ES52E9C1V-10.000M

ECLIPTEK CORPORATION

Lead Free COMPLIANT | EU RoHS 2011/65 COMPLIANT | China RoHS COMPLIANT | REACH SVHC 144 Jun 20, 2013 COMPLIANT | DRC CONFLICT FREE

ITEM DESCRIPTION

Temperature Compensated Quartz Crystal Clock Oscillators TCXO (TCVCXO) Clipped Sinewave Stratum 3 3.3Vdc 10 Pad 5.0mm x 7.0mm Ceramic Surface Mount (SMD) 10.000MHz ±0.28ppm Maximum -20°C to +70°C

ELECTRICAL SPECIFICATIONS

Nominal Frequency	10.000MHz
Total Frequency Tolerance	±4.6ppm Maximum (Inclusive of Frequency Tolerance, Frequency Stability, Vdd (±1%), Load (±5%), solder reflow, and 20 year aging)
Frequency Tolerance	±1.0ppm Maximum (at 25°C ±2°C, at Vdd=3.3Vdc and Vc=1.5Vdc (Pre-Reflow))
Frequency Stability	±0.28ppm Maximum (Inclusive of Operating Temperature Range, at Vdd=3.3Vdc; (Fmax. - Fmin)/(2*Fo))
Frequency Stability vs. Aging	±3.0ppm over 20 Years Maximum (at 25°C)
Operating Temperature Range	-20°C to +70°C
Supply Voltage	3.3Vdc ±5%
Total Holdover Stability	±0.37ppm Maximum (Inclusive of Frequency Stability and 24 hours aging)
Input Current	2.0mA Maximum
Output Voltage	0.8Vp-p Clipped Sinewave Minimum (External DC-Cut capacitor required, 1000pF recommended)
Load Drive Capability	10kOhms // 10pF
Output Logic Type	Clipped Sinewave
Control Voltage	1.5Vdc ±1.0Vdc
Control Voltage Range	0.0Vdc to Vdd
Frequency Deviation	±5ppm Minimum
Linearity	5% Maximum
Transfer Function	Positive Transfer Characteristic
Input Impedance	100kOhms Minimum
Phase Noise	All Values are Typical -80dBc/Hz at 10Hz Offset -115dBc/Hz at 100Hz Offset -135dBc/Hz at 1kHz Offset -145dBc/Hz at >=10kHz Offset
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

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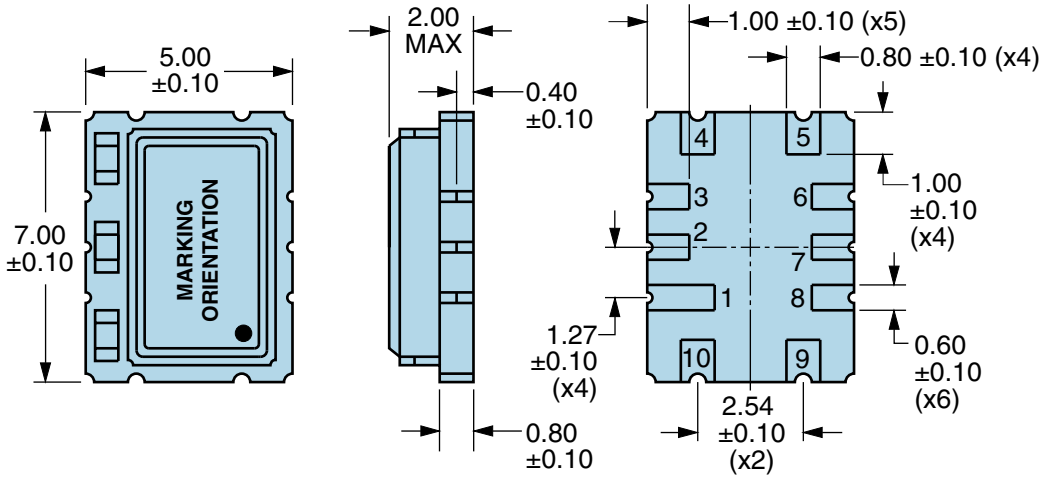
MECHANICAL DIMENSIONS (all dimensions in millimeters)

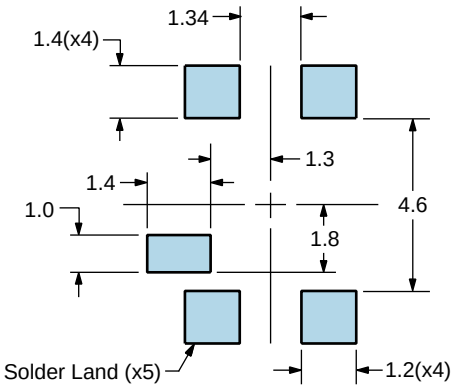


PIN	CONNECTION
1	Do Not Connect
2	Do Not Connect
3	Do Not Connect
4	Ground
5	Output
6	Do Not Connect
7	Do Not Connect
8	Do Not Connect
9	Supply Voltage
10	Voltage Control

LINE	MARKING
1	**EXX.XXX** *E=Ecliptek Designator* *XX.XXX=Nominal Frequency in MHz*
2	**XXXXX** *XXXXX=Ecliptek Manufacturing Identifier*

Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are ±0.1

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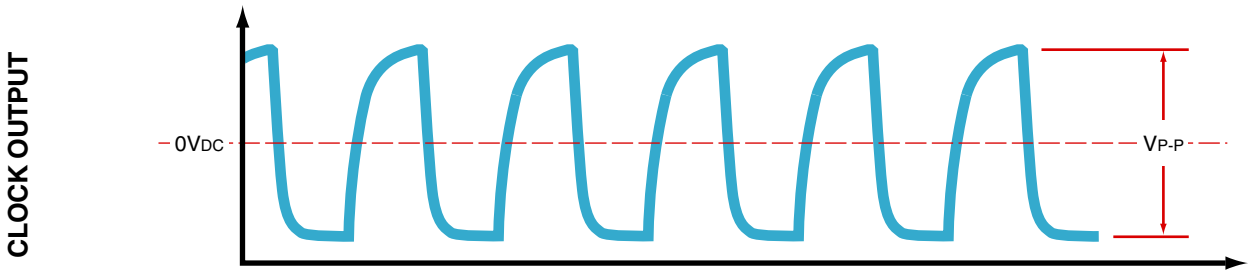
OUTPUT WAVEFORM



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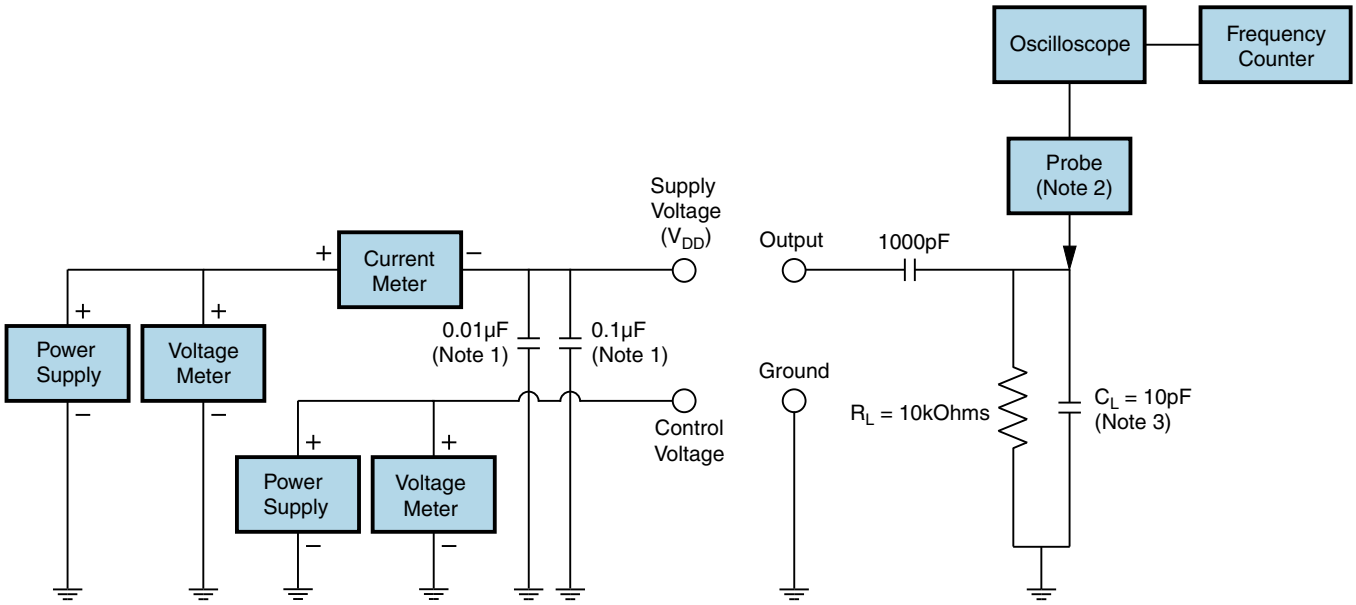
Test Circuit for Control Voltage Option



Note 1: An external 0.01µF bypass capacitor in parallel with a 0.1µF high frequency ceramic bypass capacitor close (less than 2mm) to the package ground and supply voltage pin is required.
Note 2: A low input 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.

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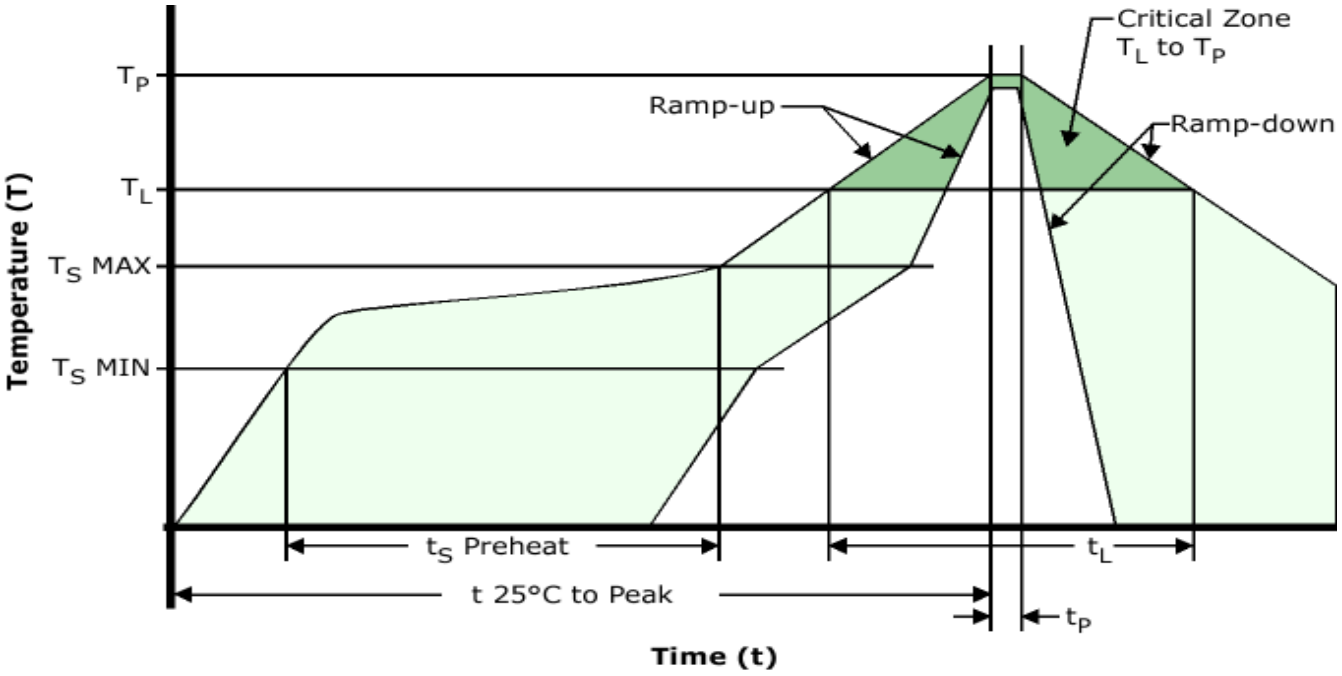
Recommended Solder Reflow Methods



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.)

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