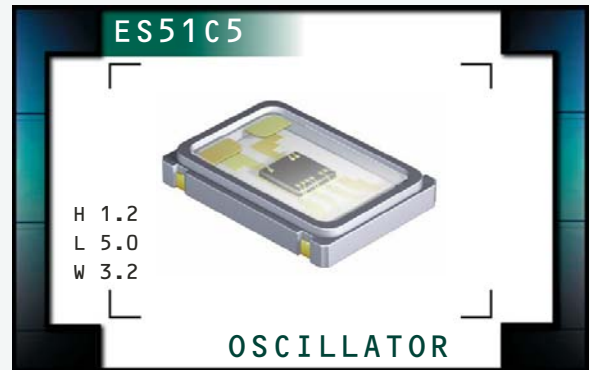


# ES51C5 Series



**ECLIPTEK**<sup>®</sup>  
CORPORATION

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



## NOTES

### ELECTRICAL SPECIFICATIONS

<b>Nominal Frequency</b>	12.504MHz, 12.8MHz, 13MHz, 14.7456MHz, 16MHz, 16.367667MHz, 16.8MHz, 18.414MHz, 19.2MHz, 19.44MHz, 19.68MHz, 20MHz, 24MHz, 24.5535MHz, 25MHz, and 26.000MHz	
<b>Frequency Stability</b>	vs. Operating Temperature Range ( $V_{DD}=5.0V_{DC}$ , $V_C=1.5V_{DC}$ )	See Table 1
	vs. Frequency Tolerance ( $25^{\circ}C \pm 2^{\circ}C$ , $V_{DD}=5.0V_{DC}$ , $V_C=1.5V_{DC}$ )	$\pm 1.0$ ppm Maximum
	vs. Input Voltage ( $\pm 5\%$ )	$\pm 0.3$ ppm Maximum
	vs. Load ( $\pm 1k\Omega // \pm 1pF$ )	$\pm 0.2$ ppm Maximum
<b>Aging (at 25°C)</b>		$\pm 1$ ppm / Year Maximum
<b>Operating Temperature Range</b>		See Table 1
<b>Supply Voltage (<math>V_{DD}</math>)</b>		5.0V <sub>DC</sub> $\pm 5\%$
<b>Input Current</b>		2.0mA Maximum
<b>Output Voltage</b>	External DC-Cut Capacitor Required, 1000pF Recommended	1.0Vp-p Clipped Sinewave Minimum
<b>Load Drive Capability</b>		10kOhms // 10pF
<b>External Trim (Voltage Control Option)</b>	1.5V <sub>DC</sub> $\pm 1.0V_{DC}$ ; Positive Transfer Characteristic	$\pm 8$ ppm Minimum
<b>Storage Temperature Range</b>		-30°C to 85°C
<b>Start Up Time</b>		5mSec Maximum
<b>Phase Noise (at 12.800MHz)</b>	At offset of 10Hz	-80dBc/Hz Typical
	At offset of 100Hz	-115dBc/Hz Typical
	At offset of 1kHz	-135dBc/Hz Typical
	At offset of 10kHz	-148dBc/Hz Typical

MANUFACTURER  
ECLIPTEK CORP.

CATEGORY  
OSCILLATOR

SERIES  
ES51C5

PACKAGE  
CERAMIC

VOLTAGE  
5.0V

CLASS  
OS1D

REV. DATE  
09/07

## PART NUMBERING GUIDE

### ES51C5 C 25 V - 13.000M TR

**OPERATING TEMP. RANGE**  
One Letter Code Per Table 1

**FREQUENCY STABILITY**  
Two Digit Code Per Table 1

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

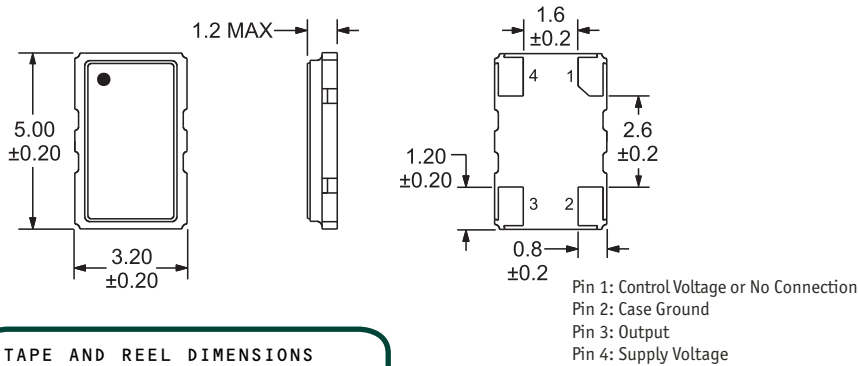
**FREQUENCY**

**PACKAGING OPTIONS**  
Blank=Bulk  
TR=Tape and Reel

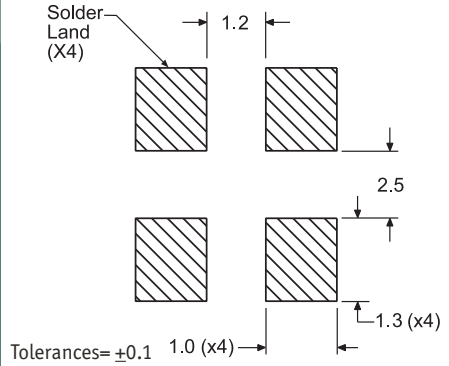
**TABLE 1: PART NUMBERING CODES**

Operating Temperature Range	Frequency Stability X Denotes Availability					
		±1.0ppm	±1.5ppm	±2.0ppm	±2.5ppm	±3.0ppm
	Code	10	15	20	25	30
0°C to +50°C	A	X	X	X	X	X
-10°C to +60°C	B	X	X	X	X	X
-20°C to +70°C	C	X	X	X	X	X
-30°C to +60°C	D	X	X	X	X	X
-30°C to +75°C	E	X	X	X	X	X
-30°C to +85°C	F	X	X	X	X	X
-40°C to +85°C	G		X	X	X	X

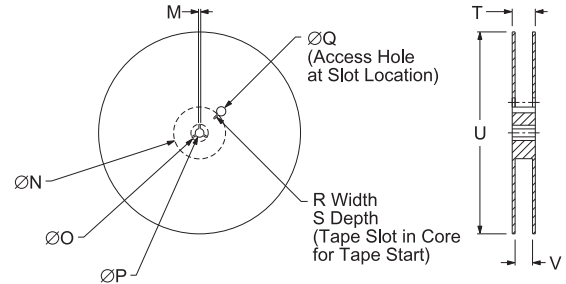
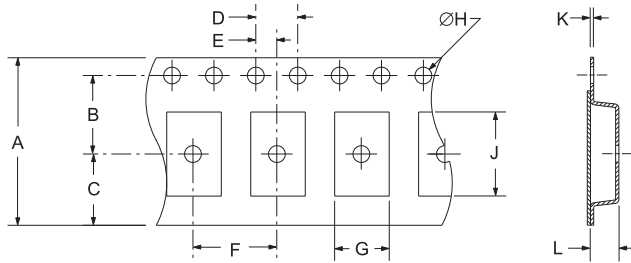
**MECHANICAL DIMENSIONS**  
ALL DIMENSIONS IN MILLIMETERS



**SUGGESTED SOLDER PAD LAYOUT**  
ALL DIMENSIONS IN MILLIMETERS



**TAPE AND REEL DIMENSIONS**  
ALL DIMENSIONS IN MILLIMETERS



TAPE	A	B	C	D	E	
	12.0±0.2	5.5±0.1	6.5±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*

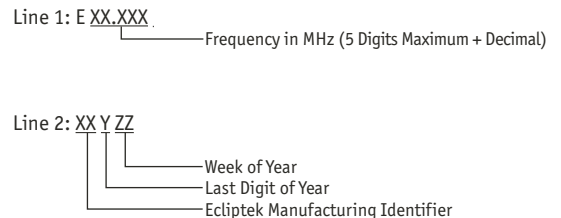
REEL	M	N	O	P	Q
	1.5 MIN	50 MIN	20.2 MIN	13.0±0.2	40 MIN
R	S	T	U	V	QTY/REEL
	2.5 MIN	10 MIN	18.4 MAX	12.4±2-0	1,000

\*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**



MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	ES51C5	CERAMIC	5.0V	OS1D	09/07