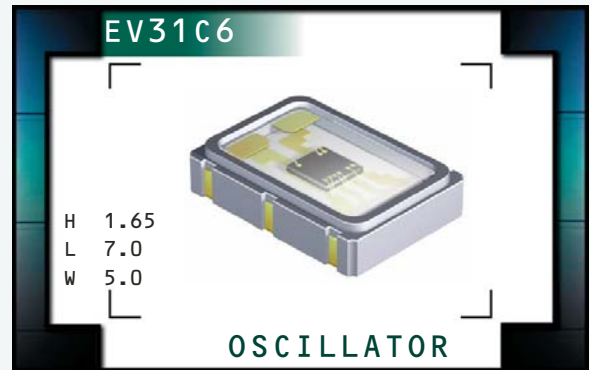


# EV31C6 Series



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

- RoHS Compliant (Pb-Free)
- Voltage Controlled Crystal Oscillator (VCXO)
- 5.0V Supply Voltage
- HCMOS output with Tri-State function
- Ceramic 6-pad SMD package
- APR Performance to  $\pm 100$ ppm
- Commercial and Industrial Temperature Range



## ELECTRICAL SPECIFICATIONS

<b>Frequency Range (F<sub>o</sub>)</b>	1.544MHz, 2.000MHz, 2.048MHz, 3.088MHz, 3.580MHz, 3.686MHz, 4.000MHz, 4.032MHz, 4.096MHz, 4.434MHz, 5.000MHz, 6.144MHz, 6.176MHz, 6.312MHz, 6.400MHz, 8.000MHz, 8.192MHz, 8.448MHz, 10.000MHz, 12.000MHz, 12.288MHz, 12.352MHz, 12.960MHz, 13.000MHz, 13.500MHz, 14.318MHz, 15.360MHz, 15.440MHz, 16.000MHz, 16.384MHz, 16.660MHz, 17.664MHz, 18.432MHz, 19.200MHz, 19.440MHz, 20.000MHz, 20.480MHz, 24.000MHz, 24.576MHz, 24.704MHz, 25.920MHz, 26.000MHz, 27.000MHz, 28.636MHz, 30.000MHz, 30.720MHz, 32.000MHz, 32.768MHz, 34.368MHz, 35.328MHz, 36.864MHz, 38.880MHz, 40.000MHz, 40.960MHz, 44.736MHz, 50.000MHz, 51.840MHz, 52.000MHz, 62.208MHz, 65.536MHz, 74.250MHz, 77.760MHz
<b>Operating Temperature Range (OTR)</b>	0°C to 70°C or -40°C to 85°C
<b>Storage Temperature Range (STR)</b>	-55°C to 125°C
<b>Supply Voltage (V<sub>DD</sub>)</b>	5.0V <sub>DC</sub> $\pm 10\%$
<b>Input Current (I<sub>DD</sub>)</b>	$\leq 27.000$ MHz: 25mA Maximum $> 27.000$ MHz: 35mA Maximum
<b>Frequency Tolerance/Stability</b>	Inclusive of All Conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, Shock, and Vibration $\pm 50$ ppm Maximum
<b>Output Voltage Logic High (V<sub>OH</sub>)</b>	I <sub>OH</sub> = -4mA: 90% of V <sub>DD</sub> Minimum
<b>Output Voltage Logic Low (V<sub>OL</sub>)</b>	I <sub>OL</sub> = +4mA: 10% of V <sub>DD</sub> Maximum
<b>Rise Time / Fall Time (T<sub>R</sub>/T<sub>F</sub>)</b>	20% to 80% of Waveform w/HCMOS Load or w/TTL Load: 5 nSeconds Maximum
<b>Duty Cycle (SYM)</b>	at 50% of Waveform: 50 $\pm 5$ (%) Typical, 50 $\pm 10$ (%) Max.
<b>Load Drive Capability (C<sub>LOAD</sub>)</b>	10TTL Load or 30pF HCMOS Load Max.
<b>Aging (at 25°C)</b>	$\pm 2$ ppm/1st year Typical, $\pm 10$ ppm/10 years Max.
<b>Start Up Time (T<sub>S</sub>)</b>	10 mSeconds Maximum
<b>Tri-State Input Voltage</b>	V <sub>IH</sub> : No Connection: Enables Output V <sub>IH</sub> : $\geq 0.9V_{DD}$ : Enables Output V <sub>IL</sub> : $\leq 0.1V_{DD}$ : Disables Output: High Impedance
<b>RMS Phase Jitter</b>	F <sub>J</sub> = 12kHz to 20MHz: 1pSec Maximum
<b>Absolute Pull Range (APR)</b>	Inclusive of All Conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, Shock, Vibration, and Aging over Control Voltage (V <sub>c</sub> ) $\pm 50$ ppm Minimum $\pm 80$ ppm Minimum $\leq 51.840$ MHz only $\pm 100$ ppm Minimum $\leq 36.000$ MHz only
<b>Linearity</b>	10% Typical, 20% Maximum
<b>Control Voltage (V<sub>c</sub>): Test Conditions for APR</b>	0.5V <sub>DC</sub> to 4.5V <sub>DC</sub>
<b>Control Voltage Range (V<sub>CR</sub>)</b>	0.0V <sub>DC</sub> to V <sub>DD</sub>
<b>Transfer Function</b>	Positive Transfer Characteristic
<b>Input Impedance (Z<sub>I</sub>)</b>	50kOhms Minimum
<b>Input Leakage Current</b>	10 $\mu$ A Maximum
<b>Modulation Bandwidth (MBW)</b>	-3dB, V <sub>c</sub> = 2.5V <sub>DC</sub> : 10kHz Minimum
<b>Typical Phase Noise (Fo = 27.000MHz)</b>	At offset of 10Hz: -70dBc/Hz At offset of 100Hz: -100dBc/Hz At offset of 1kHz: -130dBc/Hz At offset of 10kHz: -147dBc/Hz At offset of 100kHz: -152dBc/Hz

MANUFACTURER  
ECLIPTEK CORP.

CATEGORY  
OSCILLATOR

SERIES  
EV31C6

PACKAGE  
CERAMIC

VOLTAGE  
5.0V

CLASS  
OS60

REV. DATE  
11/06

## PART NUMBERING GUIDE

### EV31C6 B 3 A 1 - 35.328M TR

#### OPERATING TEMPERATURE RANGE

A=0°C to 70°C,  
B=-40°C to 85°C

#### ABSOLUTE PULL RANGE (APR)

3=±50ppm Minimum, 4=±80ppm Minimum,  
5=±100ppm Minimum

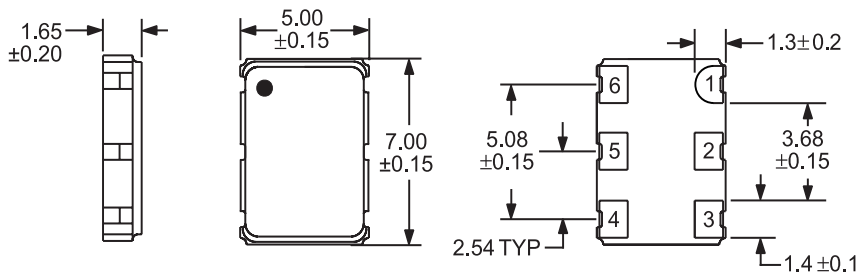
#### AVAILABLE OPTIONS

Blank=Bulk (Standard)  
TR=Tape and Reel

#### FREQUENCY

#### MECHANICAL DIMENSIONS

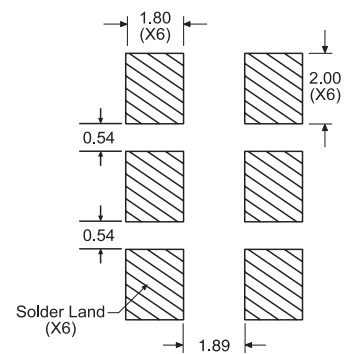
ALL DIMENSIONS IN MILLIMETERS



Pin 1: Control Voltage (V<sub>i</sub>)  
Pin 2: Tri-State  
Pin 3: Case Ground  
Pin 4: Output  
Pin 5: No Connect  
Pin 6: Supply Voltage

#### SUGGESTED SOLDER PAD LAYOUT

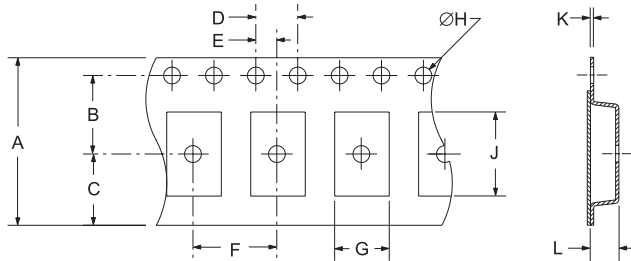
ALL DIMENSIONS IN MILLIMETERS



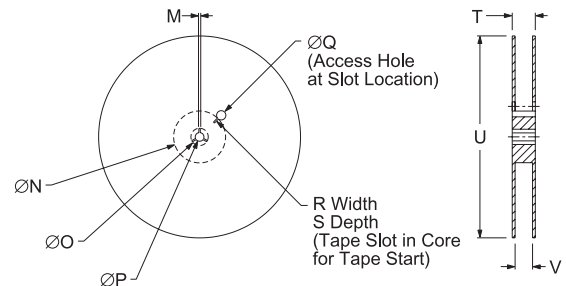
Tolerances = ±0.1

#### TAPE AND REEL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS



TAPE	A	B	C	D	E
	16±.3-.1	7.5±.1	6.75±.1	4±.1	2±.1
F	G	H	J	K	L
8±.1	B0*	1.5+1-0	A0*	.3±.05	K0*



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	22.4 MAX	360 MAX	16.4±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 2002
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: ECLIPTEK

Line 2: XX.XXX M  
Frequency in MHz (5 Digits Maximum + Decimal)

Line 3: XY ZZ  
Week of Year  
Last Digit of Year  
Ecliptek Manufacturing Identifier

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	EV31C6	CERAMIC	5.0V	OS60	11/06