

EP36 Series

- RoHS Compliant (Pb-Free)
- EP0™ Programmable Oscillators
- 3.3V supply voltage
- LVHCMOS output
- Ceramic SMD package
- Stability to $\pm 50\text{ppm}$
- Available on tape and reel



ECLIPTEK®
CORPORATION



ELECTRICAL SPECIFICATIONS

Frequency Range	1.000MHz to 106.250MHz	
Operating Temperature Range	-20°C to 70°C or -40°C to 85°C	
Storage Temperature Range	-55°C to 125°C	
Supply Voltage (V_{DD})	3.3V _{DC} $\pm 0.3V_{DC}$	
Input Current	28mA Maximum (Unloaded)	
Disable Current (TS Option)	16mA Maximum (Pin 1=Ground)	
Standby Current (PD Option)	20 μ A Maximum (Pin 1=Ground)	
Frequency Tolerance / Stability	Inclusive of all conditions: Calibration Tolerance at 25°C, $\pm 100\text{ppm}$ or $\pm 50\text{ppm}$ Maximum Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, First Year Aging at 25°C, Shock, and Vibration	
Output Voltage Logic High (V_{OH})	$V_{DD} - 0.4V_{DC}$ Minimum $I_{OH} = -8\text{mA}$	
Output Voltage Logic Low (V_{OL})	0.4V _{DC} Maximum $I_{OL} = +8\text{mA}$	
Rise Time / Fall Time	20% to 80% of waveform	4 nSeconds Maximum
Duty Cycle	at 50% of waveform	50 $\pm 10\%$ (Standard)
	at 50% of waveform ($\leq 50.000\text{MHz}$ Only)	50 $\pm 5\%$ (Optional)
Load Drive Capability	$\leq 50.000\text{MHz}$	30pF HCMOS Load Maximum
	$> 50.000\text{MHz}$	15pF HCMOS Load Maximum
Output Control Function	TS	Tri-State
	PD	Power Down
Output Control Function Input Voltage	V_{IH} : No Connection or $\geq 70\%$ of V_{DD} V_{IL} : (TS Option) $\leq 20\%$ of V_{DD} V_{IL} : (PD Option) $\leq 20\%$ of V_{DD}	Enables Output Disable Output: High Impedance Disable Output: Logic Low
Aging (at 25°C)	$\pm 5\text{ppm} / \text{year}$ Maximum	
Start Up Time	10 mSeconds Maximum	
Period Jitter: Absolute	$\leq 33.000\text{MHz}$	$\pm 250\text{pSec}$ Maximum, $\pm 100\text{pSec}$ Typical
	$> 33.000\text{MHz}$	$\pm 125\text{pSec}$ Maximum, $\pm 75\text{pSec}$ Typical
Period Jitter: One Sigma	$\leq 33.000\text{MHz}$	$\pm 50\text{pSec}$ Maximum
	$> 33.000\text{MHz}$	$\pm 40\text{pSec}$ Maximum



PART NUMBERING GUIDE

EP36 00 ET TS - 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

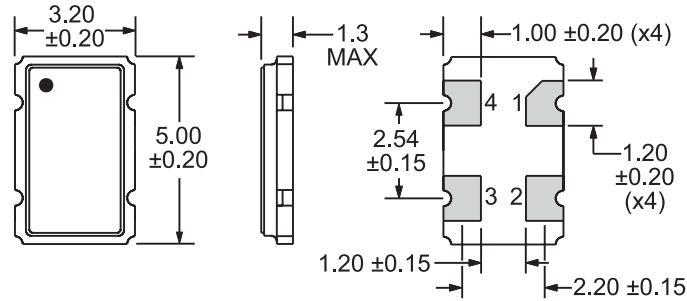
FREQUENCY

OUTPUT CONTROL FUNCTION

TS=Tri-State

PD=Power Down

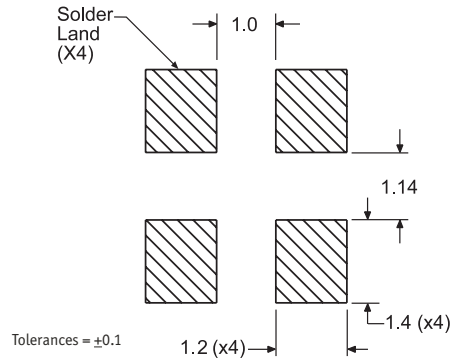
MECHANICAL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



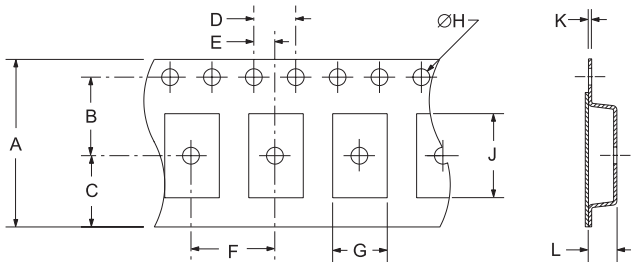
Pin 1: Tri-State or Power Down
Pin 2: Case Ground

Pin 3: Output
Pin 4: Supply Voltage

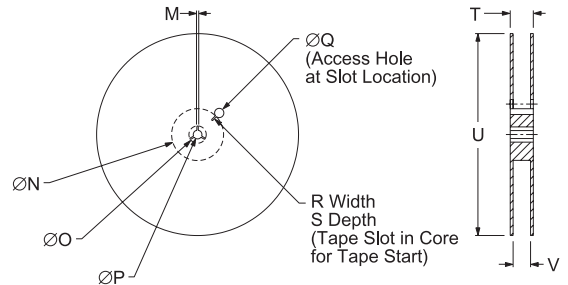
SUGGESTED SOLDER PAD LAYOUT ALL DIMENSIONS IN MILLIMETERS



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

Fine Leak Test
Gross Leak Test
Mechanical Shock
Vibration
Solderability
Temperature Cycling
Resistance to Soldering Heat
Resistance to Solvents

Specification

MIL-STD-883, Method 1014, Condition A
MIL-STD-883, Method 1014, Condition C
MIL-STD-202, Method 213, Condition C
MIL-STD-883, Method 2007, Condition A
MIL-STD-883, Method 2002
MIL-STD-883, Method 1010
MIL-STD-202, Method 210
MIL-STD-202, Method 215

MARKING SPECIFICATIONS

Line 1: E XX.XXX

Frequency in MHz (5 Digits Maximum + Decimal)



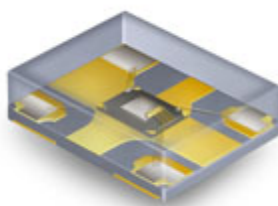
ECLIPTEK[®]
CORPORATION

Ecliptek
MEMS Oscillators

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 _{DC})	Package Dimensions (all dimensions in millimeters)			
	5 x 7	3.2 x 5	2.5 x 3.2	2 x 2.5
1.8	EMK11	EMK21	EMK31	EMK41
2.5	EMK12	EMK22	EMK32	EMK42
3.3	EMK13	EMK23	EMK33	EMK43

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

[Click Here](#)

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](#).