4558
Dual Operational Amplifier for Audio

Features

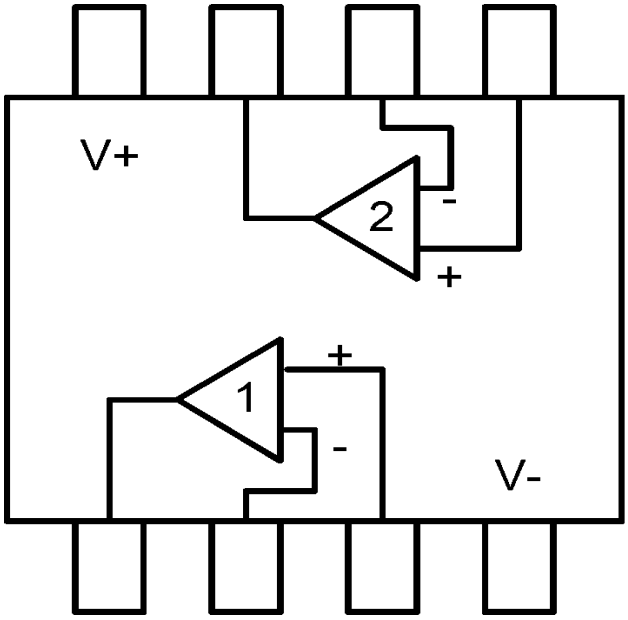
- Operating Voltage : ±1.5~±7.5V or 3~15V
- Large DC Voltage Gain: 100 dB
- High input Resistance :1MΩ
- Functional Compatible with 4558
- Bipolar Technology

Description

The 4558 consists of two independent, high gain, internally compensated amplifiers which were designed specifically to operate from a single or split power supply.

Application areas include transducer amplifier, DC gain blocks and all the conventional operational amplifier circuits.

Block Diagram



Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	unit
Power supply voltage	V+/V-	±9	V
Diffeential Input Voltage	V_{ID}	±8	V
Power Dissipation	P_D	500	mW
Operating temperature	T_{opr}	0~+85	°C
Storage temperature	T_{stg}	-55~+150	°C

*Stresses beyond those listed under " absolute maximum ratings" may cause permanent damage to the device. Exposure to absolute-maximum-rated conditions for extended peeriods may affect device reliability.

Recommended Operating Condition

Parameter	Symbol	Limits	unit
Power supply voltage	V+/V-	±1.5~±6(3~12)	V

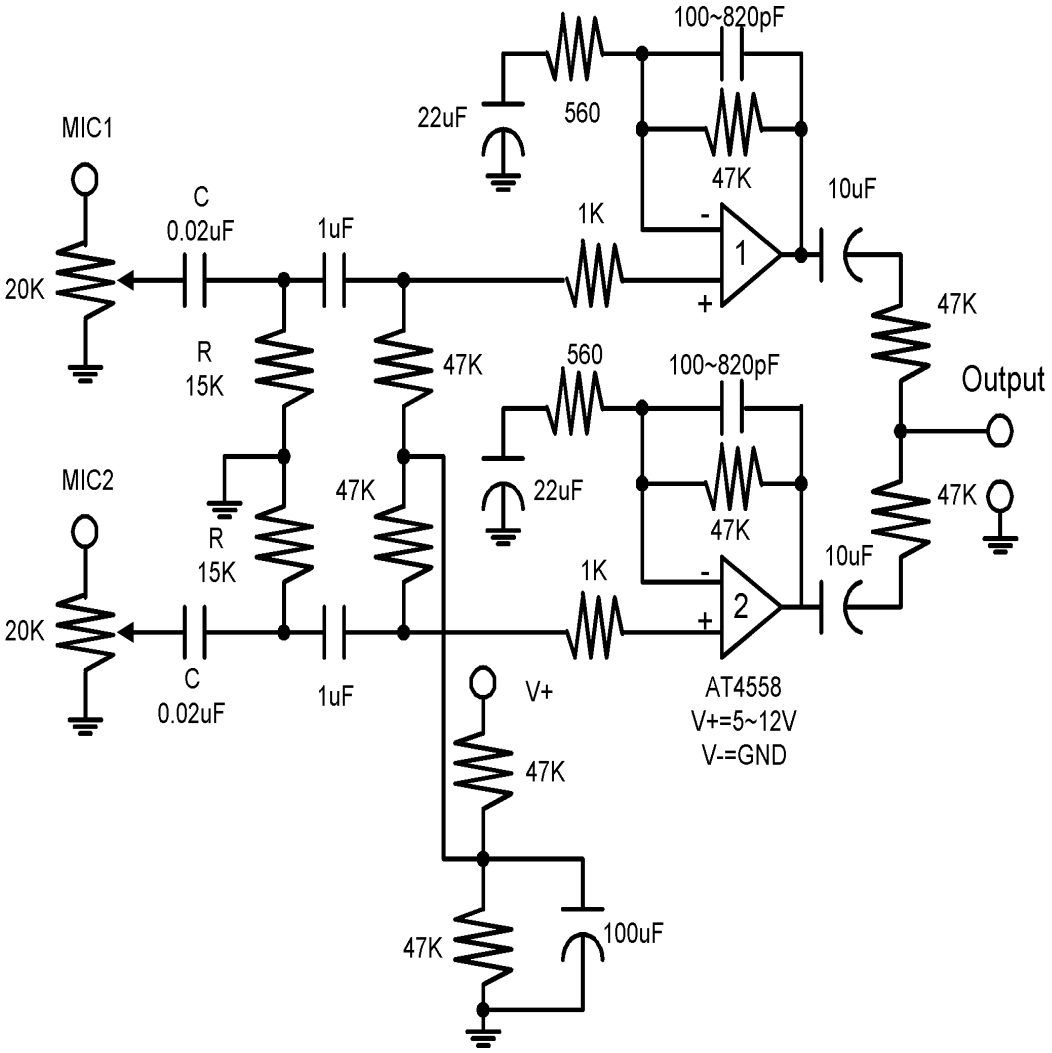
Electrical characteristics (unless otherwise noted, Ta = 25°C, V+ = 6V, V- =-6V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input Offset Voltage	V_{IO}	-	0.7	-	mV	R_S≤10KΩ
Input Offset Current	I_{IO}	-	5	200	nA	
Input Bias Current	I_B	-	70	500	nA	
Input Resistance	R_{IN}	0.5	0.8	-	mΩ	
Input Voltage Range	Vin	-	-	±5	V	
Large Signal Voltage Gain	Av	-	100	-	dB	
Gain Bandwidth	GBW	-	3	-	MHz	
Phase Margin	θm	-	60	-	deg.	
Output Voltage Swing	Vsw	-	+5.09/ -4.86	-	V	R_L=10KΩ
DC common mode Rejection ratio	CMRR	-	98	-	dB	
Power supply rejection Ratio	PSRR	-	95	-	dB	
Slew rate	SR	1.0	1.3	-	V/μS	R_L=2KΩ C_L=100pF
Input Noise Voltage	Vnoise	-	1.94	-	uVrms	
Output Resistance	Ro	-	75	-	Ω	
Output Short-Circuit Current	Ios	-	100	-	mA	*
Channel separation	α	-	100	-	dB	f=1KHz~20KHz
Rise Time	Tr	-	55	-	ns	
Operating Current	Icc	-	5.5	10	mA	

*1 Due to power disspation issue, it is not allowed for both channels to operate at this condition at the same moment.

Application Circuit

MIC Pre-Amp circuit for ECHO Application



- **Change the value of the R and C to adjust the cutoff frequency of the high pass filter as you like.**
- **The output is connected to the input point of the echo application circuit.**