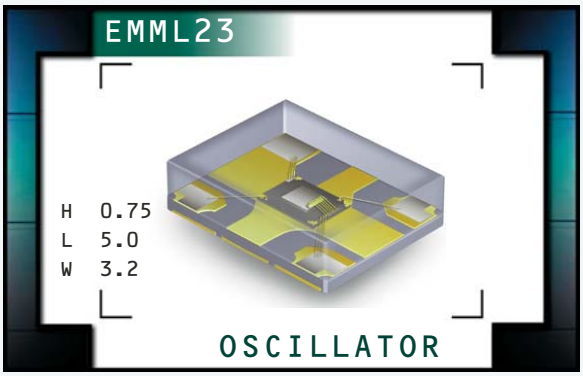
EMML23 Series

- MEMS Clock Oscillator
- CML Output
- +3.3V Supply Voltage
- Complementary Output
- Output Enable and Standby Options
- 6 Pad Plastic SMD Package
- 30,000 G Shock Resistance
- RoHS Compliant (Pb-free)



ELECTRICAL SPECIFICATIONS

Nominal Frequency (MHz) *Some frequencies within this range may not be available*		1.000MHz to 220.000MHz
Operating Temperature Range		0°C to +70°C, -20°C to +70°C, or -40°C to +85°C
Storage Temperature Range		-55°C to +125°C
Supply Voltage (V_{CC})		$+3.3V_{DC} \pm 0.3V_{DC}$
Input Current	Excluding Load Termination Current	55mA Maximum
Frequency Tolerance / Stability *Some tolerance stability options may not be available*	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, Reflow, Shock, and Vibration	±100ppm, ±50ppm, ±25ppm, or ±20ppm Maximum
Output Voltage Logic High (V_{OH})		3.3Vdc Typical, Vcc -0.1Vdc Minimum
Output Voltage Logic Low (V_{OL})		2.875Vdc Typical, Vcc -0.3Vdc Maximum
Peak to Peak Output Voltage Swing (VOpp)		300Vdc Min., 425mVdc Typ., 550mVdc Max.
Rise Time / Fall Time	20% to 80% of waveform	300pSec Typical, 350pSec Maximum
Duty Cycle	at 50% of waveform	50 ±5(%)
Load Drive Capability	Output and Complementary Output	50 Ohms to Vcc
Output Logic Type		CML
Logic Control / Additional Output		Output Enable (OE) and Complementary Output, or Standby (ST) and Complementary Output
Output Control Input Voltage	V_{IH} of 70% of V_{CC} Minimum No Connection V_{IL} of 30% of V_{CC} Maximum	Enables Outputs Enables Outputs Disables Outputs: High Impedance
Output Enable Current	Without Load	50mA Maximum (OE)
Standby Current	Without Load	30µA Maximum (ST)
Aging	First Year at 25°C	±1ppm Maximum
Start Up Time		10mSeconds Maximum
Period Jitter	Deterministic Random RMS pk-pk Cycle to Cycle	0.2pSec Typical 2.0pSec Typical 2.0pSec Typical, 3.0pSec Maximum 20pSec Typical, 25pSec Maximum 10pSec Typical
RMS Phase Jitter (Random) **Fj=637kHz to 10MHz**	1.000MHz to 100.000MHz 100.001MHz to 220.000MHz	1.7pSec Typical 1.6pSec Typical
RMS Phase Jitter (Random) **Fj=1.0MHz to 20MHz**	1.000MHz to 100.000MHz 100.001MHz to 220.000MHz	1.0pSec Typical 0.8pSec Typical
RMS Phase Jitter (Random) **Fj=1.875MHz to 20MHz**	1.000MHz to 100.000MHz 100.001MHz to 220.000MHz	0.7pSec Typical 0.6pSec Typical

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	EMML23	PLASTIC	3.3V	OS8H	10/11

PART NUMBERING GUIDE

EMML23 C 2 H - 100.000M TR

FREQUENCY TOLERANCE & STABILITY/ OPERATING TEMPERATURE RANGE
C = ±100ppm Maximum over 0°C to +70°C
D = ±50ppm Maximum over 0°C to +70°C
E = ±25ppm Maximum over 0°C to +70°C
F = ±20ppm Maximum over 0°C to +70°C
G = ±100ppm Maximum over -40°C to +85°C
H = ±50ppm Maximum over -40°C to +85°C
J = ±25ppm Maximum over -40°C to +85°C
L = ±100ppm Maximum over -20°C to +70°C
M = ±50ppm Maximum over -20°C to +70°C
N = ±25ppm Maximum over -20°C to +70°C

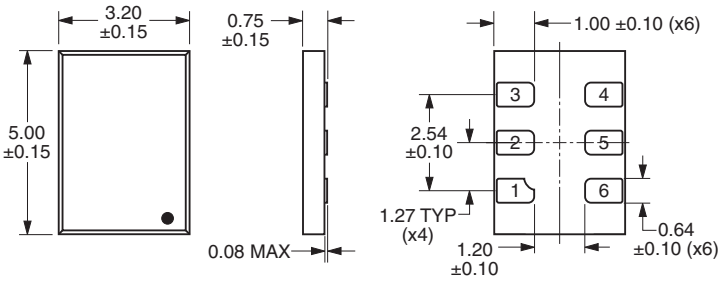
DUTY CYCLE
2 = 50 ±5(%)

LOGIC CONTROL/ADDITIONAL OUTPUT
H = Output Enable (OE) and Complementary Output
J = Standby (ST) and Complementary Output

FREQUENCY

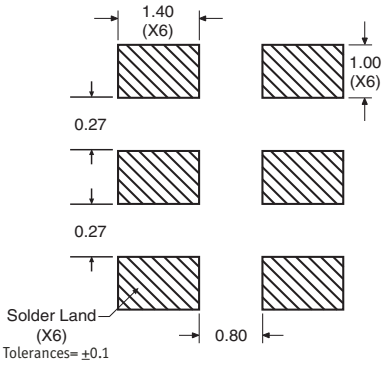
AVAILABLE OPTIONS
Blank = Bulk
TR = Tape and Reel

MECHANICAL DIMENSIONS
ALL DIMENSIONS IN MILLIMETERS

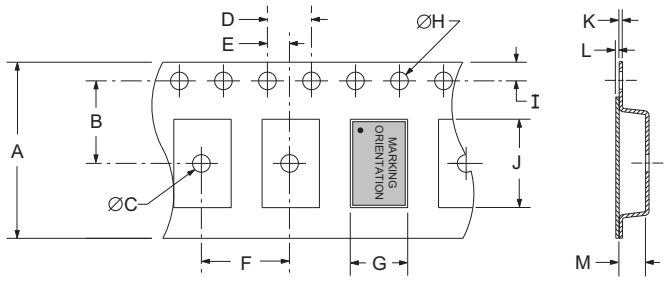


Pin 1: Output Enable (OE) or Standby (ST)
Pin 2: No Connect
Pin 3: Case Ground
Pad 4: Output
Pad 5: Complementary Output
Pad 6: Supply Voltage

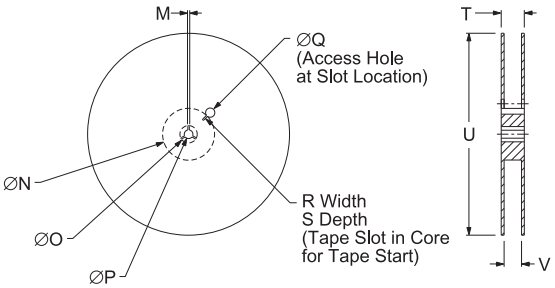
SUGGESTED SOLDER PAD LAYOUT
ALL DIMENSIONS IN MILLIMETERS



TAPE AND REEL DIMENSIONS
ALL DIMENSIONS IN MILLIMETERS



Direction of Unreeling



TAPE	A	B	C	D	E	F
	16.0 ±0.3	7.5 ±0.1	1.50 MIN	4.0 ±0.1	2.0 ±0.1	8.0 ±0.1
G	H	I	J	K	L	M
A0*	1.5 +0.1/-0.0	1.75 ±0.10	B0*	0.60 MAX	0.10 MAX	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	180 MAX	16.4+2/-0	1,000

*Compliant to EIA 481

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 (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: XXXXX
Ecliptek Manufacturing Lot Code

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