

DESCRIPTION

The LM358 consists of two independent high gain, internally frequency compensated operational amplifier. It can be operated from a single power supply and also split power supplies.

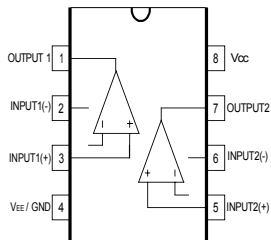
FEATURES

- * Internally frequency compensated for unity gain.
- * Wide power supply range 3V - 36V.
- * Input common-mode voltage range include ground.
- * Large DC voltage gain.

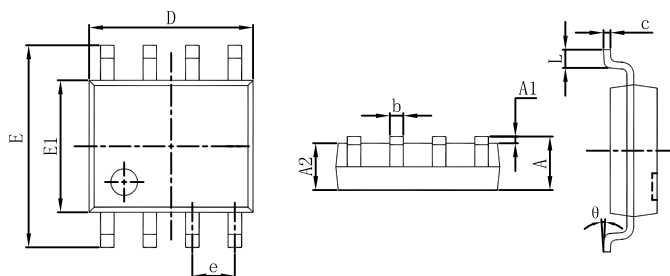
APPLICATIONS

- * General purpose amplifier.
- * Transducer amplifier.

PIN CONFIGURATIONS



SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

ABSOLUTE MAXIMUM RATINGS

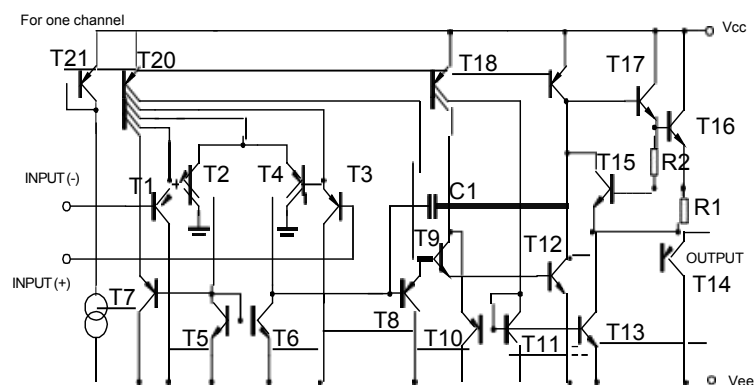
PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	V _{cc}	+18 or 36	V
Differential Input Voltage	V _I (DIFF)	36	V
Input Voltage	V _I	-0.3 ~ +36	V
Output Short to Ground		Continuous	
Operating Temperature Range	TOPR	0 ~ +70	°C
Storage Temperature Range	TSTG	-65 ~ +150	°C

LM358

ELECTRICAL CHARACTERISTICS($V_{CC}=5.0V$, $V_{EE}=GND$, $T_A=25^{\circ}C$, unless otherwise specified) £ ©

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Input Offset Voltage	VIO	VCM=0V toVCC- 1.5V VO(P)=1.4V,RS=0 Ω		2.9	7.0	mV
Input Offset Current	IIO			5	50	nA
Input Bias Current	IBIAS			45	250	nA
Input Common Mode Voltage	VI(R)	VCC=30V	0		VCC- 1.5	V
Power Supply Current	ICC	RL= ∞ ,VCC=30V		0.8	2.0	mA
		RL= ∞ ,Full Temperature Range		0.5	1.2	mA
Large Signal Voltage Gain	GV	VCC=15V,RL $\geq$ 2K Ω VO(P)=1V to 11V	25	100		V/mV
Output Voltage Swing	VO(H)	VCC=30V,RL=2K Ω	26			V
		VCC=30V,RL=10K Ω	27	28		V
	VO(L)	VCC=5V,RL $\geq$ 10K Ω		5	20	mV
Common Mode Rejection Ratio	CMRR		65	80		dB
Power Supply Rejection Ratio	PSRR		65	100		dB
Channel Separation	CS	f=1KHZ to 20KHZ		120		dB
Short Circuit Current to Ground	ISC			40	60	mA
Output Current	ISOURCE	VI(+)=1V,VI(-)=0V VCC=15V,VO(P)=2V	20	30		mA
	ISINK	VI(+)=0V,VI(-)=1V VCC=15V,VO(P)=2V	10	15		mA
		VI(+)=0V,VI(-)=1V VCC=15V,VO(P)=200mV	12	100		mA
Differential Input Voltage	VI(DIFF)				VCC	V

BLOCK DIAGRAM



RATING AND CHARACTERISTIC CURVES (LM358)

Fig. 1 Input Voltage Range

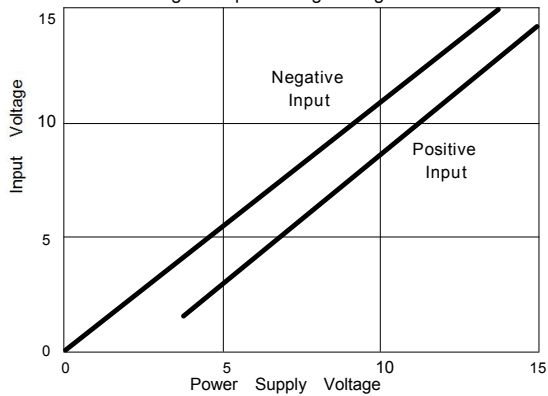


Fig. 2 Input Current vs Temperature

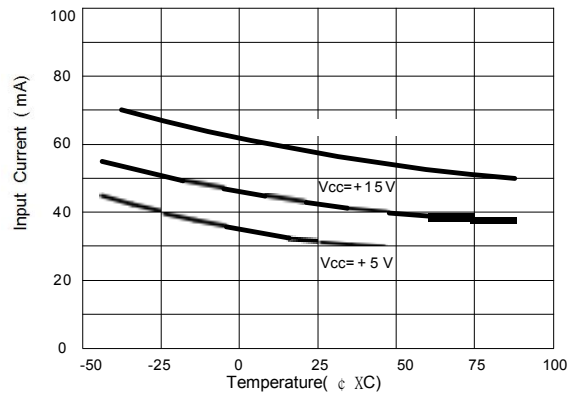


Fig. 3 Input Current vs Supply Voltage

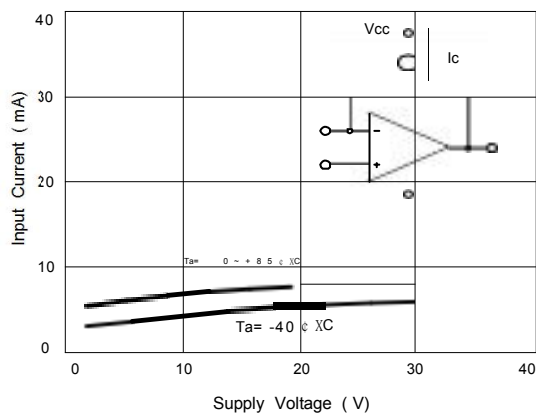


Fig. 4 Voltage Gain vs Supply Voltage

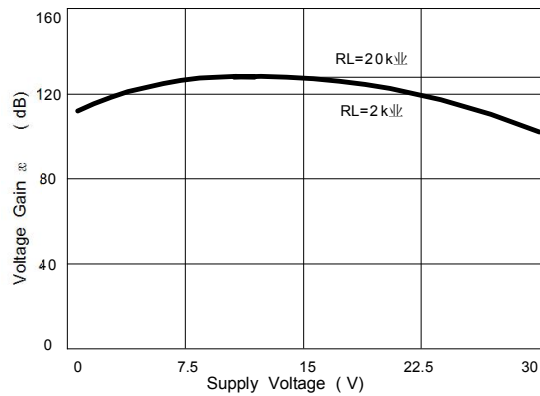


Fig. 5 Open Loop Gain vs Frequency

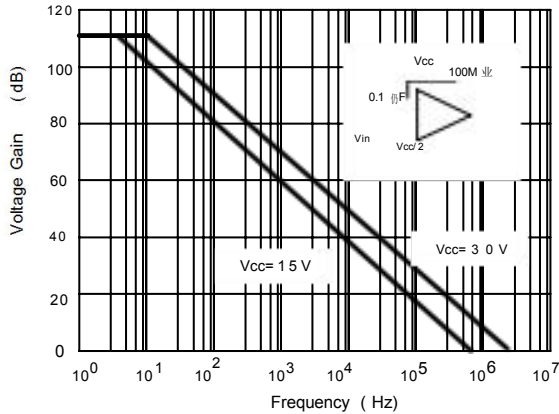
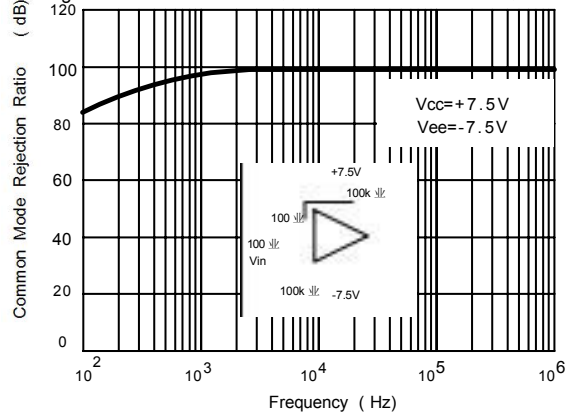


Fig. 6 Common Mode Rejection Ratio vs Frequency



RATING AND CHARACTERISTIC CURVES (LM358)

Fig. 7 Voltage Follower Pulse Response

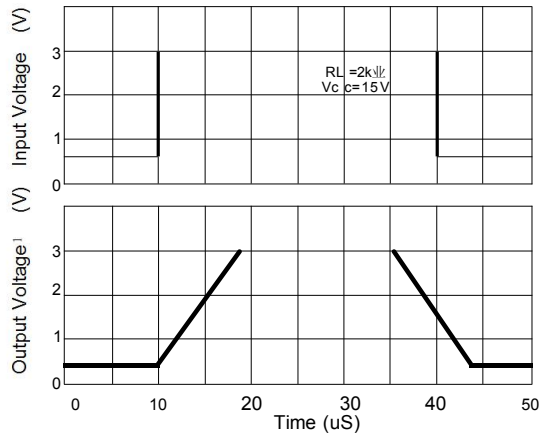


Fig. 8 Voltage Follower Response (Small Signal)

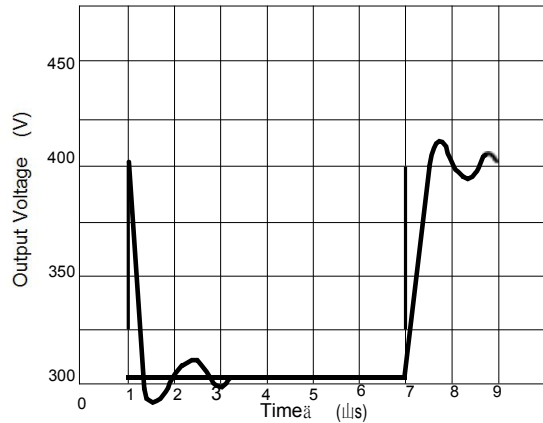


Fig. 9 Gain vs Large Signal Frequency

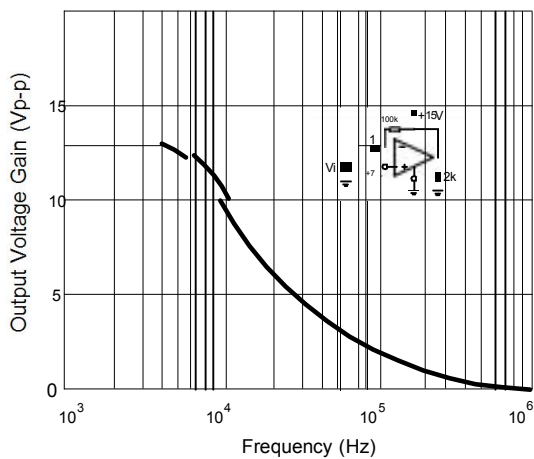


Fig. 10 Output Current Sinking vs Output Voltage

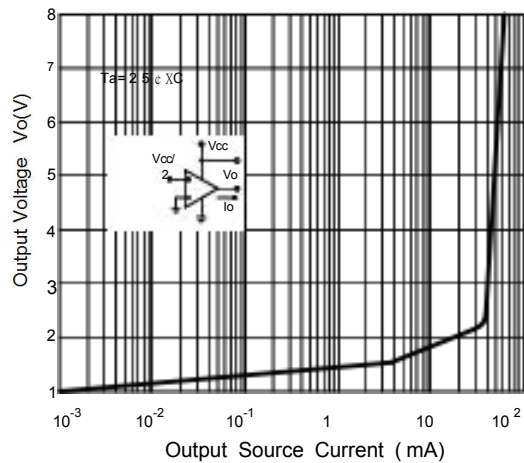


Fig. 11 Output Sink Current vs Output Voltage

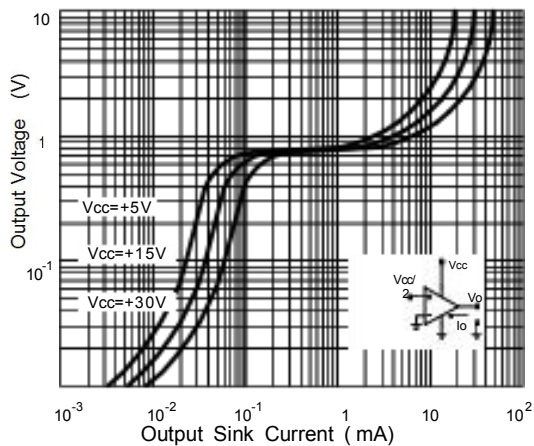


Fig. 12 Current Limiting vs Temperature

