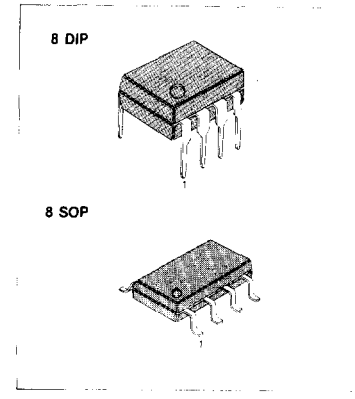
DUAL OPERATIONAL AMPLIFIERS

The MC1458 is a dual general purpose operational amplifier. The high gain and wide range of operating voltage provides superior performance in intergrator, summing amplifier and general feedback amplifier.

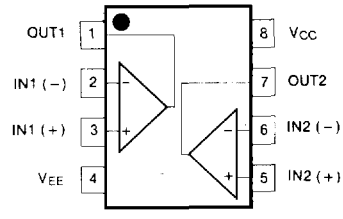


FEATURES

- **Interal frequency compensation**
- **Short circuit protection**
- **Power consumption: 70mW (TYP)**

2

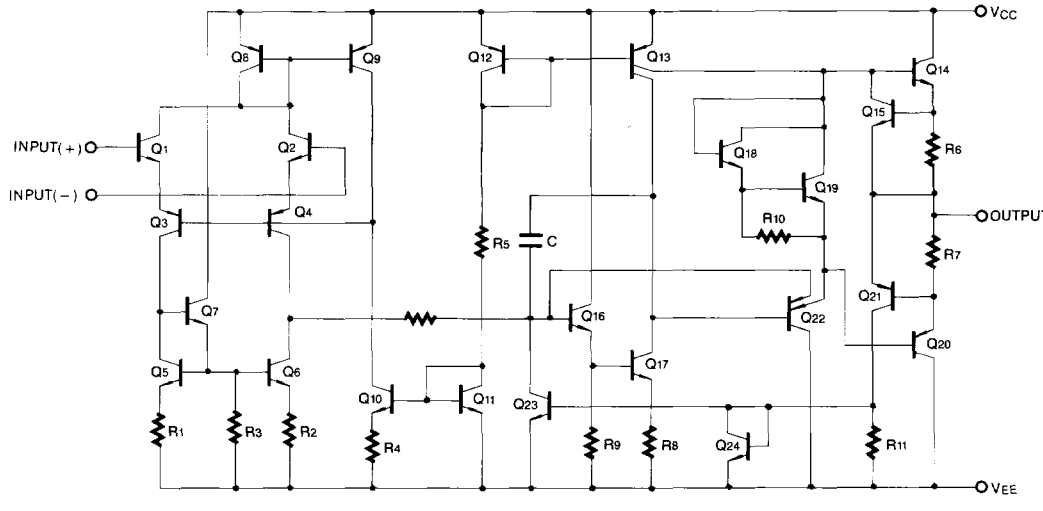
BLOCK DIAGRAM



ORDERING INFORMATION

Device	Package	Operation Temperature
MC1458CN	8 DIP	0 ~ +70°C
MC1458CD	8 SOP	

SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit
Power Supply Voltage	V_S	±18	V
Input Differential Voltage	V_{ID}	±30	V
Input Voltage	V_I	±15	V
Operating Temperature Range	T_{opr}	0 ~ +70	°C
Storage Temperature Range	T_{stg}	−65 ~ +150	°C

ELECTRICAL CHARACTERISTICS

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

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Offset Voltage	V_{IO}	$R_S \leq 10K\Omega$		2.0	10	mV
Input Offset Current	I_{IO}			20	300	nA
Input Bias Current	I_{IB}			80	700	nA
Large Signal Voltage Gain	A_V	$V_O = \pm 10V$, $R_L \geq 2.0K\Omega$	20	200		V/mV
Input Voltage Range	V_{ICR}		±11	±13		V
Input Resistance	R_I		0.3	1.0		MΩ
Common Mode Rejection Ratio	CMRR	$R_S \leq 10K\Omega$	60	90		dB
Power Supply Rejection Ratio	PSRR	$R_S \leq 10K\Omega$	77	90		dB
Supply Current (Both Amplifier)	I_S			2.3	8.0	mA
Output Voltage Swing	V_{OUT}	$R_L = 10K\Omega$	±11	±14		V
		$R_L = 2K\Omega$	±9	±13		
Output Short Circuit Current	I_{OS}			20		mA
Power Consumption	P_C	$V_O = 0V$		70	240	mW
Transient Response (Unity Gain)						
Rise Time	t_r	$V_i = 20mV$, $R_L \geq 2K\Omega$, $C_L \leq 100pF$		0.3		μS
Overshoot	OS	$V_i = 20mV$, $R_L \geq 2K\Omega$, $C_L \leq 100pF$		15		%
Slew Rate	SR	$V_i = 10V$, $R_L \geq 2K\Omega$, $C_L \leq 100pF$		0.5		V/μS

ELECTRICAL CHARACTERISTICS

(V_{CC} = +15V, V_{EE} = −15V, 0 > Ta ≥ 70°C, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Offset Voltage	V_{IO}	$R_S \leq 10K\Omega$			12	mV
Input Offset Current	I_{IO}				400	nA
Input Bias Current	I_{IB}				1000	nA
Large Signal Voltage Gain	A_V	$V_O = \pm 10V$, $R_L \geq 2.0K\Omega$	15			V/mV
Common Mode Rejection Ratio	CMRR	$R_S \geq 10K\Omega$	70	90		dB
Power Supply Rejection Ratio	PSRR	$R_S \geq 10K\Omega$	77	90		dB
Output Voltage Swing	V_{OUT}	$R_L = 10K\Omega$	±11	±14		V
		$R_L = 2K\Omega$	±9	±13		
Input Voltage Range	V_{ICR}		±12			V

TYPICAL PERFORMANCE CHARACTERISTICS

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

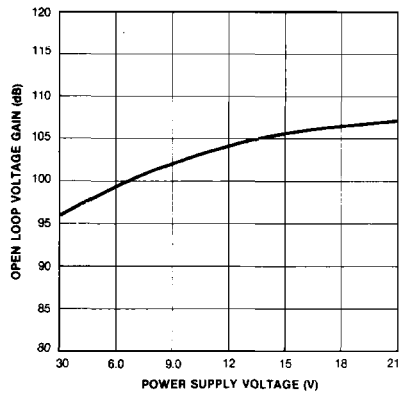


Fig. 2 OPEN-LOOP FREQUENCY RESPONSE

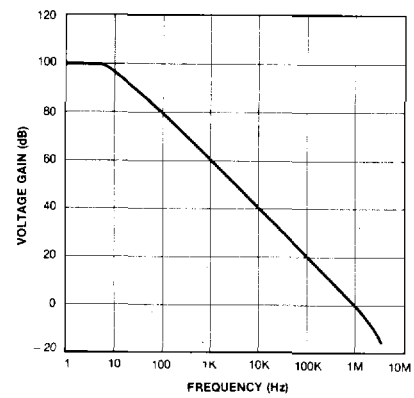


Fig. 3 POWER BANDWIDTH (LARGE SIGNAL SWING vs FREQUENCY)

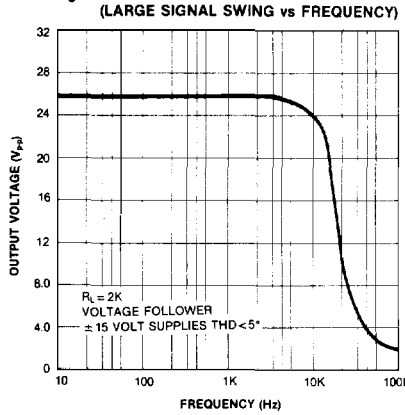


Fig. 4 OUTPUT VOLTAGE SWING RESISTANCE vs LOAD