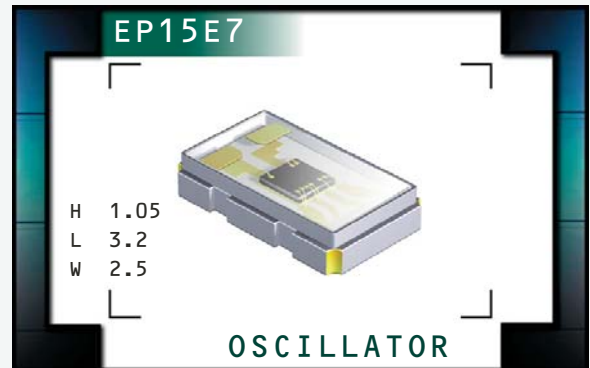


EP15E7 Series



ECLIPTEK[®]
CORPORATION

- RoHS Compliant (Pb-Free)
- EPO™ Programmable Oscillators
- Ceramic Surface Mount Package
- LVHCMOS Output
- 2.5V Supply Voltage
- Stability to ± 25 ppm
- Available on Tape & Reel
- Tri-State and Power Down Functions Available



ELECTRICAL SPECIFICATIONS

| | | | | | | | | | |
|---|--|---|-------------------------|--|-------------------------|---|-------------------|------------------------|--------------|
| Nominal Frequency | 3.300MHz, 3.6864MHz, 5.000MHz, 6.000MHz, 7.000MHz, 8.000MHz, 9.000MHz, 10.000MHz, 12.000MHz, 16.000MHz, 20.000MHz, 24.000MHz, 25.000MHz, 26.000MHz, 27.000MHz, 30.000MHz, 33.000MHz, 33.333MHz, 37.500MHz, 40.000MHz, 52.000MHz, 66.000MHz, 70.000MHz, 75.000MHz, 80.000MHz, 83.000MHz, and 88.000MHz | | | | | | | | |
| Operating Temperature Range | -20°C to 70°C or -40°C to 85°C | | | | | | | | |
| Storage Temperature Range | -55°C to 125°C | | | | | | | | |
| Supply Voltage (V_{DD}) | 2.5V _{DC} $\pm 5\%$ | | | | | | | | |
| Input Current | <table border="0"> <tr> <td>3.300MHz to 25.000MHz</td> <td>10mA Maximum</td> </tr> <tr> <td>25.001MHz to 50.000MHz</td> <td>12mA Maximum</td> </tr> <tr> <td>50.001MHz to 75.000MHz</td> <td>14mA Maximum</td> </tr> <tr> <td>75.001MHz to 88.000MHz</td> <td>17mA Maximum</td> </tr> </table> | 3.300MHz to 25.000MHz | 10mA Maximum | 25.001MHz to 50.000MHz | 12mA Maximum | 50.001MHz to 75.000MHz | 14mA Maximum | 75.001MHz to 88.000MHz | 17mA Maximum |
| 3.300MHz to 25.000MHz | 10mA Maximum | | | | | | | | |
| 25.001MHz to 50.000MHz | 12mA Maximum | | | | | | | | |
| 50.001MHz to 75.000MHz | 14mA Maximum | | | | | | | | |
| 75.001MHz to 88.000MHz | 17mA 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, 1st Year Aging at 25°C, 260°C Reflow, Shock, and Vibration ± 25 ppm, 50ppm or ± 100 ppm Maximum | | | | | | | | |
| Output Voltage Logic High (V_{OH}) | I _{OH} = -8mA 90% of V _{DD} Minimum | | | | | | | | |
| Output Voltage Logic Low (V_{OL}) | I _{OL} = +8mA 10% of V _{DD} Maximum | | | | | | | | |
| Rise Time / Fall Time | <table border="0"> <tr> <td>3.300MHz to 50.000MHz, 20% to 80% of waveform</td> <td>6nSeconds Maximum</td> </tr> <tr> <td>50.001MHz to 75.000MHz, 20% to 80% of waveform</td> <td>4nSeconds Maximum</td> </tr> <tr> <td>75.001MHz to 88.000MHz, 20% to 80% of waveform</td> <td>2nSeconds Maximum</td> </tr> </table> | 3.300MHz to 50.000MHz, 20% to 80% of waveform | 6nSeconds Maximum | 50.001MHz to 75.000MHz, 20% to 80% of waveform | 4nSeconds Maximum | 75.001MHz to 88.000MHz, 20% to 80% of waveform | 2nSeconds Maximum | | |
| 3.300MHz to 50.000MHz, 20% to 80% of waveform | 6nSeconds Maximum | | | | | | | | |
| 50.001MHz to 75.000MHz, 20% to 80% of waveform | 4nSeconds Maximum | | | | | | | | |
| 75.001MHz to 88.000MHz, 20% to 80% of waveform | 2nSeconds Maximum | | | | | | | | |
| Duty Cycle | at 50% of waveform 50 ± 5 (%) | | | | | | | | |
| Load Drive Capability | <table border="0"> <tr> <td>3.300MHz to 50.000MHz</td> <td>30pF HCMOS Load Maximum</td> </tr> <tr> <td>50.001MHz to 88.000MHz</td> <td>15pF HCMOS Load Maximum</td> </tr> </table> | 3.300MHz to 50.000MHz | 30pF HCMOS Load Maximum | 50.001MHz to 88.000MHz | 15pF HCMOS Load Maximum | | | | |
| 3.300MHz to 50.000MHz | 30pF HCMOS Load Maximum | | | | | | | | |
| 50.001MHz to 88.000MHz | 15pF HCMOS Load Maximum | | | | | | | | |
| Pad 1 Connection | Tri-State or Power Down | | | | | | | | |
| Pad 1 Input Voltage | <table border="0"> <tr> <td>V_{IH} of 90% of V_{DD} Minimum</td> <td>Enables Output</td> </tr> <tr> <td>No Connection</td> <td>Enables Output</td> </tr> <tr> <td>V_{IL} of 10% of V_{DD} Maximum</td> <td>Disables Output</td> </tr> </table> | V _{IH} of 90% of V _{DD} Minimum | Enables Output | No Connection | Enables Output | V _{IL} of 10% of V _{DD} Maximum | Disables Output | | |
| V _{IH} of 90% of V _{DD} Minimum | Enables Output | | | | | | | | |
| No Connection | Enables Output | | | | | | | | |
| V _{IL} of 10% of V _{DD} Maximum | Disables Output | | | | | | | | |
| Standby Current | Disabled Output (Logic Low) 30 μ A Maximum | | | | | | | | |
| Disable Current | Disabled Output (High Impedance) 6mA Maximum | | | | | | | | |
| Absolute Clock Jitter | <table border="0"> <tr> <td>3.300MHz to 24.999999MHz</td> <td>350pSec Maximum</td> </tr> <tr> <td>25.000MHz to 88.000MHz</td> <td>200pSec Maximum</td> </tr> </table> | 3.300MHz to 24.999999MHz | 350pSec Maximum | 25.000MHz to 88.000MHz | 200pSec Maximum | | | | |
| 3.300MHz to 24.999999MHz | 350pSec Maximum | | | | | | | | |
| 25.000MHz to 88.000MHz | 200pSec Maximum | | | | | | | | |
| Aging at 25° | ± 5 ppm/Year Maximum | | | | | | | | |
| Start Up Time | 10mSec Maximum | | | | | | | | |

MANUFACTURER
ECLIPTEK CORP.

CATEGORY
OSCILLATOR

SERIES
EP15E7

PACKAGE
CERAMIC

VOLTAGE
2.5V

CLASS
OS5N

REV. DATE
10/07

PART NUMBERING GUIDE

EP15E7 H 2 H - 40.000M TR

FREQUENCY TOLERANCE & STABILITY/ OPERATING TEMPERATURE RANGE

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

DUTY CYCLE

2=50% ±5%

AVAILABLE OPTIONS

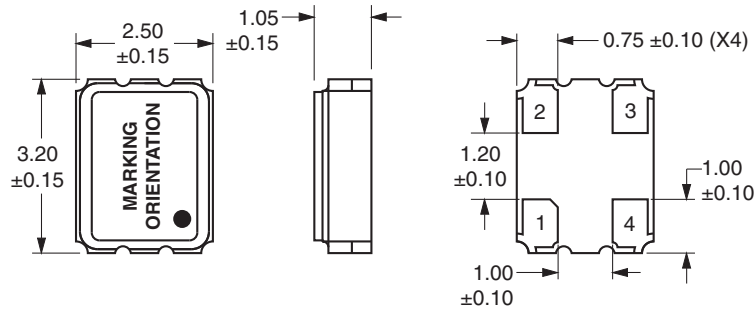
Blank=Bulk
 TR=Tape and Reel (Standard)

FREQUENCY

LOGIC CONTROL/ADDITIONAL OUTPUT

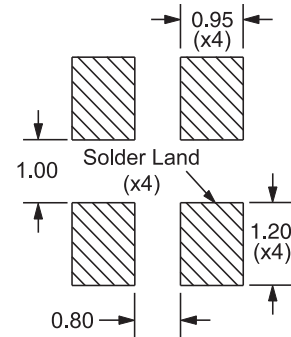
H=Tri-State
 J=Power Down

MECHANICAL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



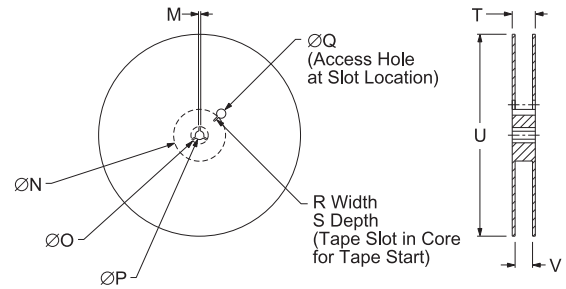
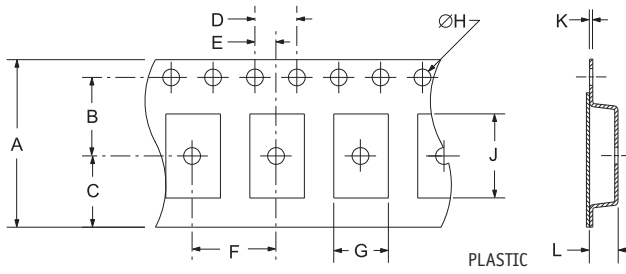
Pin 1: Tri-State or Power Down Pin 2: Case Ground Pin 3: Output Pin 4: Supply Voltage

SUGGESTED SOLDER PAD LAYOUT ALL DIMENSIONS IN MILLIMETERS



Tolerances=±0.1

TAPE AND REEL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



| | | | | | |
|----------|-----------|-----------|-----------|----------|------------|
| | A | B | C | D | E |
| | 12.0 ±0.3 | 5.5 ±0.05 | 4.75 ±0.1 | 4.0 ±0.1 | 2.00 ±0.05 |
| F | G | H | J | K | L |
| 4.0 ±0.1 | A0* | 1.5 +1/-0 | B0* | 0.6 MAX | K0* |

| | | | | | |
|---------|---------|----------|----------|-----------|----------|
| REEL | M | N | O | P | Q |
| | 1.5 MIN | 50 MIN | 20.2 MIN | 13+5/-2 | 40 MIN |
| R | S | T | U | V | QTY/REEL |
| 2.5 MIN | 10 MIN | 18.4 MAX | 332 MAX | 12.4+2/-0 | 1,000 |

*Compliant to EIA 481C

ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

Characteristic

ESD Susceptibility
 Fine Leak Test
 Gross Leak Test
 Mechanical Shock
 Moisture Resistance
 Moisture Sensitivity
 Resistance to Soldering Heat
 Resistance to Solvents
 Solderability
 Temperature Cycling
 Thermal Shock
 Vibration

Specification

MIL-STD-883, Method 3015, Class 1, HBM: 1500Vdc
 MIL-STD-883, Method 1014, Condition A
 MIL-STD-883, Method 1014, Condition C
 MIL-STD-883, Method 2002, Condition B
 MIL-STD-883, Method 1004
 J-STD-020, MSL 1
 MIL-STD-202, Method 210, Condition K
 MIL-STD-202, Method 215
 MIL-STD-883, Method 2003
 MIL-STD-883, Method 1010, Condition B
 MIL-STD-883, Method 1011, Condition B
 MIL-STD-883, Method 2007, Condition A

MEMS First™ is a registered trademark of SiTime Corporation.

| | | | | | | |
|--------------------------------|------------------------|------------------|--------------------|-----------------|---------------|--------------------|
| MANUFACTURER ECLIPTEK CORP. | CATEGORY OSCILLATOR | SERIES EP15E7 | PACKAGE CERAMIC | VOLTAGE 2.5V | CLASS OS5N | REV. DATE 10/07 |
|--------------------------------|------------------------|------------------|--------------------|-----------------|---------------|--------------------|



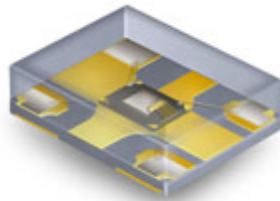
ECLIPTEK[®]
CORPORATION

Ecliptek
MEMS Oscillators

Ecliptek MEMS Oscillators

- Lower Cost, Quicker Delivery Alternative!

The EMO™ family of oscillators offers exceptional performance, shorter delivery and significant cost advantages by utilizing a revolutionary new MEMS resonator technology. This important innovation enables Ecliptek to offer the ultimate in flexibility with delivery of 2 days for samples and 5 to 10 days for quantities up to 10,000 pieces on tape and reel.



| Supply Voltage (V _{DC}) | Package Dimensions (all dimensions in millimeters) | | | |
|--------------------------------------|---|-----------------------|-----------------------|-----------------------|
| | 5 x 7 | 3.2 x 5 | 2.5 x 3.2 | 2 x 2.5 |
| 1.8 | EMK11 | EMK21 | EMK31 | EMK41 |
| 2.5 | EMK12 | EMK22 | EMK32 | EMK42 |
| 3.3 | EMK13 | EMK23 | EMK33 | EMK43 |

Would you like to request EMO™ samples or a quotation now?

[Click Here](#)

Want to learn more about the Ecliptek EMO™ family of MEMS oscillators?

[Click Here](#)

Product Features:

- Improved frequency stability through the use of a MEMS resonator
- 1.8VDC, 2.5VDC, or 3.3VDC supply voltages
- Frequency range of 1MHz to 125MHz, HCMOS output
- Frequency stability to ±50ppm, -40°C to +85°C operation
- Tri-state or power down functions
- RoHS compliant
- High temperature +260°C reflow capability
- EIA compliant tape and reel packaging
- Four SMD package sizes

If you have any questions or would like additional information regarding the Ecliptek EMO™ family of oscillators, please contact our [Sales Department](#).