

# ES52C5 Series



ECLIPTEK<sup>®</sup>  
CORPORATION

- Temperature Compensated Crystal Oscillators (TCXO)
- Clipped Sinewave Output
- +3.0V Supply Voltage
- External Control Voltage Option
- 4 Pad Ceramic SMD Package
- RoHS Compliant (Pb-Free)



## NOTES

### ELECTRICAL SPECIFICATIONS

<b>Nominal Frequency</b>	10MHz, 12MHz, 12.288MHz, 12.8MHz, 13MHz, 14.4MHz, 14.487MHz, 14.7456MHz, 16MHz, 16.367667MHz, 16.369MHz, 16.384MHz, 16.385228MHz, 16.8MHz, 18.414MHz, 19.2MHz, 19.44MHz, 20MHz, 23.104MHz, 24MHz, 24.553MHz, 24.5535MHz, 24.576MHz, 25MHz, 26MHz, 27MHz, 30MHz, and 40MHz	
<b>Frequency Stability</b>	vs. Operating Temperature Range ( $V_{DD}=3.0V_{DC}$ , $V_C=1.5V_{DC}$ )	See Table 1
	vs. Frequency Tolerance ( $25^{\circ}C \pm 2^{\circ}C$ , $V_{DD}=3.0V_{DC}$ , $V_C=1.5V_{DC}$ )	$\pm 1.0$ 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>		$3.0V_{DC} \pm 5\%$
<b>Input Current</b>		2.0mA Maximum
<b>Output Voltage</b>	External DC-Cut Capacitor Required, 1000pF Recommended	0.7Vp-p Clipped Sinewave Minimum
<b>Load Drive Capability</b>		10kOhms // 10pF
<b>External Trim (Voltage Control Option)</b>	$1.5V_{DC} \pm 1.0V_{DC}$ ; Positive Transfer Characteristic	$\pm 8$ ppm Minimum
<b>Storage Temperature Range</b>		$-30^{\circ}C$ to $85^{\circ}C$
<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 ES52C5	PACKAGE CERAMIC	VOLTAGE 3.0V	CLASS OS1E	REV. DATE 02/10
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## PART NUMBERING GUIDE

### ES52C5 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

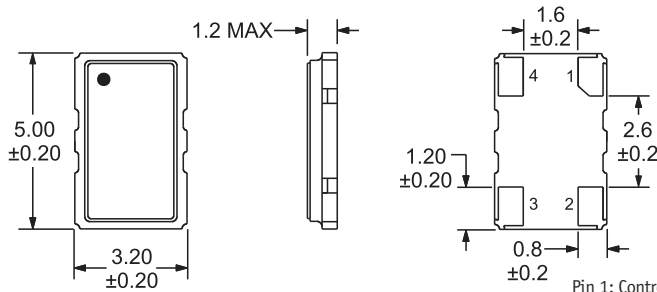
**FREQUENCY**

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

**TABLE 1: PART NUMBERING CODES**

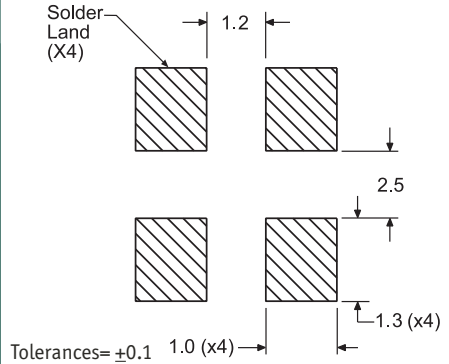
Operating Temperature Range	Frequency Stability					
	X = Available at any Frequency Y = Available from 10MHz to 30MHz Z = Available from 10MHz to 27MHz					
		±1.0ppm	±1.5ppm	±2.0ppm	±2.5ppm	±3.0ppm
	Code	10	15	20	25	30
0°C to +50°C	A	X	X	X	X	X
-10°C to +60°C	B	X	X	X	X	X
-20°C to +70°C	C	X	X	X	X	X
-30°C 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		Z	Z	Y	X

**MECHANICAL DIMENSIONS**  
ALL DIMENSIONS IN MILLIMETERS

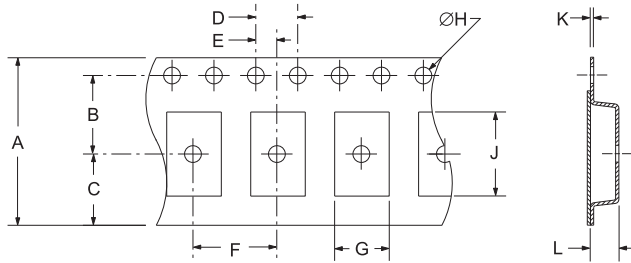


Pin 1: Control Voltage or No Connection  
Pin 2: Case Ground  
Pin 3: Output  
Pin 4: Supply Voltage

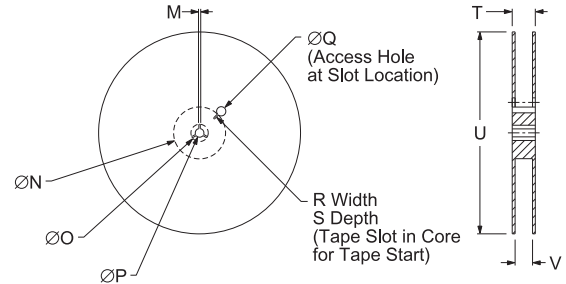
**SUGGESTED SOLDER PAD LAYOUT**  
ALL DIMENSIONS IN MILLIMETERS



**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*



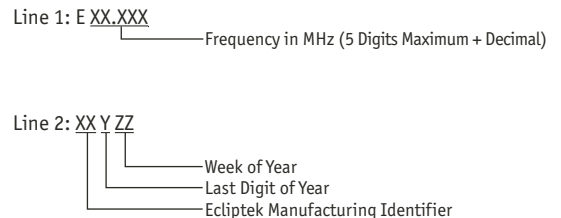
REEL	M	N	O	P	Q
	1.5 MIN	50 MIN	20.2 MIN	13.0±0.2	40 MIN
R	S	T	U	V	QTY/REEL
2.5 MIN	10 MIN	18.4 MAX	180 MAX	12.4±2-0	1,000

\*Compliant to EIA 481A

**ENVIRONMENTAL/MECHANICAL SPECIFICATIONS**

Characteristic	Specification
ESD Susceptibility	MIL-STD-883, Method 3015, Class 1, HBM: 1500V
Fine Leak Test	MIL-STD-883, Method 1014, Condition A
Flammability	UL94-V0
Gross Leak Test	MIL-STD-883, Method 1014, Condition C
Mechanical Shock	MIL-STD-883, Method 2002, Condition B
Moisture Resistance	MIL-STD-883, Method 1004
Moisture Sensitivity	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
Temperature Cycling	MIL-STD-883, Method 1010, Condition B
Vibration	MIL-STD-883, Method 2007, Condition A

**MARKING SPECIFICATIONS**



MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	ES52C5	CERAMIC	3.0V	OS1E	02/10