

Dual operational amplifiers

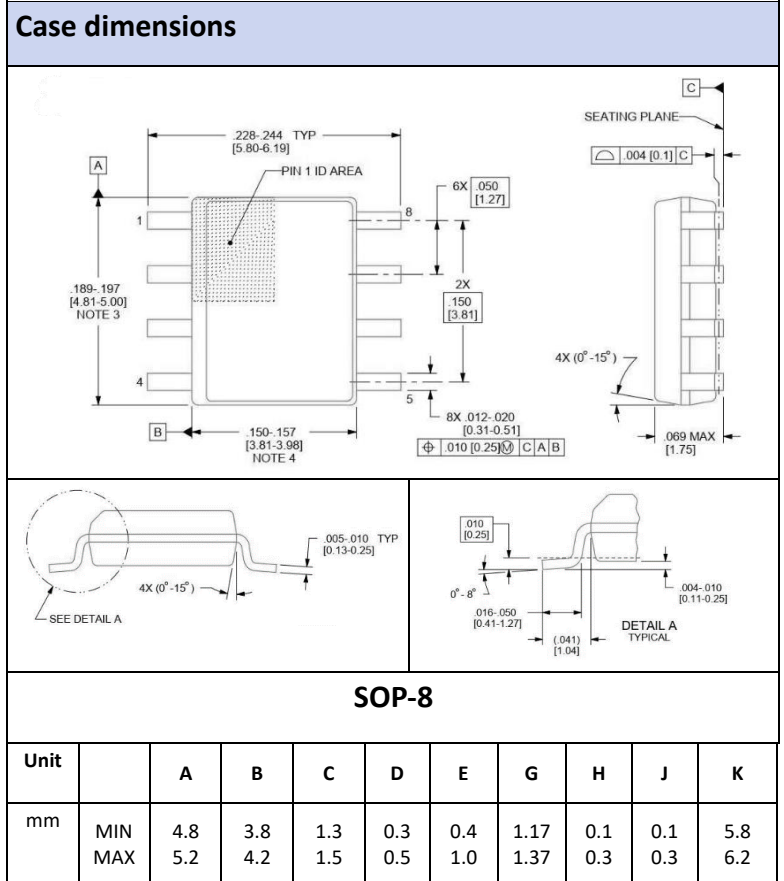
Primary characteristics		
Parameter	Value	Unit
Supply voltage	32	V
DC Voltage gain	100	dB

Description

The **LM358** contains two independent high gain operational amplifiers with internal frequency compensation. The two op-amps operate over a wide voltage range from a single power supply. Also use a split power supply. The device has low power supply current drain, regardless of the power supply voltage. The low power drain also makes the LM358 a good choice for battery operation.

Features

- Internally frequency compensated for unity gain
- Large DC voltage gain: 100dB
- Wide operating supply range 3V~32V
- Input common-mode voltage includes ground
- Large output voltage swing: from 0V to $V_{CC}-1.5V$ DC
- Power drain suitable for battery operation
- Low input offset voltage and offset current
- Differential input voltage range equal to the power supply voltage



Absolute maximum ratings			
Parameter	Symbol	Value	Unit
Supply voltage	V_{CC}	32	V
Differential input voltage	V_{IDR}	± 32	V
Input voltage	V_{ICR}	-0.3 ~ +32	V
Storage temperature	T_{STG}	-55 ~ +125	°C

Electrical characteristics						
$V_{CC}=5.0V$, all voltage referenced to GND unless otherwise specified.						
Parameter	Symbol	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Input offset voltage	$V_{I(OFF)}$	$V_{ICM}=0V$ to $V_{CC}-1.7V$ $V_{O(P)}=1.4V$, $R_S=0\Omega$	-	-	9.0	mV
Input offset current	$I_{I(OFF)}$	V_{CC}	-	-	150	nA
Input bias current	$I_{I(BIAS)}$		-	-	-500	nA
Input common mode voltage	$V_{I(CR)}$	$V_{CC}=30V$	0	-	28	V
Power supply current	I_{CC}	$R_L=\infty$, $V_{CC}=30V$, $V_O=0V$	-	-	3.0	mA
		$R_L=\infty$, $V_{CC}=5.0V$, $V_O=0V$	-	-	1.2	mA
Large signal voltage gain	G_V	$V_{CC}=15V$, $R_L=2.0k\Omega$	15	-	-	V/mV
Output voltage swing	$V_{O(H)}$	$V_{CC}=30V$, $R_L=2.0k\Omega$	26	-	-	V
		$V_{CC}=30V$, $R_L=10k\Omega$	27	-	-	
	$V_{O(L)}$	$V_{CC}=30V$, $R_L=10k\Omega$	-	-	20	mV
Common mode rejection ratio	CMRR	$V_{CC}=30V$, $R_S=10k\Omega$	65	-	-	dB
Power supply rejection ratio	PSRR	$V_{CC}=30V$	65	-	-	dB
Channel separation	CS	$f=1.0kHz \sim 20kHz$, $V_{CC}=30V$	-120	-	-	dB
Short circuit current to ground	I_{SC}	$V_{CC}=5.0V$	-	-	60	mA
Output current	I_{SOURCE}	$V_i(+)=1.0V$, $V_i(-)=0V$ $V_{CC}=15V$, $V_{O(P)}=0.0V$	10	-	-	mA
	I_{SINK}	$V_i(+)=0V$, $V_i(-)=1.0V$ $V_{CC}=15V$, $V_{O(P)}=15V$	5	-	-	mA
		$V_i(+)=0V$, $V_i(-)=1.0V$ $V_{CC}=15V$, $V_{O(P)}=200mV$	12	-	-	μA
Differential input voltage	$V_{I(DIFF)}$		-	-	V_{CC}	V

Typical characteristics

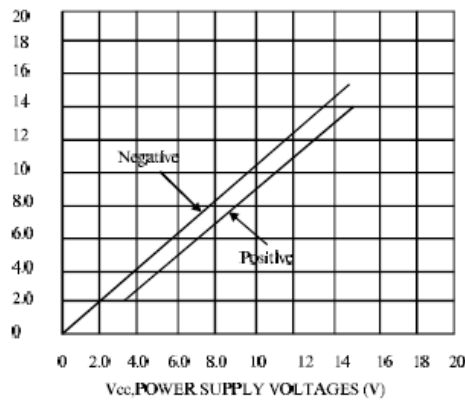


Figure 1. Input Voltage Range

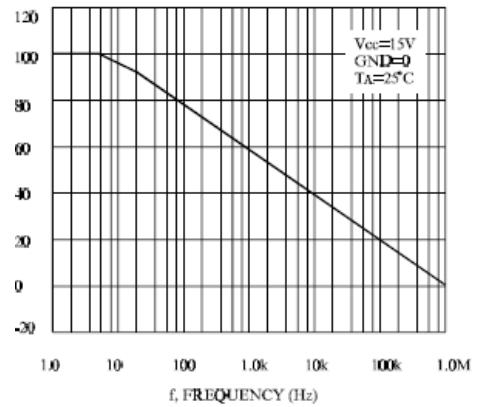


Figure 2. Open-Loop Frequency

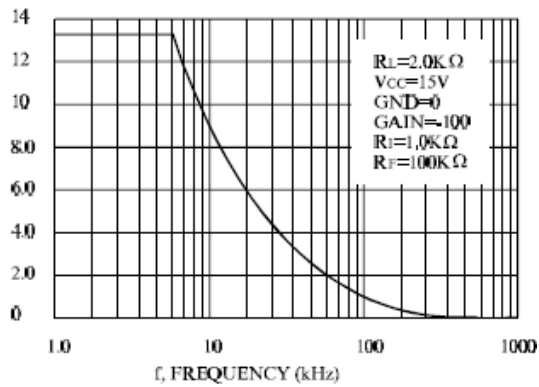


Figure 3. Large-Signal Frequency Response

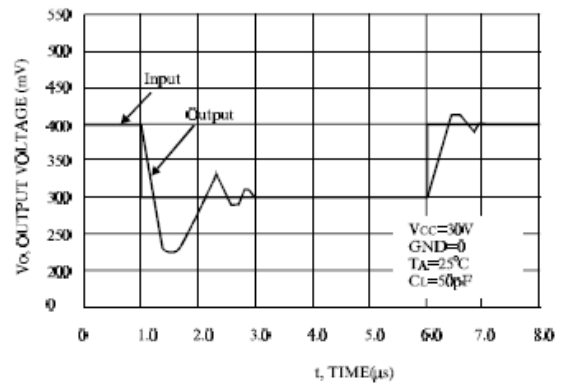


Figure 4. Small-Signal Voltage Follower Pulse Response (Noninverting)

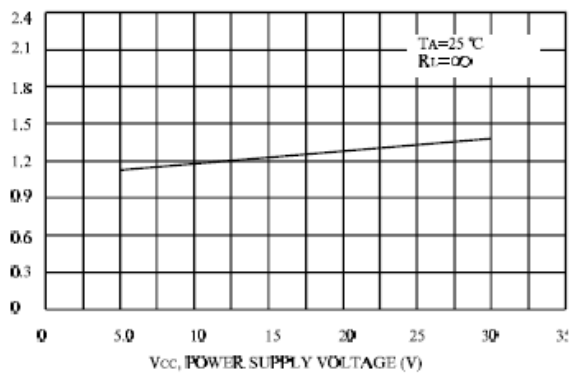


Figure 5. Power Supply Current versus Power Supply Voltage

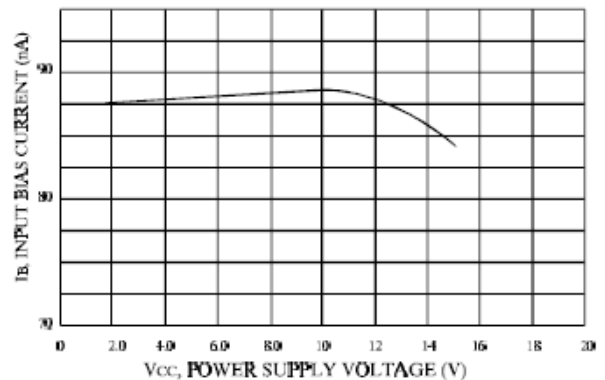


Figure 6. Input Bias Current versus Power Supply Voltage

Ordering information			
Part Number	Package	Shipping Quantity	Dimensions
LM358S	SOP-8	2500	---

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