

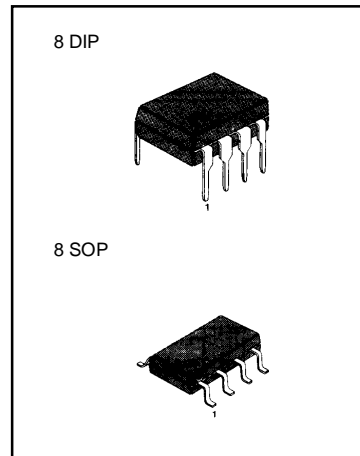
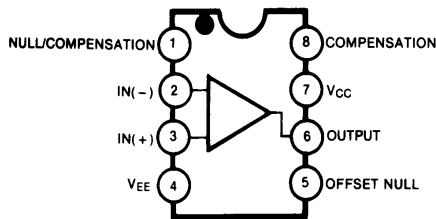
**SINGLE OPERATIONAL AMPLIFIER**

The KA201A and KA301A are general-purpose operational amplifiers which are externally phase compensated, permit a choice of operation for optimum high-frequency performance at a selected gain: unity-gain compensation can be obtained with a single capacitor.

**FEATURES**

- Short-circuit protection and latch-free operation
- Slew rate of 10V/ $\mu$ s as a summing amplifier
- Class AB output provides excellent linearity
- Low bias current

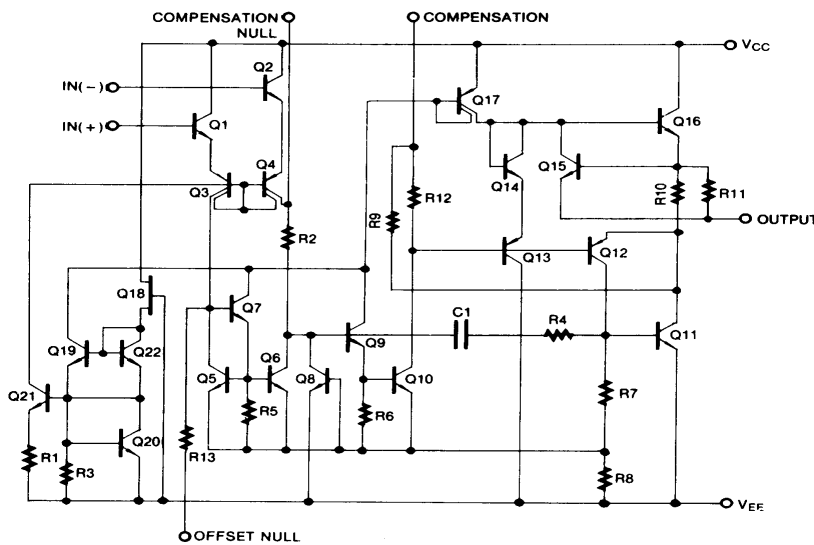
**BLOCK DIAGRAM**



**ORDERING INFORMATION**

Device	Package	Operating Temperature
KA301A	8 DIP	0 ~ +70 °C
KA201A		-25 ~ +85 °C
KA301AD	8 DIP	0 ~ +70 °C
KA201AD		-25 ~ +85 °C

**SCHEMATIC DIAGRAM**



## ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	KA201A	KA301A	Unit
Supply Voltage	$V_{CC}$	$\pm 22$	$\pm 18$	V
Differential Input Voltage	$V_{I(OFF)}$	$\pm 30$	$\pm 30$	V
Input Voltage	$V_I$	$\pm 15$	$\pm 15$	V
Output short Circuit Duration		Continuous	Continuous	
Power Dissipation	$P_D$	500	500	mW
Operating Temperature Range	$T_{OPR}$	-25 ~ +85	0 ~ +70	$^{\circ}C$
Storage Temperature Range	$T_{STG}$	-65 ~ +150	-65 ~ +150	$^{\circ}C$

## ELECTRICAL CHARACTERISTICS

(T<sub>A</sub> = +25 $^{\circ}C$ , V<sub>CC</sub> = +15V, V<sub>EE</sub> = -15V, unless otherwise specified)

Characteristic	Symbol	Test Conditions	KA201A			KA301A			Unit
			Min	Typ	Max	Min	Typ	Max	
Input Offset Voltage	$V_{IO}$	$R_S \leq 50K\Omega$		0.5	2.0		2.0	7.5	mV
		NOTE 1			3			10	mV
Input Offset Current	$I_{IO}$			1.5	10		4.5	50	nA
		NOTE 1			20			70	nA
Input Bias Current	$I_{BIAS}$			40	75		60	250	nA
		NOTE 1			100			300	nA
Supply Current	$I_{CC}$	$V_{CC} = \pm 20V$		2.0	3.0				mA
		$V_{CC} = \pm 15V$					2.0	3.0	mA
		$V_{CC} = \pm 20V, T_A = T_{A(MAX)}$		1.7	2.5				mA
Large Signal Voltage Gain	$G_V$	$V_{CC} = \pm 15V, R_L \geq 2K\Omega, V_{O(P,P)} = \pm 10V$	50	160		25	160		V/mV
		NOTE 1	25			15			V/mV
Average Temperature Coefficient of Input Offset Voltage	$\Delta V_{IO}/\Delta T$	NOTE 1		3.0	15		6.0	30	$\mu V/^{\circ}C$
Average Temperature Coefficient of Input Offset Current	$\Delta I_{IO}/\Delta T$	$25^{\circ}C \leq T_A \leq T_{A(MAX)}$		0.01	0.1		0.01	0.3	nA/ $^{\circ}C$
		$T_{A(MIN)} \leq T_A \leq 25^{\circ}C$		0.02	0.2		0.02	0.6	nA/ $^{\circ}C$
Input Voltage Range	$V_{I(R)}$	$V_{CC} = \pm 20V$	NOTE 1	$\pm 15$					V
		$V_{CC} = \pm 15V$	NOTE 1				$\pm 12$		V
Common-Mode Rejection Ratio	CMRR	$R_S \leq 50K\Omega$	NOTE 1	80	100		70	95	dB
Power Supply Rejection Ratio	PSRR	$R_S \leq 50K\Omega$	NOTE 1	80	100		70	100	dB
Output Voltage Swing	$V_{O(P,P)}$	$V_{CC} = \pm 15V$	$R_L = 10K\Omega$	$\pm 12$	$\pm 14$		$\pm 12$	$\pm 14$	V
			$R_L = 2.0K\Omega$	$\pm 10$	$\pm 13$		$\pm 10$	$\pm 13$	V
Input Resistance	$R_I$			1.5	4.0		0.5	2.0	M $\Omega$

NOTE 1. KA201A: -25 $\leq T_A \leq$  +85 $^{\circ}C$   
KA301A: 0 $\leq T_A \leq$  +70 $^{\circ}C$

TYPICAL PERFORMANCE CHARACTERISTICS

Fig. 1 SUPPLY CURRENT

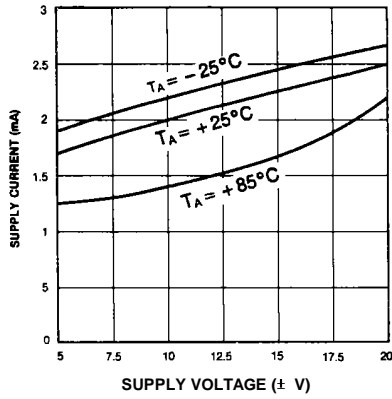


Fig. 2 VOLTAGE GAIN

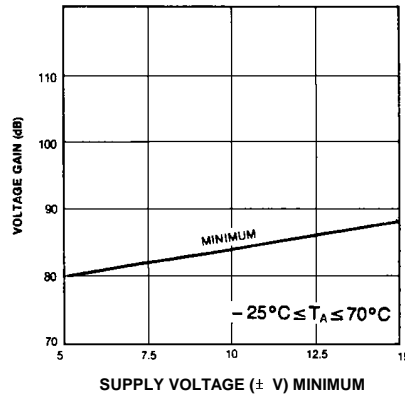


Fig. 3 CURRENT LIMITING

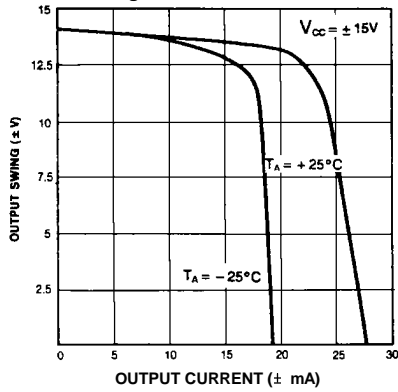


Fig. 4 INPUT CURRENT

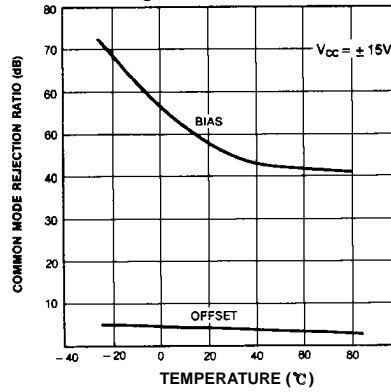


Fig. 5 POWER SUPPLY REJECTION

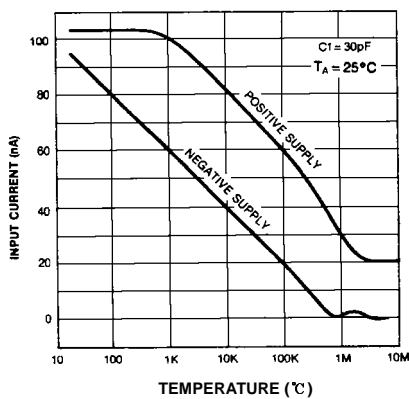
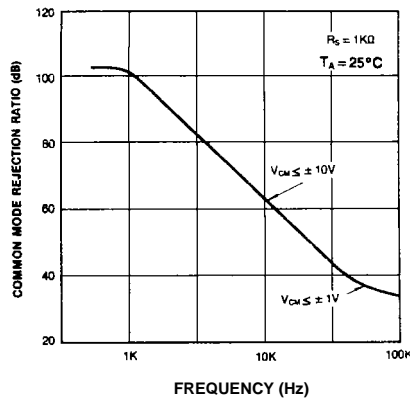


Fig. 6 COMMON MOOE REJECTION



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FACT Quiet Series™	Quiet Series™	
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