

November 1996

15MHz, BiMOS Microprocessor Operational Amplifiers with MOSFET Input/CMOS Output

Features

- **MOSFET Input Stage**
 - Very High Z_i 1.5T Ω ($1.5 \times 10^{12}\Omega$) (Typ)
 - Very Low I_i 5pA (Typ) at 15V Operation
2pA (Typ) at 5V Operation
- **Ideal for Single Supply Applications**
- **Common Mode Input Voltage Range Includes Negative Supply Rail; Input Terminals Can Be Swung 0.5V Below Negative Supply Rail**
- **CMOS Output Stage Permits Signal Swing to Either (or Both) Supply Rails**
- **CA5130A, CA5130 Have Full Military Temperature Range Guaranteed Specifications for $V_+ = 5V$**
- **CA5130A, CA5130 Are Guaranteed to Operate Down to $V_+ = 4.5V$ for A_{OL}**
- **CA5130A, CA5130 Are Guaranteed to Operate at $\pm 7.5V$ CA3130A, CA3130 Specifications**

Applications

- **Ground Referenced Single Supply Amplifiers**
- **Fast Sample-Hold Amplifiers**
- **Long Duration Timers/Monostables**
- **High Input Impedance Comparators (Ideal Interface with Digital CMOS)**
- **High Input Impedance Wideband Amplifiers**
- **Voltage Followers (e.g., Follower for Single-Supply D/A Converter)**
- **Voltage Regulators (Permits Control of Output Voltage Down to 0V)**
- **Peak Detectors**
- **Single Supply Full Wave Precision Rectifiers**
- **Photo Diode Sensor Amplifiers**
- **5V Logic Systems**
- **Microprocessor Interface**

Description

CA5130A and CA5130 are integrated circuit operational amplifiers that combine the advantage of both CMOS and bipolar transistors on a monolithic chip. They are designed and guaranteed to operate in microprocessors or logic systems that use +5V supplies.

Gate protected P-Channel MOSFET (PMOS) transistors are used in the input circuit to provide very high input impedance, very low input current, and exceptional speed performance. The use of PMOS field effect transistors in the input stage results in common mode input voltage capability down to 0.5V below the negative supply terminal, an important attribute in single supply applications.

A complementary symmetry MOS (CMOS) transistor-pair, capable of swinging the output voltage to within 10mV of either supply voltage terminal (at very high values of load impedance), is employed as the output circuit.

The CA5130 Series circuits operate at supply voltages ranging from 4V to 16V, or $\pm 2V$ to $\pm 8V$ when using split supplies. They can be phase compensated with a single external capacitor, and have terminals for adjustment of offset voltage for applications requiring offset null capability. Terminal provisions are also made to permit strobing of the output stage.

The CA5130A, CA5130 have guaranteed specifications for 5V operation over the full military temperature range of -55°C to 125°C .

Ordering Information

PART NUMBER (BRAND)	TEMP. RANGE ($^\circ\text{C}$)	PACKAGE	PKG. NO.
CA5130AE	-55 to 125	8 Ld PDIP	E8.3
CA5130AM (5130A)	-55 to 125	8 Ld SOIC	M8.15
CA5130AT	-55 to 125	8 Pin Metal Can	T8.C
CA5130E	-55 to 125	8 Ld PDIP	E8.3
CA5130M (5130)	-55 to 125	8 Ld SOIC	M8.15
CA5130T	-55 to 125	8 Pin Metal Can	T8.C

Pinouts

