

DUAL OPERATIONAL AMPLIFIERS

The LM1458 series are dual general purpose operational amplifiers, having short circuits protected and require no external components for frequency compensation.

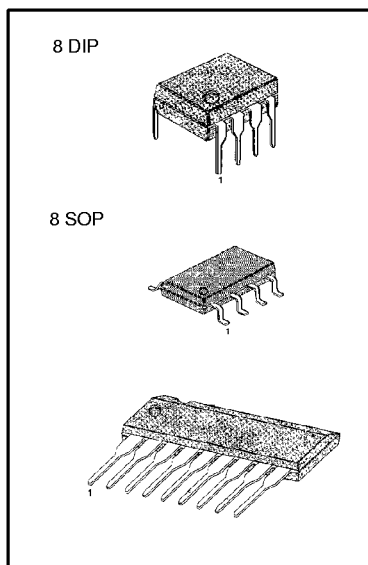
High common mode voltage range and absence of "latch up" make the LM1458 ideal for use as voltage followers.

The high gain and wide range of operating voltage provides superior performance in integrator, summing amplifier and general feedback applications.

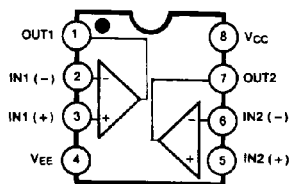
FEATURES

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

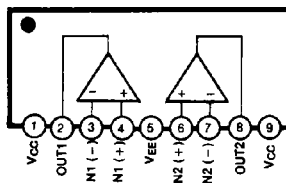
9 SIP



BLOCK DIAGRAM

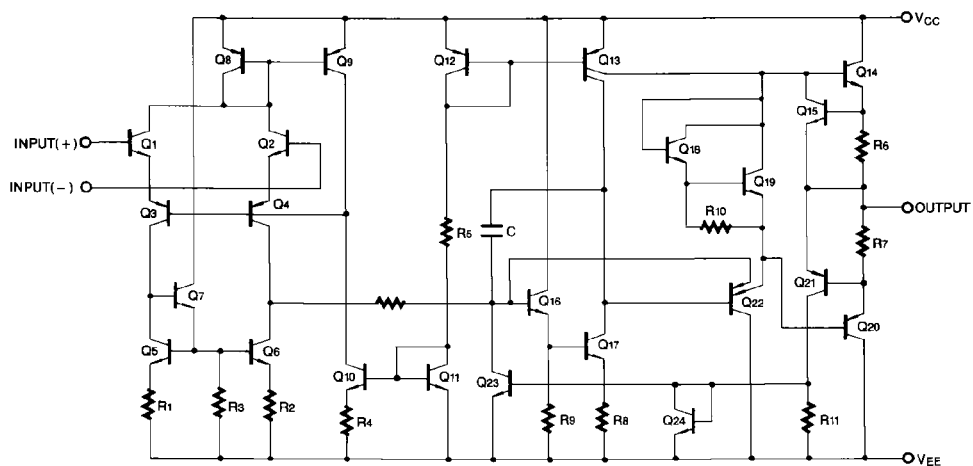


ORDERING INFORMATION



Device	Package	Operating Temperature
LM1458N LM1458AN	8 DIP	0 ~ + 70°C
LM1458S LM1458AS	9 SIP	
LM1458M LM1458AM	8 SOP	
LM1458IN LM1458AIN	8 DIP	
LM1458IS LM1458AIS	9 SIP	-25 ~ + 85°C
LM1458IM LM1458AIM	8 SOP	

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 LM1458/AI	T_{OPR}	$-25 \sim +85$	$^{\circ}\text{C}$
LM1458/A		$0 \sim +70$	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	$-65 \sim +150$	$^{\circ}\text{C}$

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 ≤ 10KΩ		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)} = ±10V, R _L ≥ 2.0KΩ	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 ≤ 10KΩ	±12	±14	5.6	±11	±14		V
		R _S ≤ 10KΩ	±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 ≥ 2KΩ, C _L ≤ 100pF		0.3			0.3		μs
Overshoot	OS	V _I = 20mV, R _L ≥ 2KΩ, C _L ≤ 100pF		15			15		%
Slew Rate	SR	V _I = 10V, R _L ≥ 2KΩ, C _L ≤ 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 ≤ 10KΩ			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)} = ±10V, R _L ≤ 2.0KΩ	15			15			V/mV
Common Mode Rejection Ratio	CMRR	R _S ≥ 10KΩ	70	90		70	90		dB
Power Supply Rejection Ratio	PSRR	R _S ≥ 10KΩ	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 ≤ T_A ≤ 70 °CLM1458I/AI: -25 °C ≤ T_A ≤ +85 °C

TYPICAL PERFORMANCE CHARACTERISTICS

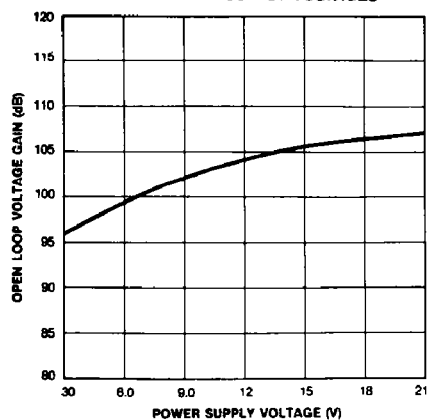
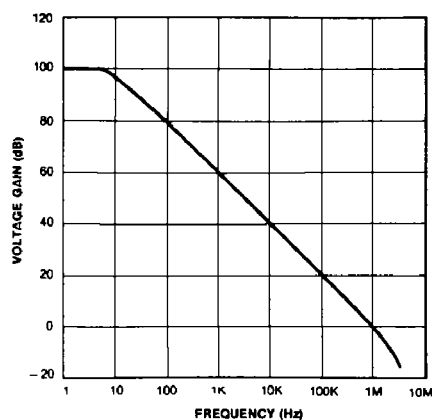
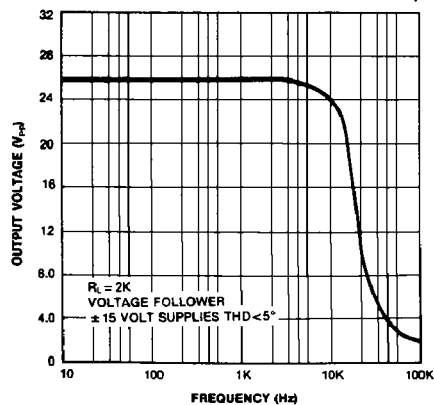
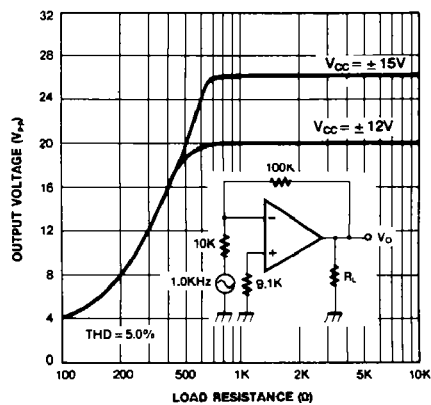
Fig. 1 OPEN-LOOP VOLTAGE GAIN
vs POWER SUPPLY VOLTAGES

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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