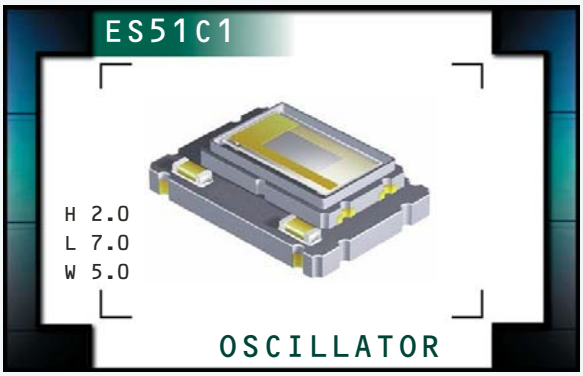
ES51C1 Series

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



ELECTRICAL SPECIFICATIONS

Nominal Frequency (MHz)	10.000, 10.240, 10.245, 11.0592, 12.000, 12.288, 12.800, 13.000, 13.560, 14.000, 14.400, 14.7456, 15.360, 16.000, 16.03495, 16.3676, 16.367667, 16.3677, 16.368, 16.384, 16.800, 17.500, 18.432, 19.200, 19.440, 19.680, 19.800, 20.000, 20.480, 24.000, 24.5535, 25.000, and 26.000MHz	
Frequency Stability	vs. Operating Temperature Range	See Part Numbering Guide
	vs. Frequency Tolerance (25°C ±2°C, V_{DD} = 5.0V_{DC}, V_C = 1.5V_{DC})	±1.0ppm Maximum
	vs. Input Voltage (±5%)	±0.2ppm Maximum
	vs. Load (±1kΩ//±1pF)	±0.2ppm Maximum
Aging (at 25°C)		±1ppm / Year Maximum
Operating Temperature Range		See Part Numbering Guide
Supply Voltage (V_{DD})		5.0V_{DC} ±5%
Input Current	10.000MHz to 14.999999MHz	1.5mA Maximum
	15.000MHz to 25.999999MHz	2.0mA Maximum
	26.000MHz to 26.000MHz	2.5mA Maximum
Output Voltage		0.8Vp-p Clipped Sinewave Minimum
Load Drive Capability		10kOhms // 10pF
External Trim (Voltage Control Option)	1.5V_{DC} ±1.0V_{DC}; Positive Transfer Characteristic	±8ppm 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	-80dBc/Hz
	At offset of 100Hz	-115dBc/Hz
	At offset of 1kHz	-135dBc/Hz
	At offset of 10kHz	-145dBc/Hz
	At offset of 100kHz	-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	09/07

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

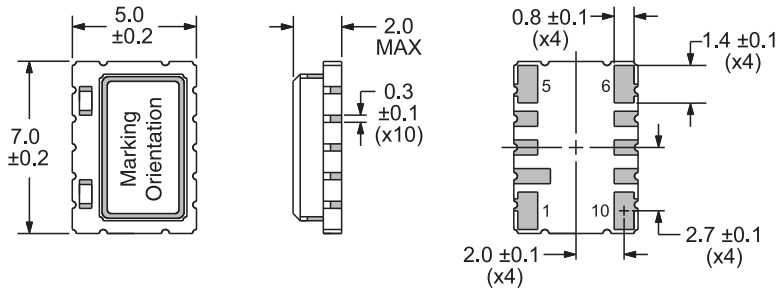
FREQUENCY STABILITY
10 = ±1.0ppm Maximum
15 = ±1.5ppm Maximum
20 = ±2.0ppm Maximum
25 = ±2.5ppm Maximum

PACKAGING OPTIONS
Blank=Bulk
TR=Tape and Reel

FREQUENCY

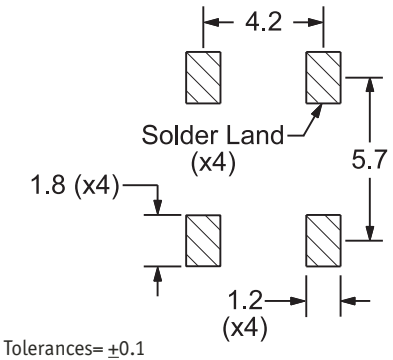
EXTERNAL TRIM
N=None (No Connection on Pin 1)
V=Voltage Control

MECHANICAL DIMENSIONS
ALL DIMENSIONS IN MILLIMETERS



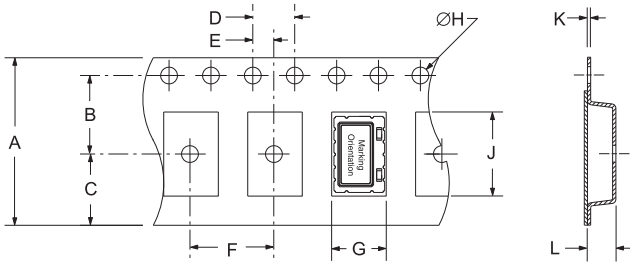
Pin 1: Control Voltage or No Connect
Pin 5: Case Ground
Pin 6: Output
Pin 10: Supply Voltage
Pin 2-4, 7-9: Do Not Connect

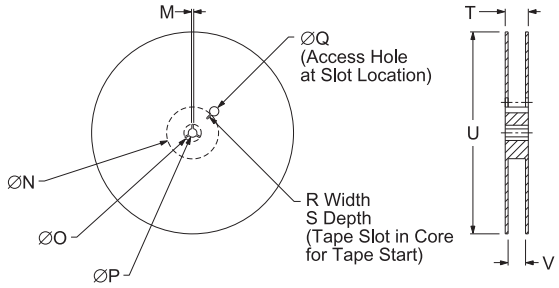
SUGGESTED SOLDER PAD LAYOUT
ALL DIMENSIONS IN MILLIMETERS



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	
2.5 MIN	10 MIN	22.4 MAX	360 MAX	16.4+2-0	QTY/REEL 1,000

*Compliant to EIA 481A

ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

Characteristic	Specification
Fine Leak Test	MIL-STD-883, Method 1014, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C
Mechanical Shock	MIL-STD-202, Method 213, Condition C
Vibration	MIL-STD-883, Method 2007, Condition A
Solderability	MIL-STD-883, Method 2003
Temperature Cycling	MIL-STD-883, Method 1010
Resistance to Soldering Heat	MIL-STD-202, Method 210
Resistance to Solvents	MIL-STD-202, Method 215

MARKING SPECIFICATIONS

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

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

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV - DATE
ECLIPTEK CORP.	OSCILLATOR	ES51C1	CERAMIC	5.0V	OS4J	09/07