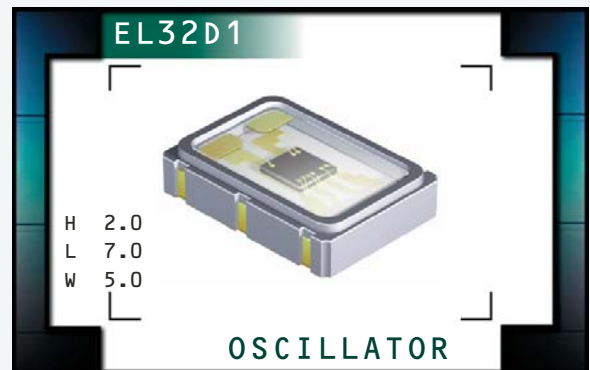


# EL32D1 Series



- RoHS Compliant (Pb-Free)
- LVDS Output Oscillators
- 3.3V supply voltage
- Ceramic 6-pad SMD Package
- Stability to  $\pm 25$ ppm
- Tri-State Output
- Complementary Output
- Available on Tape and Reel



## ELECTRICAL SPECIFICATIONS

Frequency Range (MHz)	50, 51.84, 52, 52.08, 54, 57.1429, 61.44, 63.36, 65.536, 76.8, 77.76, 100, 104, 106.25, 125, 126.72, 128, 153.6, 155.52, 156.25, 159.375, 161.1328, 166.6286, 167.3315, 184.32, 186.666MHz
Operating Temperature Range	0°C to 70°C -40°C to 85°C
Storage Temperature Range	-55°C to 125°C
Supply Voltage ( $V_{CC}$ )	3.3V <sub>DC</sub> $\pm 5\%$
Differential Output Voltage ( $V_{OD}$ )	247mV Minimum, 355mV Typical, 454mV Maximum
Input Current	80mA Maximum
Frequency Tolerance / Stability	Inclusive of all conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, 1st Year Aging, Shock, and Vibration $\pm 50$ ppm or $\pm 25$ ppm Maximum
Output Voltage Logic High ( $V_{OH}$ )	1.43V <sub>DC</sub> Typical, 1.6V <sub>DC</sub> Maximum
Output Voltage Logic Low ( $V_{OL}$ )	1.1V <sub>DC</sub> Typical, 0.9V <sub>DC</sub> Minimum
$V_{DD}$ Magnitude Change ( $\Delta V_{DD}$ )	-50mV Minimum, +50mV Maximum
Offset Voltage ( $V_{OS}$ )	1.125V Minimum, 1.20V Typical, 1.375V Maximum
Rise Time / Fall Time	20% to 80% of waveform 1 nSeconds Maximum
Duty Cycle	at 50% of waveform 50 $\pm 10$ (%) 50 $\pm 5$ (%)
Offset Voltage Magnitude Change ( $\Delta V_{OS}$ )	25mV Maximum
Load Drive Capability	Between Output and Complementary Output 100 Ohms and 10pF
Control Voltage ( $V_C$ )	Test Conditions for Frequency Deviation 1.65V <sub>DC</sub> $\pm 1.65$ V <sub>DC</sub>
Control Voltage Range ( $V_{CR}$ )	0.0V <sub>DC</sub> to $V_{CC} + 0.5$ V <sub>DC</sub>
Frequency Deviation	Inclusive of Operating Temperature Range, Supply Voltage Change, and Output Load Change $\pm 75$ ppm Minimum
Linearity	20%, 15%, or 10% Maximum
Transfer Function	Positive Transfer Characteristic
Modulation Bandwidth (MBW)	Measured at -3dB with Control Voltage of +1.65V <sub>DC</sub> 10kHz Minimum
Input Impedance ( $Z_I$ )	50kOhms Typical
Typical Phase Noise ( $F_o = 155.520$ MHz)	at 10Hz Offset -55dBc/Hz at 100Hz Offset -90dBc/Hz at 1kHz Offset -120dBc/Hz at 10kHz Offset -140dBc/Hz at 100kHz Offset -145dBc/Hz at 1MHz Offset -148dBc/Hz
Logic Control/Additional Output	Tri-State Enable High / Complementary Output
Tri-State Input Voltage	$V_{IH}$ of 70% of $V_{CC}$ Minimum Enables Output No Connection Enables Output $V_{IL}$ of 30% of $V_{CC}$ Maximum Disables Outputs: High Impedance
RMS Phase Jitter	FJ = 12kHz to 20MHz 0.4pSec Typical, 1 pSec Maximum
Accumulated Period Jitter ( $t_{acc}$ )	Sigma of Total Jitter Distribution 4pSec Typical, 5pSec Maximum
Period Jitter ( $t_j$ )	Sigma of Random Jitter 3pSec Typical, 5pSec Maximum
Period Jitter ( $t_{rms}$ )	Sigma of Total Jitter Distribution 3pSec Typical, 5pSec Maximum
Period Jitter ( $t_{dj}$ )	Deterministic Jitter 4pSec Typical, 10pSec Maximum
Period Jitter ( $t_{p-p}$ )	Peak to Peak of Jitter Distribution 27pSec Typical, 40pSec Maximum
Start Up Time	10mSec Maximum

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	EL32D1	CERAMIC	3.3V	OS3Z	01/09

## PART NUMBERING GUIDE

### EL32D1 E E A 2 K - 155.520M TR

**FREQUENCY TOLERANCE & STABILITY/  
OPERATING TEMPERATURE RANGE**

D=±50ppm Maximum over 0°C to +70°C  
E=±25ppm Maximum over 0°C to +70°C  
H=±50ppm Maximum over -40°C to +85°C

**FREQUENCY DEVIATION**

E=±75ppm Minimum

**LINEARITY**

A=20% Maximum  
B=15% Maximum  
C=10% Maximum

**AVAILABLE OPTIONS**

Blank=Bulk  
TR=Tape and Reel (Standard)

**FREQUENCY**

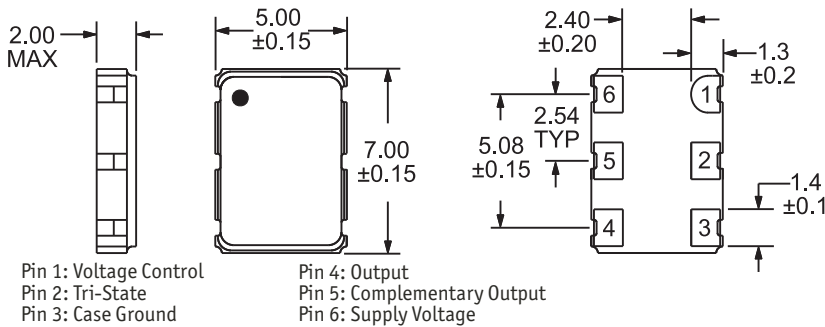
**LOGIC CONTROL / ADDITIONAL OUTPUT**

K=Tri-State (Enable High) / Complementary Output

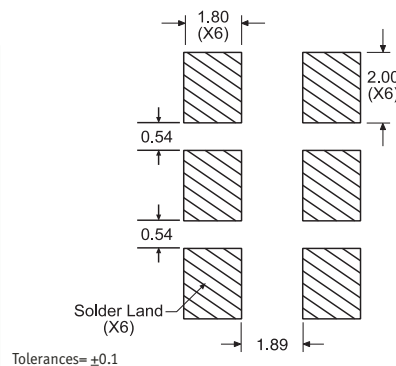
**DUTY CYCLE**

1=50% ±10%  
2=50% ±5%

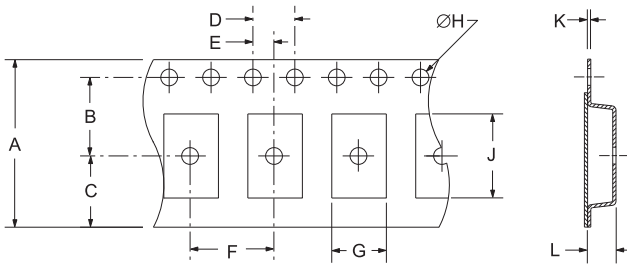
**MECHANICAL DIMENSIONS**  
ALL DIMENSIONS IN MILLIMETERS



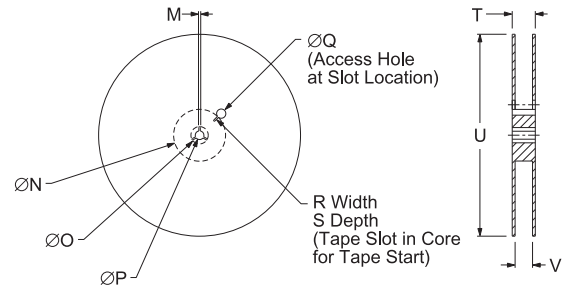
**SUGGESTED SOLDER PAD LAYOUT**  
ALL DIMENSIONS IN MILLIMETERS



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



TAPE	A	B	C	D	E	
	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  
Line 3: XX Y ZZ

Frequency in MHz (5 Digits Maximum + Decimal)  
Week of Year  
Last Digit of Year  
Eclipse Manufacturing Identifier

MANUFACTURER	CATEGORY	SERIES	PACKAGE	VOLTAGE	CLASS	REV. DATE
ECLIPTEK CORP.	OSCILLATOR	EL32D1	CERAMIC	3.3V	OS3Z	01/09