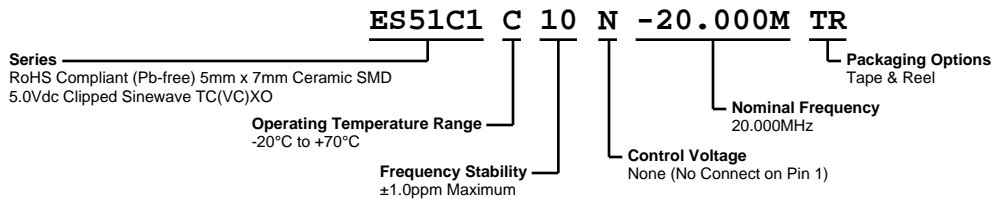


# ES51C1C10N-20.000M TR



**ECLIPTEK**  
CORPORATION



## ELECTRICAL SPECIFICATIONS

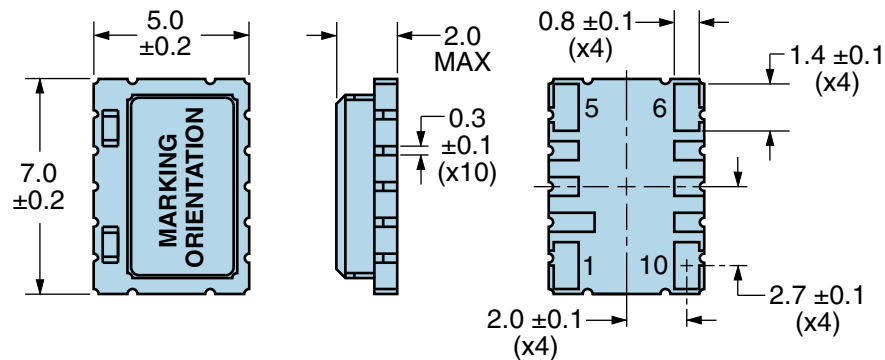
Nominal Frequency	20.000MHz
Frequency Stability vs. Frequency Tolerance	±1.0ppm Maximum (Measured at 25°C ±2°C, Vdd=5.0Vdc, Vc=1.5Vdc)
Frequency Stability	±1.0ppm Maximum
Frequency Stability vs. Input Voltage	±0.2ppm Maximum (Vdd ±5%)
Frequency Stability vs. Aging	±1ppm/Year Maximum (at 25°C)
Frequency Stability vs. Load	±0.2ppm Maximum (±1kOhm//±1pF)
Operating Temperature Range	-20°C to +70°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	None (No Connect on Pin 1)
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)

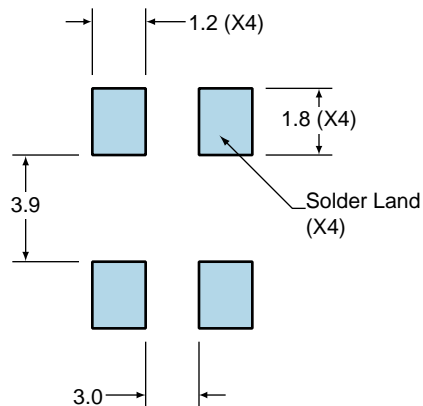


PIN	CONNECTION
1	No Connect
2	Do Not Connect
3	Do Not Connect
4	Do Not Connect
5	Case/Ground
6	Output
7	Do Not Connect
8	Do Not Connect
9	Do Not Connect
10	Supply Voltage

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

## Suggested Solder Pad Layout

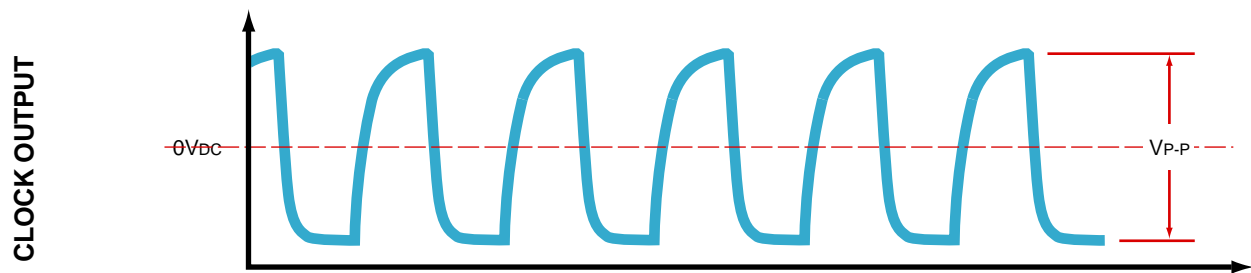
All Dimensions in Millimeters



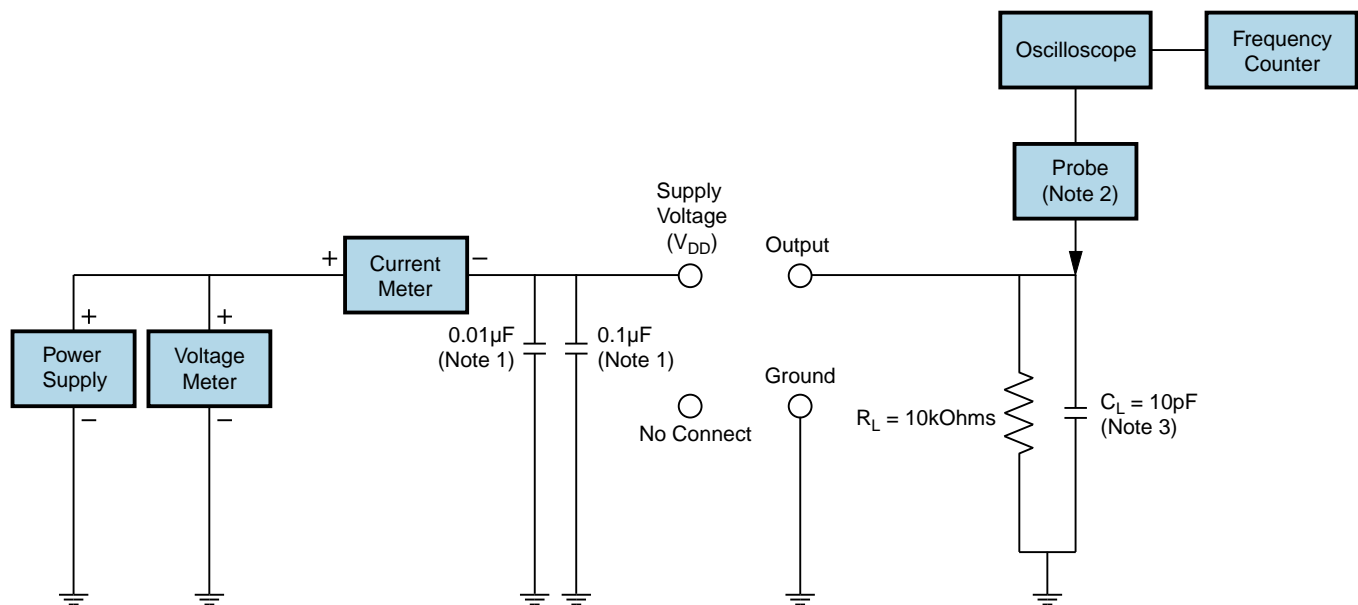
All Tolerances are  $\pm 0.1$

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## OUTPUT WAVEFORM



## Test Circuit for No Connect Option



Note 1: An external 0.1 $\mu$ F low frequency tantalum bypass capacitor in parallel with a 0.01 $\mu$ F high frequency ceramic bypass capacitor close to the package ground and V<sub>DD</sub> pin is required.

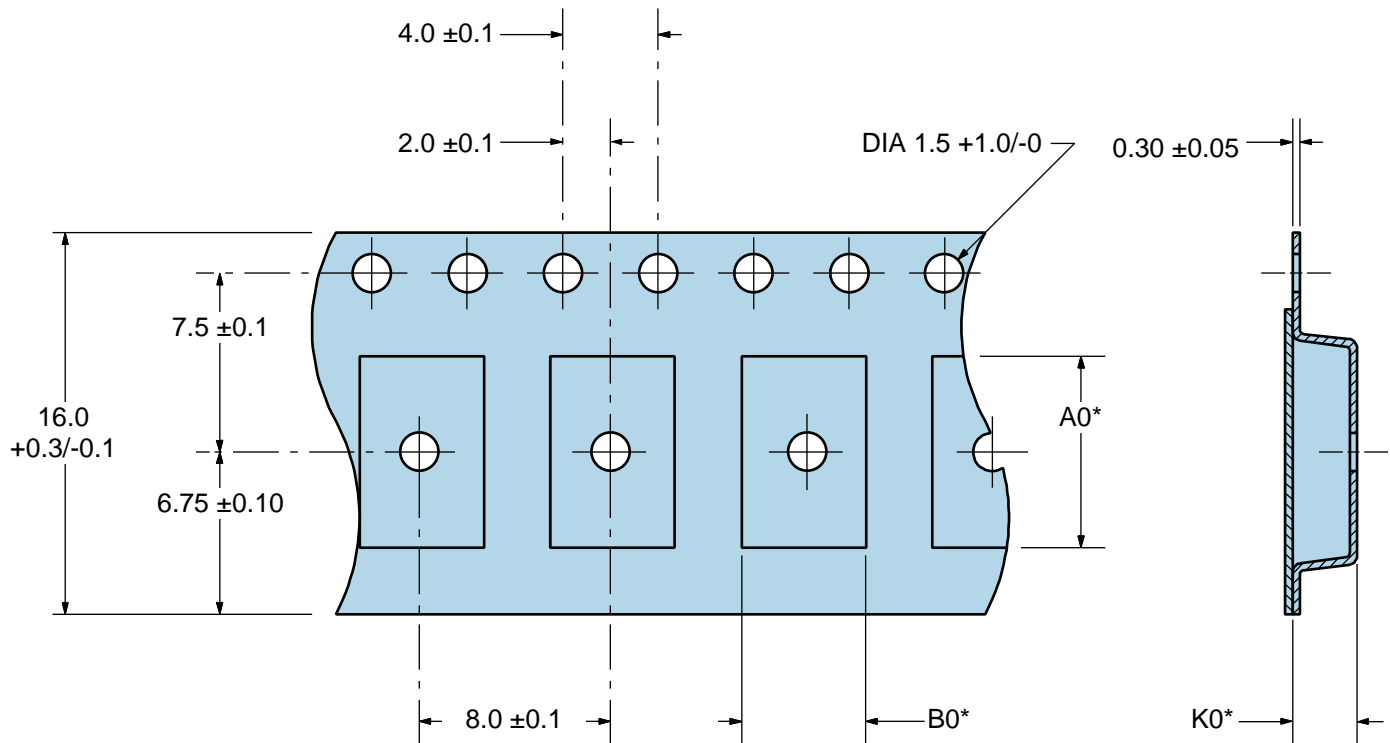
Note 2: A low capacitance (<12pF), 10X attenuation factor, high impedance (>10Mohms), and high bandwidth (>300MHz) passive probe is recommended.

Note 3: Capacitance value C<sub>L</sub> includes sum of all probe and fixture capacitance.

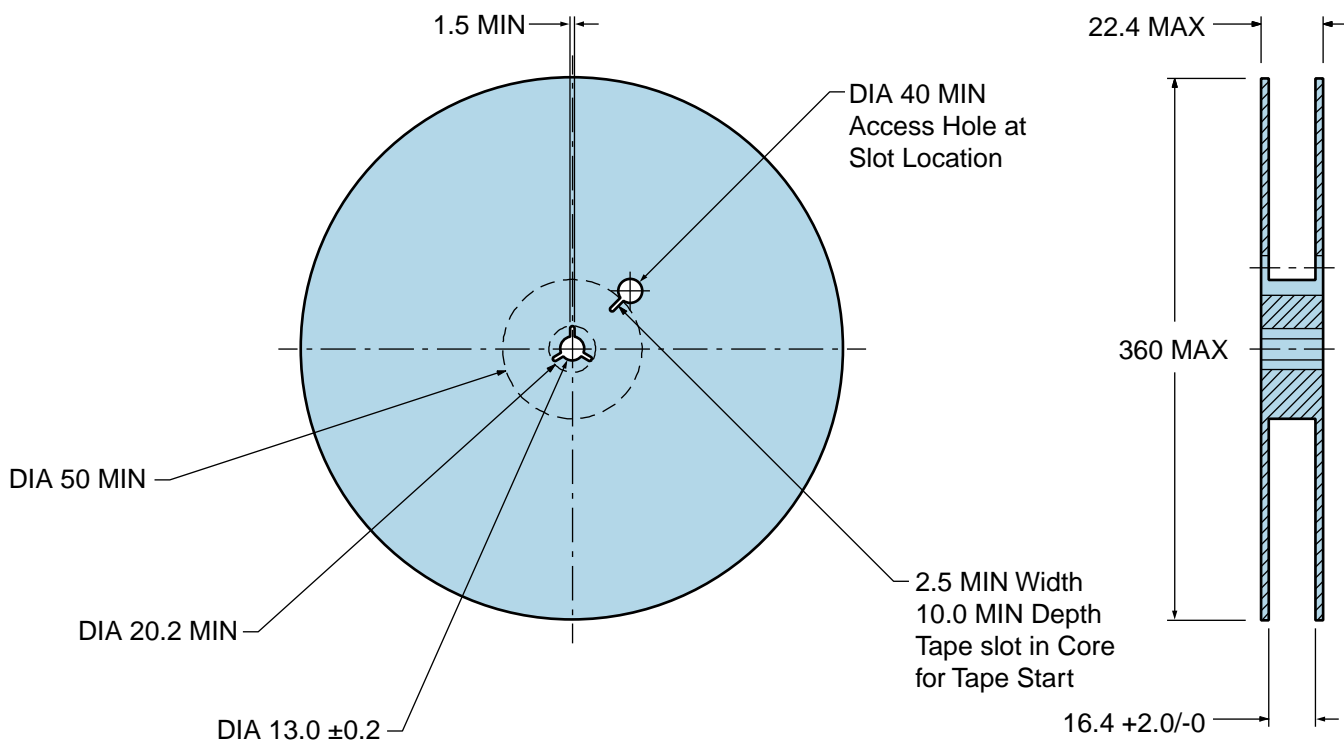
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## Tape & Reel Dimensions

Quantity Per Reel: 1,000 units



\*Compliant to EIA 481A



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## Recommended Solder Reflow Methods



### Low Temperature Infrared/Convection 220°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) 60 - 120 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)** 220°C Maximum

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

**Time within 5°C of actual peak (tp)** 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.