

110kHz, Operational Transconductance Amplifier Array

November 1996

Features

- Low Power Consumption as Low as 100mW Per Amplifier
- Independent Biasing for Each Amplifier
- High Forward Transconductance
- Programmable Range of Input Characteristics
- Low Input Bias and Input Offset Current
- High Input and Output Impedance
- No Effect on Device Under Output Short-Circuit Conditions
- Zener Diode Bias Regulator

Applications

- For Low Power Conventional Operational Amplifier Applications
- Active Filters
- Comparators
- Gyrators
- Mixers
- Modulators
- Multiplexers
- Multipliers
- Strobing and Gating Functions
- Sample and Hold Functions

Description

The CA3060 monolithic integrated circuit consists of an array of three independent Operational Transconductance Amplifiers (see Note). This type of amplifier has the generic characteristics of an operational voltage amplifier with the exception that the forward gain characteristic is best described by transconductance rather than voltage gain (open-loop voltage gain is the product of the transconductance and the load resistance, $g_m R_L$). When operated into a suitable load resistor and with provisions for feedback, these amplifiers are well suited for a wide variety of operational-amplifier and related applications. In addition, the extremely high output impedance makes these types particularly well suited for service in active filters.

The three amplifiers in the CA3060 are identical push-pull Class A types which can be independently biased to achieve a wide range of characteristics for specific application. The electrical characteristics of each amplifier are a function of the amplifier bias current (I_{ABC}). This feature offers the system designer maximum flexibility with regard to output current capability, power consumption, slew rate, input resistance, input bias current, and input offset current. The linear variation of the parameters with respect to bias and the ability to maintain a constant DC level between input and output of each amplifier also makes the CA3060 suitable for a variety of nonlinear applications such as mixers, multipliers, and modulators.

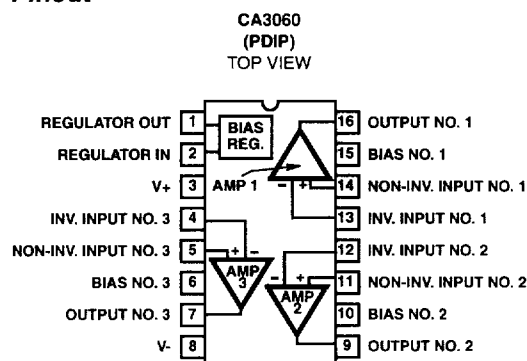
In addition, the CA3060 incorporates a unique Zener diode regulator system that permits current regulation below supply voltages normally associated with such systems.

NOTE: Generic applications of the OTA are described in AN-6668. For improved input operating ranges, refer to CA3080 and CA3280 data sheets (File Nos. 475 and 1174) and application notes AN6668 and AN6818.

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OPERATIONAL
AMPLIFIERS

Pinout



Ordering Information

PART NUMBER	TEMP. RANGE (°C)	PACKAGE	PKG. NO.
CA3060E	-40 to 85	16 Ld PDIP	E16.3