

EV32C3 A 3 A 1 -16.384M TR

Series -RoHS Compliant (Pb-free) 3.3V 6 Pad 5mm x 7mm Ceramic SMD LVCMOS/TTL VCXO (Tri-State Pad 5) Operating Temperature Range 0°C to +70°C Absolute Pull Range

Linearity — 10% Typical, 20% Maximum

±50ppm Minimum

Packaging Options
Tape & Reel Nominal Frequency 16.384MHz

• Duty Cycle 50 ±5(%) Typical, 50 ±10(%) Maximum

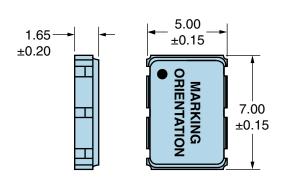
ELECTRICAL SPECIFICATIONS		
Nominal Frequency	16.384MHz	
Frequency Tolerance/Stability	±50ppm Maximum (Inclusive of all conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, Shock, and Vibration.)	
Aging at 25°C	±2ppm/first year Typical, ±10ppm/10 years Maximum	
Operating Temperature Range	0°C to +70°C	
Supply Voltage	3.3Vdc ±10%	
Input Current	15mA Maximum	
Output Voltage Logic High (Voh)	90% of Vdd Minimum (IOH = -4mA)	
Output Voltage Logic Low (Vol)	10% of Vdd Minimum (IOL = +4mA)	
Rise/Fall Time	5nSec Maximum (Measured at 20% to 80% of Waveform)	
Duty Cycle	50 ±5(%) Typical, 50 ±10(%) Maximum (Measured at 50% of Waveform)	
Load Drive Capability	15pF LVCMOS Load Maximum	
Output Logic Type	CMOS	
Absolute Pull Range	±50ppm Minimum (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 the Control Voltage (Vc).)	
Control Voltage	0.3Vdc to 3.0Vdc (Test Condition for APR)	
Control Voltage Range	0.0Vdc to Vdd	
Linearity	10% Typical, 20% Maximum	
Transfer Function	Positive Tranfer Characteristic	
Modulation Bandwidth	10kHz Minimum (Measured at -3dB, Vc = 1.65Vdc)	
Input Impedance	50kOhms Minimum	
Input Leakage Current	10µA Maximum	
Phase Noise	-70dBc/Hz at offset of 10Hz, -100dBc/Hz at offset of 100Hz, -130dBc/Hz at offset of 1kHz, -147dBc/Hz at offset of 10kHz, -152dBc/Hz at offset of 100kHz, and -155dBc/Hz at offset of 1MHz (Typical Values at Fo = 27MHz)	
Tri-State Input Voltage (Vih and Vil)	+0.9Vdd Minimum to Enable Output; +0.1Vdd Maximum to Disable Output (High Impedance); No Connect to Enable Output.	
RMS Phase Jitter	1pSec Maximum (Fj = 12kHz to 20MHz)	
Start Up Time	10mSec Maximum	
Storage Temperature Range	-55°C to +125°C	

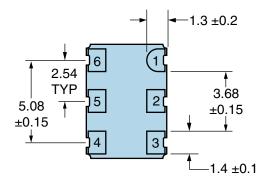
ENVIRONMENTAL & MECHANICAL SPECIFICATIONS		
ESD Susceptibility	MIL-STD-883, Method 3015, Class 1, HBM: 1500V	
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	
Flammability	UL94-V0	
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	
Mechanical Shock	MIL-STD-883, Method 2002, Condition B	
Moisture Resistance	MIL-STD-883, Method 1004	
Moisture Sensitivity	J-STD-020, MSL 1	
Resistance to Soldering Heat	ring Heat MIL-STD-202, Method 210, Condition K	
Resistance to Solvents	MIL-STD-202, Method 215	
Solderability	MIL-STD-883, Method 2003	



ENVIRONMENTAL & MECHANICAL SPECIFICATIONS Temperature Cycling MIL-STD-883, Method 1010, Condition B Vibration MIL-STD-883, Method 2007, Condition A

MECHANICAL DIMENSIONS (all dimensions in millimeters)



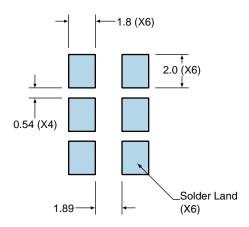


PIN	CONNECTION
1	Control Voltage
2	No Connect
3	Case Ground
4	Output
5	Tri-State
6	Supply Voltage

LINE	MARKING
1	ECLIPTEK
2	16.384M
3	XXYZZ XX=Ecliptek Manufacturing Code Y=Last Digit of Year ZZ=Week of Year

Suggested Solder Pad Layout

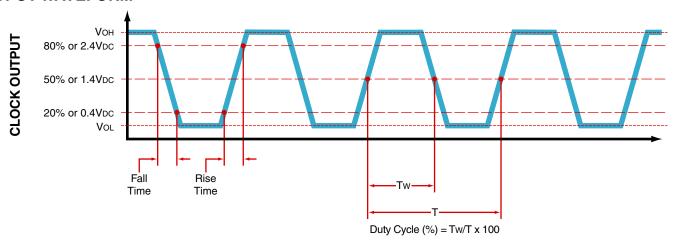
All Dimensions in Millimeters



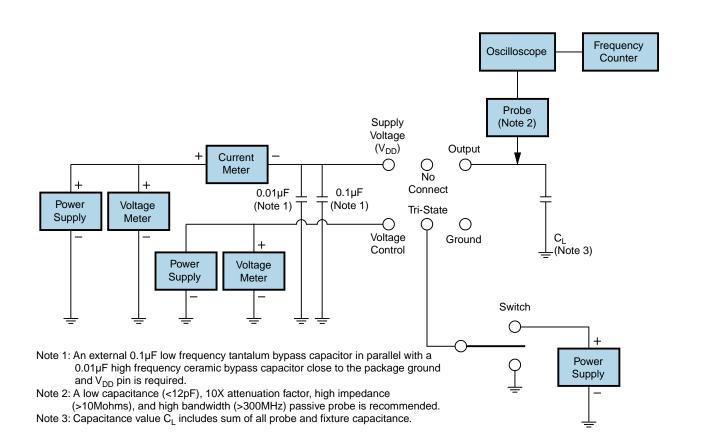
All Tolerances are ±0.1



OUTPUT WAVEFORM

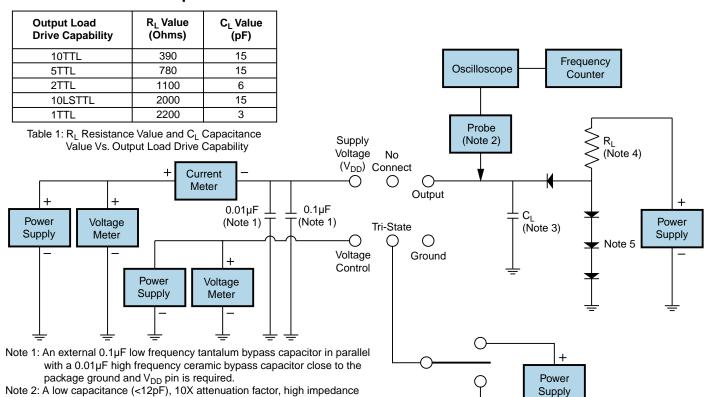


Test Circuit for CMOS Output





Test Circuit for TTL Output



(>10Mohms), and high bandwidth (>300MHz) passive probe is recommended. Note 3: Capacitance value $C_{\rm L}$ includes sum of all probe and fixture capacitance.

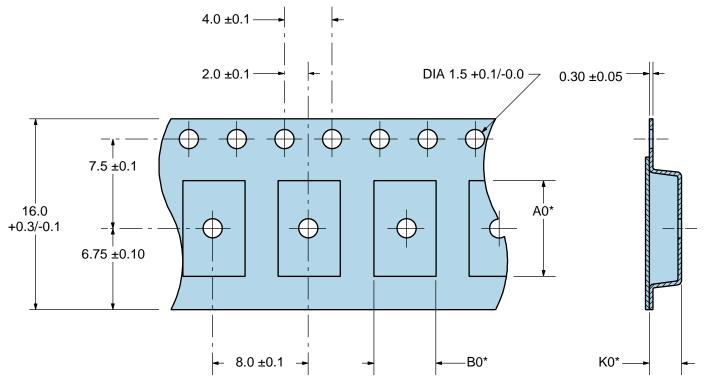
Note 4: Resistance value R_L is shown in Table 1. See applicable specification sheet for 'Load Drive Capability'.

Note 5: All diodes are MMBD7000, MMBD914, or equivalent.

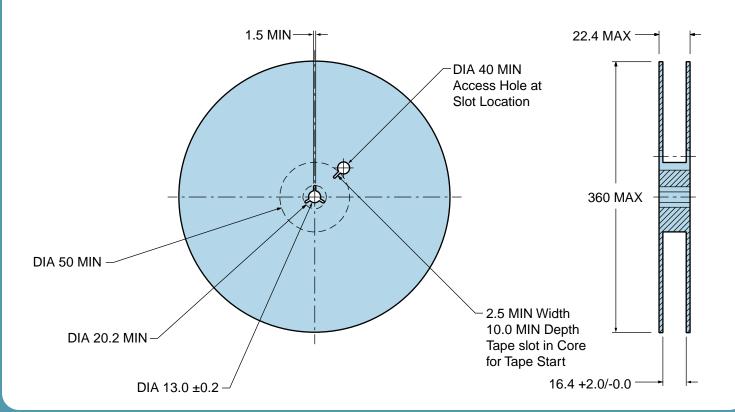


Tape & Reel Dimensions

Quantity Per Reel: 1,000 units



*Compliant to EIA 481A





Recommended Solder Reflow Methods



High Temperature Infrared/Convection

T MAY (T (D	000/
T _s MAX to T _∟ (Ramp-up Rate)	3°C/second Maximum
Preheat	
- Temperature Minimum (T _s MIN)	150°C
- Temperature Typical (T _s TYP)	175°C
- Temperature Maximum (T _s MAX)	200°C
- Time (t _s MIN)	60 - 180 Seconds
Ramp-up Rate (T _L to T _P)	3°C/second Maximum
Time Maintained Above:	
- Temperature (T∟)	217°C
- Time (t _L)	60 - 150 Seconds
Peak Temperature (T _P)	260°C Maximum for 10 Seconds Maximum
Target Peak Temperature (T _P Target)	250°C +0/-5°C
Time within 5°C of actual peak (tp)	20 - 40 seconds
Ramp-down Rate	6°C/second Maximum
Time 25°C to Peak Temperature (t)	8 minutes Maximum
Moisture Sensitivity Level	Level 1



Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 240°C

T _S MAX to T _L (Ramp-up Rate)	5°C/second Maximum
Preheat	
- Temperature Minimum (T _s MIN)	N/A
- Temperature Typical (T _s TYP)	150°C
- Temperature Maximum (T _s MAX)	N/A
- Time (t _s MIN)	60 - 120 Seconds
Ramp-up Rate (T _L to T _P)	5°C/second Maximum
Time Maintained Above:	
- Temperature (T∟)	150°C
- Time (t∟)	200 Seconds Maximum
Peak Temperature (T _P)	240°C Maximum
Target Peak Temperature (T _P Target)	240°C Maximum 1 Time / 230°C Maximum 2 Times
Time within 5°C of actual peak (t _p)	10 seconds Maximum 2 Times / 80 seconds Maximum 1 Time
Ramp-down Rate	5°C/second Maximum
Time 25°C to Peak Temperature (t)	N/A
Moisture Sensitivity Level	Level 1

Low Temperature Manual Soldering

185°C Maximum for 10 seconds Maximum, 2 times Maximum.

High Temperature Manual Soldering

260°C Maximum for 5 seconds Maximum, 2 times Maximum.