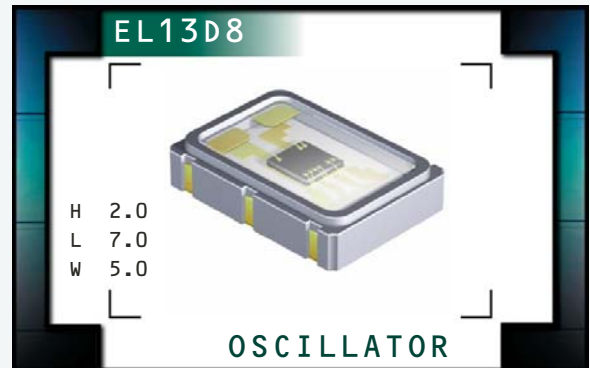


# EL13D8 Series



**ECLIPTEK**<sup>®</sup>  
CORPORATION

- RoHS Compliant (Pb-Free)
- LVDS Output Oscillators
- 3.3V Supply Voltage
- Ceramic 6-pad SMD Package
- Stability to  $\pm 25$ ppm
- Tri-State Output
- Complementary Output
- Available on Tape and Reel
- Wide Range of Available Frequencies



## ELECTRICAL SPECIFICATIONS

|  |  |
|--|--|
| <b>Nominal Frequency</b>   | 75MHz, 77.76MHz, 80MHz, 100MHz, 106.25MHz, 125MHz, 150MHz, 155.52MHz, 156.25MHz, 159.375MHz, 187.5MHz, 212.5MHz, 250MHz, 311.04MHz, 312.5MHz   |
| <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_{CC}</math>)</b>                            | 3.3V <sub>DC</sub> $\pm 5\%$   |
| <b>Input Current</b>   | With Load<br>85mA Maximum  |
| <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, 1st Year Aging at 25°C, Shock, and Vibration<br>$\pm 50$ ppm Maximum, or $\pm 25$ ppm Maximum |
| <b>Output Voltage Logic High (<math>V_{OH}</math>)</b>                 | 1.45V <sub>DC</sub> Typical, 1.6V <sub>DC</sub> Maximum  |
| <b>Output Voltage Logic Low (<math>V_{OL}</math>)</b>                  | 1.1V <sub>DC</sub> Typical, 0.9V <sub>DC</sub> Minimum   |
| <b><math>V_{OD}</math> Magnitude Change (<math>{}_D V_{OD}</math>)</b> | -50mV Minimum, +50mV Maximum   |
| <b>Differential Output Voltage (<math>V_{OD}</math>)</b>               | 247mV Minimum, 350mV Typical, 454mV Maximum  |
| <b>Offset Voltage (<math>V_{OS}</math>)</b>                            | 1.125Vdc Minimum, 1.250Vdc Typical, 1.375Vdc Maximum   |
| <b>Rise Time / Fall Time</b>   | 20% to 80% of waveform<br>300pSec Typical, 600pSec Maximum   |
| <b>Duty Cycle</b>  | at 50% of waveform<br>50 $\pm 5$ (%)   |
| <b><math>V_{OS}</math> Magnitude Change (<math>{}_D V_{OS}</math>)</b> | -150mV Minimum, +150mV Maximum   |
| <b>Load Drive Capability</b>   | Between Output and Complementary Output<br>100 Ohms  |
| <b>Logic Control / Additional Output</b>                               | Tri-State and Complementary Output   |
| <b>Tri-State Input Voltage</b>   | $V_{IH}$ of 70% of $V_{CC}$ Minimum<br>No Connection<br>$V_{IL}$ of 30% of $V_{CC}$ Maximum<br>Enables Output<br>Enables Output<br>Disables Output: High Impedance   |
| <b>Standby Current</b>   | Disabled Output, High Impedance, Without Load<br>600 $\mu$ A Maximum   |
| <b>Start Up Time</b>   | 10 mSeconds Maximum  |
| <b>RMS Phase Jitter</b>  | FJ = 12kHz to 20MHz<br>0.7pSec Typical, 1 pSec Maximum   |
| <b>Typical Phase Noise</b>   | Fo=156.250MHz<br>-60dBc/Hz at 10Hz Offset<br>-90dBc/Hz at 100Hz Offset<br>-115dBc/Hz at 1kHz Offset<br>-129dBc/Hz at 10kHz Offset<br>-130dBc/Hz at 100kHz Offset<br>-131dBc/Hz at 1MHz Offset<br>-148dBc/Hz at 10MHz Offset                                    |

MANUFACTURER  
ECLIPTEK CORP.

CATEGORY  
OSCILLATOR

SERIES  
EL13D8

PACKAGE  
CERAMIC

VOLTAGE  
3.3V

CLASS  
OS4Q

REV. DATE  
10/07

## PART NUMBERING GUIDE

### EL13D8 D 2 F - 155.520M TR

#### FREQUENCY TOLERANCE & STABILITY/ OPERATING TEMPERATURE RANGE

C=±25ppm Maximum over 0°C to +70°C  
 D=±50ppm Maximum over 0°C to +70°C  
 G=±25ppm Maximum over -40°C to +85°C  
 H=±50ppm Maximum over -40°C to +85°C

#### AVAILABLE OPTIONS

Blank=Tubes  
 TR=Tape and Reel (Standard)

#### FREQUENCY

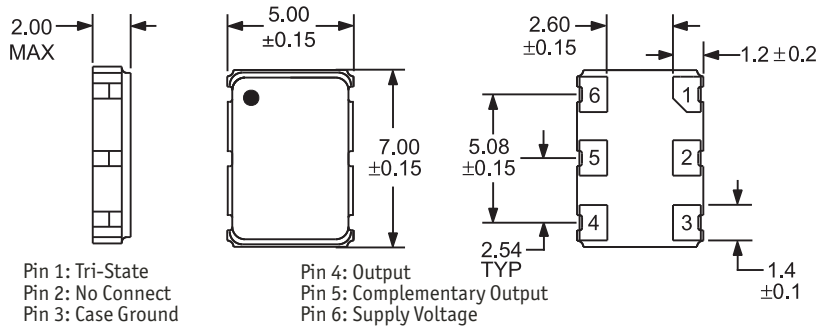
#### LOGIC CONTROL/ADDITIONAL OUTPUT

F=Tri-State and Complementary Output

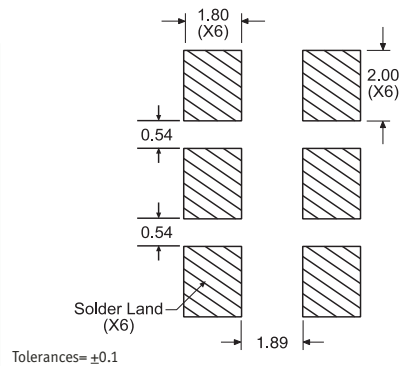
#### DUTY CYCLE

2=50±5(%)

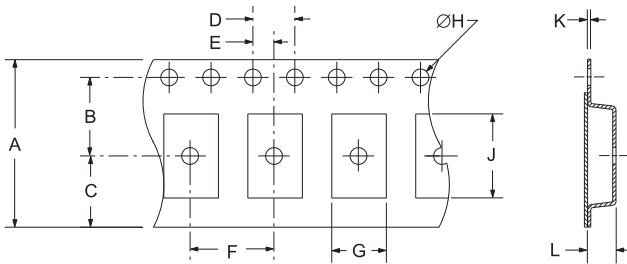
#### MECHANICAL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



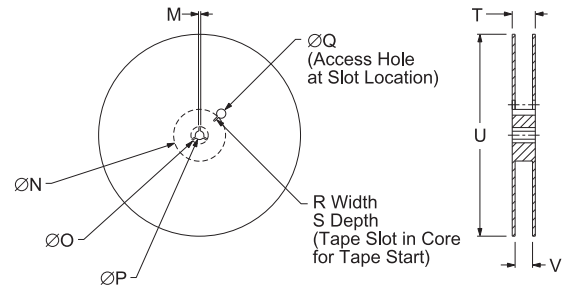
#### SUGGESTED SOLDER PAD LAYOUT ALL DIMENSIONS IN MILLIMETERS



#### TAPE AND REEL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



| TAPE | A       | B         | C       | D      | E    |
|------|---------|-----------|---------|--------|------|
|      | 16±.3-1 | 7.5±.1    | 6.75±.1 | 4 ±.1  | 2±.1 |
| F    | G       | H         | J       | K      | L    |
| 8±.1 | B0*     | 1.5 +.1-0 | A0*     | .3±.05 | 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  | 22.4 MAX | 360 MAX  | 16.4+2-0 | 1,000    |

\*Compliant to EIA 481A

#### 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 |
| Solderability                | MIL-STD-883, Method 2002              |
| Temperature Cycling          | MIL-STD-883, Method 1010              |
| Resistance to Soldering Heat | MIL-STD-202, Method 210               |
| Resistance to Solvents       | MIL-STD-202, Method 215               |

#### MARKING SPECIFICATIONS

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

| MANUFACTURER   | CATEGORY   | SERIES | PACKAGE | VOLTAGE | CLASS | REV. DATE |
|----------------|------------|--------|---------|---------|-------|-----------|
| ECLIPTEK CORP. | OSCILLATOR | EL13D8 | CERAMIC | 3.3V    | OS4Q  | 10/07     |