

4MHz, BiMOS Microprocessor Operational Amplifiers with MOSFET Input/CMOS Output

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Features

- **MOSFET Input Stage**
 - Very High Z_i ; $1.5T\Omega$ ($1.5 \times 10^{12}\Omega$) (Typ)
 - Very Low I_i ; $5pA$ (Typ) at 15V Operation
 - $2pA$ (Typ) at 5V Operation
- **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**
- **CA5160A, CA5160 Have Full Military Temperature Range Guaranteed Specifications for $V_+ = 5V$**
- **CA5160A, CA5160 Are Guaranteed to Operate Down to 4.5V for AOL**
- **CA5160A, CA5160 Are Guaranteed Up to $\pm 7.5V$**

Applications

- Ground Referenced Single Supply Amplifiers
- Fast Sample-Hold Amplifiers
- Long Duration Timers/Monostables
- Ideal Interface With Digital CMOS
- High Input Impedance Wideband Amplifiers
- Voltage Followers (e.g., Follower for Single Supply D/A Converter)
- Wien-Bridge Oscillators
- Voltage Controlled Oscillators
- Photo Diode Sensor Amplifiers
- 5V Logic Systems
- **Microprocessor Interface**

Description

CA5160A and CA5160 are integrated circuit operational amplifiers that combine the advantage of both CMOS and bipolar transistors on a monolithic chip. The CA5160 series circuits are frequency compensated versions of the popular CA5130 series. They are designed and guaranteed to operate in microprocessor 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.

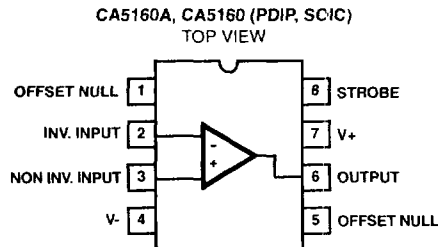
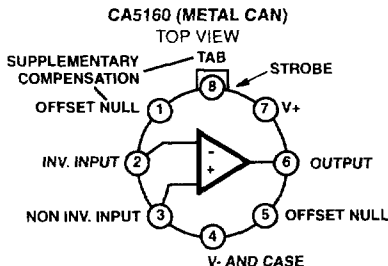
A complementary symmetry MOS (CMOS) transistor pair, capable of swinging the output voltage to within 10mV of either supply voltage terminal (at very high values of load impedance), is employed as the output circuit.

The CA5160 Series circuits operate at supply voltages ranging from +5V to +16V, or $\pm 2.5V$ to $\pm 8V$ when using split supplies, 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. They have guaranteed specifications for 5V operation over the full military temperature range of $-55^\circ C$ to $125^\circ C$.

Ordering Information

PART NUMBER (BRAND)	TEMP. RANGE ($^\circ C$)	PACKAGE	PKG. NO.
CA5160AE	-55 to 125	8 Ld PDIP	E8.3
CA5160AM (5160A)	-55 to 125	8 Ld SOIC	M8.15
CA5160M (5160)	-55 to 125	8 Ld SOIC	M8.15
CA5160E	-55 to 125	8 Ld PDIP	E8.3
CA5160T	-55 to 125	8 Pin Metal Can	T8.C

Pinouts



NOTE: CA5160 Series devices have an on-chip frequency compensation network. Supplementary phase-compensation or frequency roll-off (if desired) can be connected externally between terminals 1 and 8.