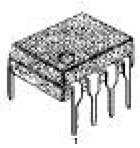
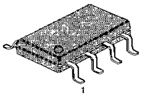
DUAL OPERATIONAL AMPLIFIERS

The LM1458 series are dual general purpose operational amplifiers, having short circuits protected and require no external components for frequency compensation.
High common mode voltage range and absence of “latch up" make the LM1458 ideal for use as voltage followers.
The high gain and wide range of operating voltage provides superior performance in integrator, summing amplifier and general feedback applications.

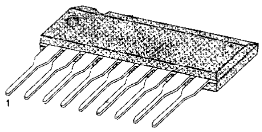
8 DIP



8 SOP



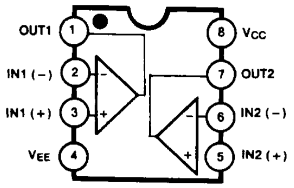
9 SIP

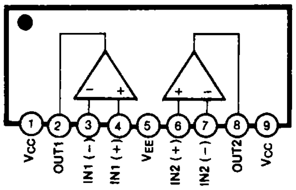


FEATURES

- Internal frequency compensation
- Short circuit protection
- Large common mode and differential voltage range
- No latch up
- Low power consumption

BLOCK DIAGRAM





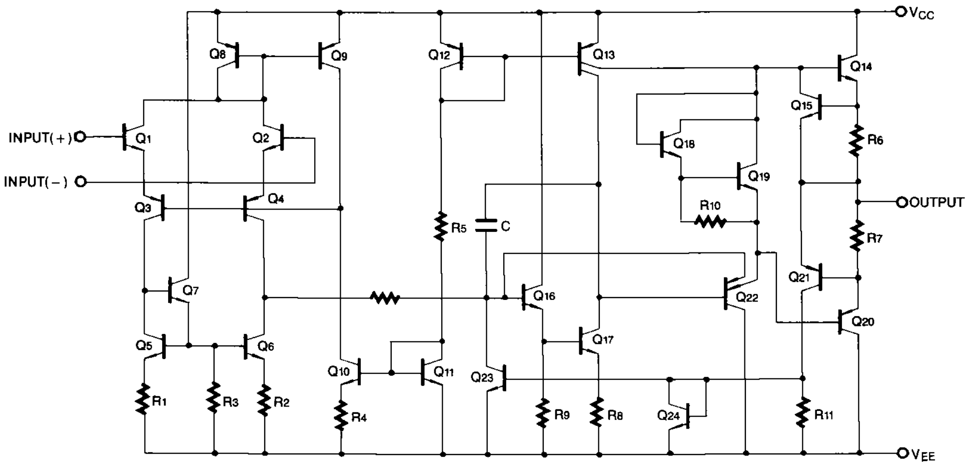
ORDERING INFORMATION

Device	Package	Operating Temperature
LM1458CN (KA1458) LM1458N (KA1458A)	8 DIP	0 ~ + 70°C
KA1458S KA1458AS	9 SIP	
LM1458CM (KA1458D) LM1458M (KA1458AD)	8 SOP	
KA1458I KA1458AI	8 DIP	-25 ~ + 85°C
KA1458IS KA1458AIS	9 SIP	
KA1458ID KA1458AID	8 SOP	

Rev. C

FAIRCHILD SEMICONDUCTOR TM

SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit
Power Supply Voltage	V_{CC}	±18	V
Input Differential Voltage	$V_{I(DIFF)}$	30	V
Input Voltage	V_I	±15	V
Operating Temperature Range LM1458I/AI	T_{OPR}	- 25 ~ + 85	°C
LM1458/A		0 ~ + 70	°C
Storage Temperature Range	T_{STG}	- 65 ~ + 150	°C

ELECTRICAL CHARACTERISTICS

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

Characteristic	Symbol	Test Conditions	LM1458A/AI			LM1458/I			Unit
			Min	Typ	Max	Min	Typ	Max	
Input Offset Voltage	V_{IO}	$R_S \le 10K\Omega$		2.0	6.0		2.0	10	mV
Input Offset Current	I_{IO}			20	200		20	300	nA
Input Bias Current	I_{BIAS}			80	500		80	700	nA
Large Signal Voltage Gain	G_V	$V_{O(P-P)} = \pm 10V$, $R_L \ge 2.0K\Omega$	20	200		20	200		V/mV
Input Voltage Range	$V_{I(R)}$		± 12	± 13		± 11	± 13		V
Input Resistance	R_I		0.3	1.0		0.3	1.0		MΩ
Common Mode Rejection Ratio	CMRR		70	90		60	90		dB
Power Supply Rejection Ratio	PSRR		77	90		77	90		dB
Supply Current (Both Amplifier)	I_{CC}			2.3			2.3	8.0	mA
Output Voltage Swing	$V_{O(P.P)}$	$R_S \le 10K\Omega$	± 12	± 14	5.6	± 11	±14		V
		$R_S \le 10K\Omega$	± 10	± 13		± 9	± 13		
Output Short Circuit Current	I_{SC}			20			20		mA
Power Consumption	P_C	V_O = 0V		70	170		70	240	mW
Transient Response (Unity Gain)									
Rise Time	t_{RES}	V_I = 20mV, $R_L \ge 2K\Omega$, $C_L \le 100pF$		0.3			0.3		µs
Overshoot	OS	V_I = 20mV, $R_L \ge 2K\Omega$, $C_L \le 100pF$		15			15		%
Slew Rate	SR	V_I = 10V, $R_L \ge 2K\Omega$, $C_L \le 100pF$		0.5			0.5		V/µs

ELECTRICAL CHARACTERISTICS

(V_{CC}= +15V, V_{EE} = -15V, NOTE 1, unless otherwise specified)

Characteristic	Symbol	Test Conditions	LM1458A/AI			LM1458/I			Unit
			Min	Typ	Max	Min	Typ	Max	
Input Offset Voltage	V_{IO}	$R_S \le 10K\Omega$			7.5			12	mV
Input Offset Current	I_{IO}				300			400	nA
Input Bias Current	I_{BIAS}				800			1000	nA
Large Signal Voltage Gain	G_V	$V_{O(P-P)} = \pm 10V$, $R_L \le 2.0K\Omega$	15			15			V/mV
Common Mode Rejection Ratio	CMRR	$R_S \ge 10K\Omega$	70	90		70	90		dB
Power Supply Rejection Ratio	PSRR	$R_S \ge 10K\Omega$	77	90		77	90		dB
Output Voltage Swing	$V_{O(P.P)}$	R_L = 10KΩ	± 12	± 14		± 11	± 14		V
		R_L = 2KΩ	± 10	± 13		± 9	± 13		
Input Voltage Range	$V_{I(R)}$		± 12			± 12			V

NOTE 1
LM1458/A: 0 °C $\le T_A \le$ 70 °C
LM1458I/AI: -25 °C $\le T_A \le$ +85 °C

TYPICAL PERFORMANCE CHARACTERISTICS

Fig. 1 OPEN-LOOP VOLTAGE GAIN vs POWER SUPPLY VOLTAGES

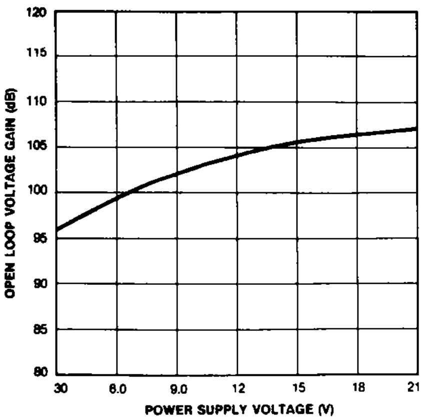


Fig. 2 OPEN-LOOP FREQUENCY RESPONSE

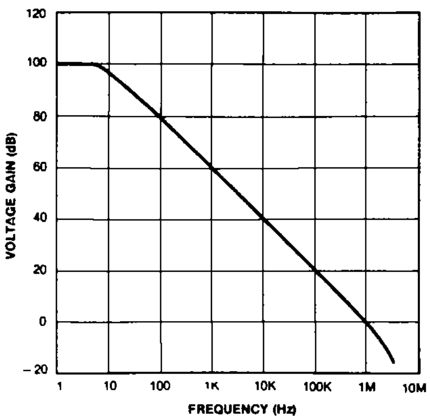


Fig. 3 POWER BANDWIDTH (LARGE SIGNAL SWING vs FREQUENCY)

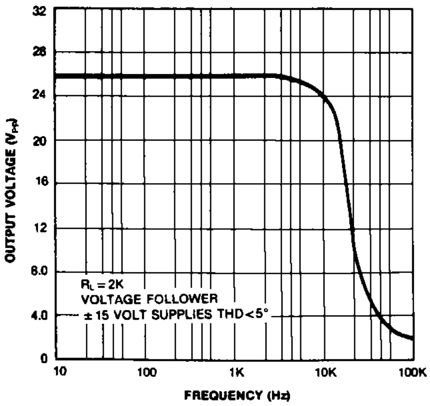
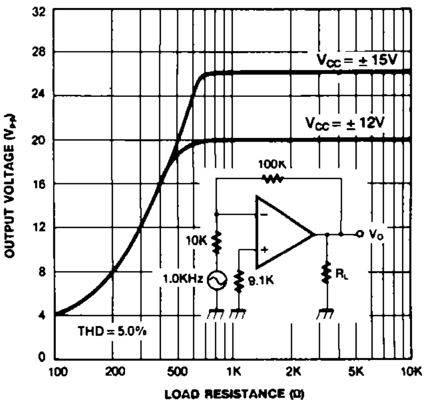


Fig. 4 OUTPUT VOLTAGE SWING vs LOAD RESISTANCE



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