## **New EP26 Series Alternative**

We now offer a lower cost, quicker delivery alternative to the EP26 Series Oscillator ( $\pm$ 50 and  $\pm$ 100 ppm only). Our new MEMS oscillator is available in 2 days for samples and 5 to 10 days for quantities up to 10,000 pcs. All frequencies from 1.000MHz to 125.000MHz are offered at the same low cost. Click here for the alternative EMK13 Series

# EP26 Series Programmable Oscillator

- RoHS Compliant (Pb-Free)
- EPO<sup>™</sup> Programmable Oscillators
- Ceramic surface mount package
- LVHCMOS output
- 3.3V supply voltage
- Stability to ±50ppm
- Available on tape & reel

<u>Check Stock</u> Quote/Sample







#### **Electrical Specifications**

🗄 Nominal Frequency	1.000MHz to 106.250MHz		
Frequency Tolerance/Stability	(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 (Standard)		
	±50ppm Maximum		
Operating Temperature Range	$-20^{\circ}$ C to $+70^{\circ}$ C (Standard)		
	$-40^{\circ}$ C to $+85^{\circ}$ C		

Ξ Input Current       28mA Maximum (Unloaded)         Disable Current (Tri-State Option)       16mA Maximum (Pin 1 = Ground)         Standby Current (Power Down Option)       20µA Maximum (Pin 1 = Ground)         Ξ Output Voltage Logic High (V <sub>OH</sub> )       V <sub>DD</sub> -0.4V <sub>DC</sub> Minimum (I <sub>OH</sub> =-8mA)         Ξ Output Voltage Logic Low (V <sub>OI</sub> )       0.4V <sub>DC</sub> Maximum (I <sub>OL</sub> =+8mA)         Ξ Duty Cycle       Measured at 50% of waveform.         50 ± 10(%) (Standard)       50 ± 5(%) (Optional) available from 1 to 50MHz         Ξ Rise Time/Fall Time       Measured from 20% to 80% of waveform.         4nSec Maximum       4nSec Maximum         Ξ Load Drive Capability       30pF HCMOS Load Maximum from 1.000MHz to 50.000MHz         15pF HCMOS Load Maximum       50.011MHz to 106.250MHz         Ξ Aging (at 25°C)       ± 5ppm/year Maximum         Ξ Storage Temperature       -55°C to +125°C         Output Control Function       Tri-State Enable High or Power Down         Input Voltage       70% of V <sub>DD</sub> or greater or No Connection to enable output. 20% of V <sub>DD</sub> or less to disable output (High Impedance State for Tri-State. Logic Low for Power Down).         Jitter       4bsolute: ± 250pSec Maximum, ± 100pSec Typical less than or equal to 33MHz ± 125pSec Maximum, ± 75pSec Typical above 33MHz ± 40pSec Maximum feater than 33MHz         Ξ Start Up Time       10mSec Maximum	∃ Supply Voltage (V <sub>DD</sub> )	$3.3V_{DC} \pm 0.3V_{DC}$				
Disable Current (Tri-State Option)       16mA Maximum (Pin 1 = Ground)         Standby Current (Power Down Option)       20µA Maximum (Pin 1 = Ground)         □ Output Voltage Logic High (V <sub>OH</sub> )       V <sub>DD</sub> -0.4V <sub>DC</sub> Minimum (I <sub>OH</sub> =-8mA)         □ Output Voltage Logic Low (V <sub>OL</sub> )       0.4V <sub>DC</sub> Maximum (I <sub>OL</sub> =+8mA)         □ Duty Cycle       Measured at 50% of waveform.         50 ± 10(%) (Standard)       50 ± 5(%) (Optional) available from 1 to 50MHz         □ Rise Time / Fall Time       Measured from 20% to 80% of waveform.         ■ Load Drive Capability       30pF HCMOS Load Maximum from 1.000MHz to 50.000MHz         □ Logic (at 25°C)       ± 5ppm/year Maximum         □ Storage Temperature       -55°C to + 125°C         Output Voltage       70% of V <sub>DD</sub> or greater or No Connection to enable output. 20% of V <sub>DD</sub> or less to disable output. (High Impedance State for Tri-State. Logic Low for Power Down).         Jitter       Absolute: ± 250Sec Maximum, ± 125pSec Maximum, ± 75pSec Typical less than or equal to 33MHz ± 125pSec Maximum, ± 75pSec Typical less than or equal to 33MHz         □ One Sigma: ± 50pSec Maximum less than or equal to 33MHz ± 40pSec Maximum greater than 33MHz	🗄 Input Current	28mA Maximum (Unloaded)				
Standby Current (Power Down Option)       20µA Maximum (Pin 1 = Ground)         □ Output Voltage Logic High (V <sub>OH</sub> )       V <sub>DD</sub> -0.4V <sub>DC</sub> Minimum (I <sub>OH</sub> =-8mA)         □ Output Voltage Logic Low (V <sub>OL</sub> )       0.4V <sub>DC</sub> Maximum (I <sub>OL</sub> =+8mA)         □ Duty Cycle       Measured at 50% of waveform.         50 ± 10(%) (Standard) 50 ± 5(%) (Optional) available from 1 to 50MHz       So ± 10(%) (Standard)         □ Rise Time / Fall Time       Measured from 20% to 80% of waveform.         4nSec Maximum       4nSec Maximum         □ Load Drive Capability       30pF HCMOS Load Maximum from 1.000MHz to 50.000MHz         □ Storage Temperature       -55°C to +125°C         Output Control Function       Tri-State Enable High or Power Down         Input Voltage       70% of V <sub>DD</sub> or greater or No Connection to enable output. 20% of V <sub>DD</sub> or less to disable output (High Impedance State for Tri-State. Logic Low for Power Down).         Jitter       4bsolute: ±250pSec Maximum, ±125pSec Maximum, ±75pSec Typical less than or equal to 33MHz ±125pSec Maximum, ±75pSec Typical above 33MHz         One Sigma: ±50pSec Maximum less than or equal to 33MHz       0ne Sigma: ±40pSec Maximum less than or equal to 33MHz         © Start Up Time       10mSec Maximum	Disable Current (Tri-State Option)	16mA Maximum (Pin 1 = Ground)				
E       Output Voltage Logic High (V <sub>OR</sub> )       V <sub>DD</sub> -0.4V <sub>DC</sub> Minimum (I <sub>OH</sub> =-8mA)         E       Output Voltage Logic Low (V <sub>OL</sub> )       0.4V <sub>DC</sub> Maximum (I <sub>OL</sub> =+8mA)         B       Duty Cycle       Measured at 50% of waveform.         50 ± 10(%) (Standard) 50 ± 5(%) (Optional) available from 1 to 50MHz       Standard         E       Rise Time/Fall Time       Measured from 20% to 80% of waveform.         # Asec Maximum       4nSec Maximum         E       Load Drive Capability       30pF HCMOS Load Maximum from 1.000MHz to 50.000MHz 15pF HCMOS Load Maximum from 50.001MHz to 106.250MHz         E       Aging (at 25°C)       ±5ppm/year Maximum         E       Storage Temperature       -55°C to +125°C         Output Control Function       Tri-State Enable High or Power Down         Input Voltage       70% of V <sub>DD</sub> or greater or No Connection to enable output. 20% of V <sub>DD</sub> or less to disable output (High Impedance State for Tri-State. Logic Low for Power Down).         Jitter       Absolute: ±250pSec Maximum, ±100pSec Typical less than or equal to 33MHz ±125pSec Maximum, ±75pSec Typical above 33MHz         One Sigma:: ±50pSec Maximum less than or equal to 33MHz       ±40pSec Maximum greater than 33MHz         E       Start Up Time       10mSec Maximum	<b>Standby Current (Power Down Option)</b>	$20\mu A$ Maximum (Pin 1 = Ground)				
E       Output Voltage Logic Low (V <sub>0L</sub> )       0.4V <sub>DC</sub> Maximum (I <sub>0L</sub> =+8mA)         H       Duty Cycle       Measured at 50% of waveform.         50 ± 10(%) (Standard)       50 ± 5(%) (Optional) available from 1 to 50MHz         E       Rise Time/Fall Time       Measured from 20% to 80% of waveform.         4nSec Maximum       4nSec Maximum         E       Load Drive Capability       30pF HCMOS Load Maximum from 1.000MHz to 50.000MHz         E       Aging (at 25°C)       ± 5ppm/year Maximum         E       Storage Temperature       -55°C to + 125°C         Output Control Function       Tri-State Enable High or Power Down         Input Voltage       70% of V <sub>DD</sub> or greater or No Connection to enable output. 20% of V <sub>DD</sub> or less to disable output. (High Impedance State for Tri-State. Logic Low for Power Down).         Jitter       4bsolute: ±250pSec Maximum, ± 75pSec Typical above 33MHz         ± 125pSec Typical above 33MHz       0ne Sigma: ±50pSec Maximum less than or equal to 33MHz ± 40pSec Maximum greater than 33MHz         E       Start Up Time       10mSec Maximum	∃ Output Voltage Logic High (V <sub>OH</sub> )	$V_{DD}$ -0.4 $V_{DC}$ Minimum (I <sub>OH</sub> =-8mA)				
<b>B</b> Duty Cycle       Measured at 50% of waveform.         50 ± 10(%) (Standard)       50 ± 5(%) (Optional) available from 1 to 50MHz <b>B</b> Rise Time / Fall Time       Measured from 20% to 80% of waveform.         4nSec Maximum       4nSec Maximum <b>B</b> Load Drive Capability       30pF HCMOS Load Maximum from 1.000MHz to 50.000MHz         15pF HCMOS Load Maximum from 50.001MHz to 106.250MHz <b>B</b> Aging (at 25°C)       ± 5ppm/year Maximum <b>B</b> Storage Temperature       -55°C to + 125°C         Output Control Function       Tri-State Enable High or Power Down         Input Voltage       70% of V <sub>DD</sub> or greater or No Connection to enable output. 20% of V <sub>DD</sub> or less to disable output (High Impedance State for Tri-State. Logic Low for Power Down).         Jitter       Absolute: ±250pSec Maximum, ±100pSec Typical less than or equal to 33MHz ±125pSec Maximum, ±75pSec Typical above 33MHz         0ne Sigma: ±50pSec Maximum greater than 33MHz       ±40pSec Maximum greater than 33MHz <b>B</b> Start Up Time       10mSec Maximum	$ \blacksquare $ Output Voltage Logic Low (V <sub>OL</sub> )	$0.4V_{DC}$ Maximum ( $I_{OL}$ =+8mA)				
50 ± 10(%) (Standard)         50 ± 5(%) (Optional) available from 1 to         50 ± 5(%) (Optional) available from 1 to         50 ± 10(%) (Standard)         50 ± 5(%) (Optional) available from 1 to         50 ± 10(%) (Standard)         50 ± 5(%) (Optional) available from 1 to         50 ± 10(%) (Standard)         50 ± 5(%) (Optional) available from 1 to         50 ± 10(%) (Standard)         available from 1 to         50 ± 5(%) (Optional) available from 1 to         50 ± 5(%) (Optional) available from 1 to         50 ± 0 ± 000 to 80% of         waveform.         4nSec Maximum         E Load Drive Capability         30pF HCMOS Load Maximum from         1.000MHz to 50.000MHz         15pF HCMOS Load Maximum         E Storage Temperature         -55°C to +125°C         Output Control Function         Tri-State Enable High or Power Down         Input Voltage         70% of V <sub>DD</sub> or greater or No Connection         to enable output (High Impedance State         for Tri-State. Logic Low for Power         Down).         Jitter         4 boolute:       ± 250pSec Maximum,         ± 100pSec Typical less than         or equal to 33MHz <t< th=""><th>🗄 Duty Cycle</th><th>Measured at 50% of waveform.</th></t<>	🗄 Duty Cycle	Measured at 50% of waveform.				
E Rise Time/Fall Time       Measured from 20% to 80% of waveform.         4nSec Maximum       4nSec Maximum         E Load Drive Capability       30pF HCMOS Load Maximum from 1.000MHz to 50.000MHz 15pF HCMOS Load Maximum from 50.001MHz to 106.250MHz         E Aging (at 25°C)       ±5ppm/year Maximum         E Storage Temperature       -55°C to +125°C         Output Control Function       Tri-State Enable High or Power Down         Input Voltage       70% of V <sub>DD</sub> or greater or No Connection to enable output. 20% of V <sub>DD</sub> or less to disable output (High Impedance State for Tri-State. Logic Low for Power Down).         Jitter       Absolute: ±250pSec Maximum, ±100pSec Typical less than or equal to 33MHz ±125pSec Maximum, ±75pSec Typical above 33MHz         Maximum E Start Up Time       10mSec Maximum		$50 \pm 10(\%)$ (Standard) $50 \pm 5(\%)$ (Optional) available from 1 to 50MHz				
Image: start Up Time       4nSec Maximum         Image: start Up Time       4nSec Maximum         Image: start Up Time       30pF HCMOS Load Maximum from         1.000MHz to 50.000MHz       15pF HCMOS Load Maximum from         50.001MHz to 106.250MHz       15pF HCMOS Load Maximum         Image: start Up Time       4nSec Maximum         Image: start Up Time       10mSec Maximum         Image: start Up Time       10mSec Maximum	<b>⊞ Rise Time∕Fall Time</b>	Measured from 20% to 80% of				
Image: system of the syste		waveform.				
Hister Maintum         E Load Drive Capability       30pF HCMOS Load Maximum from         1.000MHz to 50.000MHz         15pF HCMOS Load Maximum from         50.001MHz to 106.250MHz         E Aging (at 25°C)       ± 5ppm/year Maximum         E Storage Temperature       -55°C to + 125°C         Output Control Function       Tri-State Enable High or Power Down         Input Voltage       70% of V <sub>DD</sub> or greater or No Connection         to enable output. 20% of V <sub>DD</sub> or less to       disable output (High Impedance State for Tri-State. Logic Low for Power Down).         Jitter       Absolute: ± 250pSec Maximum, ± 100pSec Typical less than or equal to 33MHz ± 125pSec Maximum, ± 75pSec Typical above 33MHz         One Sigma: ± 50pSec Maximum less than or equal to 33MHz ± 40pSec Maximum greater than 33MHz         E Start Up Time       10mSec Maximum		AnSoc Maximum				
Image: Solut Drive Capability       1000 MHz to 50.000 MHz         1.000MHz to 50.000 MHz       15pF HCMOS Load Maximum from 50.001 MHz to 106.250 MHz         Image: Aging (at 25°C)       ± 5ppm/year Maximum         Image: Storage Temperature       -55°C to + 125°C         Output Control Function       Tri-State Enable High or Power Down         Imput Voltage       70% of V <sub>DD</sub> or greater or No Connection to enable output. 20% of V <sub>DD</sub> or less to disable output (High Impedance State for Tri-State. Logic Low for Power Down).         Jitter       Absolute: ± 250pSec Maximum, ± 100pSec Typical less than or equal to 33MHz ± 125pSec Maximum, ± 75pSec Typical above 33MHz         One Sigma: ± 50pSec Maximum less than or equal to 33MHz       One Sigma: ± 50pSec Maximum greater than 33MHz         Image: Start Up Time       10mSec Maximum	🕀 Load Drive Canability	30pF HCMOS Load Maximum from				
15pF HCMOS Load Maximum from 50.001MHz to 106.250MHz <b>E Aging (at 25°C)</b> ± 5ppm/year Maximum <b>E Storage Temperature</b> -55°C to +125°C <b>Output Control Function</b> Tri-State Enable High or Power Down <b>Input Voltage</b> 70% of V <sub>DD</sub> or greater or No Connection         to enable output. 20% of V <sub>DD</sub> or less to         disable output (High Impedance State         for Tri-State. Logic Low for Power         Down). <b>Jitter</b> Absolute: ±250pSec Maximum,         ±100pSec Typical less than         or equal to 33MHz         ±125pSec Maximum,         ±125pSec Maximum,         ±125pSec Maximum,         ±40pSec Maximum less than         or equal to 33MHz         ±40pSec Maximum greater         than 33MHz	E Loud Drive Capability	1.000MHz to 50.000MHz				
50.001MHz to 106.250MHz         # Aging (at 25°C)       ± 5ppm/year Maximum         # Storage Temperature       -55°C to +125°C         Output Control Function       Tri-State Enable High or Power Down         Input Voltage       70% of V <sub>DD</sub> or greater or No Connection         to enable output. 20% of V <sub>DD</sub> or less to       disable output (High Impedance State for Tri-State. Logic Low for Power Down).         Jitter       Absolute:       ± 250pSec Maximum, ± 100pSec Typical less than or equal to 33MHz ± 125pSec Maximum, ± 75pSec Typical above 33MHz         One Sigma: ± 50pSec Maximum less than or equal to 33MHz       One Sigma: ± 50pSec Maximum greater than 33MHz         # Start Up Time       10mSec Maximum		15pF HCMOS Load Maximum from				
E Aging (at 25°C)       ± 5ppm/year Maximum         E Storage Temperature       -55°C to + 125°C         Output Control Function       Tri-State Enable High or Power Down         Input Voltage       70% of V <sub>DD</sub> or greater or No Connection to enable output. 20% of V <sub>DD</sub> or less to disable output (High Impedance State for Tri-State. Logic Low for Power Down).         Jitter       Absolute:       ± 250pSec Maximum, ± 100pSec Typical less than or equal to 33MHz ± 125pSec Maximum, ± 75pSec Typical above 33MHz         One Sigma:       ± 50pSec Maximum less than or equal to 33MHz ± 40pSec Maximum greater than 33MHz         E Start Up Time       10mSec Maximum		50.001MHz to 106.250MHz				
E Storage Temperature       -55°C to +125°C         Output Control Function       Tri-State Enable High or Power Down         Input Voltage       70% of V <sub>DD</sub> or greater or No Connection to enable output. 20% of V <sub>DD</sub> or less to disable output (High Impedance State for Tri-State. Logic Low for Power Down).         Jitter       Absolute: ±250pSec Maximum, ±100pSec Typical less than or equal to 33MHz ±125pSec Maximum, ±75pSec Typical above 33MHz         One Sigma: ±50pSec Maximum less than or equal to 33MHz ±40pSec Maximum greater than 33MHz         E Start Up Time       10mSec Maximum	∃ Aging (at 25°C)	±5ppm/year Maximum				
Output Control FunctionTri-State Enable High or Power DownInput Voltage70% of VDD or greater or No Connection to enable output. 20% of VDD or less to disable output (High Impedance State for Tri-State. Logic Low for Power Down).Jitter± 250pSec Maximum, ± 100pSec Typical less than or equal to 33MHz ± 125pSec Maximum, ± 75pSec Typical above 33MHzOne Sigma: ± 50pSec Maximum less than or equal to 33MHz ± 40pSec Maximum greater than 33MHzE Start Up Time10mSec Maximum	Storage Temperature	-55°C to +125°C				
Input Voltage       70% of V <sub>DD</sub> or greater or No Connection to enable output. 20% of V <sub>DD</sub> or less to disable output (High Impedance State for Tri-State. Logic Low for Power Down).         Jitter       Absolute: ±250pSec Maximum, ±100pSec Typical less than or equal to 33MHz ±125pSec Maximum, ±75pSec Typical above 33MHz         One Sigma: ±50pSec Maximum less than or equal to 33MHz ±40pSec Maximum greater than 33MHz         E Start Up Time       10mSec Maximum	Output Control Function	Tri-State Enable High or Power Down				
to enable output. 20% of V <sub>DD</sub> or less to disable output (High Impedance State for Tri-State. Logic Low for Power Down). Jitter Absolute: ±250pSec Maximum, ±100pSec Typical less than or equal to 33MHz ±125pSec Maximum, ±75pSec Typical above 33MHz One Sigma:±50pSec Maximum less than or equal to 33MHz ±40pSec Maximum greater than 33MHz	Input Voltage	70% of $V_{DD}$ or greater or No Connection				
disable output (High Impedance State for Tri-State. Logic Low for Power Down).         Jitter       Absolute: ±250pSec Maximum, ±100pSec Typical less than or equal to 33MHz ±125pSec Maximum, ±75pSec Typical above 33MHz         One Sigma: ±50pSec Maximum less than or equal to 33MHz ±40pSec Maximum greater than 33MHz            •••••••••••••••••••••••••••••		to enable output. 20% of $V_{DD}$ or less to				
for Tri-State. Logic Low for Power Down). Jitter Absolute: ±250pSec Maximum, ±100pSec Typical less than or equal to 33MHz ±125pSec Maximum, ±75pSec Typical above 33MHz One Sigma:±50pSec Maximum less than or equal to 33MHz ±40pSec Maximum greater than 33MHz 10mSec Maximum		disable output (High Impedance State				
Jitter       Absolute: ±250pSec Maximum, ±100pSec Typical less than or equal to 33MHz ±125pSec Maximum, ±75pSec Typical above 33MHz         One Sigma: ±50pSec Maximum less than or equal to 33MHz ±40pSec Maximum greater than 33MHz            •••••••••••••••••••••••••••••		for Tri-State. Logic Low for Power				
Jitter       Absolute: ±250pSec Maximum, ±100pSec Typical less than or equal to 33MHz ±125pSec Maximum, ±75pSec Typical above 33MHz         One Sigma: ±50pSec Maximum less than or equal to 33MHz ±40pSec Maximum greater than 33MHz         E Start Up Time	<b>v</b> 6	Down).				
One Sigma: ± 50pSec Maximum less than or equal to 33MHz ±40pSec Maximum greater than 33MHz	Jitter	Absolute: ±250pSec Maximum, ±100pSec Typical less than or equal to 33MHz ±125pSec Maximum, ±75pSec Typical above 33MHz				
± 40pSec Maximum greater than 33MHz		One Sigma: ±50pSec Maximum less than or equal to 33MHz				
Start Up Time 10mSec Maximum		±40pSec Maximum greater than 33MHz				
	∃ Start Up Time	10mSec Maximum				

Top of Page







### **Part Number Constructor / Request a Quote or Sample**

Please note that this form is intended to provide a listing of standard options. If you require an option or configuration that is not present here, you may want to fill out our <u>Custom Oscillator Part Number Request Form</u>. If you have any trouble with this form, or just have a suggestion as to how it might be improved, please contact our <u>Webmaster</u>.





```
Top of Page
```



#### **Marking Specifications**

Line 1:	ECLIPTEK
Line 2:	XX.XXX M

- XX.XXX = Frequency (5 Digits Maximum + Decimal)
- M = Frequency unit of measure (MHz)

#### Line 3: **P XX Y ZZ**

- P = Configuration Designator
- XX = Ecliptek Manufacturing Identifier
- Y = Last digit of Year
- ZZ = Week of Year

**Top of Page** 

#### **Environmental & Mechanical Specifications**

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 2003
Temperature Cycling:	MIL-STD-883, Method 1010
<b>Resistance to Soldering Heat:</b>	MIL-STD-202, Method 210
<b>Resistance to Solvents:</b>	MIL-STD-202, Method 215

**Top of Page** 



#### **Other Resources**

- Frequently Asked Questions about Programmable Oscillators
- **Download Specification (PDF)**
- Test Circuit
- <u>Recommended Solder Reflow Methods</u>
- <u>Recommended Solder Pad Layout</u>
- <u>Tape & Reel Packaging Option</u>
- IBIS Model
- Oscillator Thermal Resistance
- Ecliptek RoHS Compliance Tools & Resources

					<u>Top of Page</u>
Category Oscillator	Series EP26	Package Ceramic	Voltage 3.3V	Class OS48	Revision E 02-20-2004
	[ All Conten	ut Convright © 2006	Fclintek Cornoratio	on   Legal Disclaim	ner ]