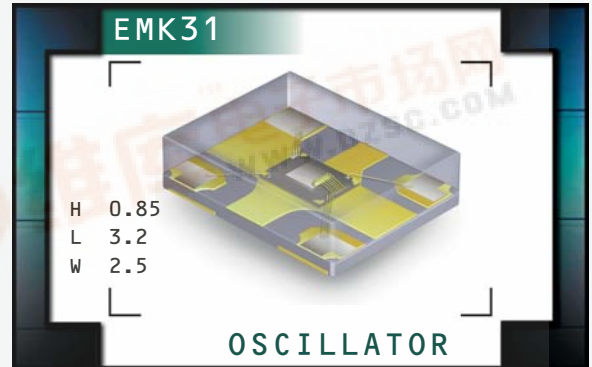


# EMK31 Series



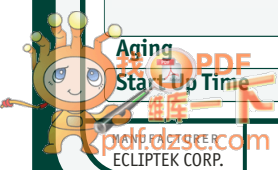
**ECLIPTEK**<sup>®</sup>  
CORPORATION

- MEMS First™ Resonator Technology
- RoHS Compliant (Pb-Free)
- 2.5mm x 3.2mm Surface Mount Package
- LVHCMOS Output
- 1.8V Supply Voltage
- Stability to ±50ppm
- 30,000 G Shock Resistance
- Available on Tape & Reel
- Tri-State and Power Down Options



## ELECTRICAL SPECIFICATIONS

<b>Nominal Frequency</b>	1.000MHz to 125MHz	
<b>Operating Temperature Range</b>	-40°C to 85°C	
<b>Storage Temperature Range</b>	-55°C to 125°C	
<b>Supply Voltage (V<sub>DD</sub>)</b>	1.8V <sub>DC</sub> ±5%	
<b>Input Current</b>	≤ 25.000MHz	15mA Maximum
	> 25.000MHz	18mA Maximum
<b>Frequency Tolerance / Stability</b>	Inclusive of All Conditions: Calibration Tolerance at 25°C , ±50ppm or ±100ppm Maximum Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, 1st Year Aging at 25°C, 260°C Reflow, Shock, and Vibration	
<b>Output Voltage Logic High (V<sub>OH</sub>)</b>	I <sub>OH</sub> = -8mA	90% of V <sub>DD</sub> Minimum
<b>Output Voltage Logic Low (V<sub>OL</sub>)</b>	I <sub>OL</sub> = +8mA	10% of V <sub>DD</sub> Maximum
<b>Rise Time / Fall Time</b>	20% to 80% of waveform	2nSeconds Maximum
<b>Duty Cycle</b>	at 50% of waveform	50 ±5(%)
<b>Load Drive Capability</b>	15pF HCMOS Load Maximum	
<b>Output Control Function</b>	Tri-State or Power Down	
<b>Output Control Input Voltage</b>	V <sub>IH</sub> of 70% of V <sub>DD</sub> Minimum or No Connection V <sub>IL</sub> of 30% of V <sub>DD</sub> Maximum	Enables Output Disables Output: High Impedance State for Tri-state, Logic Low for Power Down
<b>Standby Current</b>	50µA Maximum	
<b>Peak to Peak Jitter (tPK)</b>	1.000MHz to 12.287999MHz	500pSec Maximum, 200pSec Typical
	12.288MHz to 125.000MHz	250pSec Maximum, 100pSec Typical
<b>Aging</b>	First Year at 25°C	±1ppm Maximum
<b>Start Up Time</b>	50mSec Maximum	



## PART NUMBERING GUIDE

### EMK31 H 2 H - 50.000M TR

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

G=±100ppm Maximum over -40°C to +85°C  
H=±50ppm Maximum over -40°C to +85°C

#### DUTY CYCLE

2=50% ±5%

#### LOGIC CONTROL

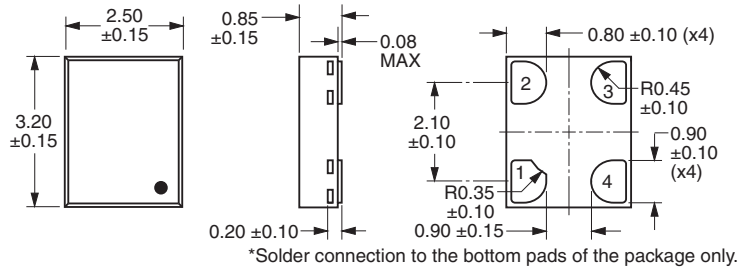
H=Tri-State (High Impedance)  
J=Power Down (Logic Low)

#### AVAILABLE OPTIONS

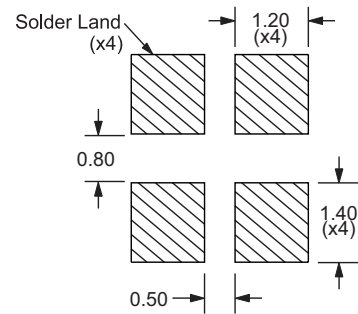
Blank=Bulk  
TR=Tape and Reel (Standard)

#### FREQUENCY

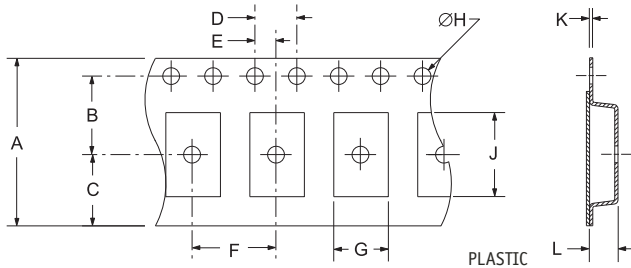
#### MECHANICAL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



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



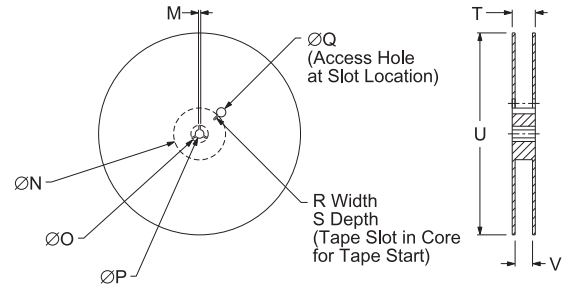
#### TAPE AND REEL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



A	B	C	D	E	
12.0 ±0.3	5.5 ±0.05	4.75 ±0.05	4.0 ±0.1	2.0 ±0.1	
F	G	H	J	K	L
4.0 ±0.2	A0*	1.5 +1/-0	B0*	0.3 ±0.05	K0*

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

Tolerances=±0.1



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 481C

#### ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

Characteristic	Specification
ESD Susceptibility	MIL-STD-883, Method 3015, Class 2, HBM: 2000V
Flammability	UL94-V0
Mechanical Shock	MIL-STD-883, Method 2002, Condition G, 30,000G
Moisture Resistance	MIL-STD-883, Method 1004
Moisture Sensitivity Level	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

#### MARKING SPECIFICATIONS

Line 1: XXXX

Ecliptek Manufacturing Lot Code

MEMS First™ is a registered trademark of SiTime Corporation.

MANUFACTURER ECLIPTEK CORP.	CATEGORY OSCILLATOR	SERIES EMK31	PACKAGE PLASTIC	VOLTAGE 1.8V	CLASS OS5K	REV. DATE 11/07
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