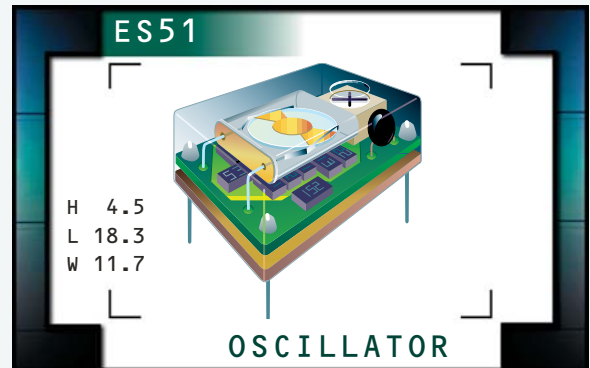


# ES51 Series

- Temperature Compensated Crystal Oscillator (TCX0)
- Clipped Sinewave Output
- 5.0V Supply Voltage
- 14 pin DIP package
- Stability to 1.5ppm
- Internal or external voltage control option available



## NOTES

### ELECTRICAL SPECIFICATIONS

<b>Frequency Range</b>	9.600MHz to 35.000MHz	
<b>Storage Temperature Range</b>	-40°C to 85°C	
<b>Operating Temperature Range</b>	See Table 1	
<b>Supply Voltage (V<sub>DD</sub>)</b>	5.0V <sub>DC</sub> ±5%	
<b>Load Drive Capability</b>	10kOhms // 10pF	
<b>Internal Trim (Top of Can)</b>	±3ppm Minimum	
<b>Control Voltage (External)</b>	2.5V <sub>DC</sub> ±2.0V <sub>DC</sub> Positive Transfer Characteristic	
<b>Output Voltage</b>	1.0Vp-p Minimum	
<b>Frequency Deviation</b>	±5ppm Minimum Over Control Voltage	
<b>Aging (at 25°C)</b>	±1ppm / year Maximum	
<b>Input Current</b>	9.600MHz to 20.000MHz	1.5mA Maximum
	20.001MHz to 29.999MHz	2.0mA Maximum
	30.000MHz to 35.000MHz	3.0mA Maximum
<b>Frequency Stability</b>	vs. Operating Temperature Range	See Table 1
	vs. Input Voltage (±5%)	±0.3ppm Maximum
	vs. Load (±2kΩ // ±2pF)	±0.3ppm Maximum
<b>Typical Phase Noise</b>	At offset of 10Hz	-85dBc/Hz
	At offset of 100Hz	-115dBc/Hz
	At offset of 1kHz	-135dBc/Hz
	At offset of 10kHz	-140dBc/Hz
	At offset of 100kHz	-145dBc/Hz
	At offset of 1MHz	-150dBc/Hz

MANUFACTURER ECLIPTEK CORP.	CATEGORY OSCILLATOR	SERIES ES51	PACKAGE METAL	VOLTAGE 5.0V	CLASS OS22	REV. DATE 05/03
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## PART NUMBERING GUIDE

### ES51 25 E V - 12.800M

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

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

**FREQUENCY**

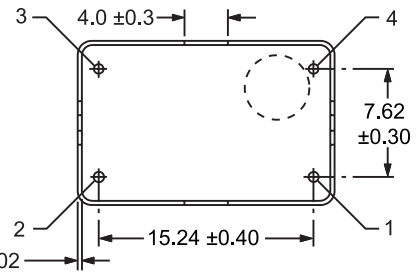
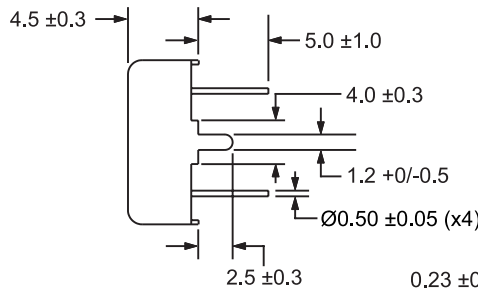
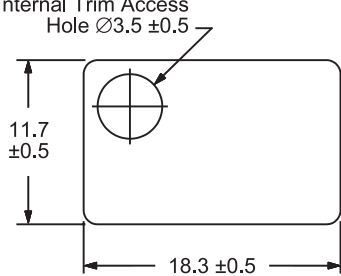
**EXTERNAL TRIM**  
Blank=None (No Connection on Pin 1,  
Pin 1 Not Present)  
V=External Control Voltage

### NOTES

Operating Temperature Range		Frequency Stability					
		X Denotes Availability from 9.6MHz to 25MHz Y Denotes Availability for any valid frequency					
		±1.5ppm	±2.0ppm	±2.5ppm	±3.0ppm	±3.5ppm	±5.0ppm
	Code	15	20	25	30	35	50
0°C to +50°C	A	Y	Y	Y	Y	Y	Y
-10°C to +60°C	B	Y	Y	Y	Y	Y	Y
-20°C to +70°C	C	X	Y	Y	Y	Y	Y
-30°C to +60°C	D		X	Y	Y	Y	Y
-30°C to +75°C	E		X	X	Y	Y	Y
-35°C to +80°C	F			X	X	Y	Y
-40°C to +85°C	G				X	X	Y

#### MECHANICAL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS

Internal Trim Access  
Hole  $\varnothing 3.5 \pm 0.5$



Pin 1: Voltage Control or No Connection  
(Pin 1 Not present when Voltage Control is specified as "No Connect")  
Pin 2: Case Ground  
Pin 3: Output  
Pin 4: Supply Voltage

#### 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
Lead Integrity	MIL-STD-883, Method 2004
Solderability	MIL-STD-883, Method 2002
Temperature Cycling	MIL-STD-883, Method 1010
Resistance to Soldering Heat	MIL-STD-883, Method 210
Resistance to Solvents	MIL-STD-883, Method 215

#### MARKING SPECIFICATIONS

Line 1: ECLIPTEK

Line 2: ES51 15 A V

External Trim  
Blank=None (No Connection on Pin 1)  
V=External Voltage Control

Operating Temperature Code (°C)  
A= 0 to 50, B= -10 to 60, C= -20 to 70,  
D= -30 to 60, E= -30 to 75, F= -35 to 80,  
G= -40 to 85

Frequency Stability Code (±ppm)  
15=1.5, 20=2.0, 25=2.5, 30=3.0, 35=3.5, 50=5.0

Series Designator

Line 3: XX.XXX M

Frequency in MHz (5 Digits Maximum + Decimal)

Line 4: XX Y ZZ

Week of Year  
Last Digit of Year  
Ecliptek Manufacturing Identifier

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	ES51	METAL	5.0V	OS22	05/03