



# LOW VOLTAGE 3.3 Vdc HCMOS/TTL COMPATIBLE DIP CRYSTAL CLOCK OSCILLATORS ACOL and ACHL

## FEATURES:

- Tristate Enable/Disable Option.
- HCMOS and TTL Compatible.
- Anti-Static Packaging Tubes.
- Low Voltage 3.3 Vdc.
- Tight Symmetry Option.

## APPLICATIONS:

- Clock Signal Sources for Digital Chips and Microprocessors.
- Low Power Applications.

## STANDARD SPECIFICATIONS

PARAMETERS	SPECIFICATIONS
Package Type	<b>ACOL (14 DIP) and ACHL (8 DIP)</b>
Frequency Range (F <sub>O</sub> )	<b>32.768 kHz - 200 MHz</b>
Operating Temperature (T <sub>OPR</sub> )	0°C to +70°C (See Options)
Storage Temperature (T <sub>STO</sub> )	-55°C to +125°C
Frequency Stability (ΔF/F <sub>O</sub> )	±100 ppm max. (See Options)
Supply Voltage (V <sub>dd</sub> )	3.3 Vdc ± 10%
Input Current (I <sub>dd</sub> )	20 mA max. for F ≤ 20 MHz 25 mA max. for F ≤ 70 MHz 50 mA max. for F ≤ 200 MHz
Duty Cycle or Symmetry	40/60% max. (typical 45/55%) (See Options)
Rise and Fall Times (T <sub>R</sub> /T <sub>F</sub> )	10 ns max.
Output Load	5TTL or 15 pF
Output Voltage	0.9 * V <sub>dd</sub> min. (V <sub>OH</sub> )    0.1 * V <sub>dd</sub> max. (V <sub>OL</sub> )
Start-up Time (T <sub>OSC</sub> )	10 ms max.
Tristate Function (V <sub>IH</sub> )	"1" or Open: Oscillation ≥ 2.2V
(Option "-A" ONLY) (V <sub>IL</sub> )	"0": Output disabled in high impedance (HiZ) < 0.8V
Output Disable / Enable Time	100 ns max. (for Option "-A" ONLY)

(\*) Pin 1 has internal pull-up resistor which allows Pin 1 to be left floating (enable high) opt. A For test circuit, waveforms, please see page 67. Environmental and mechanical specifications on page 68, Group 1. Marking, see page 79.

## ORDERING OPTIONS

ACXL - Frequency - Temperature - Overall Frequency Stability - Duty Cycle - Tristate - Value Added

O or H			
XX.XXXXX MHz or kHz			
-D for -10°C to +60°C -E for -20°C to +70°C -F for -30°C to +70°C -N for -30°C to +85°C -L for -40°C to +85°C	-Y for ± 10 ppm max** -J for ± 20 ppm max -R for ± 25 ppm max -K for ± 30 ppm max -H for ± 35 ppm max -C for ± 50 ppm max	-S for 45/55% @ 1/2 Vdd -T for 47.5/52.5% @ 1/2 Vdd -S1 for 45/55% @ 1.4 Vdc	-A for Tristate E/D

(\*\*) Standard Operating Temperature Only  
Frequency 50 MHz max

-G	Gull Wing*
-G2	Gull Wing* (ACHL Only)
-QXX	(Trimmed Leads)*

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PIN # ACOL	PIN # ACHL	FUNCTION
1	1	NC or E/D
7	4	GND / Case
8	5	Output
14	8	Vdd

