



Product Overview

MC14046B: Phase Locked Loop

For complete documentation, see the data sheet

Product Description

The MC14046B phase locked loop contains two phase comparators, a voltage-controlled oscillator (VCO), source follower, and zener diode. The comparators have two common signal inputs, PCA_{in} and PCB_{in} . Input PCA_{in} can be used directly coupled to large voltage signals, or indirectly coupled (with a series capacitor) to small voltage signals. The self-bias circuit adjusts small voltage signals in the linear region of the amplifier. Phase comparator 1 (an exclusive OR gate) provides a digital error signal $PC1_{out}$, and maintains 90° phase shift at the center frequency between PCA_{in} and PCB_{in} signals (both at 50% duty cycle). Phase comparator 2 (with leading edge sensing logic) provides digital error signals, $PC2_{out}$ and LD , and maintains a 0° phase shift between PCA_{in} and PCB_{in} signals (duty cycle is immaterial). The linear VCO produces an output signal VCO_{out} whose frequency is determined by the voltage of input VCO_{in} and the capacitor and resistors connected to pins $C1_A$, $C1_B$, $R1$, and $R2$. The source-follower output SF_{out} with an external resistor is used where the VCO_{in} signal is needed but no loading can be tolerated. The inhibit input Inh , when high, disables the VCO and source follower to minimize standby power consumption. The zener diode can be used to assist in power supply regulation.

Applications include FM and FSK modulation and demodulation, frequency synthesis and multiplication, frequency discrimination, tone decoding, data synchronization and conditioning, voltage-to-frequency conversion and motor speed control.

Features

- Buffered Outputs Compatible with HTL and Low-Power TTL
- Diode Protection on All Inputs
- Supply Voltage Range = 3.0 to 18 V
- Pin-for-Pin Replacement for CD4046B
- Phase Comparator 1 is an Exclusive Or Gate and is Duty Cycle Limited
- Phase Comparator 2 switches on Rising Edges and is not Duty Cycle
- Pb-Free Packages are Available*

Part Electrical Specifications

Product	Compliance	Status	Input Level	Output Level	f_{Max} Typ (MHz)	V_{CC} Typ (V)	Duty Cycle (%)	Package Type
MC14046BDWG	Pb-free Halide free	Active	CMOS	CMOS	1.9	18	50	SOIC-16W
MC14046BDWR2G	Pb-free Halide free	Active	CMOS	CMOS	1.9	18	50	SOIC-16W

For more information please contact your local sales support at www.onsemi.com

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