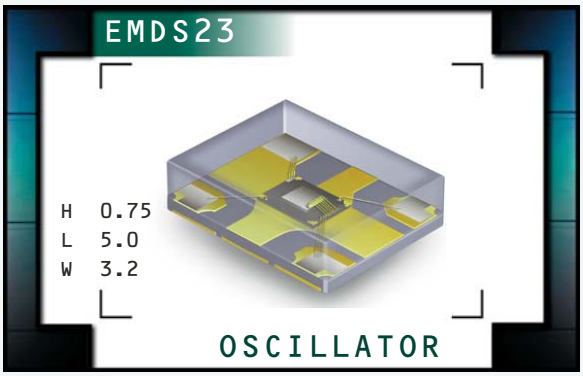
EMDS23 Series

- MEMS Clock Oscillators
- LVDS 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})		$3.3V_{DC}$ ±$0.3V_{DC}$
Input Current	Excluding Load Termination Current	80mA 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})		$1.425V_{DC}$ Typical
Output Voltage Logic Low (V_{OL})		$1.075V_{DC}$ Typical
Differential Output Voltage (V_{OD})		247mV Minimum, 350mV Typical, 454mV Maximum
Offset Voltage (V_{OS})		1.125V Minimum, 1.250V Typical, 1.375V Maximum
Differential Output Error ($_{D}V_{DD}$)		50mV Maximum
Offset Error ($_{D}V_{OS}$)		50mV Maximum
Output Swing ($_{D}VO_{PP}$)		350mVdc Minimum
Rise Time / Fall Time	20% to 80% of waveform	225pSec Typical, 325pSec Maximum
Duty Cycle	at 50% of waveform	50 ±5(%)
Load Drive Capability	Between Output and Complementary Output	100 Ohms
Logic Control / Additional Output	OE ST	Ouput 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	75mA Maximum (OE)
Standby Current	Without Load	30µA Maximum (ST)
Aging	First Year at 25°C	±1ppm Maximum
Start Up Time	FJ = 12kHz to 20MHz	10 mSeconds Maximum
Period Jitter	Deterministic Random RMS pk-pk	0.2pSec Typical 2.0pSec Typical 1.8pSec Typical, 2.5pSec Maximum 25pSec Typical, 30pSec Maximum
RMS Phase Jitter (Random) **Fj=637kHz to 10MHz**	1.000MHz to 100.000MHz 100.001MHz to 156.250MHz 156.251MHz to 220.000MHz	2.1pSec Typical 1.7pSec Typical 1.6pSec Typical
RMS Phase Jitter (Random) **Fj=1MHz to 20MHz**	1.000MHz to 100.000MHz 100.001MHz to 156.250MHz 156.251MHz to 220.000MHz	1.7pSec Typical 1.2pSec Typical 0.7pSec Typical
RMS Phase Jitter (Random) **Fj=1.875MHz to 20MHz**	1.000MHz to 100.000MHz 100.001MHz to 156.250MHz 156.251MHz to 220.000MHz	1.5pSec Typical 0.7pSec Typical 0.6pSec Typical

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	EMDS23	PLASTIC	3.3V	OS8H	10/11

PART NUMBERING GUIDE

EMDS23 C 2 H - 155.520M 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

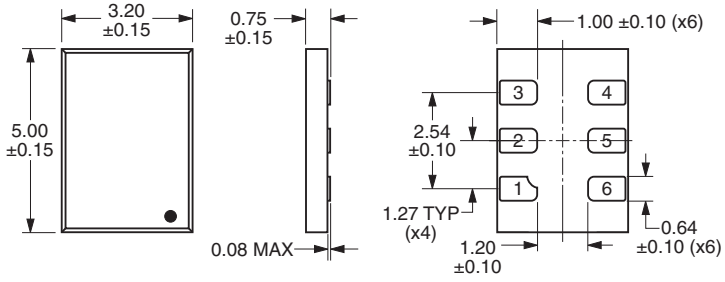
DUTY CYCLE
2 = 50 ±5(%)

FREQUENCY

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

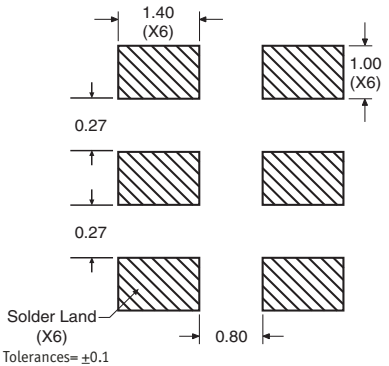
AVAILABLE OPTIONS
Blank = Bulk
TR = Tape and Reel

MECHANICAL DIMENSIONS
ALL DIMENSIONS IN MILLIMETERS



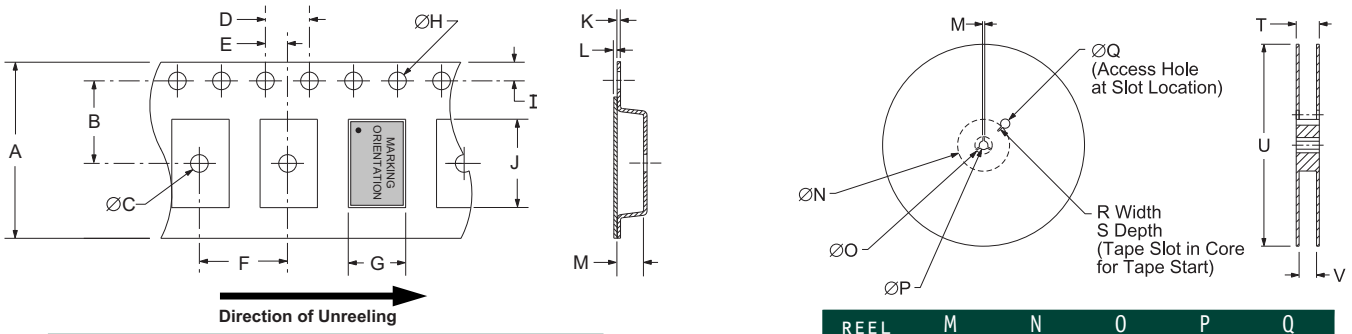
Pin 1: Output Enable (OE) or Standby (ST)
Pin 2: No Connect
Pin 3: Case Ground
Pad 4: Output
Pad 5: Complementary Output
Pad 6: Supply Voltage

SUGGESTED SOLDER PAD LAYOUT
ALL DIMENSIONS IN MILLIMETERS



Tolerances= ±0.1

TAPE AND REEL DIMENSIONS
ALL DIMENSIONS IN MILLIMETERS



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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ECLIPTEK CORP.	OSCILLATOR	EMDS23	PLASTIC	3.3V	OS8H	10/11