

# EP36 Series

- RoHS Compliant (Pb-Free)
- EPO™ Programmable Oscillators
- 3.3V supply voltage
- LVHCMOS output
- Ceramic SMD package
- Stability to  $\pm 50$ ppm
- Available on tape and reel



www.DataSheet4U.com®  
ECLIPTEK  
CORPORATION



## ELECTRICAL SPECIFICATIONS

<b>Frequency Range</b>	1.000MHz to 106.250MHz	
<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 (<math>V_{DD}</math>)</b>	3.3V <sub>DC</sub> $\pm 0.3V_{DC}$	
<b>Input Current</b>	28mA Maximum (Unloaded)	
<b>Disable Current (TS Option)</b>	16mA Maximum (Pin 1=Ground)	
<b>Standby Current (PD Option)</b>	20 $\mu$ A Maximum (Pin 1=Ground)	
<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	$\pm 100$ ppm or $\pm 50$ ppm Maximum
<b>Output Voltage Logic High (<math>V_{OH}</math>)</b>	$V_{DD} - 0.4V_{DC}$ Minimum $I_{OH} = -8$ mA	
<b>Output Voltage Logic Low (<math>V_{OL}</math>)</b>	0.4V <sub>DC</sub> Maximum $I_{OL} = +8$ mA	
<b>Rise Time / Fall Time</b>	20% to 80% of waveform	4 nSeconds Maximum
<b>Duty Cycle</b>	at 50% of waveform	50 $\pm 10$ (%) (Standard)
	at 50% of waveform ( $\leq 50.000$ MHz Only)	50 $\pm 5$ (%) (Optional)
<b>Load Drive Capability</b>	$\leq 50.000$ MHz	30pF HCMOS Load Maximum
	$> 50.000$ MHz	15pF HCMOS Load Maximum
<b>Output Control Function</b>	TS	Tri-State
	PD	Power Down
<b>Output Control Function Input Voltage</b>	$V_{IH}$ : No Connection or $\geq 70\%$ of $V_{DD}$	Enables Output
	$V_{IL}$ : (TS Option) $\leq 20\%$ of $V_{DD}$	Disable Output: High Impedance
	$V_{IL}$ : (PD Option) $\leq 20\%$ of $V_{DD}$	Disable Output: Logic Low
<b>Aging (at 25°C)</b>	$\pm 5$ ppm / year Maximum	
<b>Start Up Time</b>	10 mSeconds Maximum	
<b>Period Jitter: Absolute</b>	$\leq 33.000$ MHz	$\pm 250$ pSec Maximum, $\pm 100$ pSec Typical
	$> 33.000$ MHz	$\pm 125$ pSec Maximum, $\pm 75$ pSec Typical
<b>Period Jitter: One Sigma</b>	$\leq 33.000$ MHz	$\pm 50$ pSec Maximum
	$> 33.000$ MHz	$\pm 40$ pSec Maximum

MANUFACTURER ECLIPTEK CORP.	CATEGORY OSCILLATOR	SERIES EP36	PACKAGE CERAMIC	VOLTAGE 3.3V	CLASS 0589	REV. DATE 01/04
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### PART NUMBERING GUIDE

## EP36 00 ETTTS - 24.000M TR

#### FREQUENCY TOLERANCE / STABILITY

00=±100ppm Maximum (Standard)  
45=±50ppm Maximum

#### OPERATING TEMP. RANGE

Blank=-20°C to 70°C or  
ET=-40°C to 85°C

#### DUTY CYCLE

Blank=50 ±10%(%) (Standard)  
T=50 ±5(%)

#### AVAILABLE OPTIONS

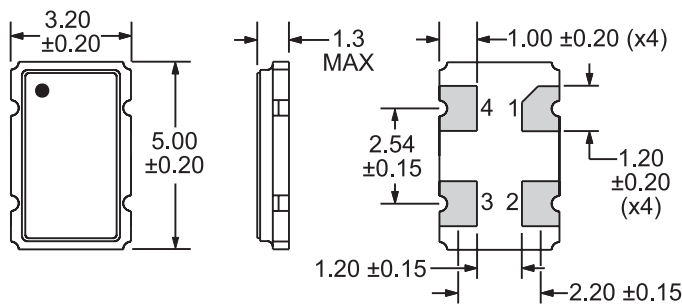
Blank=Bulk (Standard)  
TR=Tape and Reel

#### FREQUENCY

#### OUTPUT CONTROL FUNCTION

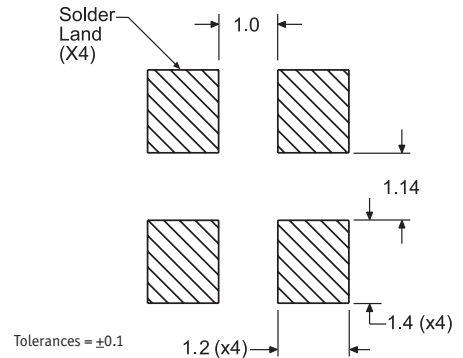
TS=Tri-State  
PD=Power Down

#### MECHANICAL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS

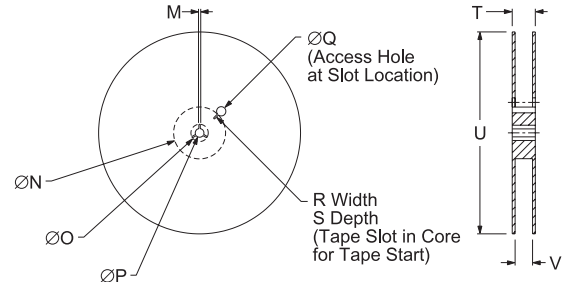
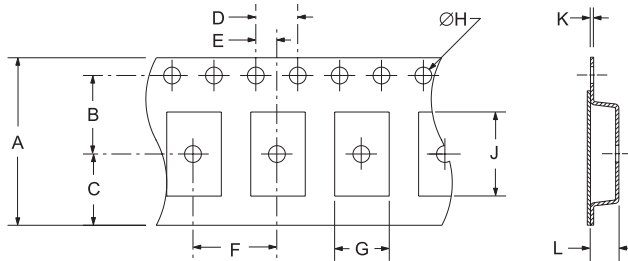


Pin 1: Tri-State or Power Down  
Pin 2: Case Ground  
Pin 3: Output  
Pin 4: Supply Voltage

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



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



TAPE	A	B	C	D	E
	12.0±0.2	5.5±0.1	6.5±0.1	4.0±0.1	2.0±0.1
F	G	H	J	K	L
8.0±0.1	B0*	1.5 +0.1-0.0	A0*	0.30 ±0.05	K0*

REEL	M	N	O	P	Q
	1.5 MIN	50 MIN	20.2 MIN	13.0±0.2	40 MIN
R	S	T	U	V	QTY/REEL
2.5 MIN	10 MIN	18.4 MAX	180 MAX	12.4+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: E XX.XXX Frequency in MHz (5 Digits Maximum + Decimal)

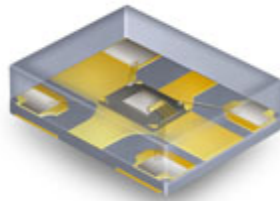
MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	EP36	CERAMIC	3.3V	OS89	01/04



**Ecliptek MEMS Oscillators**

- *Lower Cost, Quicker Delivery Alternative!*

The EMO™ family of oscillators offers exceptional performance, shorter delivery and significant cost advantages by utilizing a revolutionary new MEMS resonator technology. This important innovation enables Ecliptek to offer the ultimate in flexibility with delivery of 2 days for samples and 5 to 10 days for quantities up to 10,000 pieces on tape and reel.



Supply Voltage (V <sub>DC</sub> )	Package Dimensions (all dimensions in millimeters)			
	5 x 7	3.2 x 5	2.5 x 3.2	2 x 2.5
1.8	<a href="#">EMK11</a>	<a href="#">EMK21</a>	<a href="#">EMK31</a>	<a href="#">EMK41</a>
2.5	<a href="#">EMK12</a>	<a href="#">EMK22</a>	<a href="#">EMK32</a>	<a href="#">EMK42</a>
3.3	<a href="#">EMK13</a>	<a href="#">EMK23</a>	<a href="#">EMK33</a>	<a href="#">EMK43</a>

Would you like to request EMO™ samples or a quotation now?

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Want to learn more about the Ecliptek EMO™ family of MEMS oscillators?

[Click Here](#)

**Product Features:**

- Improved frequency stability through the use of a MEMS resonator
- 1.8VDC, 2.5VDC, or 3.3VDC supply voltages
- Frequency range of 1MHz to 125MHz, HCMOS output
- Frequency stability to ±50ppm, -40°C to +85°C operation
- Tri-state or power down functions
- RoHS compliant
- High temperature +260°C reflow capability
- EIA compliant tape and reel packaging
- Four SMD package sizes

If you have any questions or would like additional information regarding the Ecliptek EMO™ family of oscillators, please contact our [Sales Department](#).