



LM358

DUAL OPERATIONAL AMPLIFIER

DESCRIPTION

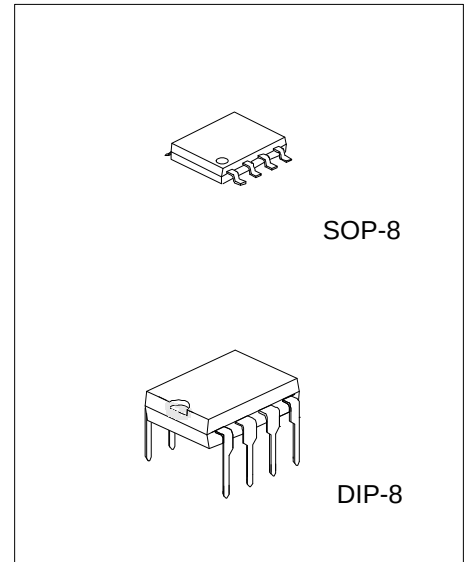
The LM358 consists of two independent high gain, internally frequency compensated operational amplifier. It can be operated from a single power supply and also split power supplies.

FEATURES

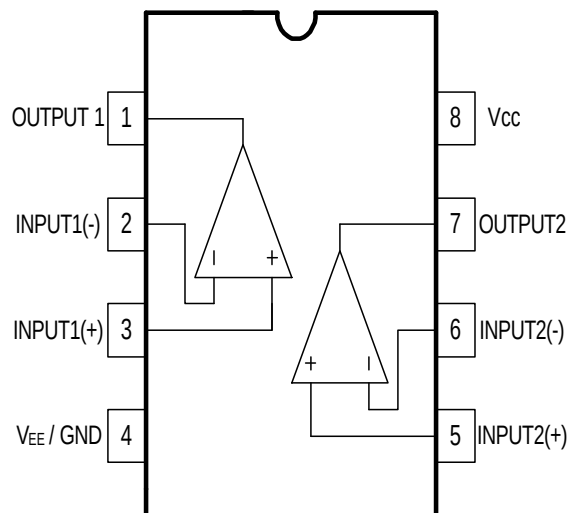
- *Internally frequency compensated for unity gain.
- *Wide power supply range 3V - 30V.
- *Input common-mode voltage range include ground.
- *Large DC voltage gain.

APPLICATIONS

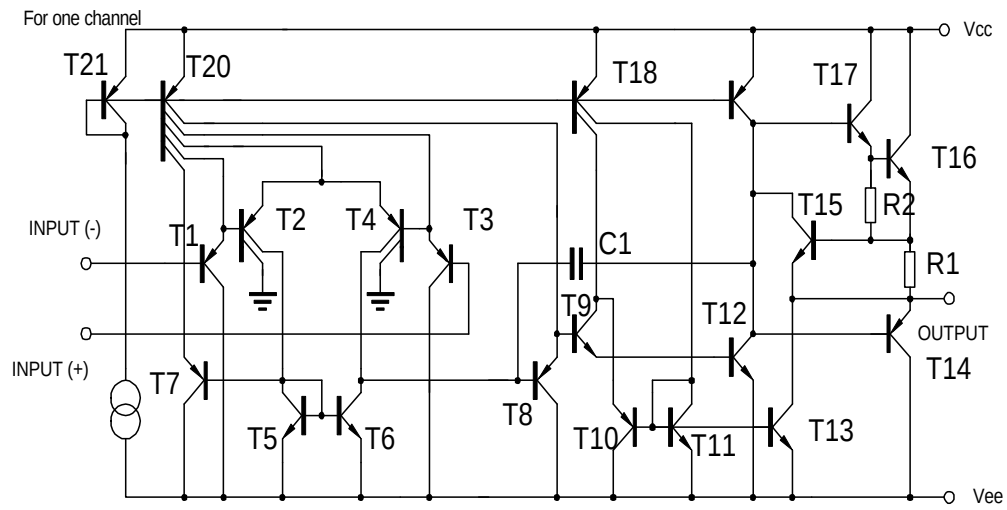
- *General purpose amplifier.
- *Transducer amplifier.



PIN CONFIGURATIONS



BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	Vcc	+16 or 30	V
Differential Input Voltage	VI(DIFF)	+30	V
Input Voltage	VI	-0.3 ~ +30	V
Output Short to Ground		Continuous	
Operating Temperature Range	TOPR	0 ~ +70	°C
Storage Temperature Range	TSTG	-65 ~ +150	°C

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

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PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Input Offset Voltage	VIO	$V_{CM}=0V$ to $V_{CC}-1.5V$ $V_{O(P)}=1.4V$, $R_S=0\Omega$		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)	$V_{CC}=30V$	0		$V_{CC}-1.5$	V
Power Supply Current	ICC	$R_L=\infty$, $V_{CC}=30V$		0.8	2.0	mA
		$R_L=\infty$, Full Temperature Range		0.5	1.2	mA
Large Signal Voltage Gain	GV	$V_{CC}=15V$, $R_L \geq 2K\Omega$ $V_{O(P)}=1V$ to $11V$	25	100		V/mV
Output Voltage Swing	VO(H)	$V_{CC}=30V$, $R_L=2K\Omega$	26			V
		$V_{CC}=30V$, $R_L=10K\Omega$	27	28		V
	VO(L)	$V_{CC}=5V$, $R_L \geq 10K\Omega$		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	$V_I(+)=1V$, $V_I(-)=0V$ $V_{CC}=15V$, $V_{O(P)}=2V$	10	30		mA
	ISINK	$V_I(+)=0V$, $V_I(-)=1V$ $V_{CC}=15V$, $V_{O(P)}=2V$	10	15		mA
		$V_I(+)=0V$, $V_I(-)=1V$ $V_{CC}=15V$, $V_{O(P)}=200mV$	12	100		mA
Differential Input Voltage	VI(DIFF)				V_{CC}	V

TYPICAL PERFORMANCE CHARACTERISTICS

Fig.1 Input Voltage Range

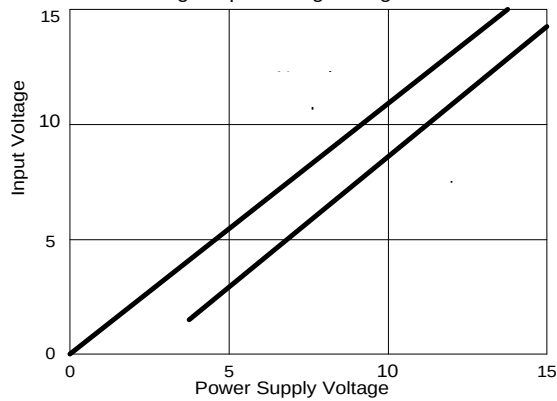


Fig.2 Input Current vs Temperature

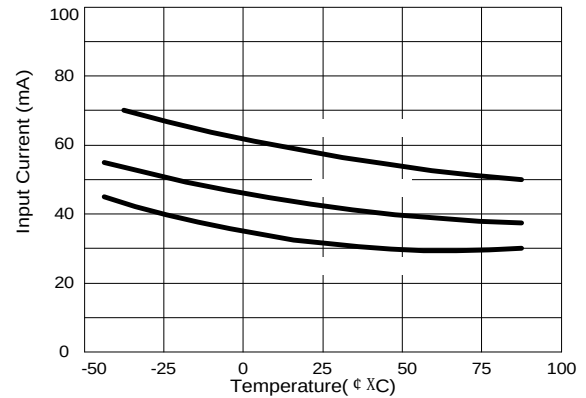


Fig.3 Input Current vs Supply Voltage

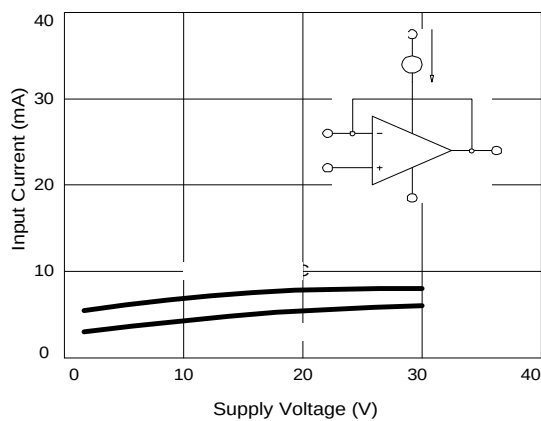


Fig. 4 Voltage Gain vs Supply Voltage

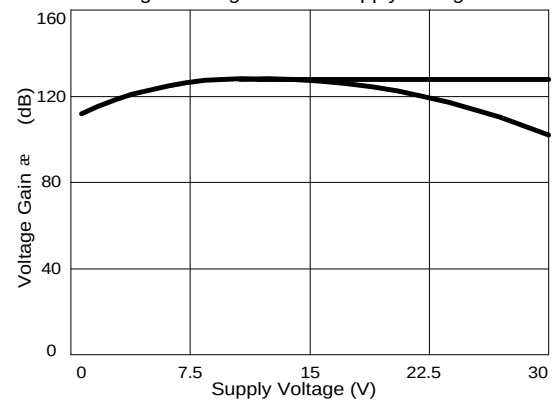


Fig. 5 Open Loop Gain vs Frequency

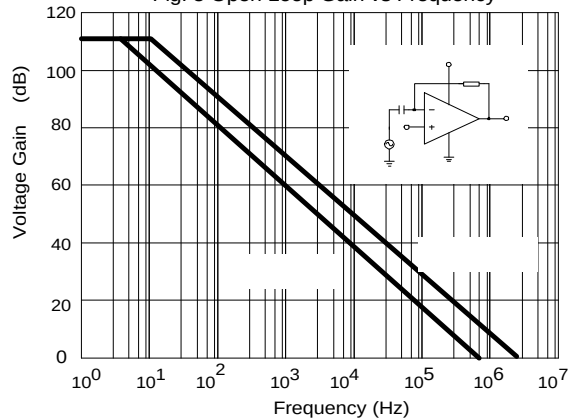


Fig. 6 Common Mode Rejection Ratio vs Frequency

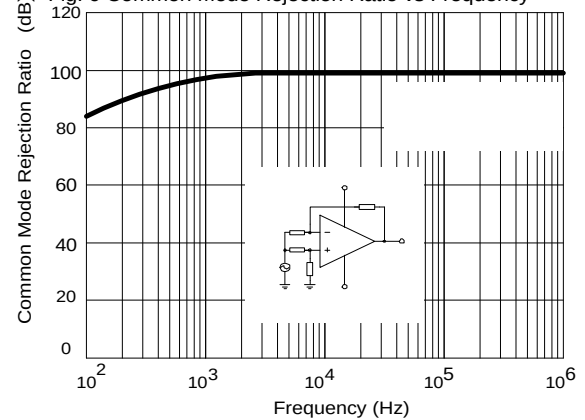


Fig. 7 Voltage Follower Pulse Response

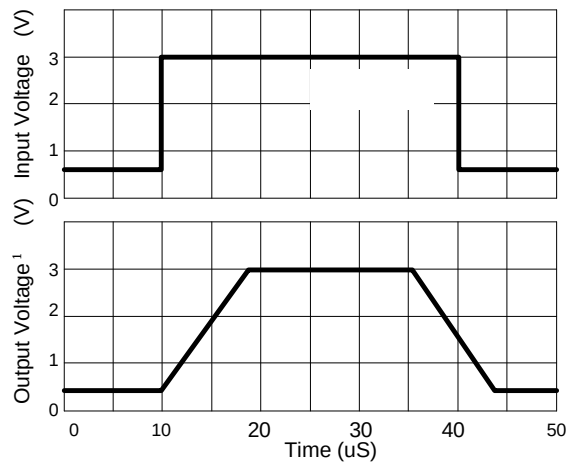


Fig. 8 Voltage Follower Response (Small Signal)

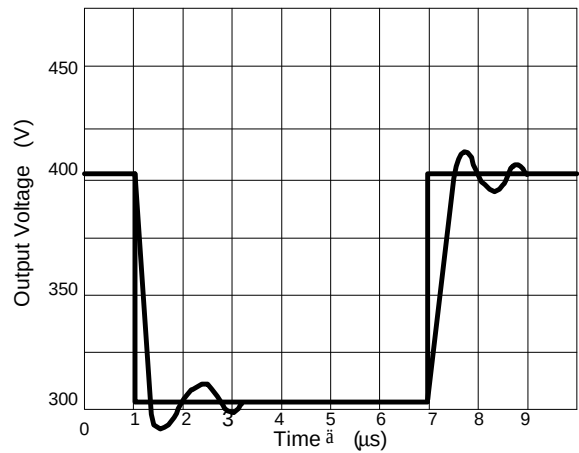


Fig. 9 Gain vs Large Signal Frequency

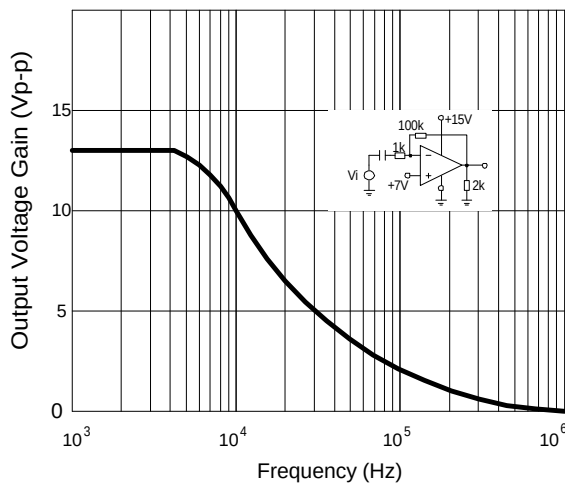


Fig. 10 Output Current Sinking vs Output Voltage

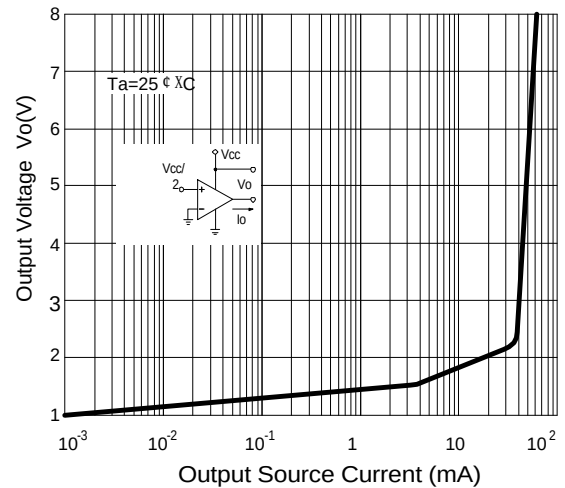


Fig. 11 Output Sink Current vs Output Voltage

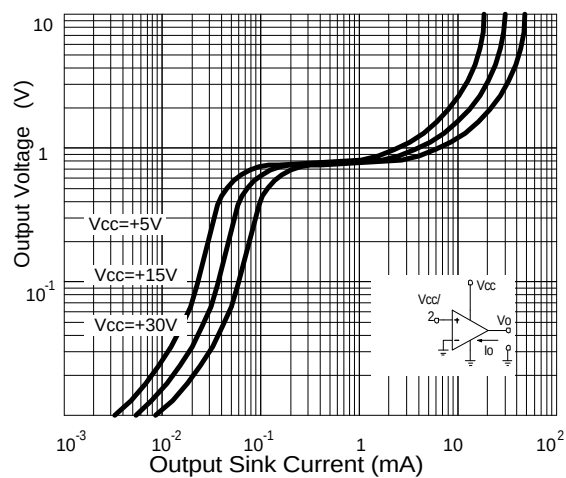


Fig.12 Current Limiting vs Temperature

