, MSL 1 |
| Resistance to Soldering Heat | MIL-STD-202, Method 210, Condition K |
| Resistance to Solvents | MIL-STD-202, Method 215 |
| Solderability | MIL-STD-883, Method 2003 |
| Temperature Cycling | MIL-STD-883, Method 1010, Condition B |
| Vibration | MIL-STD-883, Method 2007, Condition A |

## MARKING SPECIFICATIONS

Line 1: E XX.X
Frequency in MHz (3 Digits Maximum + Decimal)

Line 2: XX Y ZZ
Week of Year
Last Digit of Year
Ecliptek Manufacturing Identifier

| MANUFACTURER | CATEGORY | SERIES | PACKAGE | VOLTAGE | CLASS | REV - DATE |
|---|---|---|---|---|---|---|
| ECLIPTEK CORP. | OSCILLATOR | EB13E2 | CERAMIC | 3.3V | OS5A | 12/07 |