EV32C3 Series Oscillator

Voltage Controlled Quartz Crystal Clock Oscillators VCXO LVCMOS/TTL (CMOS) 3.3Vdc 6 Pad 5.0mm x 7.0mm Ceramic Surface Mount (SMD)

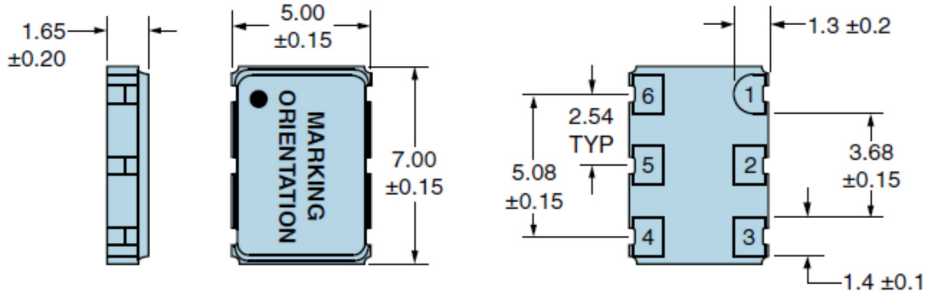
Revision O 04/14/2014

Electrical Specifications

Nominal Frequency	1.544MHz to 77.760MHz *Some frequencies within this range may not be available.*
Frequency Tolerance/Stability	(Inclusive of all conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, Shock, and Vibration) ±50ppm Maximum
Operating Temperature Range	0°C to +70°C -40°C to +85°C
Supply Voltage (V_{DD})	3.3V_{DC} ±10%
Input Current	15mA Maximum
Output Voltage Logic High (V_{OH})	IOH = -4mA 90% of V_{DD} Minimum
Output Voltage Logic Low (V_{OL})	IOL = +4mA 10% of V_{DD} Maximum
Duty Cycle	Measured at 50% of waveform 50 ±5(%) Typical, 50 ±10(%) Maximum
Rise Time/Fall Time	Measured at 20% to 80% of Waveform 5nSec Maximum
Load Drive Capability	10TTL Load or 30pF LVCMOS Load Maximum over Nominal Frequency of 1.544MHz to 12.288MHz 15pF LVCMOS Load Maximum over Nominal Frequency of 12.288001MHz to 77.76MHz
Output Logic Type	CMOS
Absolute Pull Range	Inclusive of all conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, Shock, Vibration, and Aging over the Control Voltage (Vc). ±50ppm Minimum ±80ppm Minimum (Only available over Nominal Frequency range of 1.544MHz to 51.84MHz) ±100ppm Minimum (Only available over Nominal Frequency range of 1.544MHz to 36MHz)
Control Voltage	Test Condition for APR 0.3V_{DC} to 3.0V_{DC}
Control Voltage Range	0.0V_{DC} to V_{DD}
Linearity	10% Typical, 20% Maximum
Transfer Function	Positive Tranfer Characteristic

Modulation Bandwidth	Measured at -3dB, Vc = 1.65V_{DC} 10kHz Minimum
Input Impedance	50kOhms Minimum
Input Leakage Current	10µA Maximum
Phase Noise	All Values are Typical -70dBc/Hz at offset of 10Hz, -100dBc/Hz at offset of 100Hz, -130dBc/Hz at offset of 1kHz, -147dBc/Hz at offset of 10kHz, -152dBc/Hz at offset of 100kHz, and -155dBc/Hz at offset of 1MHz
Tri-State Input Voltage (Vih and Vil)	90% of V_{DD} Minimum or No Connect to Enable Output, 10% of V_{DD} Maximum to Disable Output (High Impedance)
RMS Phase Jitter	Fj = 12kHz to 20MHz; Random 1pSec Maximum
Aging (at 25°C)	±2ppm/First Year Typical, ±10ppm/10 Years Maximum
Storage Temperature Range	-55°C to +125°C
Start Up Time	10mSec Maximum

Mechanical Dimensions



All Dimensions in Millimeters

Pin 1: Control Voltage

Pin 2: No Connect

Pin 3: Case Ground

Pin 4: Output

Pin 5: Tri-State

Pin 6: Supply Voltage

Marking Specifications

Line 1: **ECLIPTEK**

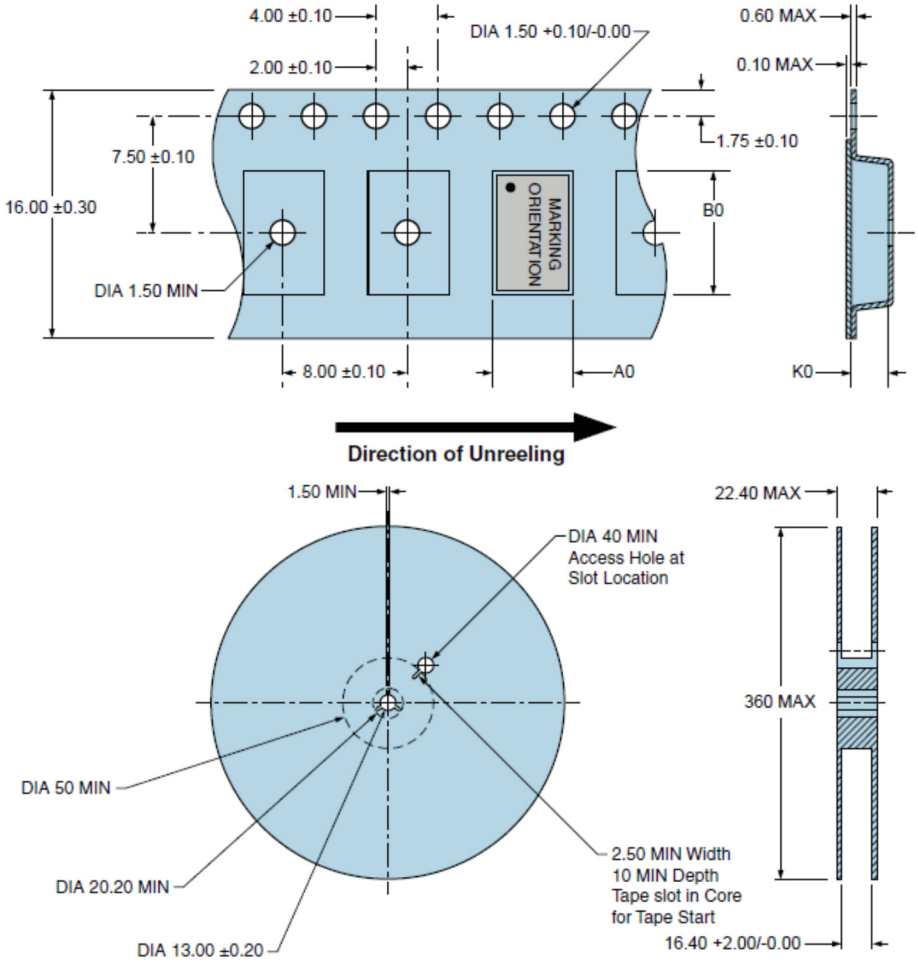
Line 2: **XXXXXXM**
- XXXXXX = Nominal Frequency (5 Digits + Decimal)
- M = Frequency Unit of Measure (MHz)

Line 3: **XXXXX**
- XXXXX = Ecliptek Manufacturing Identifier

Environmental and Mechanical Specifications

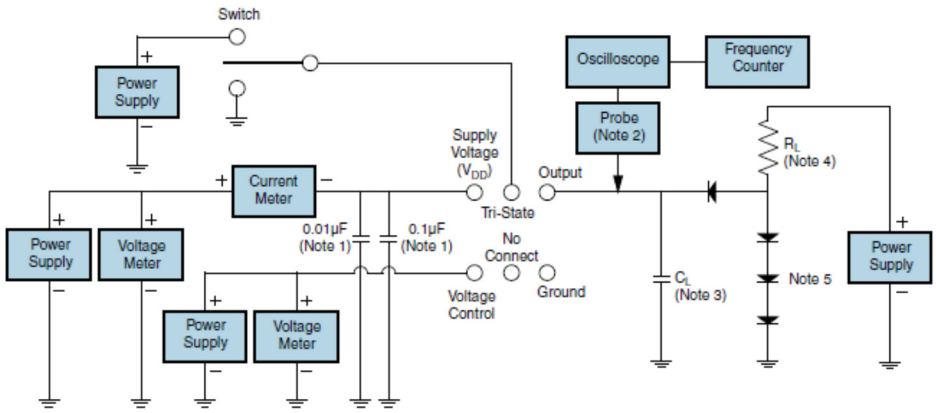
ESD Susceptibility	MIL-STD-883, Method 3015, Class 1, HBM: 1500V
Fine Leak Test	MIL-STD-883, Method 1014, Condition A
Flammability	UL94-V0
Gross Leak Test	MIL-STD-883, Method 1014, Condition C
Mechanical Shock	MIL-STD-883, Method 2002, Condition B
Moisture Resistance	MIL-STD-883, Method 1004
Moisture Sensitivity	J-STD-020, MSL 1
Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K
Resistance to Solvents:	MIL-STD-202, Method 215
Solderability	MIL-STD-883, Method 2003
Temperature Cycling	MIL-STD-883, Method 1010, Condition B
Vibration	MIL-STD-883, Method 2007, Condition A
Thermal Resistance (θ_{JA})	42°C/W (degrees Celsius per Watt)
Thermal Resistance (θ_{JC})	15°C/W (degrees Celsius per Watt)

Tape & Reel Dimensions



1000 pieces per reel
Compliant to EIA-481
All Dimensions in Millimeters

TTL Test Circuit

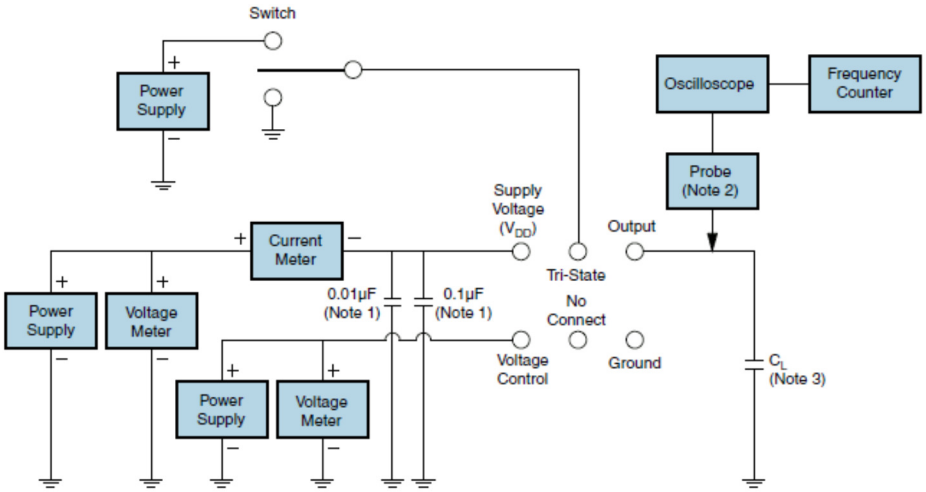


Output Load Drive Capability	R_L Value (Ohms)	C_L Value (pF)
10TTL	390	15

Table 1: R_L Resistance Value and C_L Capacitance Value Vs. Output Load Drive Capability

Note 1: An external 0.01µF ceramic bypass capacitor in parallel with a 0.1µF high frequency ceramic bypass capacitor close (less than 2mm) to the package ground and and supply voltage pin is required.
Note 2: A low capacitance (<12pF), 10X Attentuation 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.
Note 4: Resistance value R_L is shown in Table I. See applicable specification sheet for â€˜Load Drive Capabilityâ€™.
Note 5: All diodes are MMBD7000, MMBD914, or equivalent.

CMOS Test Circuit



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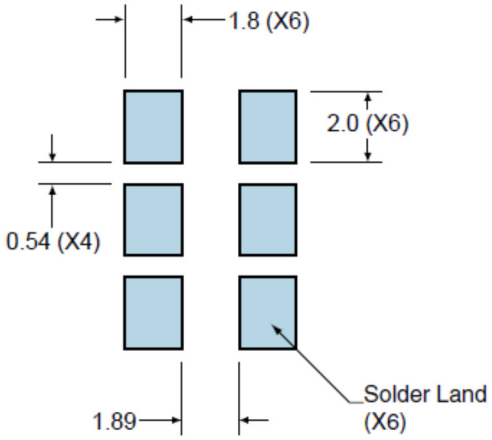
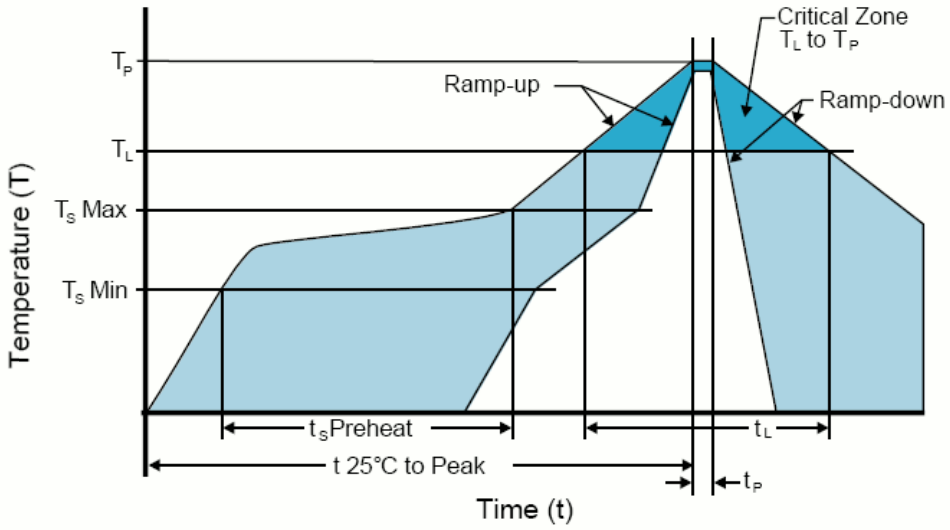
Note 3: Capacitance value C_L includes sum of all probe and fixture capacitance.

Recommended Solder Pad Dimensions



Tolerances = ±0.1
All Dimensions in Millimeters

Solder Reflow Profile



High Temperature Infrared/Convection

Note: Temperatures shown are applied to body of device.	
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)	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

Low Temperature Infrared/Convection

Note: Temperatures shown are applied to body of device.

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)	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 2 Times / 230°C Maximum 1 Time
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

High Temperature Manual Soldering

Note: Temperatures listed are applied to body of device.
260°C Maximum for 5 seconds Maximum, 2 times Maximum.

Low Temperature Manual Soldering

Note: Temperatures listed are applied to body of device.
185°C Maximum for 10 seconds Maximum, 2 times Maximum.

1 - Build A Part Number

Select the parameters that meet your requirements and then click Next

Frequency in Megahertz (1.544 to 77.76):
Some frequencies within this range may not be available

Operating Temperature Range: 0°C to +70°C

Absolute Pull Range: ±50ppm Minimum

Packaging Options: Tape & Reel

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Access these Part Number specific resources and tools

- P/N Specific Data Sheet
- Automated Quick Quote
- Request Sample
- Download IPC-1752
- My Parts List
- My Part Number

Part Numbering Guide