LM358-P8

DUAL OPERATIONAL AMPLIFIERS

DESCRIPTION

The LM358 consists of dual independent, high gain, internally frequency compensated operational amplifiers which were designed specifically to operate from a single power supply over a wide voltage range.

Operation from split power supplies is also possible so long as the difference between the two supplies 3 V to 26 V.

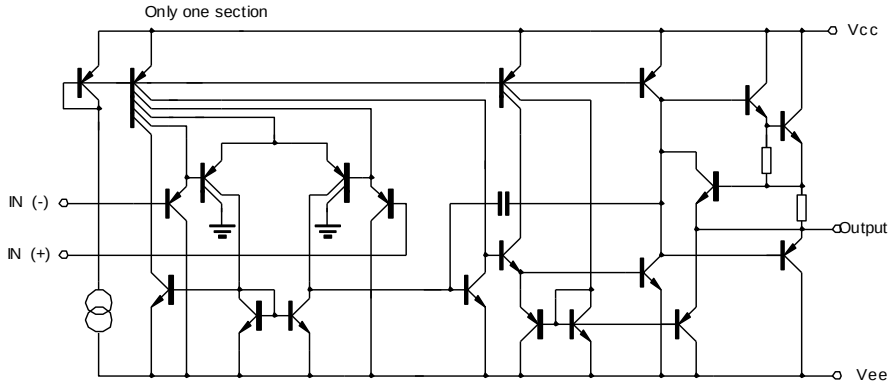
Application areas include transducer amplifiers,DC gain blocks and all the conventional OP amp circuits which now can be easily implemented in single power supply systems.

SOP-8

FEATURES

* Internally frequency compensated for unity gain
* Large DC voltage gain :100dB
* Wide operating supply range(Vcc=3V~26Vor ±1.5V~±13V)
* Input common-mode voltage includes ground
* Large output voltage swing:From 0V to Vcc-1.5V
* Power drain suitable for battery operation

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	Vcc	±15or30	V
Differential input voltage	$V_{i(diff)}$	26	V
Input Voltage	V_i	-0.3~26	V
Operating Temperature	Topr	-20 to +85	°C
Storage Temperature	Tstg	-65 to 150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

(Vcc=5.0V,All voltage referenced to GND unless otherwise specified)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Input offset voltage	V_{IO}	V_{CM}=0 to Vcc-1.5 Vo(p)=1.4V,Rs=0		2	7.0	mV
Input offset current	I_{IO}			5	50	nA
Input bias current	Ib			45	250	nA
Input common-mode voltage range	V_{ICM}	Vcc=25V	0		Vcc-1.5	V
Supply current	Icc	R_L=∞,Vcc=25V		0.8	2.0	mA
		Vcc=5V		0.5	1.2	mA
Large signal voltage gain	G_V	Vcc=15V,R_L=2kΩ Vo(p)=1V to 11V	25	100		V/mV
Output voltage swing	$V_{(OH)}$	Vcc=25V,R_L=2kΩ	21			V
		Vcc=25V,R_L=10kΩ	22	23		V
	$V_{(OL)}$	Vcc=5V,R_L=10kΩ		5	20	mV
Common-mode rejection ratio	CMRR		65	75		dB
Power supply rejection ratio	PSRR		65	100		dB
Channel separation	CS	f=1kHz to 20kHz		120		dB
Output short circuit to GND	Isc			40	60	mA
Output current	Isource	$V_{I(+)}$=1V,$V_{I(-)}$=0 Vcc=15V,Vo(p)=2V	20	40		mA
	Isink	$V_{I(+)}$=0V,$V_{I(-)}$=1V Vcc=15V,Vo(p)=2V	10	13		mA
		$V_{I(+)}$=0V,$V_{I(-)}$=1V Vcc=15V,Vo(p)=200mV	12	45		μA
Differential input voltage	Vi(diff)				Vcc	V
Slew rate	SR	$V_{I(+)}$=10V,$V_{I(-)}$=0V Vcc=±15V,Rl=2KΩ, Cl=100pF		1.0		V/μs

TYPICAL CHARACTERISTICS PERFORMANCE

Fig.1 Input voltage ranger

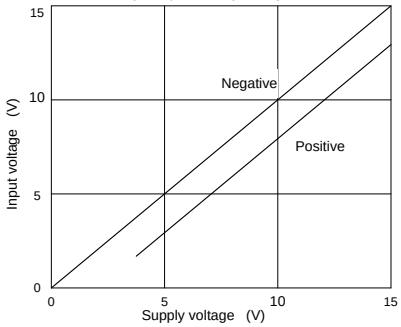


Fig.2 Input current

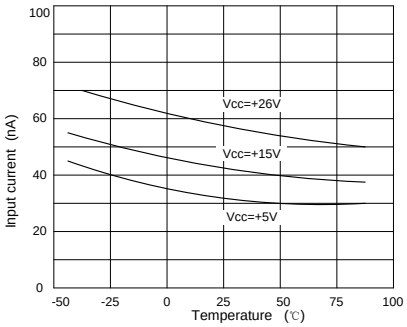


Fig.3 Supply current

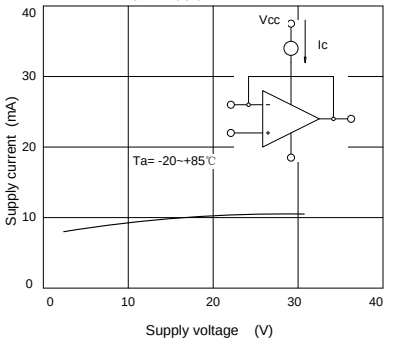


Fig.4 Voltage gain

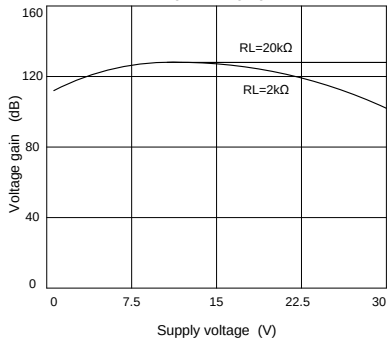


Fig.5 Open loop frequency response

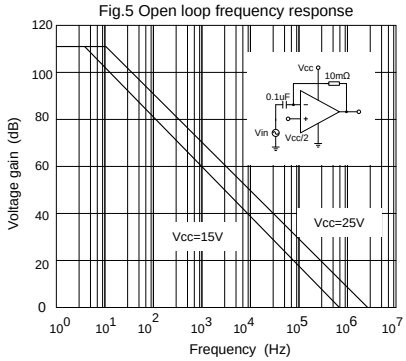


Fig.6 Common-mode rejection ratio

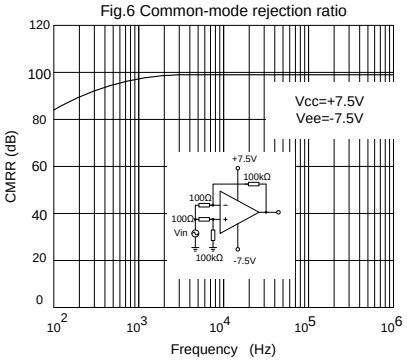


Fig.7 Voltage follower pulse response

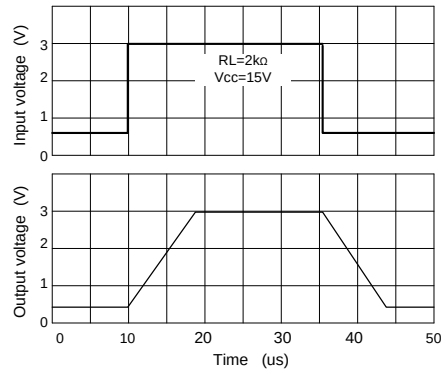


Fig.8 Voltage follower pulse response (small signal)

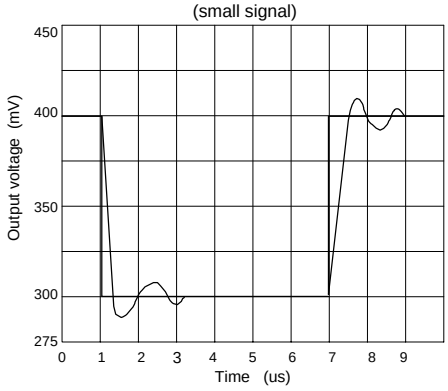


Fig.9 Large signal frequency response

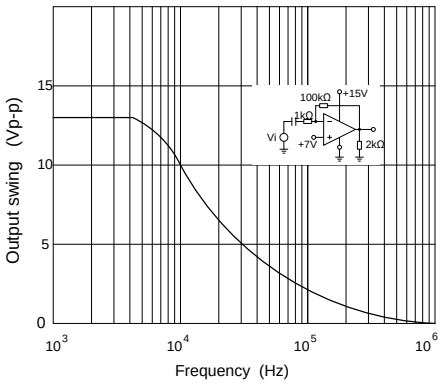


Fig.10 Output characteristics current sourcing

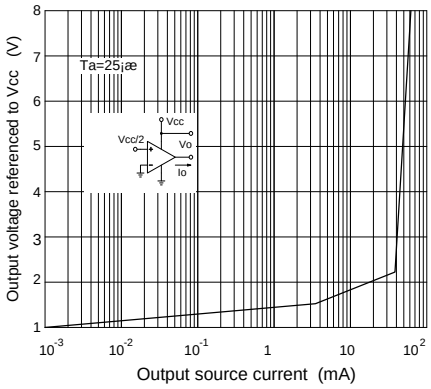


Fig.11 Output characteristics current sinking

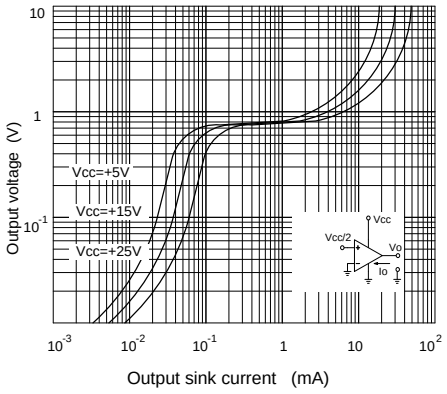


Fig.12 Current limiting

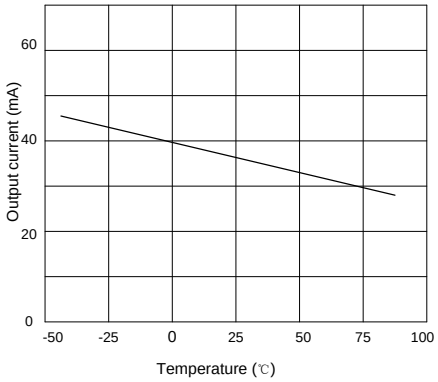
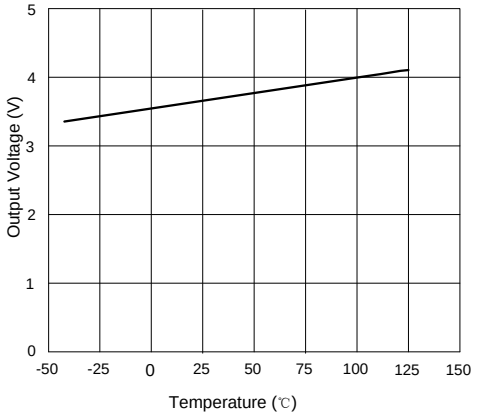


Fig.13 Output Voltage&temperature



尺寸 / 标注	最小(mm)	最大(mm)	尺寸 / 标注	最小(mm)	最大(mm)
A	4.80	5.00	C3	0.05	0.20
A1	0.356	0.456	C4	0.203	0.233
A2	1.27TYP		D	1.05TYP	
A3	0.345TYP		D1	0.40	0.80
B	3.80	4.00	R1	0.20TYP	
B1	5.80	6.20	R2	0.20TYP	
B2	5.00TYP		θ1	17° TYP4	
C	1.30	1.60	θ2	13° TYP4	
C1	0.55	0.65	θ3	0° ～ 8°	
C2	0.55	0.65	θ4	4° ～ 12°