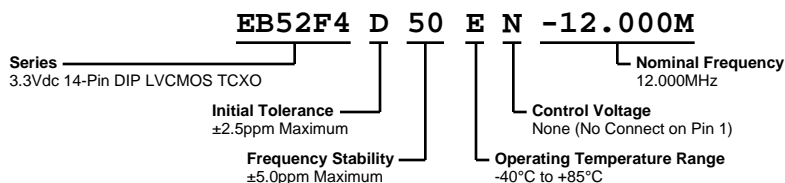


# EB52F4D50EN-12.000M



## ELECTRICAL SPECIFICATIONS

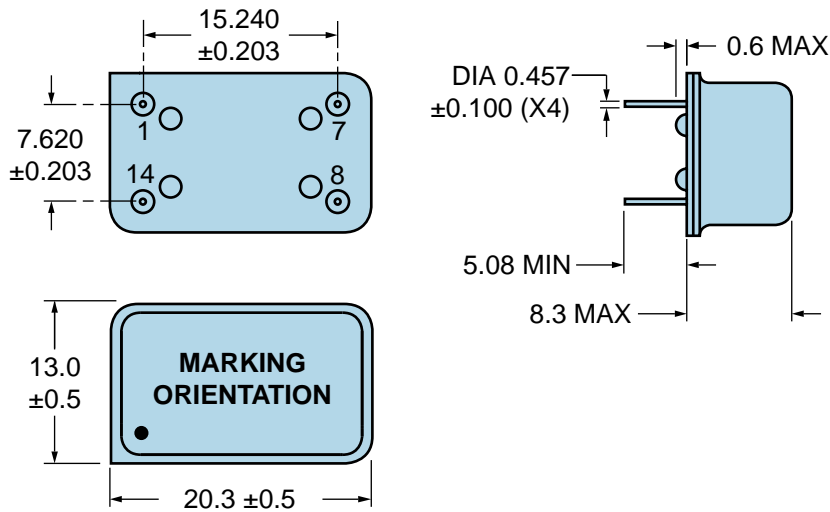
<b>Nominal Frequency</b>	12.000MHz
<b>Initial Tolerance</b>	±2.5ppm Maximum (Measured at Nominal Vdd and Vc)
<b>Frequency Stability</b>	±5.0ppm Maximum
<b>Frequency Stability vs. Input Voltage</b>	±0.3ppm Maximum (Vdd ±5%)
<b>Frequency Stability vs. Aging</b>	±1ppm/Year Maximum (at 25°C)
<b>Frequency Stability vs. Load</b>	±0.2ppm Maximum (±10%)
<b>Operating Temperature Range</b>	-40°C to +85°C
<b>Supply Voltage</b>	3.3Vdc ±5%
<b>Input Current</b>	15mA Maximum (Measured at Steady State at 25°C)
<b>Output Voltage Logic High (Voh)</b>	90% of Vdd Minimum
<b>Output Voltage Logic Low (Vol)</b>	10% of Vdd Maximum
<b>Rise/Fall Time</b>	6nSec Maximum (Measured at 20% to 80% of waveform)
<b>Duty Cycle</b>	50% ±5% (Measured at 50% of waveform)
<b>Load Drive Capability</b>	15pF Maximum
<b>Output Logic Type</b>	CMOS
<b>Control Voltage</b>	None (No Connect on Pin 1)
<b>Input Impedance</b>	10kOhms Typical
<b>Phase Noise</b>	-70dBc/Hz at 10Hz Offset, -100dBc/Hz at 100Hz Offset, -130dBc/Hz at 1kHz Offset, -140dBc/Hz at 10kHz Offset, -145dBc/Hz at 100kHz Offset (Typical Values at 19.440MHz)
<b>Storage Temperature Range</b>	-55°C to +125°C

## ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

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

# EB52F4D50EN-12.000M

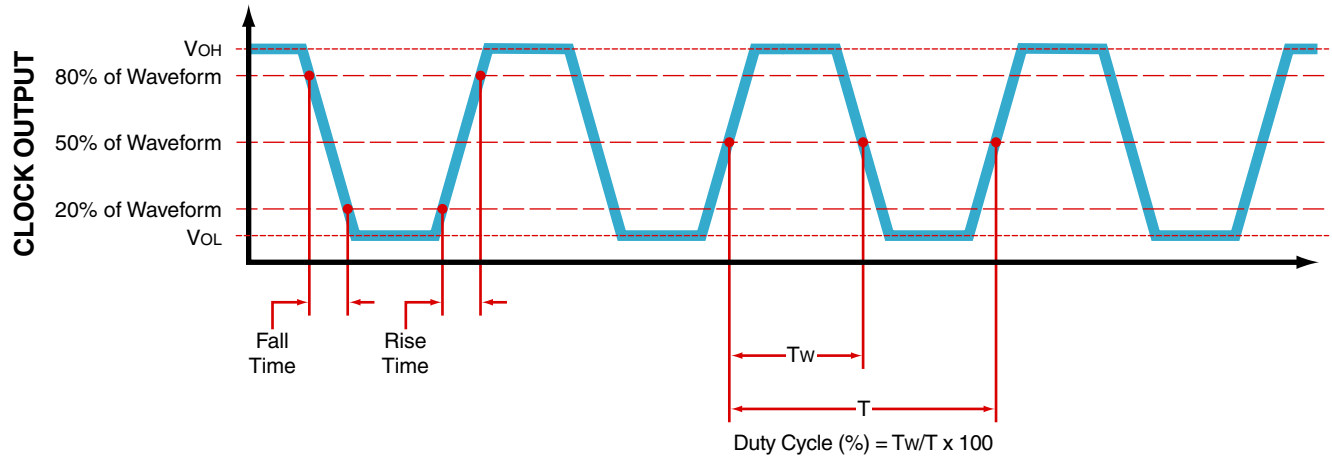
## MECHANICAL DIMENSIONS (all dimensions in millimeters)



PIN	CONNECTION
1	No Connect
7	Case Ground
8	Output
14	Supply Voltage

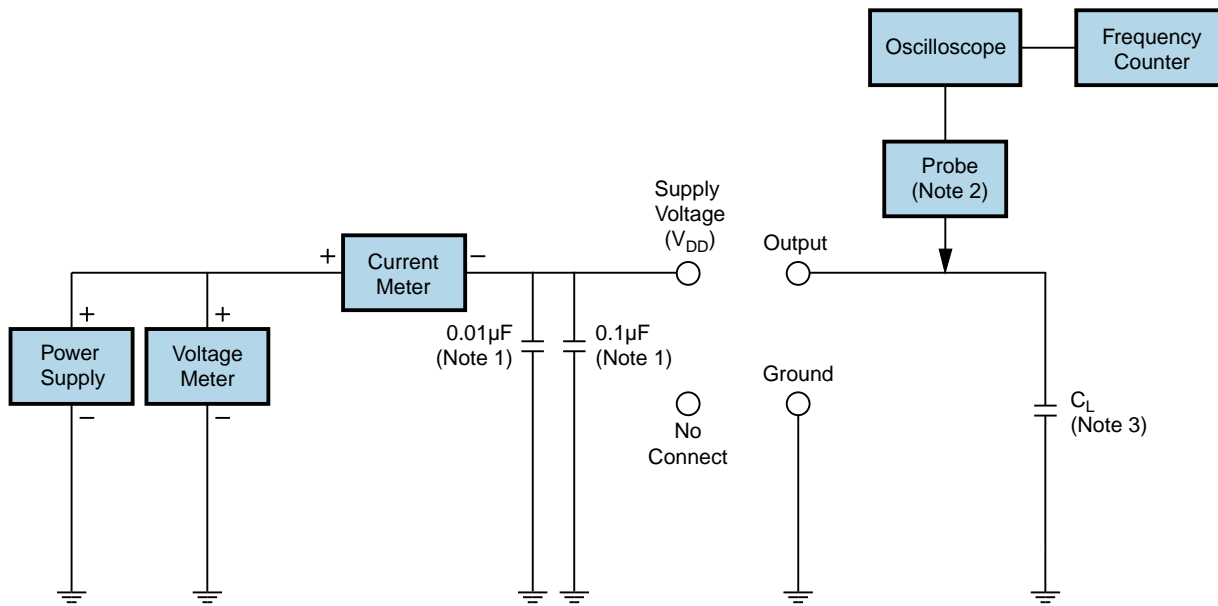
LINE	MARKING
1	<b>ECLIPTEK</b>
2	<b>12.000M</b>
3	<b>XXYYZ</b> XX=Ecliptek Manufacturing Code Y=Last Digit of the Year ZZ=Week of the Year

## OUTPUT WAVEFORM



# EB52F4D50EN-12.000M

## Test Circuit for No Connect Option



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

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

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

## 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

### 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.