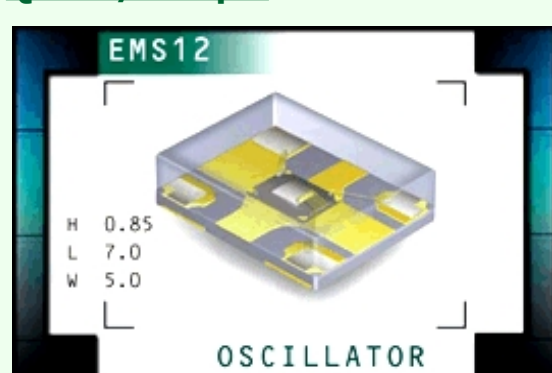


EMS12 Series Oscillator

Stock Search
Quote/Sample



- Spread Spectrum MEMS Clock Oscillators
- Low EMI LVCMOS Output
- +2.5V Supply Voltage
- Tri-State, Power Down, and Spread Disable Options
- Center Spread and Down Spread Modulation Options
- 4 Pad Plastic SMD Package
- 30,000 G Shock Resistance
- RoHS Compliant (Pb-Free)

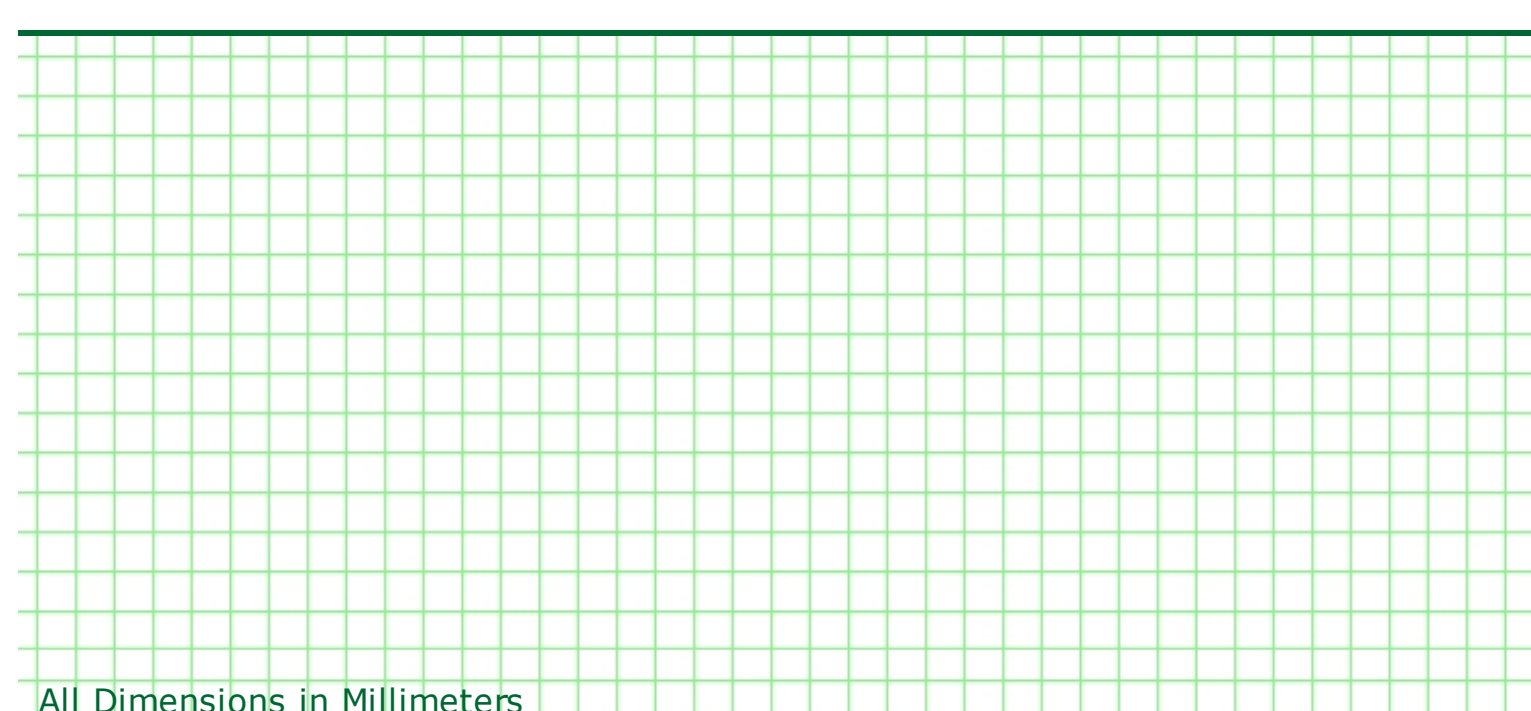


Electrical Specifications

Nominal Frequency	1.000MHz to 87.000MHz, 93.000MHz to 175.000MHz
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, 260° Reflow, Shock and Vibration) ±100ppm Maximum ±50ppm Maximum
Operating Temperature Range	-20°C to +70°C -40°C to +85°C
Supply Voltage (V_{DD})	2.5V _{DC} ±10%
Maximum Supply Voltage	-0.5V _{DC} to +3.65V _{DC}
Input Current	25mA Maximum over Nominal Frequency of 1.000MHz to 25.000MHz (Unloaded; V _{DD} =2.5V _{DC}) 35mA Maximum over Nominal Frequency of 25.000001MHz to 175.000MHz (Unloaded; V _{DD} =2.5V _{DC})
Output Voltage Logic High (V_{OH})	90% of V _{DD} Minimum (I _{OH} =-8mA)
Output Voltage Logic Low (V_{OL})	10% of V _{DD} Maximum (I _{OL} =+8mA)
Duty Cycle	Measured at 50% of waveform 50 ±5(%) over Nominal Frequency of 1.000MHz to 125.000MHz 50 ±10(%) over Nominal Frequency of 125.000001MHz to 175.000MHz
Rise Time/Fall Time	Measured from 20% to 80% of waveform 2nSec Maximum
Load Drive Capability	15pF Maximum
Output Logic Type	LVCMOS
Output Control Function	Tri-State (Disabled Output: High Impedance) Power Down (Disabled Output: Logic Low) Spread Disable (Spread Spectrum On Output: Disabled)
Power Down Input Voltage(V_{Ih} and V_{Il})	70% of V _{DD} Minimum or No Connect to Enable Output, 30% of V _{DD} Maximum to Disable Output(Disabled Output: Logic Low)
Tri-State Input Voltage (V_{Ih} and V_{Il})	70% of V _{DD} Minimum or No Connect to Enable Output, 30% of V _{DD} Maximum to Disable Output (Disabled Output: High Impedance)
Standby Current	50µA Maximum (Disabled Output: Logic Low)
Disable Current	20mA Maximum (Disabled Output: High Impedance)
Spread Spectrum Input Voltage(V_{Ih} and V_{Il})	70% of V _{DD} Minimum or No Connect to Enable Spread Spectrum On Output, 30% of V _{DD} Maximum to Disable Spread Spectrum On Output (Spread Spectrum On Output: Disabled)
Spread Spectrum	±0.25% Center Spread (Not Available with Spread Disable Output Control Function) ±0.50% Center Spread (Not Available with Spread Disable Output Control Function) ±1.00% Center Spread (Not Available with Spread Disable Output Control Function) -0.50% Down Spread -1.00% Down Spread -2.00% Down Spread
Modulation Frequency	30kHz Minimum, 32kHz Typical, 35kHz Maximum
Period Jitter	Cycle to Cycle; Spread Spectrum-On; Fo=133.333M, V _{DD} =2.5V _{DC} 40pSec Maximum
Aging (at 25°C)	±1ppm Maximum First Year
Start Up Time	10mSec Maximum
Storage Temperature	-55°C to +125°C

[Top of Page](#)

Mechanical Dimensions



All Dimensions in Millimeters

Pin 1: Power Down(Logic Low) Or Spread Disabled(Disabled) Or Tri-State(High Impedance) Pin 3: Output
Pin 2: Ground Pin 4: Supply Voltage

[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 [Custom Oscillator Part Number Request Form](#). If you have any trouble with this form, or just have a suggestion as to how it might be improved, please contact our [Webmaster](#).

Enter your part number:

- OR -

Frequency in Megahertz (1.000 to 87.000, 93.000 to 175.000):

Frequency Tolerance/Stability:

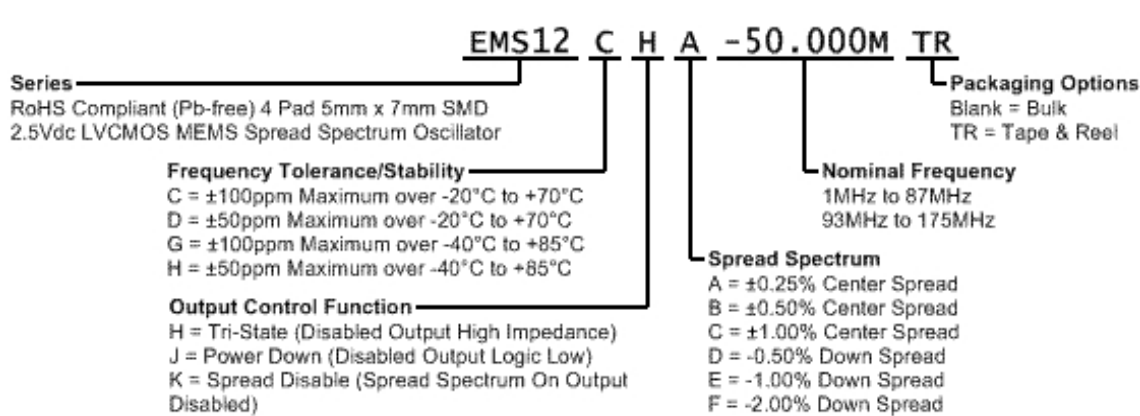
Output Control Function:

Spread Spectrum Percentage:

Packaging Options:

[Top of Page](#)

Part Numbering Guide



[Top of Page](#)

Marking Specifications

Line 1: XXXX or XXXXX

- XXXX or XXXXX = Ecliptek Manufacturing Lot Code

[Top of Page](#)

Environmental & Mechanical Specifications

Flammability:	UL94-V0
ESD Susceptibility:	MIL-STD-883, Method 3015, Class 2, HBM: 2000V
Mechanical Shock:	MIL-STD-883, Method 2002, Condition G, 30,000G
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 (Four I/O Pads on bottom of package only)
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, 20G

[Top of Page](#)

Other Resources

- [Download Specification \(PDF\)](#)
- [Frequently Asked Questions about EMS12 Series MEMS Clock Oscillators](#)
- [Test Circuit](#)
- [Recommended Solder Reflow Methods](#)
- [Recommended Solder Pad Layout](#)
- [Tape & Reel Packaging Option](#)
- [IBIS Model](#)
- [Oscillator Thermal Resistance](#)
- [Ecliptek RoHS Compliance Tools & Resources](#)
- [MEMS Clock Oscillator Qualification and Reliability \(MTTF and FIT\) Data](#)

[Top of Page](#)