

EB52E8E3N-12.800M

[Click part number to visit Part Number Details page](#)

REGULATORY COMPLIANCE (Data Sheet downloaded on Jan 21, 2019)


[Click badges to download compliance docs](#)

Regulatory Compliance standards are subject to updates by governing bodies. Click the badges to download the latest compliance docs for this part number directly from Ecliptek.



ITEM DESCRIPTION

Temperature Compensated Quartz Crystal Clock Oscillators TCXO (TCVCXO) LVC MOS (CMOS) 3.3Vdc 10 Pad 5.0mm x 7.0mm Ceramic Surface Mount (SMD) 12.800MHz ± 1.0 ppm Maximum -40°C to +85°C

ELECTRICAL SPECIFICATIONS

Nominal Frequency	12.800MHz
Frequency Tolerance	± 1.0 ppm Maximum (Measured at 25°C $\pm 2^\circ\text{C}$, at Vdd=3.3Vdc and Vc=1.65Vdc)
Frequency Stability	± 1.0 ppm Maximum (Inclusive of Operating Temperature Range. Measured at Vdd=3.3Vdc and Vc=1.65Vdc)
Frequency Stability vs. Input Voltage	± 0.3 ppm Maximum ($\pm 5\%$)
Frequency Stability vs. Load	± 0.3 ppm Maximum ($\pm 10\%$)
Frequency Stability vs. Aging	± 1 ppm/year Maximum (at 25°C)
Operating Temperature Range	-40°C to +85°C
Supply Voltage	3.3Vdc $\pm 5\%$
Input Current	10mA Maximum
Output Voltage Logic High (Voh)	90% of Vdd Minimum (IOH = -4mA)
Output Voltage Logic Low (Vol)	10% of Vdd Maximum (IOL = +4mA)
Rise/Fall Time	5nSec Maximum (Measured at 20% to 80% of Waveform)
Duty Cycle	50 $\pm 5\%$ (Measured at 50% of Waveform)
Load Drive Capability	15pF Maximum
Output Logic Type	CMOS
Control Voltage	None (No Connect Pad 10)
Control Voltage Range	0.0Vdc to Vdd
Phase Noise	-80dBc/Hz at 10Hz Offset, -115dBc/Hz at 100Hz Offset, -135dBc/Hz at 1kHz Offset, and -145dBc/Hz at ≥ 10 kHz Offset (Typical Values at 12.800MHz)
Tri-State Input Voltage (Vih and Vil)	+0.9Vdd Minimum to Enable Output; +0.1Vdd Maximum to Disable Output (High Impedance); No Connect to Enable Output
RMS Phase Jitter	1pSec Maximum (Fj = 12kHz to 20MHz)
Start Up Time	10mSec Maximum
Storage Temperature Range	-40°C to +125°C

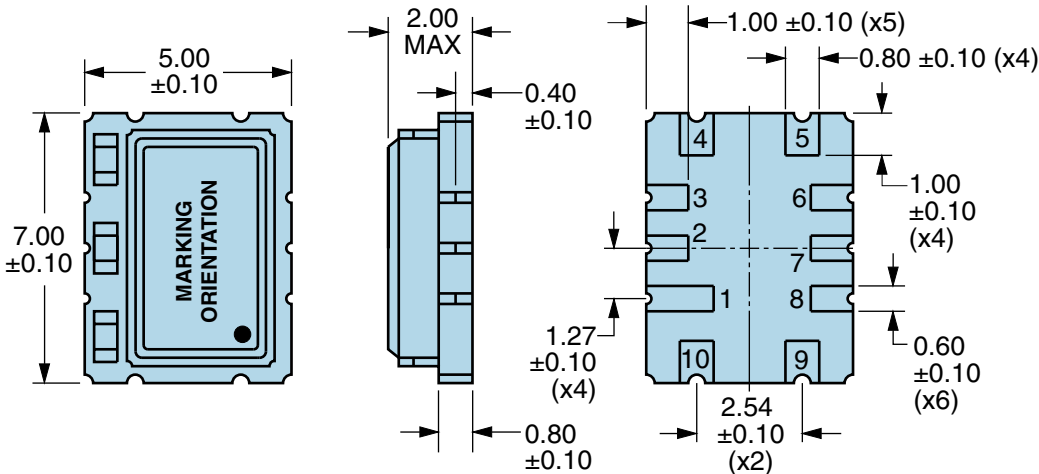
ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

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

EB52E8E3N-12.800M

[Click part number to visit Part Number Details page](#)

MECHANICAL DIMENSIONS (all dimensions in millimeters)

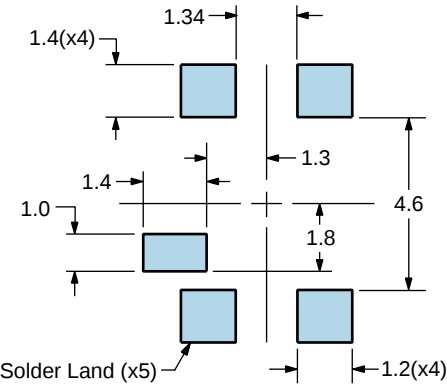


PIN	CONNECTION
1	Do Not Connect
2	Do Not Connect
3	Do Not Connect
4	Ground
5	Output
6	Do Not Connect
7	Do Not Connect
8	Tri-State
9	Supply Voltage
10	No Connect

LINE	MARKING
1	EXX.XXX <i>E=Ecliptek Designator XX.XXX=Nominal Frequency in MHz</i>
2	XXYYZ <i>XX=Ecliptek Manufacturing Code Y=Last Digit of the Year ZZ=Week of the Year</i>

Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are ±0.1

EB52E8E3N-12.800M

[Click part number to visit Part Number Details page](#)

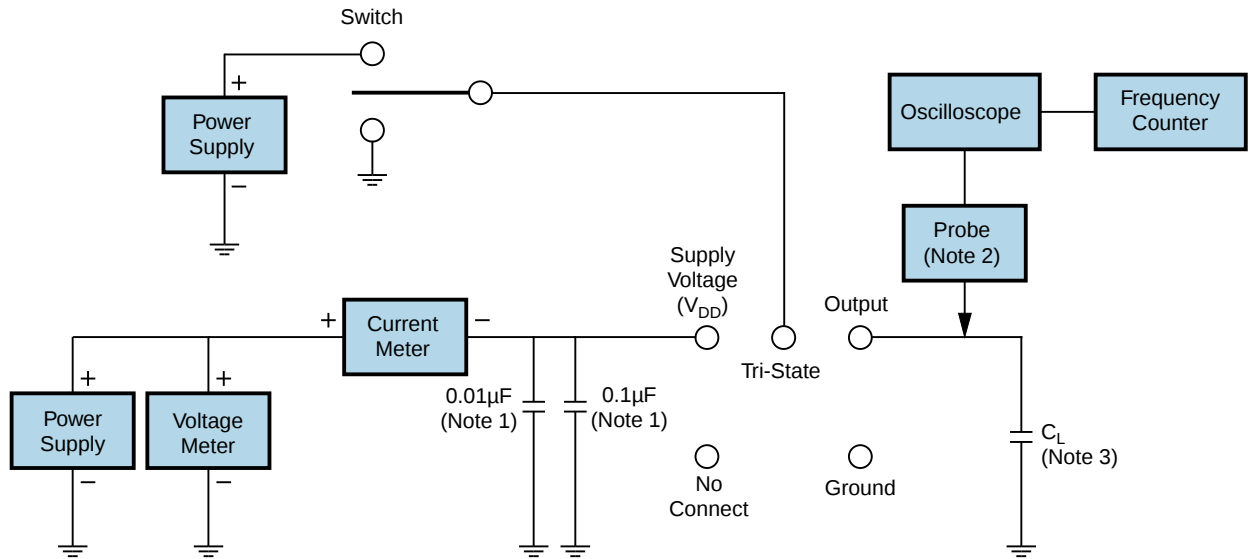
OUTPUT WAVEFORM & TIMING DIAGRAM



EB52E8E3N-12.800M

[Click part number to visit Part Number Details page](#)

Test Circuit for CMOS Output



Note 1: An external 0.1 μ F low frequency tantalum bypass capacitor in parallel with a 0.01 μ F 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.

EB52E8E3N-12.800M

[Click part number to visit Part Number Details page](#)

Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 230°C

Ts MAX to TL (Ramp-up Rate)	5°C/Second Maximum
Preheat	
- Temperature Minimum (Ts MIN)	N/A
- Temperature Typical (Ts TYP)	150°C
- Temperature Maximum (Ts MAX)	N/A
- Time (ts MIN)	30 - 60 Seconds
Ramp-up Rate (TL to TP)	5°C/Second Maximum
Time Maintained Above:	
- Temperature (TL)	150°C
- Time (tL)	200 Seconds Maximum
Peak Temperature (TP)	230°C Maximum
Target Peak Temperature (TP Target)	230°C Maximum 2 Times
Time within 5°C of actual peak (tP)	10 Seconds Maximum 2 Times
Ramp-down Rate	5°C/Second Maximum
Time 25°C to Peak Temperature (t)	N/A
Moisture Sensitivity Level	Level 1
Additional Notes	Temperatures shown are applied to body of device.

Low Temperature Manual Soldering

185°C Maximum for 10 Seconds Maximum, 2 times Maximum. (Temperatures listed are applied to body of device.)

High Temperature Manual Soldering

260°C Maximum for 5 Seconds Maximum, 2 times Maximum. (Temperatures listed are applied to body of device.)