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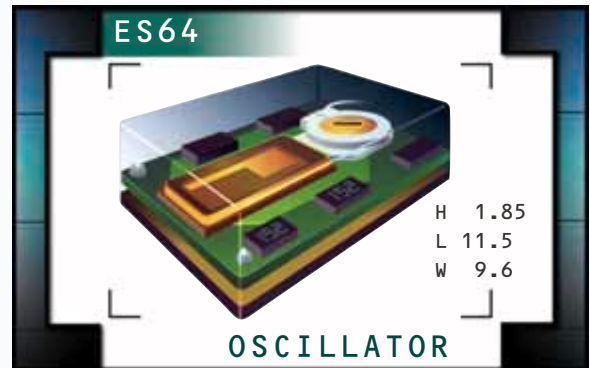
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# ES64 Series

- Temperature Compensated Crystal Oscillator (TCXO)
- Sinewave Output
- 5.0V or 3.0V Supply Voltage
- Four pad surface mount
- Stability to 1.5ppm
- Internal and or external voltage control option available



## NOTES

### ELECTRICAL SPECIFICATIONS

<b>Frequency Range</b>		10.000MHz to 22.000MHz (Standard Frequencies: 12.800MHz, 13.000MHz, and 14.400MHz)
<b>Storage Temperature Range</b>		-30°C to 85°C
<b>Operating Temperature Range</b>		See Table 1
<b>Supply Voltage (<math>V_{DD}</math>)</b>		5.0V <sub>DC</sub> ±5% or 3.0V <sub>DC</sub> ±5%
<b>Load Drive Capability</b>		10kOhms // 10pF
<b>Input Current</b>		2.0mA Maximum
<b>Aging (at 25°C)</b>		±1ppm / Year Maximum
<b>Frequency Deviation Options</b>		
<b>Internal Trim Only (Top of Can)</b>		±3ppm Minimum
<b>External Trim Only (Voltage Control)</b>		±8ppm Minimum
<b>External Trim and Internal Trim</b>		±5ppm Minimum (Control Voltage); ±3ppm Minimum (Internal Trim)
<b>Output Voltage</b>		w/5.0V <sub>DC</sub> ±5% Supply Voltage 1.0Vp-p Clipped Sinewave Minimum w/3.0V <sub>DC</sub> ±5% Supply Voltage 0.7Vp-p Clipped Sinewave Minimum
<b>Frequency Stability</b>		vs. Operating Temperature Range See Table 1 vs. Frequency Tolerance (25°C ±2°C) ±0.5ppm Maximum w/ Internal Trim Only, ±0.5ppm Maximum w/ Internal and External Trim, ±2ppm Maximum w/ External Trim Only vs. Input Voltage (±5%) ±0.3ppm Maximum vs. Load (±1kΩ//±1pF) ±0.3ppm Maximum

# PART NUMBERING GUIDE

## ES64 25 E V 5 - 12.800M TR

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

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

**EXTERNAL/INTERNAL TRIM OPTIONS**

Blank=Internal Trim Only  
V=Internal and External Trim, W=External Trim Only

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

**FREQUENCY**

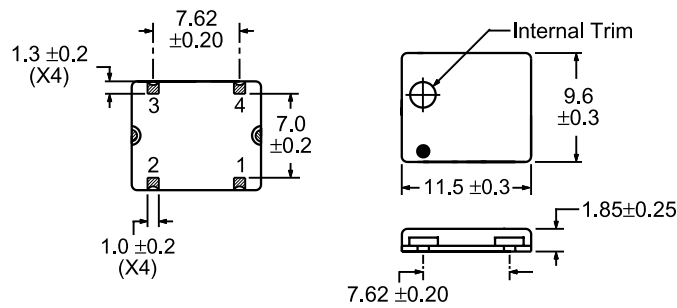
**SUPPLY VOLTAGE**  
5=5.0V<sub>DC</sub>±5%  
3=3.0V<sub>DC</sub>±5%

TABLE 1: PART NUMBERING CODES

Operating Temperature Range	Code	Frequency Stability			
		X Denotes Availability for all frequencies 0 Denotes Standard Frequencies Availability Only			
		±1.5ppm	±2.0ppm	±2.5ppm	±3.0ppm
0°C to +50°C	A	0	X	X	X
-10°C to +60°C	B	0	X	X	X
-20°C to +70°C	C	0	X	X	X
-30°C to +60°C	D		X	X	X
-30°C to +75°C	E		X	X	X

### MECHANICAL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS

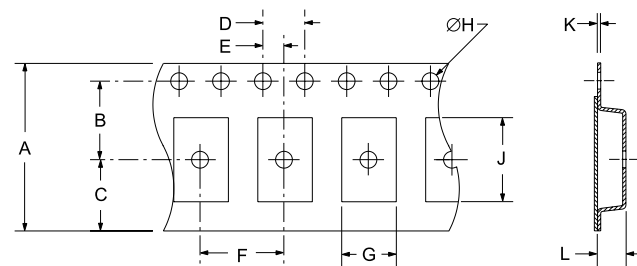


Pin 1: Voltage Control or No Connect  
Pin 2: Ground/Case Ground

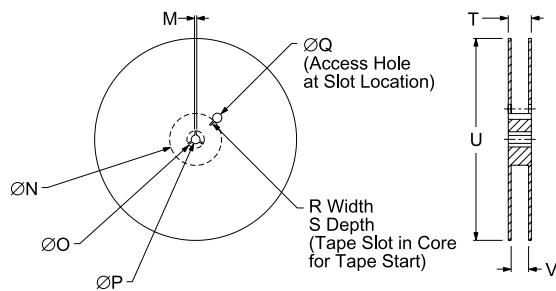
Pin 3: Output  
Pin 4: Supply Voltage

### TAPE AND REEL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS



TAPE	A	B	C	D	E
	24±.3	10.75±.1	11.5±.1	4±.2	2±.1
F	G	H	J	K	L
	12±.2	10.2±.1	1.55±.05	12±.1	.3±.05
					2.3±.1

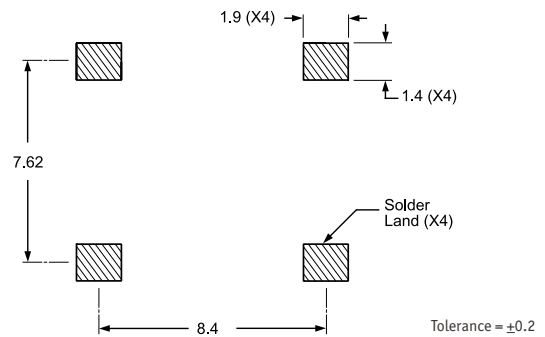


REEL	M	N	O	P	Q
	1.5 MIN	50 MIN	20.2 MIN	13±.2	40 MIN
R	S	T	U	V	QTY/REEL
	2.5 MIN	10 MIN	30.4 MAX	360 MAX	24.4+2-0
					2000

\*Compliant to EIA 481A

### SUGGESTED SOLDER PAD LAYOUT

ALL DIMENSIONS IN MILLIMETERS



### ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

Parameter	Specification
Shock	Random drop on hard wooden plate 3 times from a height of 30cm.
Vibration	Frequency with an amplitude of 1.5mm sweeping between 10Hz to 55Hz within 1 minute (approximately) for 2 hours minimum on each axis (X, Y and Z) for a total of 6 hours.

### MARKING SPECIFICATIONS

Line 1: ECLIPTEK

Line 2: ES64 15 A V 5

Supply Voltage 5=5V<sub>DC</sub>, 3=3V<sub>DC</sub>

Pin 1 connection  
Blank=No connection  
V=Internal Trim and External Trim  
W=External Trim Only

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  
Eclipse Manufacturing Identifier

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	ES64	METAL	3.0V or 5.0V	OS37	06/00