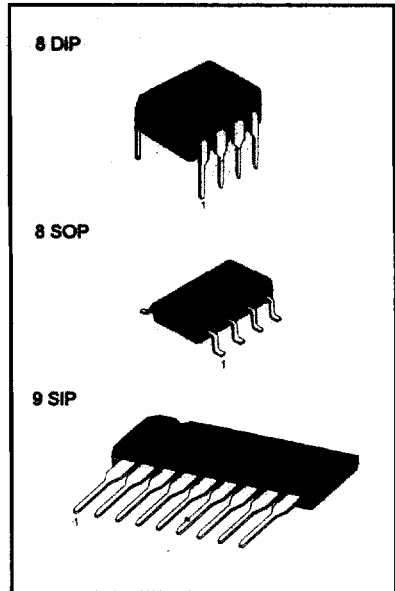


DUAL OPERATIONAL AMPLIFIER

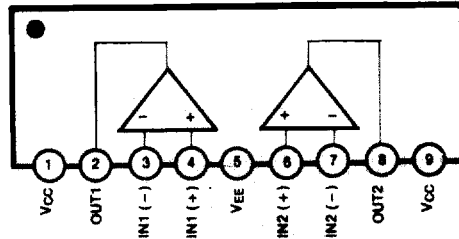
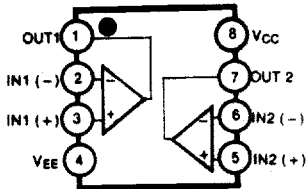
The KA4558 series is a monolithic integrated circuit designed for dual operational amplifier.

FEATURES

- No frequency compensation required.
- No latch-up.
- Large common mode and differential voltage range.
- Parameter tracking over temperature range.
- Gain and phase match between amplifiers.
- Internally frequency compensated.
- Low noise input transistors.



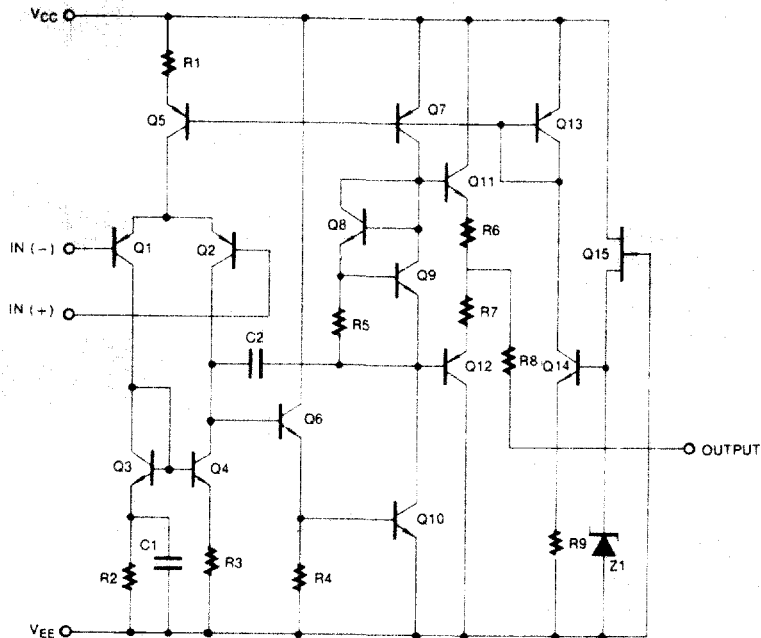
BLOCK DIAGRAM



ORDERING IN FORMATION

Device	Package	Operating Temperature
KA4558 KA4558A	8 DIP	0 ~ + 70°C
KA4558S KA4558AS	9 SIP	
KA4558D KA4558AD	8 SOP	-40 ~ + 85°C
KA4558I KA4558A	8 DIP	
KA4558IS KA4558AIS	9 SIP	
KA4558ID KA4558AID	8 SOP	

SCHEMATIC DIAGRAM (One Section Only)



ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit
Supply Voltage KA4558A/AI		± 22	V
KA4558/I	V_{CC}	± 18	V
Differential Input Voltage	$V_{I(DIFF)}$	± 30	V
Input Voltage	V_I	± 15	V
Power Dissipation	P_D	400	mW
Operating Temperature Range KA4558/AI		$-40 \sim + 85$	$^{\circ}C$
KA4558/KA4558A	T_{OPR}	$0 \sim + 70$	$^{\circ}C$
Storage Temperature Range	T_{STG}	$-65 \sim + 150$	$^{\circ}C$

ELECTRICAL CHARACTERISTICS

(V_{CC} = 15V, V_{EE} = -15V, T_A = 25°C unless otherwise specified)

Characteristic	Symbol	Test Conditions	KA4558A/AI			KA4558/I			Unit
			Min	Typ	Max	Min	Typ	Max	
Input Offset Voltage	V _{IO}	R _S ≤ 10KΩ		1	5		2	6	mV
			NOTE 1		1	6		7.5	
Input Offset Current	I _{IO}			5	200		5	200	nA
			T _A = T _{A(MAX)}		3	200		300	
			T _A = T _{A(MIN)}		20	500		300	
Input Bias Current	I _{BIAS}			30	500		30	500	nA
			T _A = T _{A(MAX)}		20	500		800	
			T _A = T _{A(MIN)}		100	1500		800	
Large Signal Voltage Gain	G _V	V _{O(P-P)} = ±10V, R _L ≤ 2KΩ	50	200		20	200	V/mV	
			NOTE 1	25					
Common Mode Input Voltage Range	V _(IR)		±12	±13		±12	±13	V	
			NOTE 1	±12	±13				
Common Mode Rejection Ratio	CMRR	R _S ≤ 10KΩ	70	90		70	90	dB	
			NOTE 1	70	90				
Supply Voltage Rejection Ratio	PSRR	R _S ≤ 10KΩ	76	90		76	90	dB	
			NOTE 1	76	90		76		90
Output Voltage Swing	V _{O(P-P)}	R _L ≥ 10KΩ	±12	±14		±12	±14	V	
		R _L ≥ 2KΩ	±10	±13		±10	±13		
Supply Current (Both Amplifiers)	I _{CC}			3.5	5.0		3.5	5.8	mA
			T _A = T _{A(MAX)}			4.5		5.0	
			T _A = T _{A(MIN)}			6.0		6.7	
Power Consumption (Both Amplifiers)	P _C			70	150		70	170	mW
			T _A = T _{A(MAX)}			135		150	
			T _A = T _{min}			180		200	
Slew Rate	SR	V _I = 10V, R _L ≥ 2KΩ C _I ≤ 100pF	1.2			1.2		V/μs	
Rise Time	t _{RES}	V _I = 20mV, R _L ≥ 2KΩ C _I ≤ 100pF		0.3		0.3		μs	
Overshoot	OS	V _I = 20mV, R _L ≥ 2KΩ C _I ≤ 100pF		15		15		%	

NOTE 1

KA4558A: T_{A(MIN)} ≤ T_A ≤ T_{A(MAX)} = 0 ≤ T_A ≤ +70°CKA4558AI: T_{A(MAX)} ≤ T_A ≤ T_{A(MIN)} = -40 ≤ T_A ≤ +85°C

TYPICAL PERFORMANCE CHARACTERISTICS

Fig. 1 BURST NOISE vs SOURCE RESISTANCE

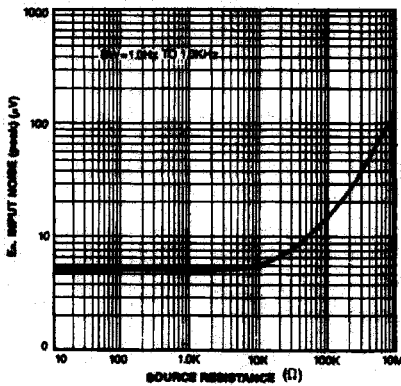


Fig. 2 RMS NOISE vs SOURCE RESISTANCE

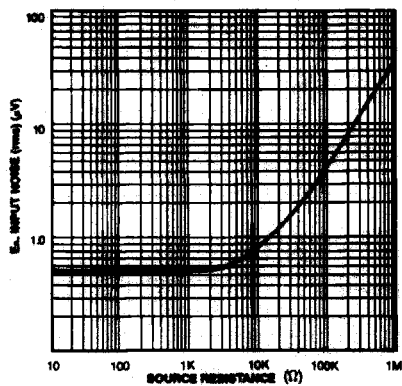


Fig. 3 OUTPUT NOISE vs SOURCE RESISTANCE

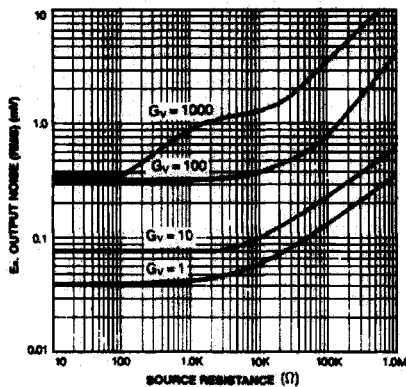


Fig. 4 SPECTRAL NOISE DENSITY

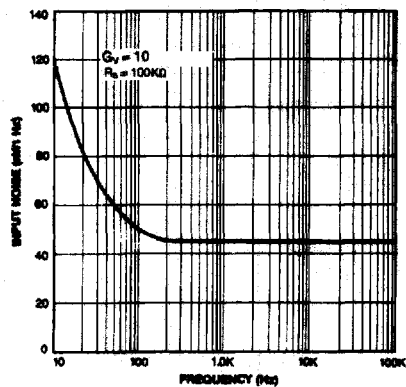


Fig. 5 OPEN LOOP FREQUENCY RESPONSE

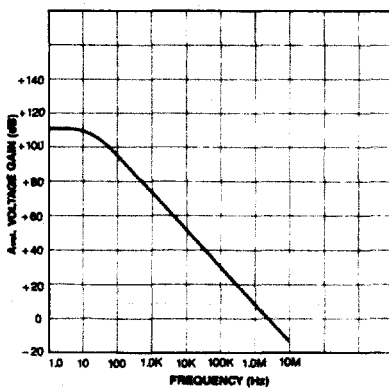


Fig. 6 PHASE MARGIN vs FREQUENCY

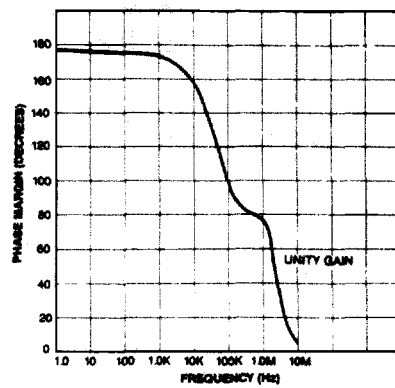


Fig. 7 POSITIVE OUTPUT VOLTAGE SWING vs LOAD RESISTANCE

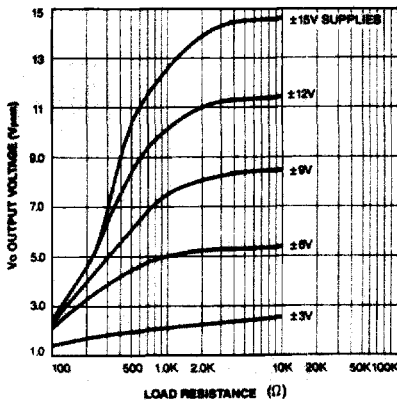


Fig. 8 NEGATIVE OUTPUT VOLTAGE SWING vs LOAD RESISTANCE

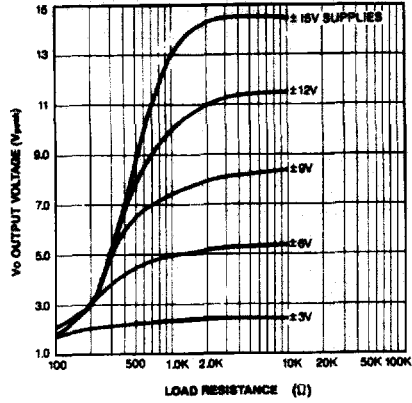


Fig. 9 POWER BANDWIDTH (LARGE SIGNAL SWING VERSUS FREQUENCY)

