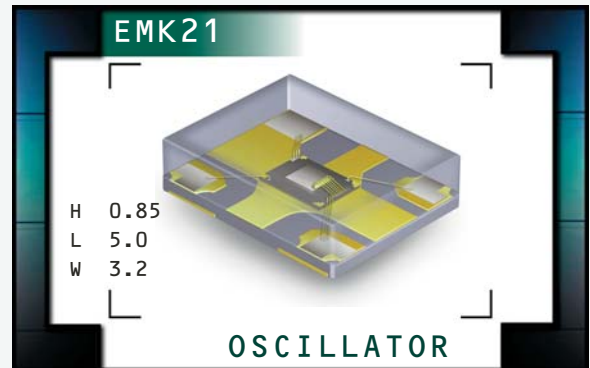


# EMK21 Series



ECLIPTEK<sup>®</sup>  
CORPORATION

- Utilizes a MEMS Silicon Resonator
- RoHS Compliant (Pb-Free)
- 3.2mm x 5mm Surface Mount Package
- LVHCMOS Output
- 1.8V Supply Voltage
- Stability to  $\pm 50$ ppm
- 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 (<math>V_{DD}</math>)</b>		1.8V <sub>DC</sub> $\pm 5\%$
<b>Input Current</b>	$\leq 25.000$ MHz	15mA Maximum
	$> 25.000$ MHz	18mA Maximum
<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, 1st Year Aging at 25°C, 260°C Reflow, Shock, and Vibration	
<b>Output Voltage Logic High (<math>V_{OH}</math>)</b>	$I_{OH} = -8$ mA	90% of $V_{DD}$ Minimum
<b>Output Voltage Logic Low (<math>V_{OL}</math>)</b>	$I_{OL} = +8$ mA	10% of $V_{DD}$ Maximum
<b>Rise Time / Fall Time</b>	20% to 80% of waveform	2nSeconds Maximum
<b>Duty Cycle</b>	at 50% of waveform	50 $\pm 5$ (%)
<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>	$V_{IH}$ of 70% of $V_{DD}$ Minimum or No Connection $V_{IL}$ of 30% of $V_{DD}$ Maximum	Enables Output Disables Output: High Impedance State for Tri-state, Logic Low for Power Down
<b>Standby Current</b>		50 $\mu$ A 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	$\pm 1$ ppm Maximum
<b>Start Up Time</b>		50mSec Maximum

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	EMK21	PLASTIC	1.8V	OS5L	11/07

# PART NUMBERING GUIDE

## EMK21 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)

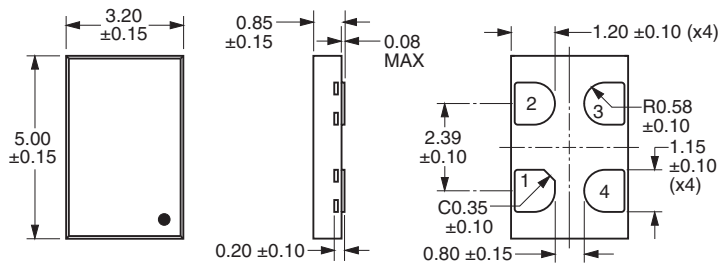
### AVAILABLE OPTIONS

Blank=Bulk  
TR=Tape and Reel (Standard)

### FREQUENCY

### MECHANICAL DIMENSIONS

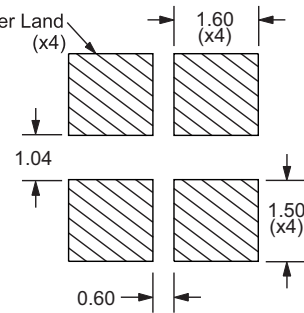
ALL DIMENSIONS IN MILLIMETERS



\*Solder connection to the bottom pads of the package only.

### SUGGESTED SOLDER PAD LAYOUT

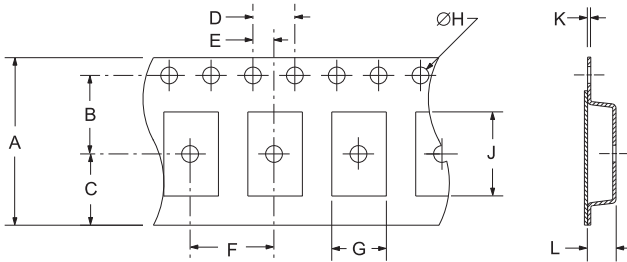
ALL DIMENSIONS IN MILLIMETERS



Tolerances=±0.1

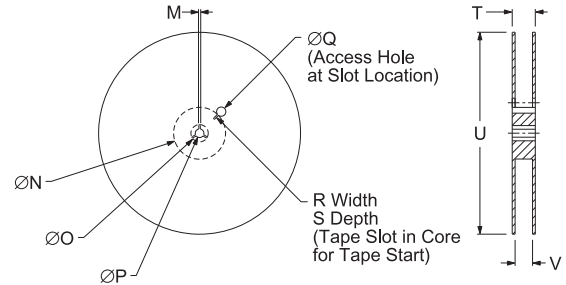
### TAPE AND REEL DIMENSIONS

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 ±0.2	A0*	1.5+0.1/-0	B0*	0.30 ±0.05	K0*

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



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  
Eclipsek Manufacturing Lot Code

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	EMK21	PLASTIC	1.8V	OS5L	11/07