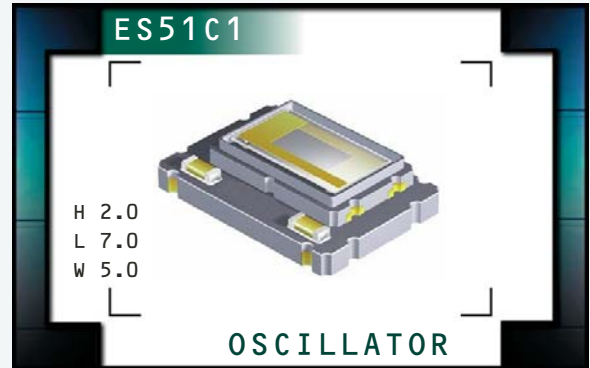


ES51C1 Series



ECLIPTEK[®]
CORPORATION

- RoHS Compliant (Pb-free)
- Temperature Compensated Crystal Oscillator (TCXO)
- Clipped Sinewave Output
- 5.0V Supply Voltage
- Ceramic 10-pad SMD package
- Stability to ± 1.0 ppm
- External voltage control option available



ELECTRICAL SPECIFICATIONS

Nominal Frequency (MHz)	10.000, 10.240, 10.245, 12.000, 12.288, 12.800, 13.000, 14.000, 14.400, 14.7456, 15.360, 16.000, 16.384, 16.800, 17.500, 18.432, 19.200, 19.440, 20.000, 20.480, 24.000, 24.5535, 24.576, 25.000, and 27.000MHz	
Frequency Stability	vs. Operating Temperature Range vs. Frequency Tolerance (25°C $\pm 2^\circ\text{C}$, $V_{DD} = 5.0V_{DC}$, $V_C = 1.5V_{DC}$) vs. Input Voltage ($\pm 5\%$) vs. Load ($\pm 1k\Omega // \pm 1pF$)	See Part Numbering Guide ± 1.0 ppm Maximum ± 0.2 ppm Maximum ± 0.2 ppm Maximum
Aging (at 25°C)		± 1 ppm / Year Maximum
Operating Temperature Range		See Part Numbering Guide
Supply Voltage (V_{DD})		$5.0V_{DC} \pm 5\%$
Input Current	10.000MHz to 14.999999MHz 15.000MHz to 25.999999MHz 26.000MHz to 27.000MHz	1.5mA Maximum 2.0mA Maximum 2.5mA Maximum
Output Voltage		0.8Vp-p Clipped Sinewave Minimum
Load Drive Capability		10kOhms // 10pF
External Trim (Voltage Control Option)	$1.5V_{DC} \pm 1.0V_{DC}$; Positive Transfer Characteristic	± 8 ppm Minimum
Linearity		10% Maximum
Modulation Bandwidth	Measured at -3dB, $V_C = 1.5V_{DC}$	3kHz Minimum
Input Impedance		100kOhms Minimum
Typical Phase Noise (at 12.800MHz)	At offset of 10Hz At offset of 100Hz At offset of 1kHz At offset of 10kHz At offset of 100kHz	-80dBc/Hz -115dBc/Hz -135dBc/Hz -145dBc/Hz -145dBc/Hz
Start Up Time		5mSec Maximum
Storage Temperature Range		-55°C to 125°C

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	ES51C1	CERAMIC	5.0V	OS4J	11/08

PART NUMBERING GUIDE

ES51C1 C 25 V - 13.000M TR

OPERATING TEMPERATURE RANGE

A=0°C to 50°C
 B=0°C to 70°C
 C=-20°C to 70°C
 D=-30°C to 85°C
 E=-40°C to 85°C

FREQUENCY STABILITY

10 = ±1.0ppm Maximum
 15 = ±1.5ppm Maximum
 20 = ±2.0ppm Maximum
 25 = ±2.5ppm Maximum

PACKAGING OPTIONS

Blank=Bulk
 TR=Tape and Reel

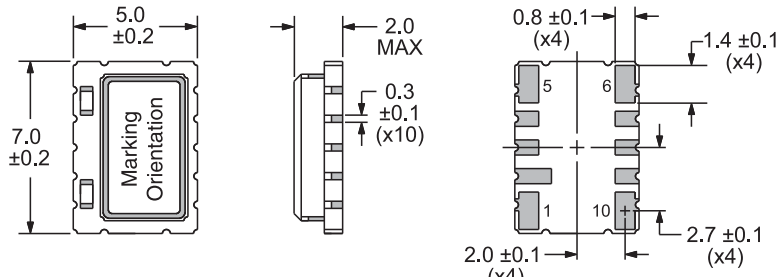
FREQUENCY

EXTERNAL TRIM

N=None (No Connection on Pin 1)
 V=Voltage Control

MECHANICAL DIMENSIONS

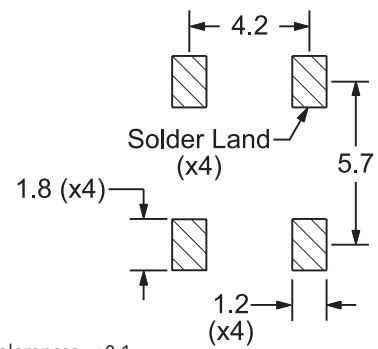
ALL DIMENSIONS IN MILLIMETERS



Pin 1: Control Voltage or No Connect
 Pin 5: Case Ground
 Pin 6: Output
 Pin 10: Supply Voltage
 Pin 2-4, 7-9: Do Not Connect

SUGGESTED SOLDER PAD LAYOUT

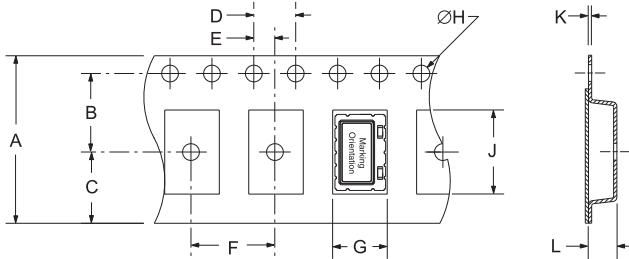
ALL DIMENSIONS IN MILLIMETERS



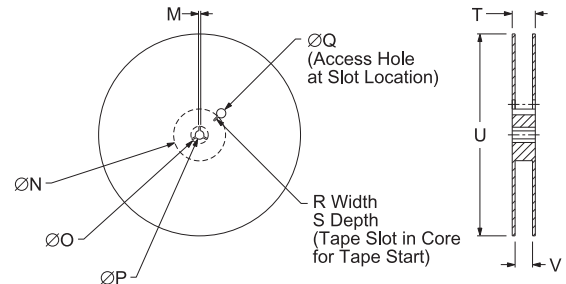
Tolerances = ±0.1

TAPE AND REEL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS



TAPE	A	B	C	D	E
	16.0±0.2	7.5±0.1	6.75±0.1	4.0±0.1	2.0±0.1
F	G	H	J	K	L
8.0±0.1	B0*	1.5+0.1-0.0	A0*	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	360 MAX	16.4+2-0	1,000

*Compliant to EIA 481A

ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

Characteristic

Fine Leak Test
 Gross Leak Test
 Mechanical Shock
 Vibration
 Solderability
 Temperature Cycling
 Resistance to Soldering Heat
 Resistance to Solvents

Specification

MIL-STD-883, Method 1014, Condition A
 MIL-STD-883, Method 1014, Condition C
 MIL-STD-202, Method 213, Condition C
 MIL-STD-883, Method 2007, Condition A
 MIL-STD-883, Method 2003
 MIL-STD-883, Method 1010
 MIL-STD-202, Method 210
 MIL-STD-202, Method 215

MARKING SPECIFICATIONS

Line 1: E XX.XXX
 Frequency in MHz (5 Digits Maximum + Decimal)

Line 2: XX Y ZZ
 Week of Year
 Last Digit of Year
 Ecliptek Manufacturing Identifier

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	ES51C1	CERAMIC	5.0V	OS4J	11/08