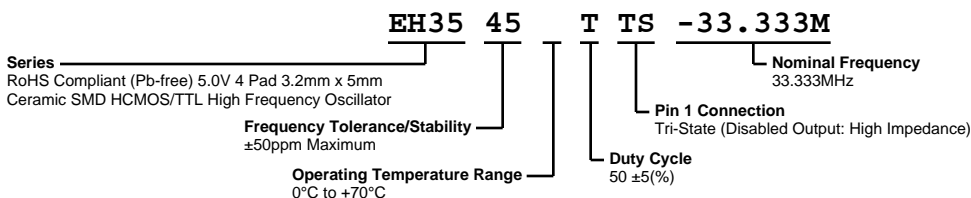


EH3545TTS-33.333M



ECLIPTEK®
CORPORATION



ELECTRICAL SPECIFICATIONS

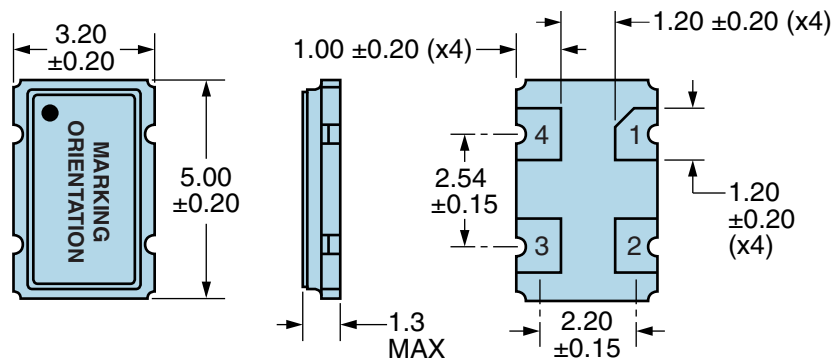
Nominal Frequency	33.333MHz
Frequency Tolerance/Stability	± 50 ppm Maximum (Inclusive of all conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, 1st Year Aging at 25°C, Shock, and Vibration)
Aging at 25°C	± 5 ppm/year Maximum
Operating Temperature Range	0°C to +70°C
Supply Voltage	5.0Vdc \pm 10%
Input Current	50mA Maximum (No Load)
Output Voltage Logic High (Voh)	2.4Vdc Minimum with TTL Load, Vdd-0.4Vdc Minimum with HCMOS Load (IOH = -16mA)
Output Voltage Logic Low (Vol)	0.4Vdc Maximum with TTL Load, 0.5Vdc Maximum with HCMOS Load (IOL = +16mA)
Rise/Fall Time	6nSec Maximum (Measured at 0.8Vdc to 2.0Vdc with TTL Load or at 20% to 80% of waveform with HCMOS Load)
Duty Cycle	50 \pm 5(%) (Measured at 50% of waveform with TTL Load or with HCMOS Load)
Load Drive Capability	10TTL Load or 50pF HCMOS Load Maximum
Output Logic Type	CMOS
Pin 1 Connection	Tri-State (Disabled Output: High Impedance)
Tri-State Input Voltage (Vih and Vil)	+2.2Vdc Minimum to enable output, +0.8Vdc Maximum to disable output (High Impedance), No Connect to enable output.
Absolute Clock Jitter	± 250 pSec Maximum, ± 100 pSec Typical
One Sigma Clock Period Jitter	± 50 pSec Maximum, ± 30 pSec Typical
Start Up Time	10mSec 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)

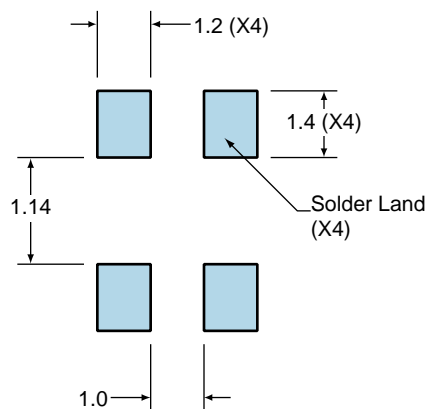


PIN	CONNECTION
1	Tri-State
2	Ground/Case Ground
3	Output
4	Supply Voltage

LINE	MARKING
1	E33.333 <i>E=Ecliptek Designator</i>

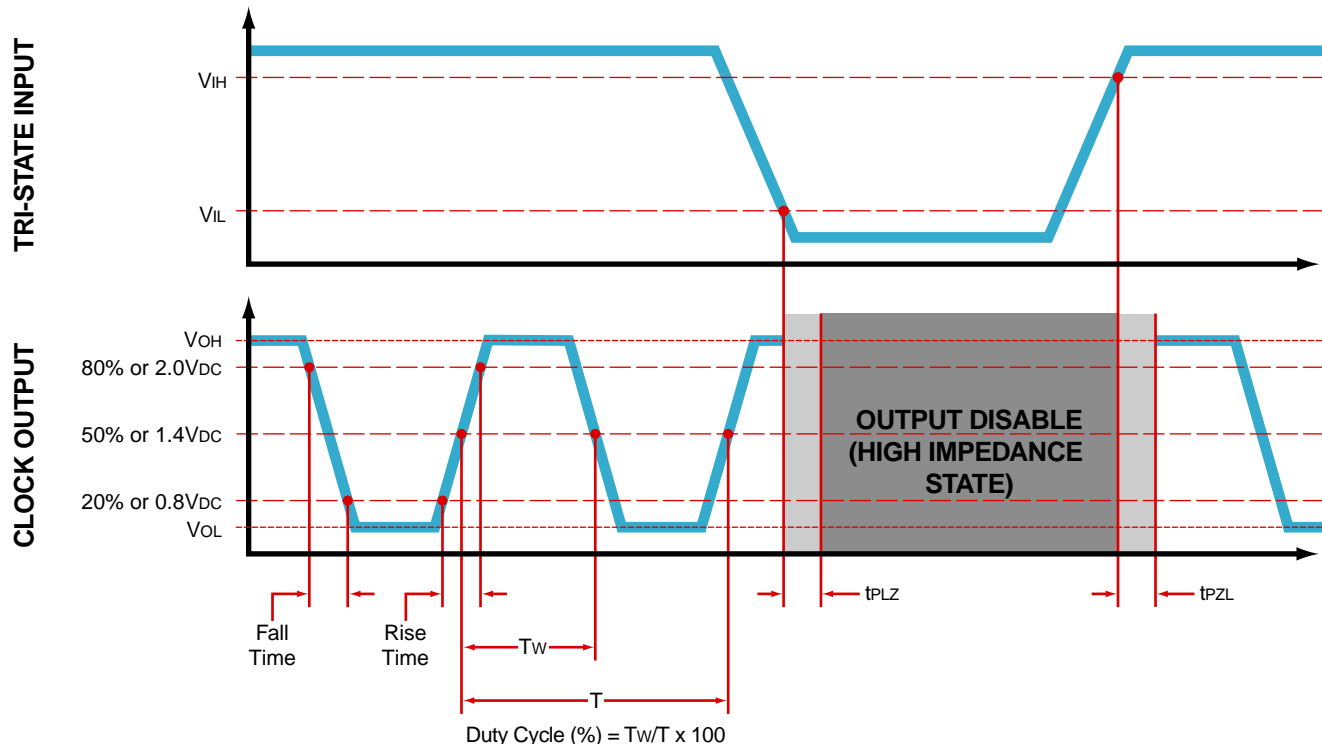
Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are ± 0.1

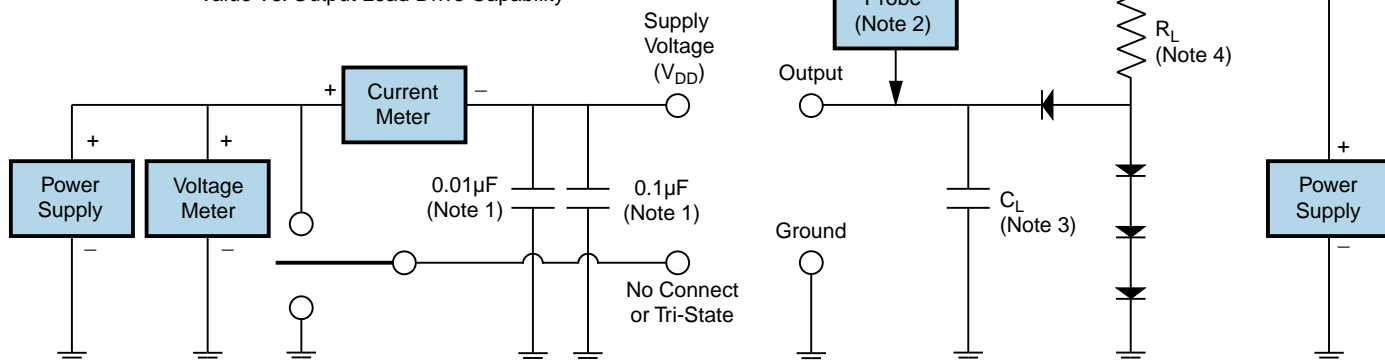
OUTPUT WAVEFORM & TIMING DIAGRAM



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 0.1μF 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.

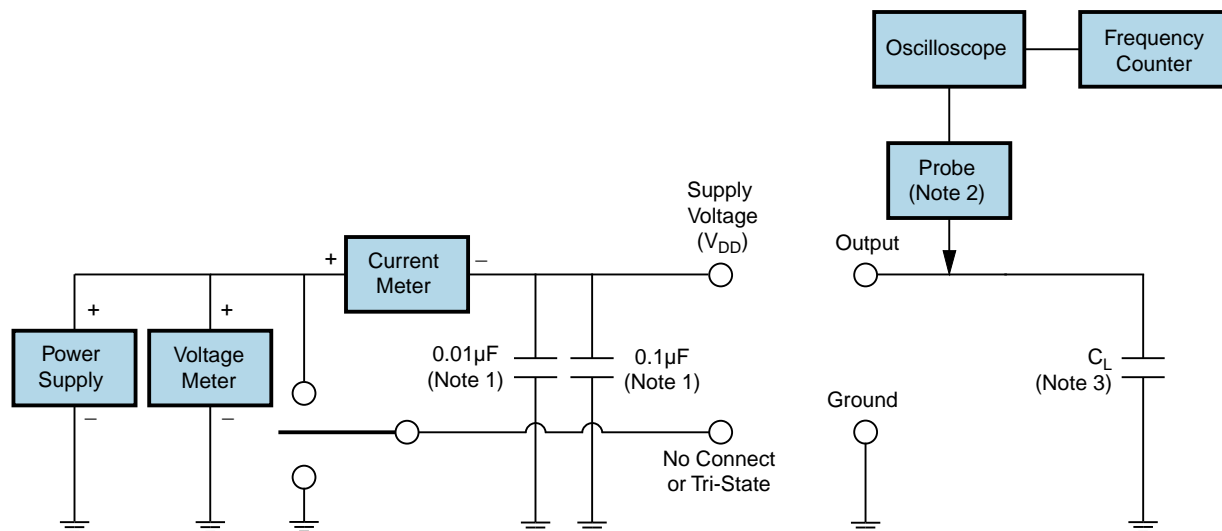
Note 3: Capacitance value C_L includes sum of all probe and fixture capacitance.

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

Note 5: All diodes are MMBD7000, MMBD914, 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



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

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 1 Time / 230°C Maximum 2 Times

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

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.