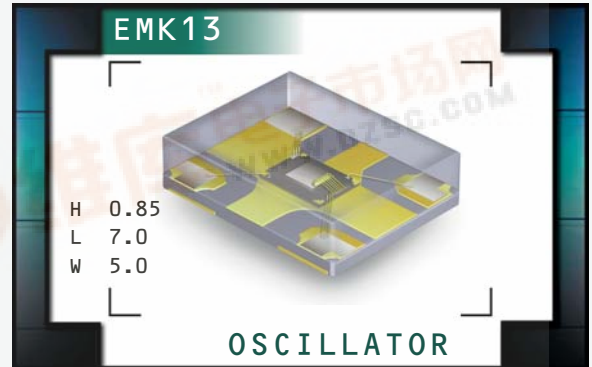


# EMK13 Series

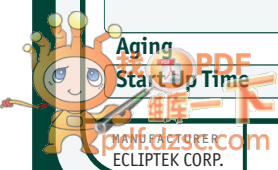


- MEMS First™ Resonator Technology
- RoHS Compliant (Pb-Free)
- 5mm x 7mm Surface Mount Package
- LVHCMOS Output
- 3.3V Supply Voltage
- Stability to ±50ppm
- 30,000 G Shock Resistance
- Available on Tape & Reel
- Tri-State and Power Down Options



## 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>		3.3V <sub>DC</sub> ±10%
<b>Input Current</b>	< 25.000MHz	20mA Maximum
	> 25.000MHz	25mA 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 (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	Enables Output
	V <sub>IL</sub> of 30% of V <sub>DD</sub> Maximum	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

### EMK13 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)

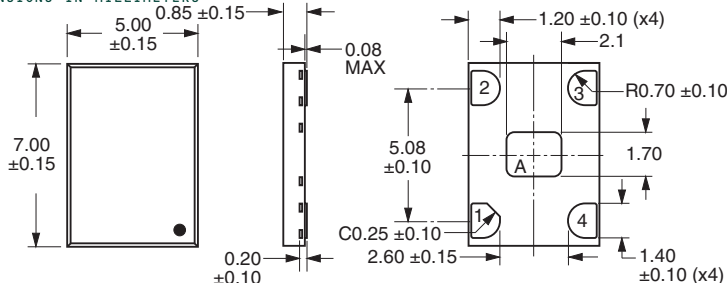
#### AVAILABLE OPTIONS

Blank=Bulk  
TR=Tape and Reel (Standard)

#### FREQUENCY

#### MECHANICAL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS

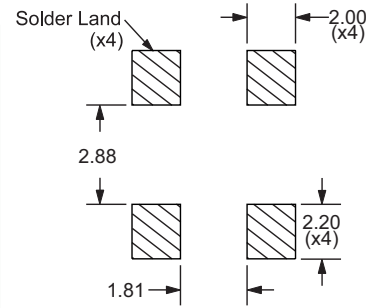


Pad 1: Tri-State or Power Down Pad 3: Output  
Pad 2: Case Ground Pad 4: Supply Voltage

Note: Solder connection to the bottom four I/O pads of the package only.  
Note A: Center Paddle is No Connect.

#### SUGGESTED SOLDER PAD LAYOUT

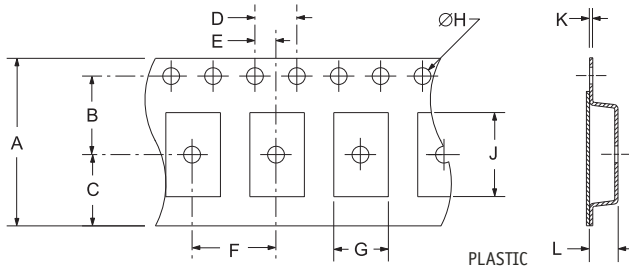
ALL DIMENSIONS IN MILLIMETERS



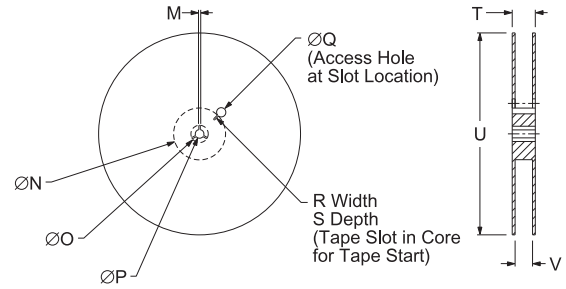
Tolerances=±0.1

#### TAPE AND REEL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS



TAPE	A	B	C	D	E
	16.0±0.3	7.5±0.2	6.75±0.2	4.0±0.2	2.0±0.2
F	G	H	J	K	L
	A0*	1.5±0.1	B0*	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	22.4 MAX	16.4+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	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	EMK13	PLASTIC	3.3V	OS5M	11/07