

EB51F3C30V-4.000M



ELECTRICAL SPECIFICATIONS

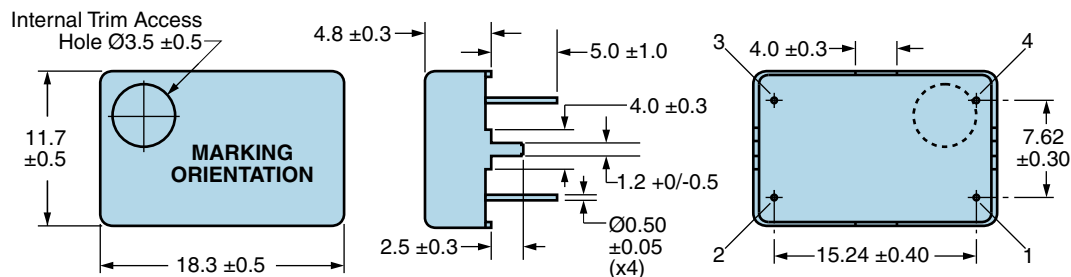
Nominal Frequency	4.000MHz
Frequency Stability	±3.0ppm Maximum (Inclusive of Operating Temperature Range)
Frequency Stability vs. Input Voltage	±0.3ppm Maximum (±5%)
Frequency Stability vs. Load	±0.2ppm Maximum (±2pF)
Aging at 25°C	±1ppm/Year Maximum
Operating Temperature Range	-20°C to +70°C
Supply Voltage	5.0Vdc ±5%
Input Current	30mA Maximum
Output Voltage Logic High (Voh)	2.4Vdc Minimum w/TTL Load, Vdd-0.5Vdc Minimum w/HCMOS Load
Output Voltage Logic Low (Vol)	0.4Vdc Maximum w/TTL Load, 0.5Vdc Maximum w/HCMOS Load
Rise/Fall Time	10nSec Maximum (Measured at 0.4Vdc to 2.4Vdc w/TTL Load, 20% to 80% of waveform w/HCMOS Load)
Duty Cycle	50 ±10(%) (Measured at 1.4Vdc w/TTL Load, at 50% of waveform w/HCMOS Load)
Load Drive Capability	10TTL Load or 15pF HCMOS Load Maximum
Output Logic Type	CMOS
Control Voltage	2.5Vdc ±2.0Vdc
Frequency Deviation	±7ppm Minimum, ±20ppm Maximum (Referenced to Fo at Vc=2.5Vdc; Vdd=5.0Vdc)
Transfer Function	Postive Transfer Characteristic
Internal Trim	±3ppm Minimum (Top of Can)
Modulation Bandwidth	10kHz Minimum (Measured at -3dB with a Control Voltage of 2.5Vdc)
Input Impedance	10kOhms Typical
Phase Noise	-70dBc at 10Hz Offset, -100dBc at 100Hz Offset, -130dBc at 1kHz Offset, -140dBc at 10kHz Offset, -145dBc at 100kHz Offset
Storage Temperature Range	-40°C to +85°C

ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

Fine Leak Test	MIL-STD-883, Method 1014 Condition A (Internal Crystal Only)
Gross Leak Test	MIL-STD-883, Method 1014 Condition C (Internal Crystal Only)
Lead Integrity	MIL-STD-883, Method 2004
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

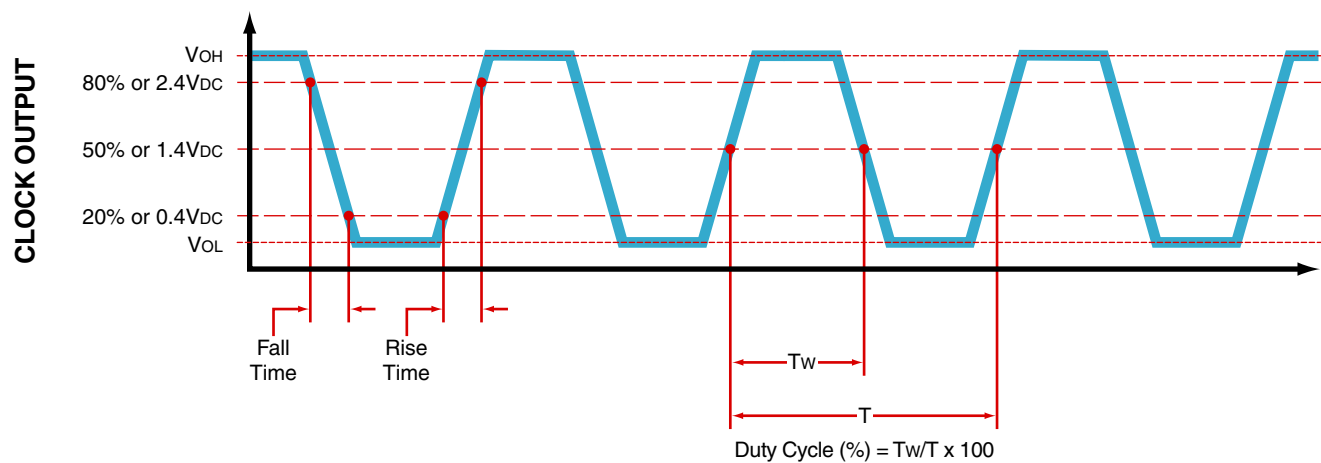
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MECHANICAL DIMENSIONS (all dimensions in millimeters)



PIN	CONNECTION
1	Voltage Control
2	Case Ground
3	Output
4	Supply Voltage

LINE	MARKING
1	ECLIPTEK
2	4.000M
3	XXYYZZ XX=Ecliptek Manufacturing Code Y=Last Digit of the Year ZZ=Week of the Year

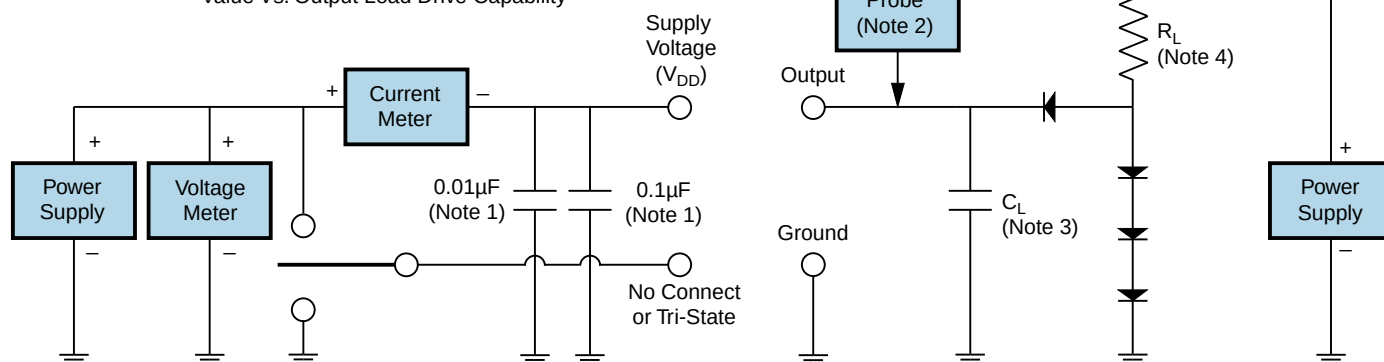
EB51F3C30V-4.000M **OUTPUT WAVEFORM**

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Test Circuit for TTL Output

Output Load Drive Capability	R_L Value (Ohms)	C_L Value (pF)
10TTL	390	15
5TTL	780	15
2TTL	1100	6
10LSTTL	2000	15
1TTL	2200	3

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



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.

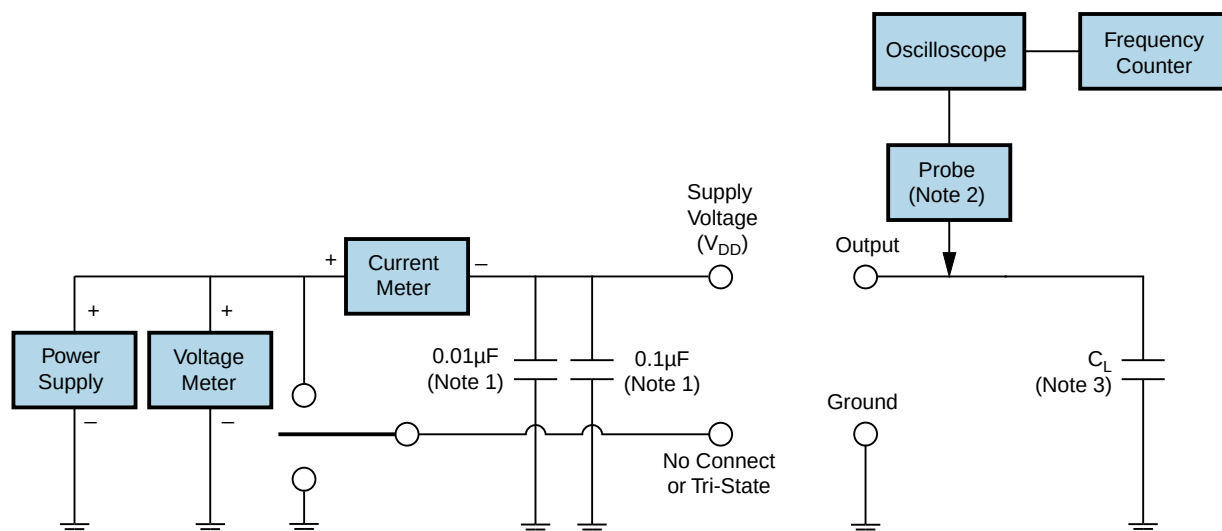
Note 3: Capacitance value C_L includes sum of all probe and fixture capacitance.

Note 4: Resistance value R_L is shown in Table 1. See applicable specification sheet for 'Load Drive Capability'.

Note 5: All diodes are MM74V00, MM74V14, or equivalent.

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Test Circuit for CMOS Output

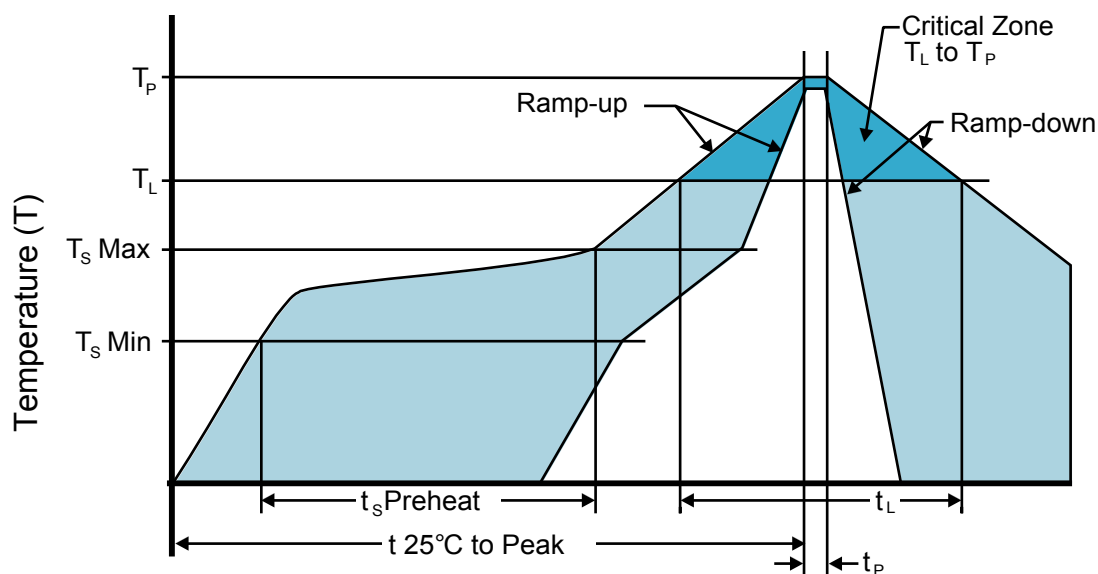


Note 1: An external 0.1μF low frequency tantalum bypass capacitor in parallel with a 0.01μF high frequency ceramic bypass capacitor close to the package ground and V_{DD} pin is required.

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 Solder Bath (Wave Solder) Time (t)

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) 245°C Maximum

Target Peak Temperature (Tp Target) 245°C Maximum 1 Time / 235°C Maximum 2 Times

Time within 5°C of actual peak (tp) 5 Seconds Maximum 1 Time / 15 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

Low Temperature Manual Soldering

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

High Temperature Manual Soldering

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

Low Temperature Solder Bath (Wave Solder) Note 1

Device is non-hermetic; Post reflow aqueous wash is not recommended

Low Temperature Solder Bath (Wave Solder) Note 2

Temperatures shown are applied to back of PCB board and device leads only.