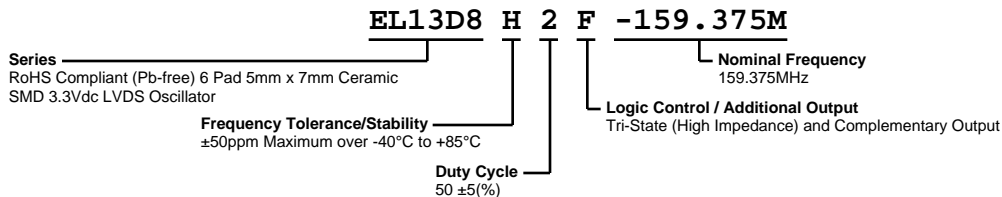


EL13D8H2F-159.375M



ECLIPTEK
CORPORATION



ELECTRICAL SPECIFICATIONS

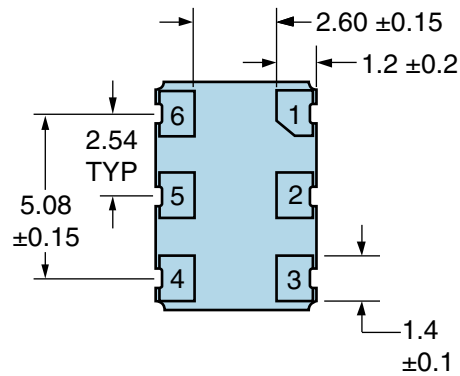
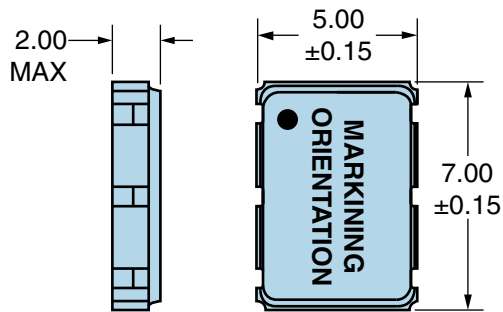
Nominal Frequency	159.375MHz
Frequency Tolerance/Stability	±50ppm Maximum over -40°C to +85°C (Inclusive of all conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, First Year Aging at 25°C, Shock, and Vibration)
Supply Voltage	3.3Vdc ±5%
Input Current	85mA Maximum (with Load)
Output Voltage Logic High (Voh)	1.45Vdc Typical, 1.6Vdc Maximum
Output Voltage Logic Low (Vol)	1.1Vdc Typical, 0.9Vdc Minimum
Vod Magnitude Change (dVod)	-50mV Minimum, +50mV Maximum
Differential Output Voltage (Vod)	247mV Minimum, 350mV Typical, 454mV Maximum
Offset Voltage (Vos)	1.125Vdc Minimum, 1.250Vdc Typical, 1.375Vdc Maximum
Rise/Fall Time	300pSec Typical, 600pSec Maximum (Measured over 20% to 80% of waveform)
Duty Cycle	50 ±5(%) (Measured at 50% of waveform)
Vos Magnitude Change (dVos)	-150mV Minimum, +150mV Maximum
Load Drive Capability	100 Ohms (Between Output and Complementary Output)
Output Logic Type	LVDS
Phase Noise	-60dBc/Hz at 10Hz offset, -90dBc/Hz at 100Hz offset, -115dBc/Hz at 1kHz offset, -129dBc/Hz at 10kHz offset, -130dBc/Hz at 100kHz offset, -131dBc/Hz at 1MHz offset, -148dBc/Hz at 10MHz offset (Typical Values, Fo = 156.250MHz)
Logic Control / Additional Output	Tri-State (High Impedance) and Complementary Output
Tri-State Input Voltage (Vih and Vil)	Vih of 70% of Vcc Minimum or No Connect to Enable Output, Vil of 30% of Vcc to Disable Output (High Impedance)
Standby Current	600µA Maximum (Disabled Output, High Impedance, without Load)
RMS Phase Jitter	0.7pSec Typical, 1pSec Maximum (Fj = 12kHz to 20MHz)
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
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

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MECHANICAL DIMENSIONS (all dimensions in millimeters)

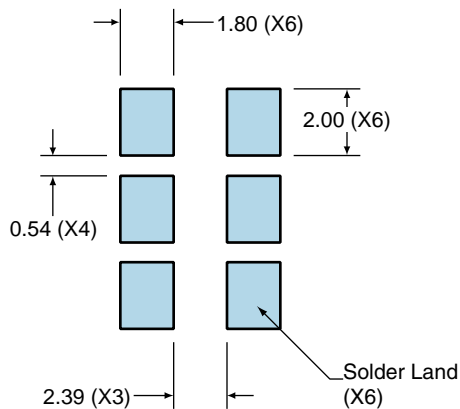


PIN	CONNECTION
1	Tri-State
2	No Connect
3	Case/Ground
4	Output
5	Complementary Output
6	Supply Voltage

LINE	MARKING
1	ECLIPTEK
2	159.37M
3	XXYZZ XX=Ecliptek Manufacturing Code Y=Last Digit of the Year ZZ=Week of the Year

Suggested Solder Pad Layout

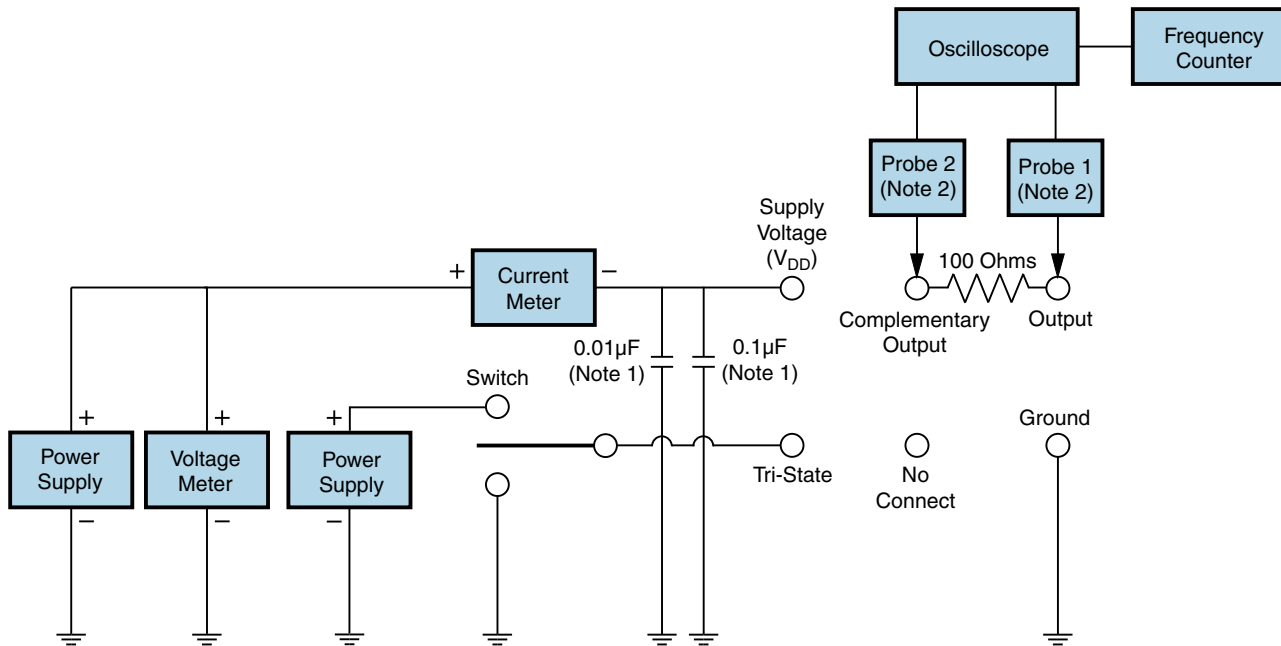
All Dimensions in Millimeters



All Tolerances are ±0.1

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Test Circuit for Tri-State and Complementary Output



Note 1: An external $0.01\mu\text{F}$ ceramic bypass capacitor in parallel with a $0.1\mu\text{F}$ high frequency ceramic bypass capacitor close (less than 2mm) to the package ground and supply voltage pin is required.

Note 2: A low capacitance ($<12\text{pF}$), 10X attenuation factor, high impedance ($>10\text{Mohms}$), and high bandwidth ($>500\text{MHz}$) passive probe is recommended.

Note 3: Test circuit PCB traces need to be designed for a characteristic line impedance of 50 ohms.

Recommended Solder Reflow Methods



High Temperature Infrared/Convection

T_s MAX to T_L (Ramp-up Rate) 3°C/second Maximum

Preheat

- 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

Ramp-up Rate (T_L to T_p) 3°C/second Maximum

Time Maintained Above:

- Temperature (T_L) 217°C
- Time (t_L) 60 - 150 Seconds

Peak Temperature (T_p) 260°C Maximum for 10 Seconds Maximum

Target Peak Temperature (T_p Target) 250°C +0/-5°C

Time within 5°C of actual peak (t_p) 20 - 40 seconds

Ramp-down Rate 6°C/second Maximum

Time 25°C to Peak Temperature (t) 8 minutes Maximum

Moisture Sensitivity Level Level 1

Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 240°C

T_S MAX to T_L (Ramp-up Rate)	5°C/second Maximum
Preheat	
- 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
Ramp-up Rate (T_L to T_P)	5°C/second Maximum
Time Maintained Above:	
- Temperature (T_L)	150°C
- Time (t_L)	200 Seconds Maximum
Peak Temperature (T_P)	240°C Maximum
Target Peak Temperature (T_P Target)	240°C Maximum 1 Time / 230°C Maximum 2 Times
Time within 5°C of actual peak (t_p)	10 seconds Maximum 2 Times / 80 seconds Maximum 1 Time
Ramp-down Rate	5°C/second Maximum
Time 25°C to Peak Temperature (t)	N/A
Moisture Sensitivity Level	Level 1

Low Temperature Manual Soldering

185°C Maximum for 10 seconds Maximum, 2 times Maximum.

High Temperature Manual Soldering

260°C Maximum for 5 seconds Maximum, 2 times Maximum.