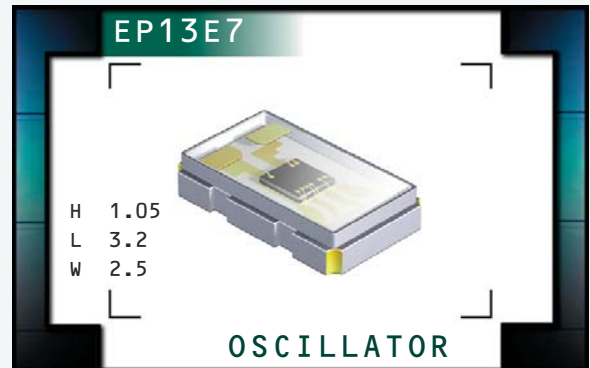


# EP13E7 Series



ECLIPTEK<sup>®</sup>  
CORPORATION

- Programmable Crystal Oscillators
- LVCMOS Output
- +3.3V Supply Voltage
- Tri-State and Power Down Options
- 4 Pad Ceramic SMD Package
- RoHS Compliant (Pb-Free)



## ELECTRICAL SPECIFICATIONS

<b>Nominal Frequency</b>	3.300MHz, 3.6864MHz, 5.000MHz, 6.000MHz, 6.144MHz, 7.000MHz, 8.000MHz, 9.000MHz, 10.000MHz, 12.000MHz, 14.7456MHz, 16.000MHz, 19.200MHz, 20.000MHz, 24.000MHz, 25.000MHz, 26.000MHz, 27.000MHz, 30.000MHz, 32.000MHz, 33.000MHz, 33.330MHz, 33.333MHz, 37.500MHz, 40.000MHz, 48.000MHz, 50.000MHz, 52.000MHz, 54.000MHz, 55.000MHz, 66.000MHz, 70.000MHz, 75.000MHz, 80.000MHz, 83.000MHz, 88.000MHz, 96.000MHz, and 100.000MHz	
<b>Operating Temperature Range</b>	-20°C to +70°C or -40°C to +85°C	
<b>Storage Temperature Range</b>	-55°C to +125°C	
<b>Supply Voltage (V<sub>DD</sub>)</b>	3.3V <sub>DC</sub> ±5%	
<b>Input Current</b>	3.300MHz to 25.000MHz	12mA Maximum
	25.001MHz to 75.000MHz	17mA Maximum
	75.001MHz to 90.000MHz	22mA Maximum
	90.001MHz to 100.000MHz	25mA Maximum
<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, 1st Year Aging at 25°C, 260°C Reflow, Shock, and Vibration	
	±25ppm, 50ppm or ±100ppm Maximum	
<b>Output Voltage Logic High (V<sub>OH</sub>)</b>	I <sub>OH</sub> = -8mA	90% of V <sub>DD</sub> Minimum
<b>Output Voltage Logic Low (V<sub>OL</sub>)</b>	I <sub>OL</sub> = +8mA	10% of V <sub>DD</sub> Maximum
<b>Rise Time / Fall Time</b>	3.300MHz to 50.000MHz, 20% to 80% of waveform	6nSeconds Maximum
	50.001MHz to 75.000MHz, 20% to 80% of waveform	4nSeconds Maximum
	75.001MHz to 100.000MHz, 20% to 80% of waveform	2nSeconds Maximum
<b>Duty Cycle</b>	at 50% of waveform	50 ±5(%)
<b>Load Drive Capability</b>	3.300MHz to 50.000MHz	30pF Maximum
	50.001MHz to 100.000MHz	15pF Maximum
<b>Output Logic Type</b>	CMOS	
<b>Pad 1 Connection</b>	Tri-State or Power Down	
<b>Pad 1 Input Voltage</b>	V <sub>IH</sub> of 90% of V <sub>DD</sub> Minimum	Enables Output
	No Connection	Enables Output
	V <sub>IL</sub> of 10% of V <sub>DD</sub> Maximum	Disables Output
<b>Standby Current</b>	Disabled Output (Logic Low)	30µA Maximum
<b>Disable Current</b>	Disabled Output (High Impedance)	8mA Maximum
<b>Absolute Clock Jitter</b>	3.300MHz to 24.999999MHz	350pSec Maximum
	25.000MHz to 100.000MHz	200pSec Maximum
<b>Aging at 25°</b>	±5ppm/Year Maximum	
<b>Start Up Time</b>	10mSec Maximum	

MANUFACTURER ECLIPTEK CORP.	CATEGORY OSCILLATOR	SERIES EP13E7	PACKAGE CERAMIC	VOLTAGE 3.3V	CLASS 055N	REV. DATE 09/11
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## PART NUMBERING GUIDE

### EP13E7 H 2 H - 50.000M TR

**FREQUENCY TOLERANCE & STABILITY/  
OPERATING TEMPERATURE RANGE**

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

**DUTY CYCLE**

2 = 50% ±5%

**AVAILABLE OPTIONS**

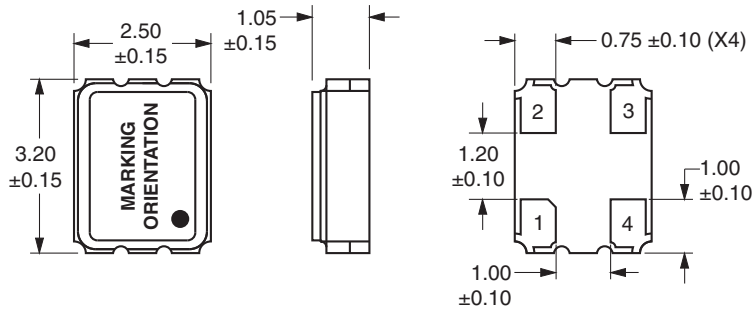
Blank = Bulk  
 TR = Tape & Reel

**FREQUENCY**

**LOGIC CONTROL/ADDITIONAL OUTPUT**

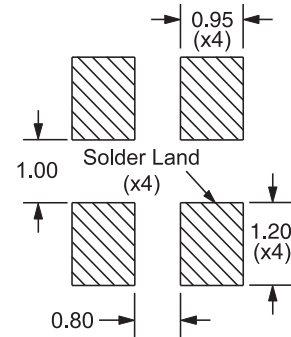
H = Tri-State  
 J = Power Down

**MECHANICAL DIMENSIONS**  
ALL DIMENSIONS IN MILLIMETERS



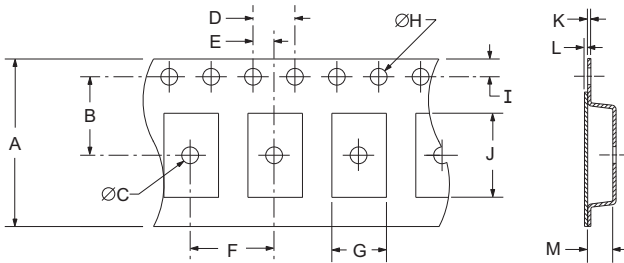
Pin 1: Tri-State or Power Down  
 Pin 2: Case Ground  
 Pin 3: Output  
 Pin 4: Supply Voltage

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

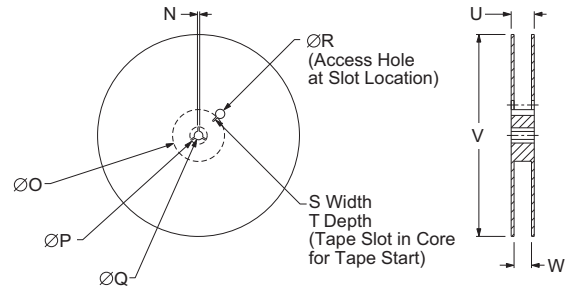


Tolerances = ±0.1

**TAPE AND REEL DIMENSIONS**  
ALL DIMENSIONS IN MILLIMETERS



TAPE	A	B	C	D	E	F
	8.0 ±0.3	3.50 ±0.05	1.0 MIN	4.0 ±0.1	2.00 ±0.05	4.0 ±0.1
G	H	I	J	K	L	M
A0	1.5 +0.1/-0.0	1.75 ±0.10	B0	0.6 MAX	0.10 MAX	K0



REEL	N	O	P	Q	R
	1.5 MIN	50 MIN	20.2 MIN	13.0 ±0.2	40 MIN
S	T	U	V	W	QTY/REEL
2.5 MIN	10 MIN	14.4 MAX	180 MAX	8.4 ±1.5/-0.0	1,000

Note: Compliant to EIA-481

**ENVIRONMENTAL/MECHANICAL SPECIFICATIONS**

Characteristic	Specification
ESD Susceptibility	MIL-STD-883, Method 3015, Class 1, HBM: 1500Vdc
Fine Leak Test	MIL-STD-883, Method 1014, Condition A
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
Thermal Shock	MIL-STD-883, Method 1011, Condition B
Vibration	MIL-STD-883, Method 2007, Condition A

**MARKING SPECIFICATIONS**

Line 1: EPO  
 Line 2: XXXXX  
 Ecliptek Manufacturing Identifier

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	EP13E7	CERAMIC	3.3V	OS5N	09/11