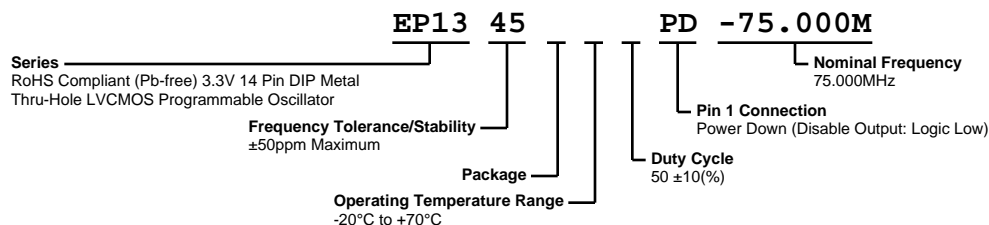


# EP1345PD-75.000M



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



## ELECTRICAL SPECIFICATIONS

|                                   |  |
|-----------------------------------|--|
| Nominal Frequency                 | 75.000MHz  |
| Frequency Tolerance/Stability     | ±50ppm Maximum (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) |
| Aging at 25°C                     | ±5ppm/year Maximum   |
| Operating Temperature Range       | -20°C to +70°C   |
| Supply Voltage                    | 3.3Vdc ±0.3Vdc   |
| Input Current                     | 28mA Maximum (Unloaded)  |
| Output Voltage Logic High (Voh)   | Vdd-0.4Vdc Minimum (IOH = -8mA)  |
| Output Voltage Logic Low (Vol)    | 0.4Vdc Maximum (IOL = +8mA)  |
| Rise/Fall Time                    | 4nSec Maximum (Measured at 20% to 80% of waveform)   |
| Duty Cycle                        | 50 ±10(%) (Measured at 50% of waveform)  |
| Load Drive Capability             | 15pF Maximum   |
| Output Logic Type                 | CMOS   |
| Pin 1 Connection                  | Power Down (Disable Output: Logic Low)   |
| Pin 1 Input Voltage (Vih and Vil) | 70% of Vdd Minimum to enable output, 20% of Vdd Maximum to disable output, No Connect to enable output.  |
| Standby Current                   | 20µA Maximum (Pin 1 = Ground)  |
| Disable Current                   | 16mA Maximum (Pin 1 = Ground)  |
| Peak to Peak Jitter (tPK)         | 100pSec Maximum, 60pSec Typical  |
| RMS Period Jitter (tRMS)          | 13pSec Maximum, 10pSec Typical   |
| Start Up Time                     | 10mSec Maximum   |
| Storage Temperature Range         | -55°C to +125°C  |

## ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

|                              |                                       |
|------------------------------|---------------------------------------|
| Fine Leak Test               | MIL-STD-883, Method 1014, Condition A |
| Gross Leak Test              | MIL-STD-883, Method 1014, Condition C |
| Lead Integrity               | MIL-STD-883, Method 2004              |
| Mechanical Shock             | MIL-STD-202, Method 213, Condition C  |
| Resistance to Soldering Heat | MIL-STD-202, Method 210               |
| Resistance to Solvents       | MIL-STD-202, Method 215               |
| Solderability                | MIL-STD-883, Method 2003              |
| Temperature Cycling          | MIL-STD-883, Method 1010              |
| Vibration                    | MIL-STD-883, Method 2007, Condition A |

# EP1345PD-75.000M

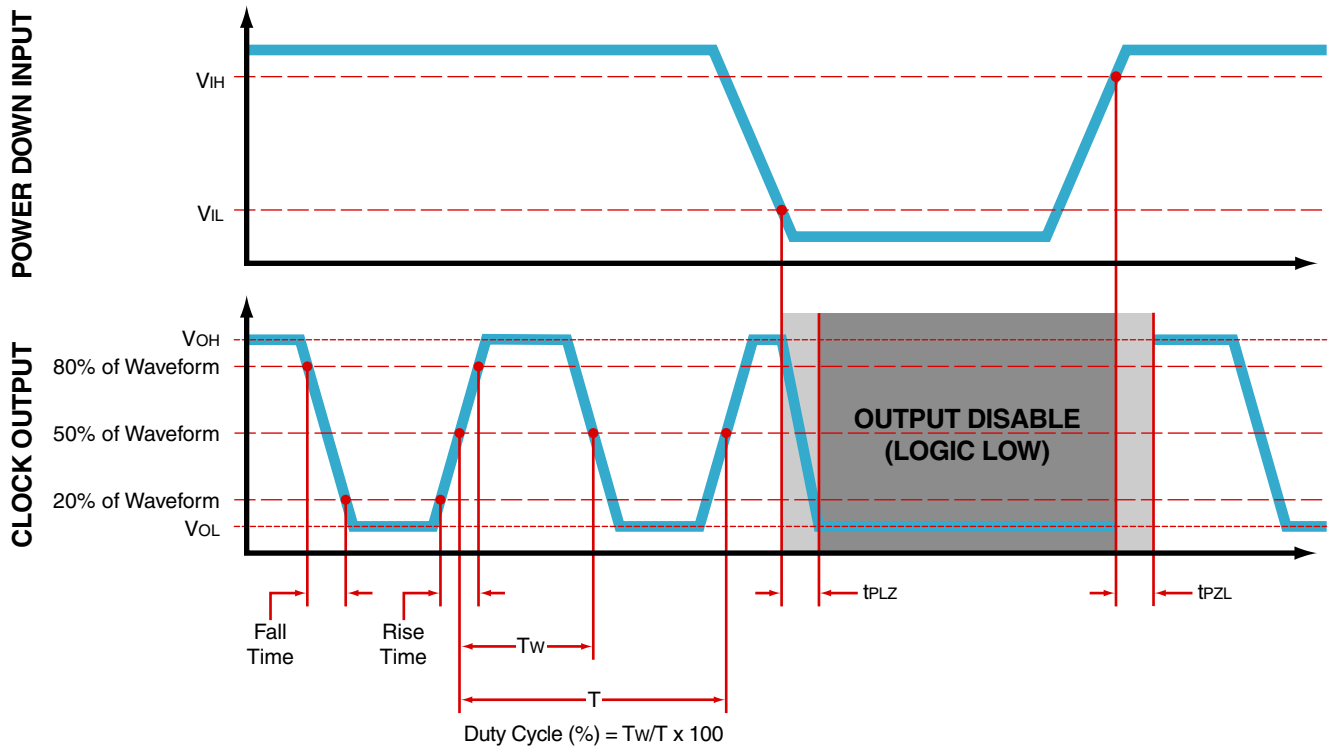
## MECHANICAL DIMENSIONS (all dimensions in millimeters)



| PIN | CONNECTION             |
|-----|------------------------|
| 1   | Power Down (Logic Low) |
| 7   | Ground/Case Ground     |
| 8   | Output                 |
| 14  | Supply Voltage         |

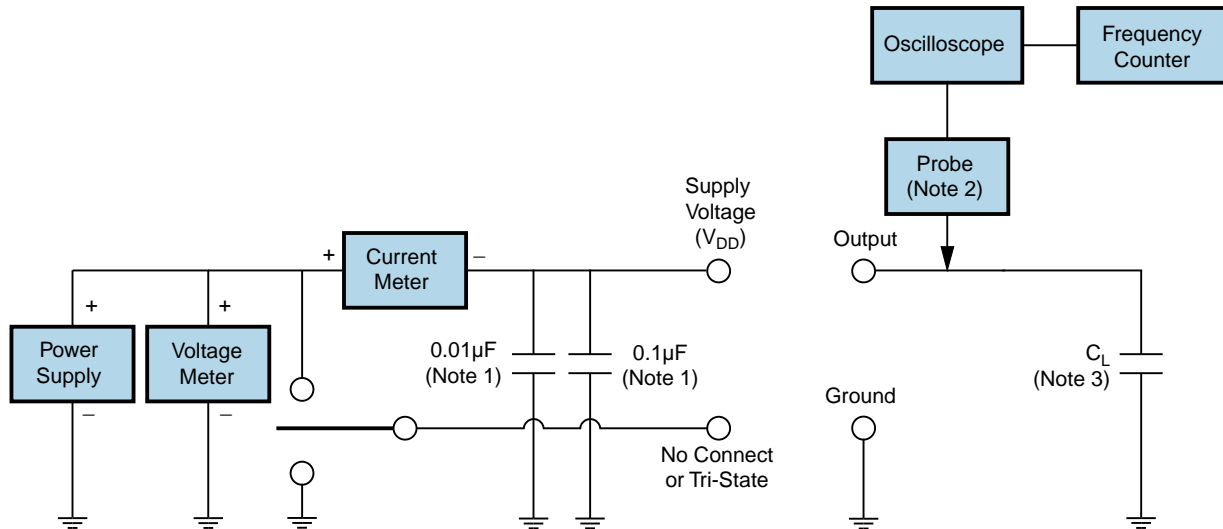
| LINE | MARKING  |
|------|--|
| 1    | <b>ECLIPTEK</b>  |
| 2    | <b>EP13PD</b><br><i>EP13=Product Series</i>  |
| 3    | <b>75.000M</b>   |
| 4    | <b>XXYYZ</b><br><i>XX=Ecliptek Manufacturing Code</i><br><i>Y=Last Digit of the Year</i><br><i>ZZ=Week of the Year</i> |

## OUTPUT WAVEFORM & TIMING DIAGRAM



# EP1345PD-75.000M

## Test Circuit for CMOS Output



Note 1: An external 0.1µF low frequency tantalum bypass capacitor in parallel with a 0.01µF high frequency ceramic bypass capacitor close to the package ground and  $V_{DD}$  pin is required.

Note 2: A low capacitance (<12pF), 10X attenuation factor, high impedance (>10Mohms), and high bandwidth (>300MHz) passive probe is recommended.

Note 3: Capacitance value  $C_L$  includes sum of all probe and fixture capacitance.

## Recommended Solder Reflow Methods



### High Temperature Solder Bath (Wave Solder)

|  |  |
|--|--|
| <b><math>T_S</math> MAX to <math>T_L</math> (Ramp-up Rate)</b> | 3°C/second Maximum   |
| <b>Preheat</b>   |  |
| - Temperature Minimum ( $T_S$ MIN)                             | 150°C  |
| - Temperature Typical ( $T_S$ TYP)                             | 175°C  |
| - Temperature Maximum ( $T_S$ MAX)                             | 200°C  |
| - Time ( $t_s$ MIN)  | 60 - 180 Seconds   |
| <b>Ramp-up Rate (<math>T_L</math> to <math>T_P</math>)</b>     | 3°C/second Maximum   |
| <b>Time Maintained Above:</b>                                  |  |
| - Temperature ( $T_L$ )  | 217°C  |
| - Time ( $t_L$ )   | 60 - 150 Seconds   |
| <b>Peak Temperature (<math>T_P</math>)</b>                     | 260°C Maximum for 10 Seconds Maximum   |
| <b>Target Peak Temperature (<math>T_P</math> Target)</b>       | 250°C +0/-5°C  |
| <b>Time within 5°C of actual peak (<math>t_p</math>)</b>       | 20 - 40 seconds  |
| <b>Ramp-down Rate</b>  | 6°C/second Maximum   |
| <b>Time 25°C to Peak Temperature (t)</b>                       | 8 minutes Maximum  |
| <b>Moisture Sensitivity Level</b>                              | Level 1  |
| <b>Additional Notes</b>  | Temperatures shown are applied to back of PCB board and device leads only. Do not use this method for product with the Gull Wing option. |

## Recommended Solder Reflow Methods



### Low Temperature Infrared/Convection 185°C

|  |   |
|--|---|
| <b><math>T_s</math> MAX to <math>T_L</math> (Ramp-up Rate)</b> | 5°C/second Maximum  |
| <b>Preheat</b>   |   |
| - Temperature Minimum ( $T_s$ MIN)                             | N/A   |
| - Temperature Typical ( $T_s$ TYP)                             | 150°C   |
| - Temperature Maximum ( $T_s$ MAX)                             | N/A   |
| - Time ( $t_s$ MIN)  | 60 - 120 Seconds  |
| <b>Ramp-up Rate (<math>T_L</math> to <math>T_p</math>)</b>     | 5°C/second Maximum  |
| <b>Time Maintained Above:</b>                                  |   |
| - Temperature ( $T_L$ )  | 150°C   |
| - Time ( $t_L$ )   | 200 Seconds Maximum   |
| <b>Peak Temperature (<math>T_p</math>)</b>                     | 185°C Maximum   |
| <b>Target Peak Temperature (<math>T_p</math> Target)</b>       | 185°C Maximum 2 Times   |
| <b>Time within 5°C of actual peak (<math>t_p</math>)</b>       | 10 seconds Maximum 2 Times  |
| <b>Ramp-down Rate</b>  | 5°C/second Maximum  |
| <b>Time 25°C to Peak Temperature (t)</b>                       | N/A   |
| <b>Moisture Sensitivity Level</b>                              | Level 1   |
| <b>Additional Notes</b>  | Temperatures shown are applied to body of device. Use this method only for product with the Gull Wing option. |

## Recommended Solder Reflow Methods



### Low Temperature Solder Bath (Wave Solder)

|  |  |
|--|--|
| <b><math>T_s</math> MAX to <math>T_L</math> (Ramp-up Rate)</b> | 5°C/second Maximum   |
| <b>Preheat</b>   |  |
| - Temperature Minimum ( $T_s$ MIN)                             | N/A  |
| - Temperature Typical ( $T_s$ TYP)                             | 150°C  |
| - Temperature Maximum ( $T_s$ MAX)                             | N/A  |
| - Time ( $t_s$ MIN)  | 30 - 60 Seconds  |
| <b>Ramp-up Rate (<math>T_L</math> to <math>T_p</math>)</b>     | 5°C/second Maximum   |
| <b>Time Maintained Above:</b>                                  |  |
| - Temperature ( $T_L$ )  | 150°C  |
| - Time ( $t_L$ )   | 200 Seconds Maximum  |
| <b>Peak Temperature (<math>T_p</math>)</b>                     | 245°C Maximum  |
| <b>Target Peak Temperature (<math>T_p</math> Target)</b>       | 245°C Maximum 1 Time / 235°C Maximum 2 Times   |
| <b>Time within 5°C of actual peak (<math>t_p</math>)</b>       | 5 seconds Maximum 1 Time / 15 seconds Maximum 2 Times  |
| <b>Ramp-down Rate</b>  | 5°C/second Maximum   |
| <b>Time 25°C to Peak Temperature (t)</b>                       | N/A  |
| <b>Moisture Sensitivity Level</b>                              | Level 1  |
| <b>Additional Notes</b>  | Temperatures shown are applied to back of PCB board and device leads only. Do not use this method for product with the Gull Wing option. |

### Low Temperature Manual Soldering

185°C Maximum for 10 seconds Maximum, 2 times Maximum. (Temperatures listed are applied to device leads only. This method can be utilized with both Gull Wing and Non-Gull Wing devices.)

### High Temperature Manual Soldering

260°C Maximum for 5 seconds Maximum, 2 times Maximum. (Temperatures listed are applied to device leads only. This method can be utilized with both Gull Wing and Non-Gull Wing devices.)