

EC2920ETTTS-14.31818M



ELECTRICAL SPECIFICATIONS

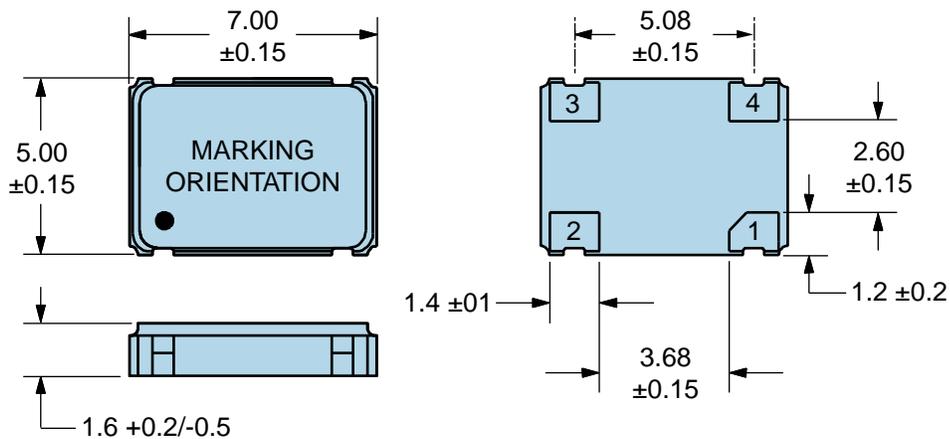
Nominal Frequency	14.31818MHz
Frequency Tolerance/Stability	±20ppm Maximum (Inclusive of all conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, First Year Aging at 25°C, Shock, and Vibration)
Operating Temperature Range	-40°C to +85°C
Supply Voltage	1.8Vdc ±5%
Input Current	4mA Maximum
Output Voltage Logic High (Voh)	90% of Vdd Minimum ((IOH = -4mA))
Output Voltage Logic Low (Vol)	10% of Vdd Maximum ((IOL = +4mA))
Rise/Fall Time	6nSec Maximum (Measured at 10% to 90% of waveform)
Duty Cycle	50 ±5(%) (Measured at 50% of waveform)
Load Drive Capability	15pF Maximum
Output Logic Type	CMOS
Pin 1 Connection	Tri-State (High Impedance)
Tri-State Input Voltage (Vih and Vil)	90% of Vdd Minimum or No Connect to Enable Output, 10% of Vdd Maximum to Disable Output (High Impedance)
Standby Current	10µA Maximum (Disabled Output, High Impedance)
RMS Phase Jitter	1pSec Maximum (12kHz to 20MHz offset frequency)
Start Up Time	10mSec Maximum
Storage Temperature Range	-55°C to +125°C

ENVIRONMENTAL & 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

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MECHANICAL DIMENSIONS (all dimensions in millimeters)

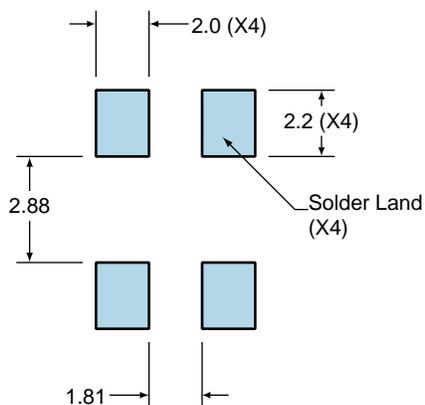


PIN	CONNECTION
1	Tri-State
2	Ground/Case Ground
3	Output
4	Supply Voltage

LINE	MARKING
1	ECLIPTEK
2	14.318M
3	XXXXX XXXXX=Ecliptek Manufacturing Identifier

Suggested Solder Pad Layout

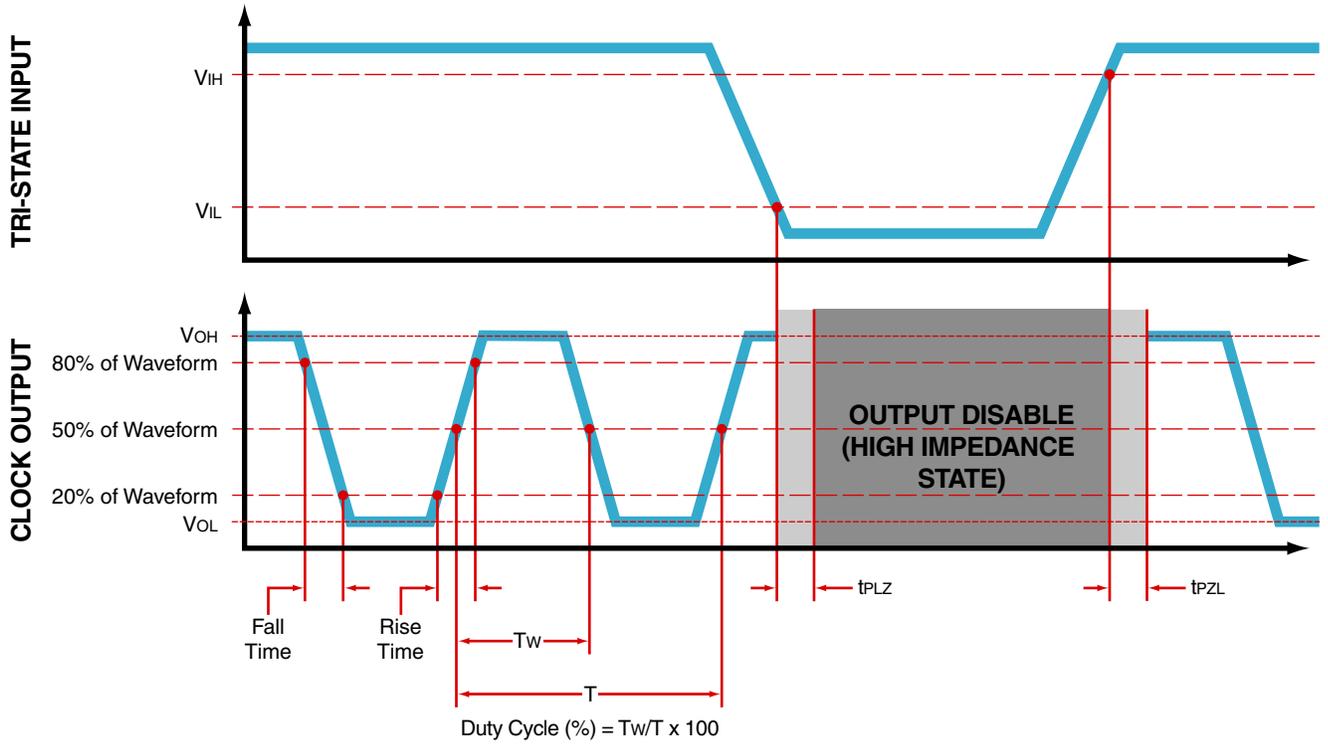
All Dimensions in Millimeters



All Tolerances are ±0.1

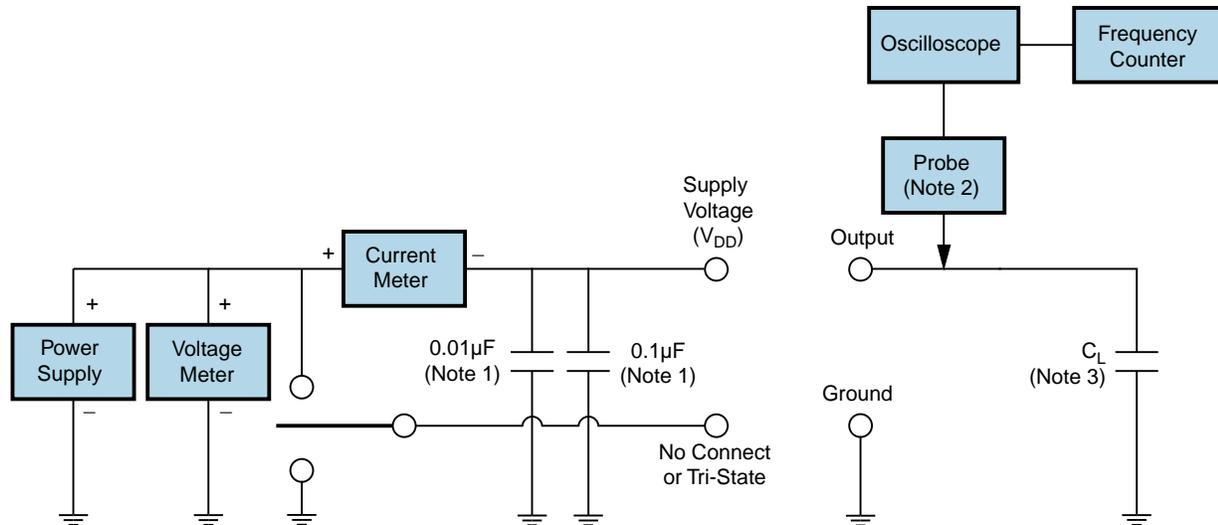
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OUTPUT WAVEFORM & TIMING DIAGRAM



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Test Circuit for CMOS Output



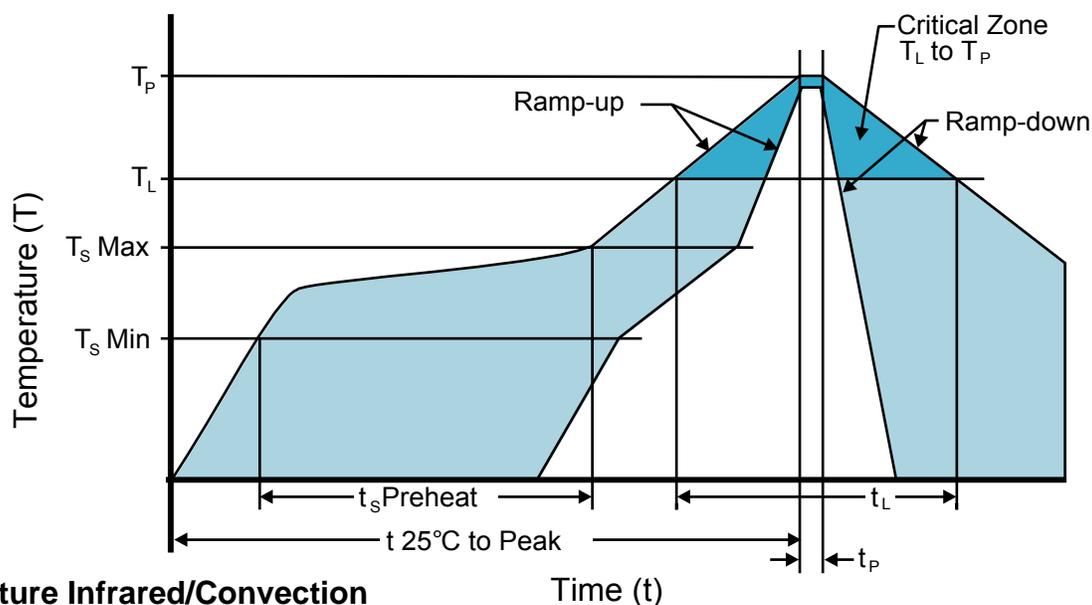
Note 1: An external $0.1\mu\text{F}$ low frequency tantalum bypass capacitor in parallel with a $0.01\mu\text{F}$ high frequency ceramic bypass capacitor close to the package ground and V_{DD} pin is required.

Note 2: A low capacitance ($<12\text{pF}$), 10X attenuation factor, high impedance ($>10\text{Mohms}$), and high bandwidth ($>300\text{MHz}$) 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

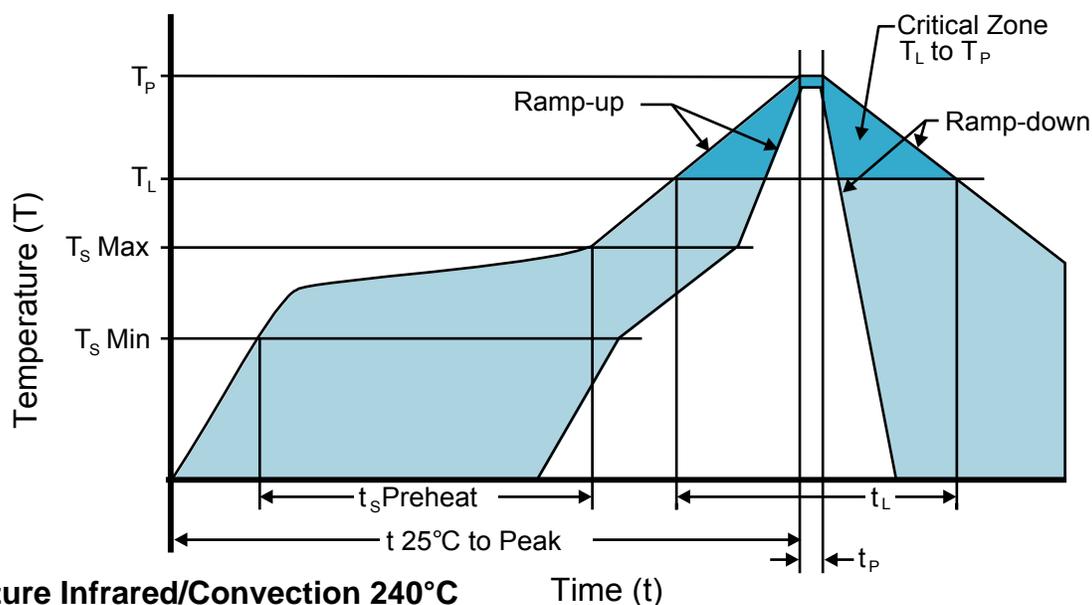


High Temperature Infrared/Convection

Ts MAX to TL (Ramp-up Rate)	3°C/Second Maximum
Preheat	
- Temperature Minimum (Ts MIN)	150°C
- Temperature Typical (Ts TYP)	175°C
- Temperature Maximum (Ts MAX)	200°C
- Time (ts MIN)	60 - 180 Seconds
Ramp-up Rate (TL to TP)	3°C/Second Maximum
Time Maintained Above:	
- Temperature (TL)	217°C
- Time (tL)	60 - 150 Seconds
Peak Temperature (TP)	260°C Maximum for 10 Seconds Maximum
Target Peak Temperature (TP Target)	250°C +0/-5°C
Time within 5°C of actual peak (tp)	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
Additional Notes	Temperatures shown are applied to body of device.

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Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 240°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) 240°C Maximum

Target Peak Temperature (Tp Target) 240°C Maximum 2 Times / 230°C Maximum 1 Time

Time within 5°C of actual peak (tp) 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

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 shown are applied to body of device.)

High Temperature Manual Soldering

260°C Maximum for 5 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to body of device.)