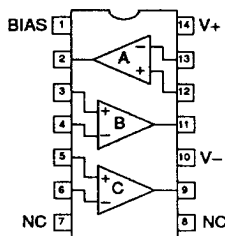


- Programmable for Supply Current and Gain-Bandwidth
- Micropower Operation
- Internal Frequency Compensation
- Short Circuit Protection
- Matched Parameters
- Parameter Tracking over Temperature Range

The CA144 is an array of three operational amplifiers in a single device. The operating current of the array is controlled by an external resistor or by a current source, allowing the designer to trade off power dissipation for bandwidth.

The circuit operates over a power supply range of ± 2 volts to ± 15 volts. Input offset voltage is 2 mV typical, input offset current is 5 nA and common-mode rejection ratio is 85 dB. A range of supply current of 0.25 mA to 2 mA, set by the external resistor, corresponds approximately to a gain-bandwidth range of 500 kHz to 2 MHz.

Application areas for the CA144 include medical electronics, battery powered systems, active filters and state-variable filters.



Bias current, and therefore Supply current (Figure 2) and Gain-Bandwidth (Figure 3), are set by a resistor connected to the Bias pin (pin 1). The voltage level of the Bias pin is 1.3 volts above V_- .

For example, for $V_S = \pm 2.0$ volts a 270 K Ω resistor from Bias to V_+ will set a Bias current I_{SET} of 10 μA .

Figure 1 : CA144 BLOCK DIAGRAM and PIN CONFIGURATION (14-PIN DIP)

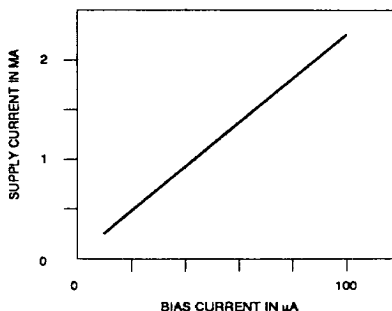


Figure 2 : SUPPLY CURRENT VERSUS BIAS CURRENT

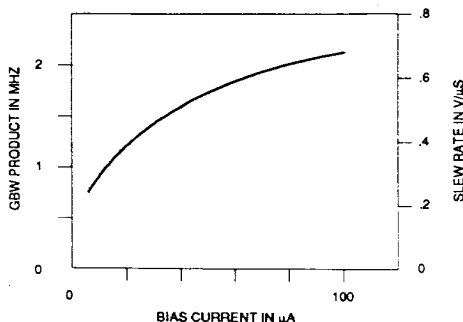


Figure 3 : GBW PRODUCT AND SLEW RATE VERSUS BIAS CURRENT

Table 1: ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Test Conditions	Micropower Mode Limits $V_S = \pm 2.0\text{V}, I_{\text{SET}} = 10\ \mu\text{A}$			Medium Power Mode Limits $V_S = \pm 15\text{V}, I_{\text{SET}} = 75\ \mu\text{A}$			Units
		Min	Typ	Max	Min	Typ	Max	
Supply Current			.30	.40		1.7	3	mA
Input Offset Voltage	$R_S = 10\ \text{K}\Omega$		2	7		2	7	mV
Input Offset Current			5	50		20	150	nA
Input Bias Current			25	150		50	300	nA
Input Resistance			2			2		M Ω
Voltage Gain		20	300		20	300		V/mv
Output Voltage Swing	$R_L = 20\ \text{K}\Omega$	± 0.8	± 1.0					V
	$R_L = 10\ \text{K}\Omega$				± 12	± 14		V
	$R_L = 2\ \text{K}\Omega$				± 10	± 13		V
Input Voltage Range		± 0.5	± 1.0		± 13	± 14		V
CMRR	$R_S = 10\ \text{K}\Omega$	70	85		70	90		dB
PSRR	$R_S = 10\ \text{K}\Omega$	70	85		70	90		dB
GBW Product			.95			2		MHz
Slew Rate			.3			.7		V/ μS
Short Circuit Current either Rail			5			30		mA
Channel Separation	$F = 20\ \text{kHz}$ $R_S = 1\ \text{K}\Omega$		120			120		dB

Note: Operating temperature range is: 0° to $+70^\circ\text{C}$

Table 2 : ABSOLUTE MAXIMUM RATINGS

Input Voltage	-15V to $+15\text{V}$
Storage Temperature Range	-65° to $+150^\circ\text{C}$

Stresses beyond those listed above may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of this specification is not implied. Exposure to maximum rating conditions for extended periods may affect device reliability.