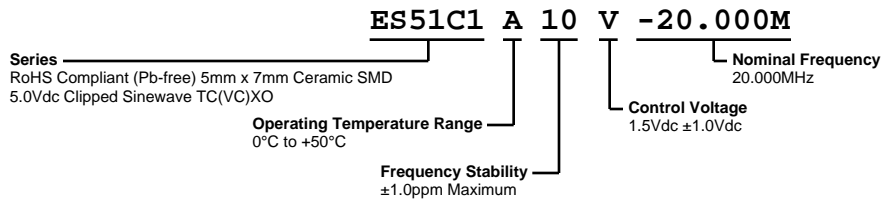


ES51C1A10V-20.000M



ECLIPTEK
CORPORATION



ELECTRICAL SPECIFICATIONS

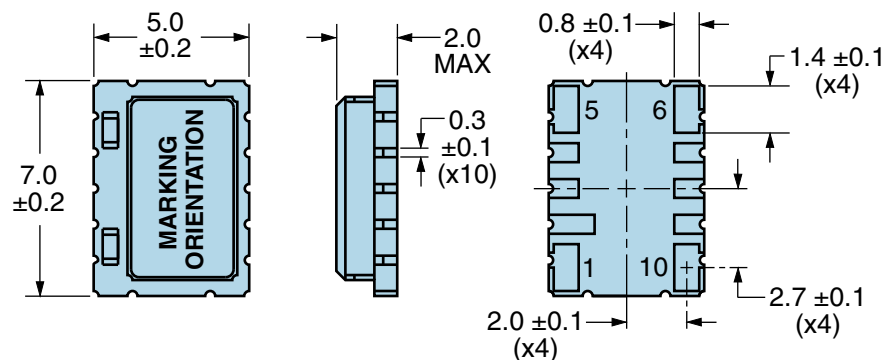
Nominal Frequency	20.000MHz
Frequency Stability vs. Frequency Tolerance	±1.0ppm Maximum (Measured at 25°C ±2°C, Vdd=5.0Vdc, Vc=1.5Vdc)
Frequency Stability	±1.0ppm Maximum
Frequency Stability vs. Input Voltage	±0.2ppm Maximum (Vdd ±5%)
Frequency Stability vs. Aging	±1ppm/Year Maximum (at 25°C)
Frequency Stability vs. Load	±0.2ppm Maximum (±1kOhm//±1pF)
Operating Temperature Range	0°C to +50°C
Supply Voltage	5.0Vdc ±5%
Input Current	2.0mA Maximum
Output Voltage	0.8Vp-p Clipped Sinewave Minimum
Load Drive Capability	10kOhms//10pF
Output Logic Type	Clipped Sinewave
Control Voltage	1.5Vdc ±1.0Vdc
Frequency Deviation	±8ppm Minimum
Linearity	10% Maximum
Transfer Function	Positive Transfer Characteristic
Modulation Bandwidth	3kHz Minimum (Measured at -3dB with a Control Voltage of 1.5Vdc)
Input Impedance	100kOhms Minimum
Phase Noise	-80dBc/Hz at 10Hz offset, -115dBc/Hz at 100Hz offset, -135dBc/Hz at 1kHz offset, -145dBc/Hz at 10kHz offset, -145dBc/Hz at 100kHz offset (Typical Values, at 12.800MHz)
Start Up Time	5mSec 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)

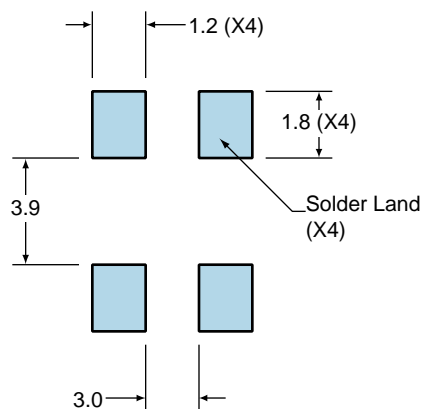


PIN	CONNECTION
1	Voltage Control
2	Do Not Connect
3	Do Not Connect
4	Do Not Connect
5	Case/Ground
6	Output
7	Do Not Connect
8	Do Not Connect
9	Do Not Connect
10	Supply Voltage

LINE	MARKING
1	E20.000 E=Ecliptek
2	XXYYZZ XX=Ecliptek Manufacturing Code Y=Last Digit of the Year ZZ=Week of the Year

Suggested Solder Pad Layout

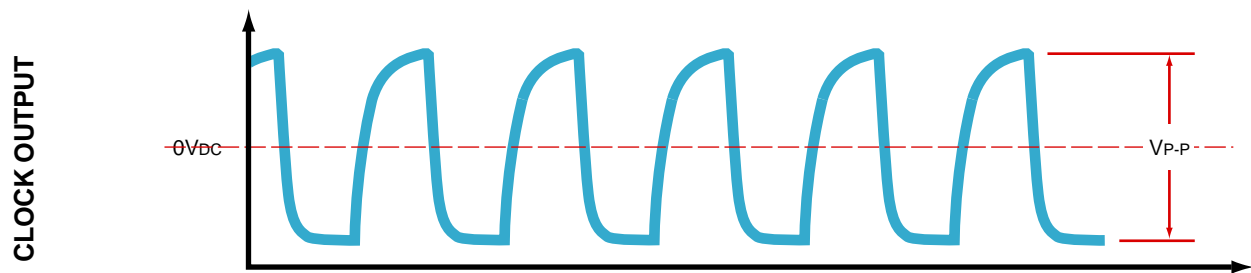
All Dimensions in Millimeters



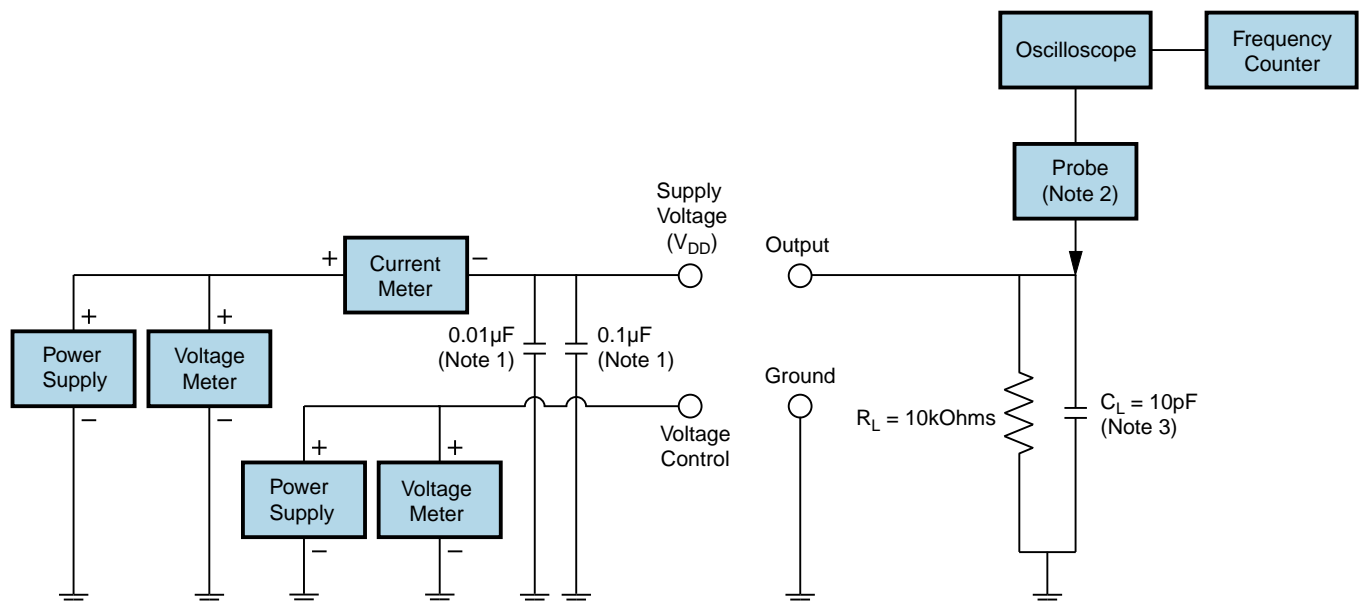
All Tolerances are ± 0.1

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OUTPUT WAVEFORM



Test Circuit for Voltage Control Option



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

Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 220°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) 220°C Maximum

Target Peak Temperature (T_p Target) 220°C Maximum 1 Time / 215°C Maximum 1 Time

Time within 5°C of actual peak (t_p) 15 seconds Maximum 1 Time / 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.