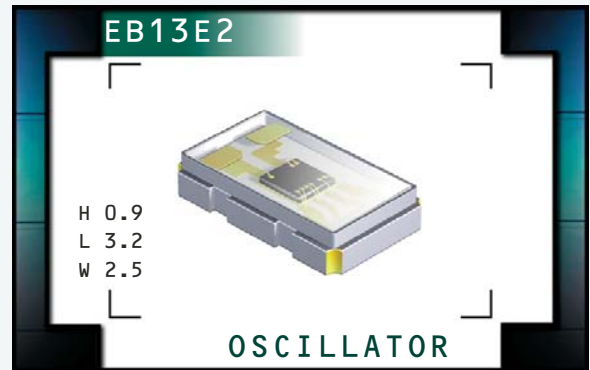


# EB13E2 Series



ECLIPTEK<sup>®</sup>  
CORPORATION

- Crystal Clock Oscillators
- LVCMOS Output
- +3.3V Supply Voltage
- Tri-State Output Function
- 4 Pad Ceramic SMD Package
- Low Stand-by Current
- RoHS Compliant (Pb-Free)



## ELECTRICAL SPECIFICATIONS

<b>Frequency Range (MHz)</b>	2.000, 2.048, 2.500, 3.000, 3.072, 3.125, 3.250, 3.579545, 3.750, 4.000, 4.096, 4.125, 4.500, 5.000, 6.000, 6.144, 6.250, 6.500, 6.750, 7.159, 8.000, 8.192, 8.250, 9.000, 10.000, 12.000, 12.288, 12.500, 13.000, 13.500, 14.3181, 14.31818, 15.000, 16.000, 16.384, 16.6666, 16.66667, 16.6667, 16.9344, 18.000, 18.432, 20.000, 24.000, 24.576, 25.000, 26.000, 27.000, 28.636363, 30.000, 32.000, 32.768, 33.000, 33.330, 33.333, 33.3333, 36.000, 38.400, 40.000, 48.000, 50.000, 50.720, 54.000, 58.000, 66.666, 72.000, 98.304, or 100.000MHz
------------------------------	--

<b>Operating Temperature Range (OTR)</b>	-20°C to +70°C -40°C to +85°C
--	----------------------------------

<b>Storage Temperature Range (STR)</b>	-55°C to +125°C
--	-----------------

<b>Supply Voltage (V<sub>DD</sub>)</b>	3.3V <sub>DC</sub> ±5%
--	------------------------

<b>Input Current (I<sub>DD</sub>)</b>	3mA Maximum
2.000MHz to 9.999MHz	4mA Maximum
10.000MHz to 19.999MHz	5mA Maximum
20.000MHz to 39.999MHz	6mA Maximum
40.000MHz to 50.000MHz	9mA Maximum
50.001MHz to 58.000MHz	12mA Maximum
58.001MHz to 70.000MHz	14mA Maximum
70.001MHz to 100.000MHz	

<b>Frequency Tolerance/Stability</b>	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	±100ppm Maximum ±50ppm Maximum ±25ppm Maximum
--------------------------------------	---	---

<b>Output Voltage Logic High (V<sub>OH</sub>)</b>	90% of V <sub>DD</sub> Minimum (I <sub>OH</sub> = -4mA)
---	---

<b>Output Voltage Logic Low (V<sub>OL</sub>)</b>	10% of V <sub>DD</sub> Maximum (I <sub>OL</sub> = +4mA)
--	---

<b>Rise Time / Fall Time (T<sub>R</sub>/T<sub>F</sub>)</b>	20% to 80% of Waveform, 2MHz to 24MHz	5nSeconds Maximum
	20% to 80% of Waveform, 24.001MHz to 50MHz	4nSeconds Maximum
	20% to 80% of Waveform, 50.001MHz to 100MHz	3nSeconds Maximum

<b>Duty Cycle (SYM)</b>	at 50% of Waveform	50 ±5(%)
-------------------------	--------------------	----------

<b>Load Drive Capability (C<sub>LOAD</sub>)</b>	15pF Maximum
---	--------------

<b>Tri-State Input Voltage</b>	No Connection	Enables Output
	V <sub>IH</sub> : ≥80% of V <sub>DD</sub>	Enables Output
	V <sub>IL</sub> : ≤20% of V <sub>DD</sub>	Disables Output: High Impedance

<b>Standby Current</b>	Disabled Output: High Impedance	10µA Maximum
------------------------	---------------------------------	--------------

<b>Start Up Time (T<sub>S</sub>)</b>	10 mSeconds Maximum
--------------------------------------	---------------------

<b>RMS Phase Jitter</b>	F <sub>J</sub> = 12kHz to 20MHz	1 pSeconds Maximum
-------------------------	---------------------------------	--------------------

MANUFACTURER ECLIPTEK CORP.	CATEGORY OSCILLATOR	SERIES EB13E2	PACKAGE CERAMIC	VOLTAGE 3.3V	CLASS OS5A	REV. DATE 08/09
--------------------------------	------------------------	------------------	--------------------	-----------------	---------------	--------------------

## PART NUMBERING GUIDE

### EB13E2 E 2 H - 40.000 TR

#### FREQUENCY TOLERANCE / STABILITY

C=±100ppm Maximum over -20°C to +70°C  
 D=±50ppm Maximum over -20°C to +70°C  
 E=±25ppm Maximum over -20°C to +70°C  
 G=±100ppm Maximum over -40°C to +85°C  
 H=±50ppm Maximum over -40°C to +85°C  
 J=±25ppm Maximum over -40°C to +85°C

#### PACKAGING OPTIONS

Blank=Bulk, TR=Tape & Reel

#### FREQUENCY

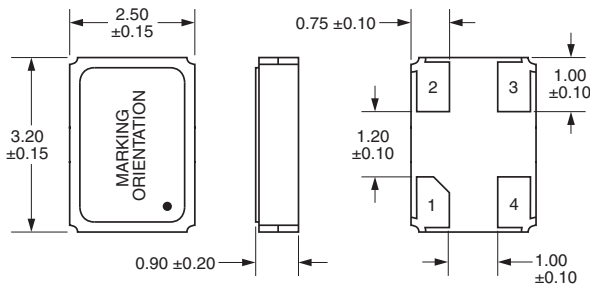
#### OUTPUT CONTROL FUNCTION

H=Tri-State

#### DUTY CYCLE

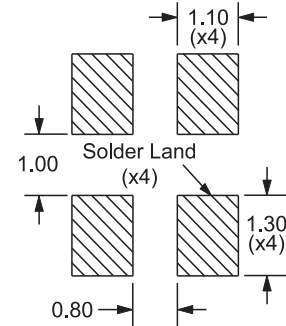
2=50 ±5(%)

#### MECHANICAL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



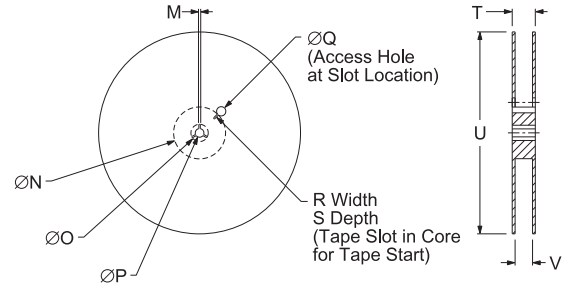
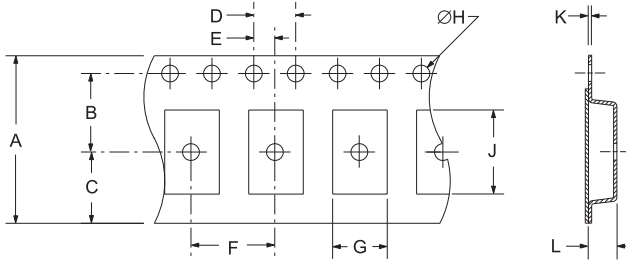
Pin 1: Tri-State  
 Pin 2: Case Ground  
 Pin 3: Output  
 Pin 4: Supply Voltage

#### SUGGESTED SOLDER PAD LAYOUT ALL DIMENSIONS IN MILLIMETERS



Tolerances= ±0.1

#### TAPE AND REEL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



TAPE	A	B	C	D	E	
	8.0±0.2	3.5±0.1	2.75±0.1	4.0±0.1	2.0±0.1	
F	G	H	J	K	L	
	4.0±0.1	2.7±.1	1.55+0.5	3.4±.1	0.25±0.05	1.4±.1

REEL	M	N	O	P	Q	
	1.5 MIN	50 MIN	20.2 MIN	13.0±0.5	40 MIN	
R	S	T	U	V	QTY/REEL	
	2.5 MIN	10 MIN	14.4 MAX	180 MAX	8.4+1.5-0	1,000

\*Compliant to EIA 481A

#### ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

PARAMETER	Specification
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

#### MARKING SPECIFICATIONS

Line 1: E XX.X  
 Frequency in MHz (3 Digits Maximum + Decimal)

Line 2: XX Y ZZ  
 Week of Year  
 Last Digit of Year  
 Ecliptek Manufacturing Identifier

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	EB13E2	CERAMIC	3.3V	OS5A	08/09