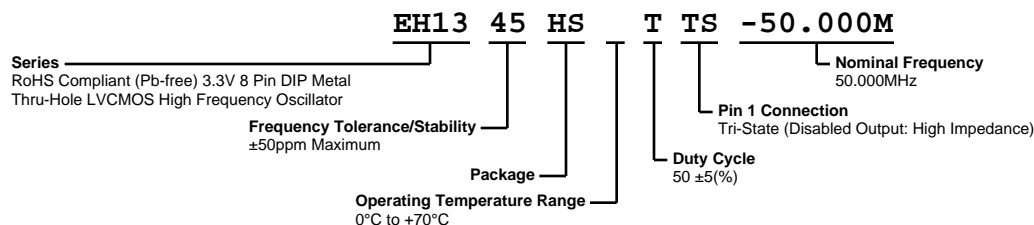


EH1345HSTTS-50.000M



ECLIPTEK
CORPORATION



ELECTRICAL SPECIFICATIONS

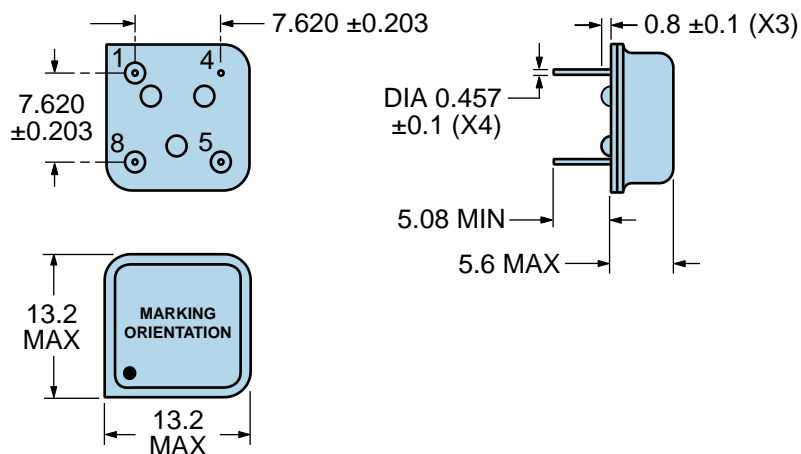
Nominal Frequency	50.000MHz
Frequency Tolerance/Stability	$\pm 50\text{ppm}$ Maximum (Inclusive of all conditions: Calibration Tolerance at 25°C , Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, 1st Year Aging at 25°C , Shock, and Vibration.)
Aging at 25°C	$\pm 5\text{ppm/year}$ Maximum
Operating Temperature Range	0°C to $+70^{\circ}\text{C}$
Supply Voltage	3.3Vdc $\pm 0.3\text{Vdc}$
Input Current	35mA Maximum (No Load)
Output Voltage Logic High (Voh)	2.7Vdc Minimum ($\text{IOH} = -8\text{mA}$)
Output Voltage Logic Low (Vol)	0.5Vdc Maximum ($\text{IOL} = +8\text{mA}$)
Rise/Fall Time	6nSec Maximum (Measured at 20% to 80% of waveform)
Duty Cycle	50 $\pm 5\%$ (Measured at 50% of waveform)
Load Drive Capability	30pF Maximum
Output Logic Type	CMOS
Pin 1 Connection	Tri-State (Disabled Output: High Impedance)
Tri-State Input Voltage (Vih and Vil)	70% of Vdd Minimum to enable output, 20% of Vdd Maximum to disable output (High Impedance), No Connect to enable output.
Absolute Clock Jitter	$\pm 250\text{pSec}$ Maximum, $\pm 100\text{pSec}$ Typical
One Sigma Clock Period Jitter	$\pm 50\text{pSec}$ Maximum, $\pm 40\text{pSec}$ Typical
Start Up Time	10mSec Maximum
Storage Temperature Range	-55°C to $+125^{\circ}\text{C}$

ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

Fine Leak Test	MIL-STD-883, Method 1014, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C
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

EH1345HSTTS-50.000M

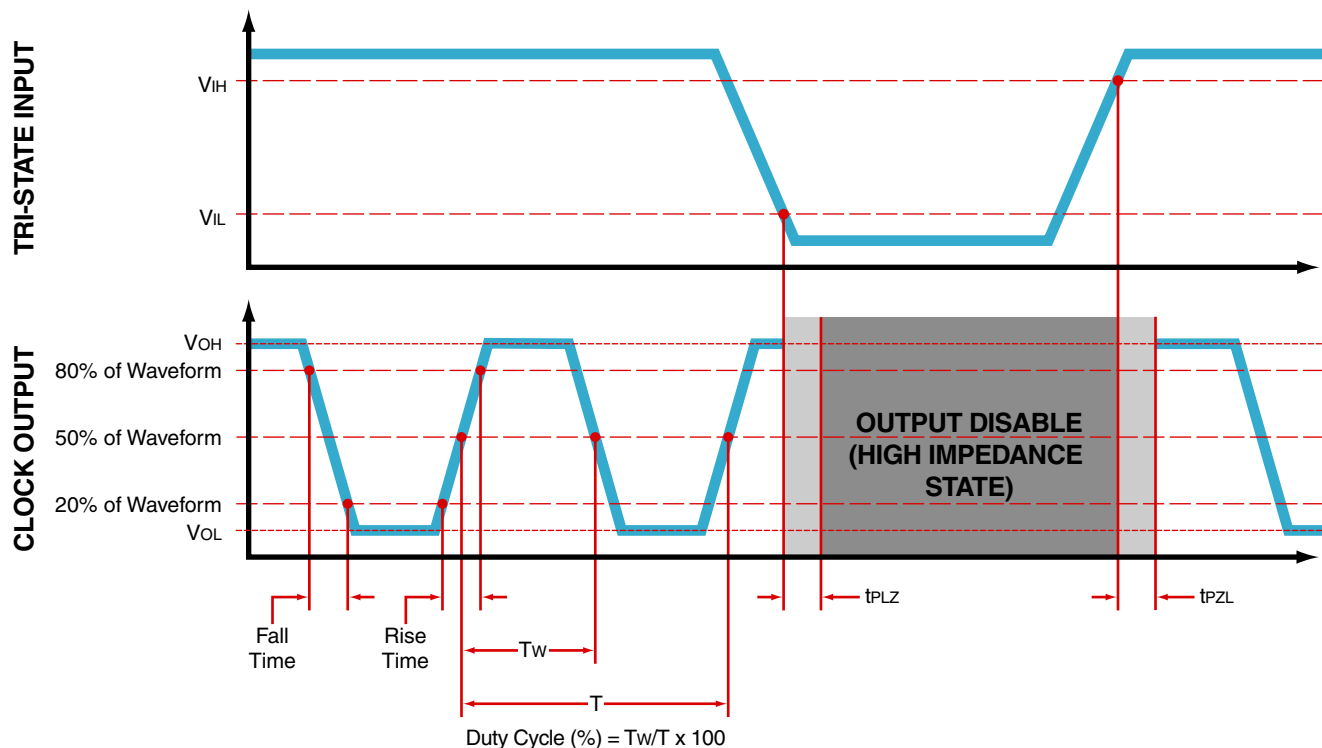
MECHANICAL DIMENSIONS (all dimensions in millimeters)



PIN	CONNECTION
1	Tri-State (High Impedance)
4	Case/Ground
5	Output
8	Supply Voltage

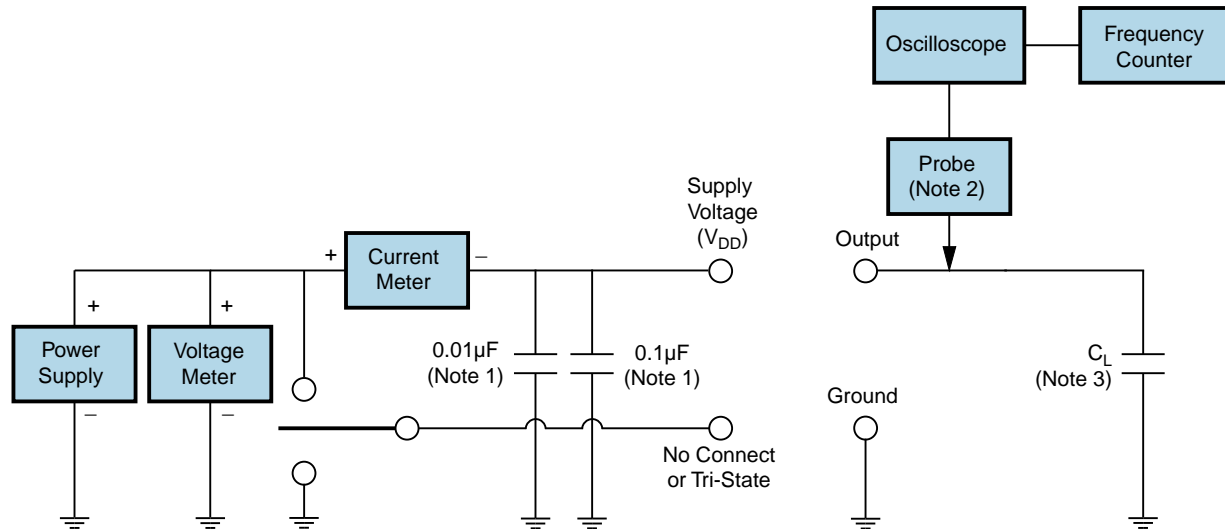
LINE	MARKING
1	ECLIPTEK
2	EH13TS EH13=Product Series
3	50.000M
4	XXYYZZ XX=Ecliptek Manufacturing Code Y=Last Digit of the Year ZZ=Week of the Year

OUTPUT WAVEFORM & TIMING DIAGRAM



EH1345HSTTS-50.000M

Test Circuit for CMOS Output

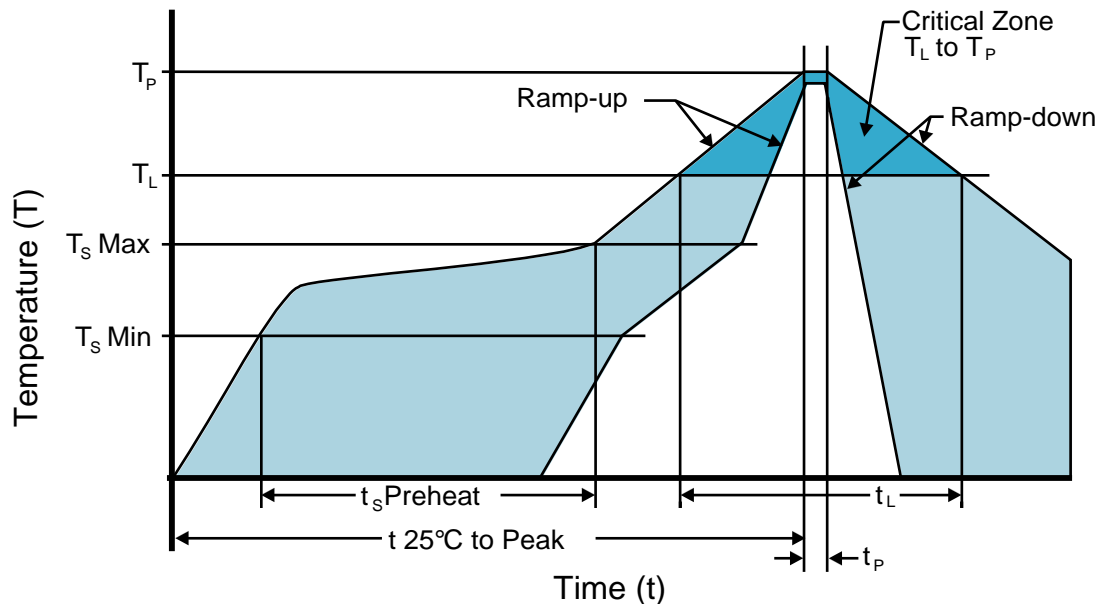


Note 1: An external 0.1 μF low frequency tantalum bypass capacitor in parallel with a 0.01 μF high frequency ceramic bypass capacitor close to the package ground and V_{DD} pin is required.

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.

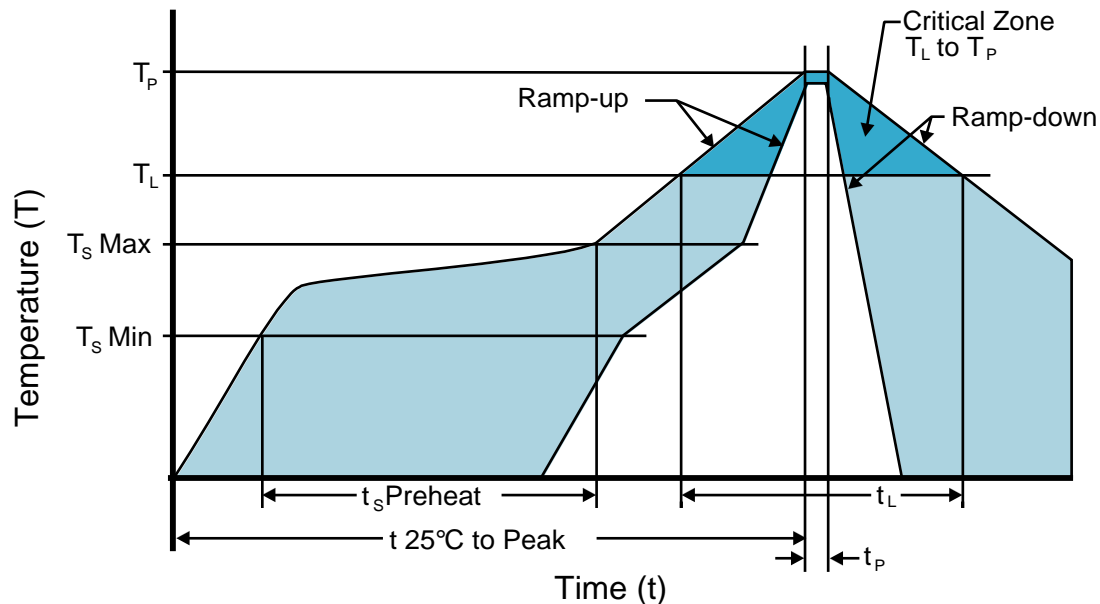
Recommended Solder Reflow Methods



High Temperature Solder Bath (Wave Solder)

$T_s \text{ MAX to } T_L$ (Ramp-up Rate)	3°C/second Maximum
Preheat	
- Temperature Minimum ($T_s \text{ MIN}$)	150°C
- Temperature Typical ($T_s \text{ TYP}$)	175°C
- Temperature Maximum ($T_s \text{ MAX}$)	200°C
- Time ($t_s \text{ MIN}$)	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 ($T_p \text{ Target}$)	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

Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 185°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)	185°C Maximum
--	---------------

Target Peak Temperature (T_P Target)	185°C Maximum 2 Times
--	-----------------------

Time within 5°C of actual peak (t_p)	10 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
-----------------------------------	---------

Recommended Solder Reflow Methods



Low Temperature Solder Bath (Wave Solder)

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) 30 - 60 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) 245°C Maximum

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

Time within 5°C of actual peak (t_p) 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.

High Temperature Manual Soldering

260°C Maximum for 5 seconds Maximum, 2 times Maximum.