

## Product EOL Announcement

The Product EOL Announcement signifies that a product series has entered the final phase of the Ecliptek Product Life Cycle, and serves as advance notice of product termination per the Ecliptek End of Life (EOL) policy.

Ecliptek Corporation announces End of Life initiation for the following product series with the intent of discontinuing its availability.

EOL Series	Description
EPS13D2	3.3V 4-Pad 5x7mm Ceramic SMD LVCMOS Programmable Spread Spectrum Oscillator

### EOL Timeline

The last date Ecliptek will accept orders (Stage 2) and the last date orders may be scheduled for shipment (Stage 3) are listed in the table below.

Stage 1 EOL Announce Date	Stage 2 Last Date to Order	Stage 3 Last Date to Ship
31-December-2009	1-September-2010	1-December-2010

### Alternative Products

In order to fulfill your requirements beyond this product's discontinuation, we invite you to evaluate the recommended alternative Ecliptek product series referenced below. Please click on the link to view the data sheet.

Alternative Series	Description
<a href="#">EPSA13</a>	RoHS Compliant (Pb-free) 3.3V 4 Pad 5mm x 7mm Ceramic SMD LVCMOS Programmable Spread Spectrum Oscillator

### Automated EOL Notification

Ecliptek offers automated notification of Product EOL Announcements. Place part numbers for which you'd like to receive EOL Notifications into your personalized [Parts List](#) on our website and we'll email you when EOL is announced.

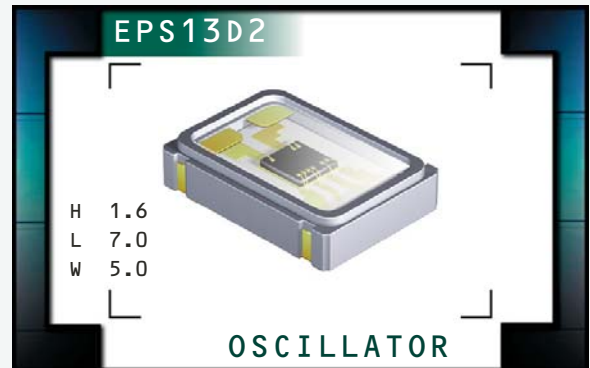
Please do not hesitate to contact us if you have any questions or need further assistance.

Ecliptek Global Customer Support Team  
(800) 433-1280 x300  
[customersupport@ecliptek.com](mailto:customersupport@ecliptek.com)

# EPS13D2 Series



- RoHS Compliant (Pb-Free)
- EPS™ Spread Spectrum Programmable Clock Oscillators
- Ceramic 4-pad SMD Package
- Low EMI LVCMOS Output
- 3.3V Supply Voltage
- Stability to 100ppm
- Center Spread and Down Spread Modulation
- Tri-State and Power Down Options Available
- Available on Tape & Reel



## ELECTRICAL SPECIFICATIONS

<b>Nominal Frequency</b>		14.318MHz to 166.000MHz
<b>Operating Temperature Range</b>		-20°C to 70°C
<b>Storage Temperature Range</b>		-55°C to 125°C
<b>Supply Voltage (V<sub>DD</sub>)</b>		3.3V <sub>DC</sub> ±0.3V <sub>DC</sub>
<b>Maximum Supply Voltage</b>		-0.5V <sub>DC</sub> to 7.0V <sub>DC</sub>
<b>Input Current</b>	Unloaded; V <sub>DD</sub> = 3.3V <sub>DC</sub>	30mA Maximum
<b>Frequency Tolerance / Stability</b>	Inclusive of All Conditions: Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, 1st Year Aging at 25°C, Shock, and Vibration	±100ppm Maximum
<b>Output Voltage Logic High (V<sub>OH</sub>)</b>	I <sub>OH</sub> = -8mA	V <sub>DD</sub> -0.4V <sub>DC</sub> Minimum
<b>Output Voltage Logic Low (V<sub>OL</sub>)</b>	I <sub>OL</sub> = +8mA	0.4V <sub>DC</sub> Maximum
<b>Rise Time / Fall Time</b>	20% to 80% of waveform	2.7nSeconds Maximum
<b>Duty Cycle</b>	at 50% of waveform	50 ±10(%) 50 ±5(%)
<b>Load Drive Capability</b>		15pF Maximum
<b>Output Control Function</b>	Internal Pull Down Resistor of 100kOhms Typical on Pad 3, Internal Pull Up Resistor of 100kOhms Typical on Pad 1	Tri-State or Power Down
<b>Tri-State/Power Down Input Voltage</b>	V <sub>IH</sub> of 70% of V <sub>DD</sub> Minimum No Connection V <sub>IL</sub> of 30% of V <sub>DD</sub> Maximum	Enables Output Enables Output Disables Output: High Impedance
<b>Power Down Output Disable Time</b>		350nSec Maximum
<b>Power Down Output Enable Time</b>		3mSec Maximum
<b>Standby Current</b>	Unloaded; Pad 1 = Ground; V <sub>DD</sub> = 3.3V <sub>DC</sub>	50µA Maximum
<b>Tri-State Output Disable Time</b>		350nSec Maximum
<b>Tri-State Output Enable Time</b>		350nSec Maximum
<b>Disable Current</b>	Unloaded; Pad 1 = Ground; V <sub>DD</sub> = 3.3V <sub>DC</sub>	20mA Maximum
<b>Spread Spectrum Percentage</b>	±0.25%, ±0.50%, ±0.75%, ±1.0%, ±1.5%, ±2.0% -0.50%, -1.0%, -1.5%, -2.0%, -3.0%, -4.0%	Center Spread Down Spread
<b>Modulation Frequency</b>		30kHz Minimum, 31.5kHz Typical, 33kHz Maximum
<b>Period Jitter</b>	Cycle to Cycle; Spread Spectrum-On; V <sub>DD</sub> = 3.3V <sub>DC</sub>	700pSec Maximum < 25.000MHz 400pSec Maximum 25.000MHz to 133.000MHz 300pSec Maximum > 133.000MHz
<b>Aging</b>	First Year at 25°C	±5ppm Maximum
<b>Start Up Time</b>		10mSec Maximum

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	EPS13D2	CERAMIC	3.3V	OS2G	09/07

## PART NUMBERING GUIDE

### EPS13D2 C 1 H A - 44.736M TR

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

C=±100ppm Maximum over -20°C to +70°C

**DUTY CYCLE**

1=50% ±10%, 2=50% ±5%

**LOGIC CONTROL/ADDITIONAL OUTPUT**

H=Tri-State  
J=Power Down

**AVAILABLE OPTIONS**

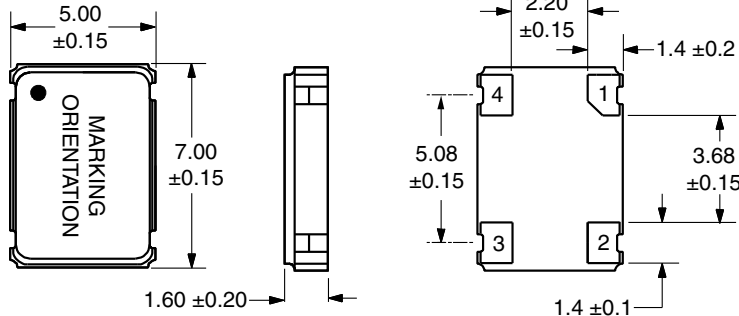
Blank=Tubes  
TR=Tape and Reel (Standard)

**FREQUENCY**

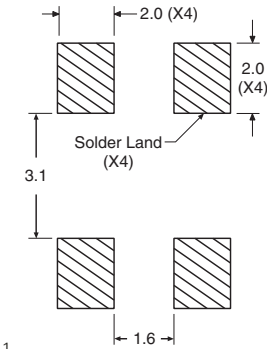
**SPREAD SPECTRUM PERCENTAGE**

A=±0.25% Center Spread    G=-0.50% Down Spread  
B=±0.50% Center Spread    H=-1.00% Down Spread  
C=±0.75% Center Spread    J=-1.50% Down Spread  
D=±1.00% Center Spread    L=-2.00% Down Spread  
E=±1.50% Center Spread    N=-3.00% Down Spread  
F=±2.00% Center Spread    P=-4.00% Down Spread

**MECHANICAL DIMENSIONS**  
ALL DIMENSIONS IN MILLIMETERS



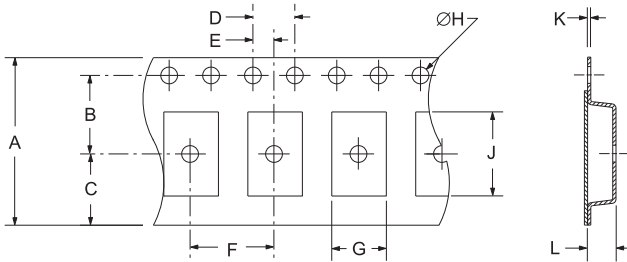
**SUGGESTED SOLDER PAD LAYOUT**  
ALL DIMENSIONS IN MILLIMETERS



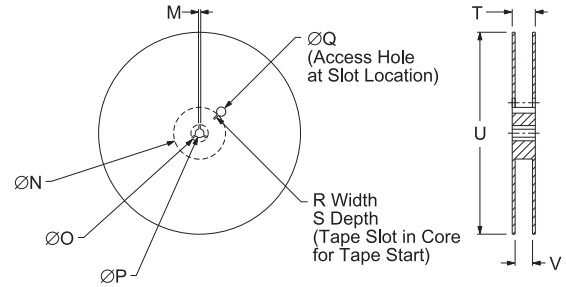
Tolerances=±0.1

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

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



TAPE	A	B	C	D	E
	16±.3	7.5±.1	6.75±.1	4 ±.1	2±.1
F	G	H	J	K	L
8±.1	A0*	1.5 +.1-0	B0*	.3 ±.05	K0*



REEL	M	N	O	P	Q
	1.5 MIN	50 MIN	20.2 MIN	13±.2	40 MIN
R	S	T	U	V	QTY/REEL
2.5 MIN	10 MIN	22.4 MAX	360 MAX	16.4+2-0	1,000

\*Compliant to EIA 481A

**ENVIRONMENTAL/MECHANICAL SPECIFICATIONS**

Characteristic	Specification
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
Vibration	MIL-STD-883, Method 2007, Condition A
Solderability	MIL-STD-883, Method 2002
Temperature Cycling	MIL-STD-883, Method 1010
Resistance to Soldering Heat	MIL-STD-202, Method 210
Resistance to Solvents	MIL-STD-202, Method 215

**MARKING SPECIFICATIONS**

Line 1: ECLIPTEK  
 Line 2: XX.XXX M  
 Line 3: S XX Y ZZ

Frequency in MHz (5 Digits Maximum + Decimal)

Week of Year  
 Last Digit of Year  
 Ecliptek Manufacturing Identifier  
 Configuration Designator

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	EPS13D2	CERAMIC	3.3V	OS3G	09/07