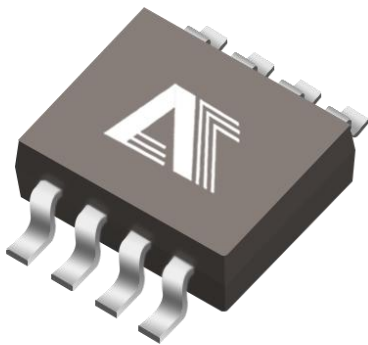




Operational amplifier

LM358

Product Data Sheet

AOTE DCC
RELEASE

◆ Summary :

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.

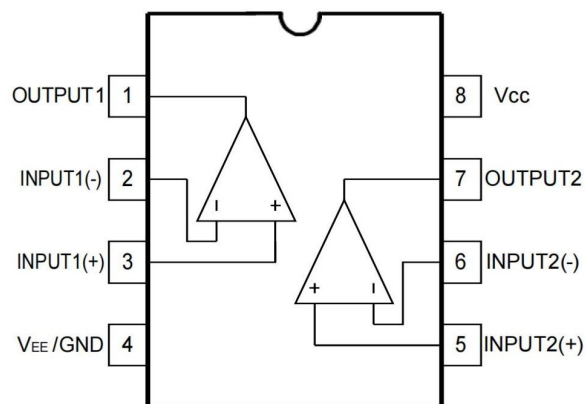
◆ Product features

- Internally frequency compensated for unity gain.
- Wide power supply range 3V_30V.
- input common-mode voltage range include ground
- Large DC voltage gain.

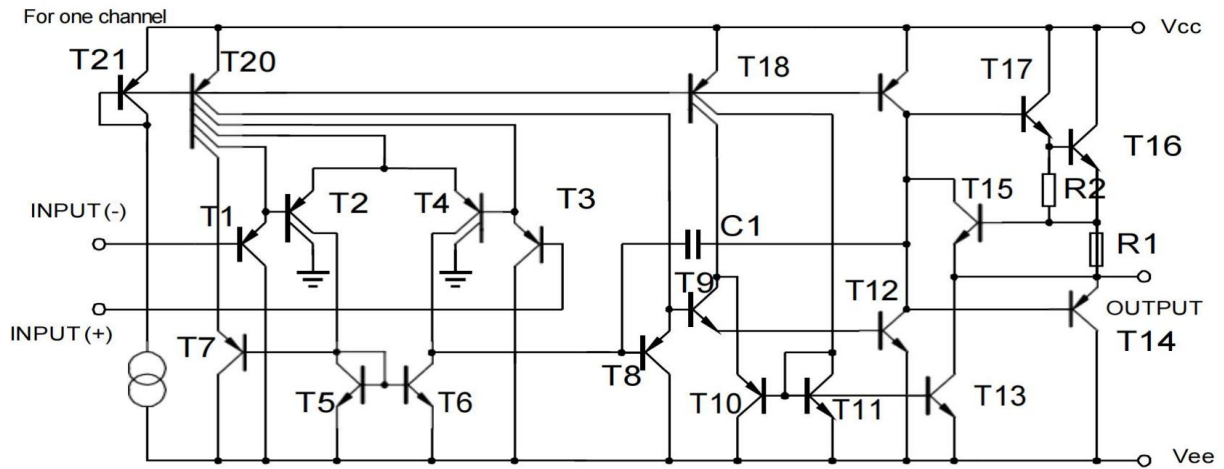
◆ Applications

- General purpose amplifier.
- Transducer amplifier.

◆ Pin Configuration



◆ **Block diagram**



◆ **Absolute maximum rated value**

Parameter	Symbol	Value	Unit
Supply Voltage	V _{CC}	+ -15 or 30	V ₋
Differential Input Voltage	V _I (DIFF)	30	V
Input Voltage	V _I	-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

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	6.0	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	$R_L=c$, $V_{CC}=30V$		0.8	2.0	mA
		$R_L=c$, 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)	$V_{CC}=30V$, $R_L=2K\Omega$	24			V
		$V_{CC}=30V$, $R_L=10K\Omega$	25			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	$V_I(+)=1V$, $V_I(-)=0V$ $V_{CC}=15V$, $V_{O(P)}=2V$	20			mA
	ISINK	$V_I(+)=0V$, $V_I(-)=1V$ $V_{CC}=15V$, $V_{O(P)}=2V$	5			mA
Differential Input Voltage	VI(DIFF)				V_{CC}	V

◆ Typical performance characteristics

Fig.1 Input Voltage Range

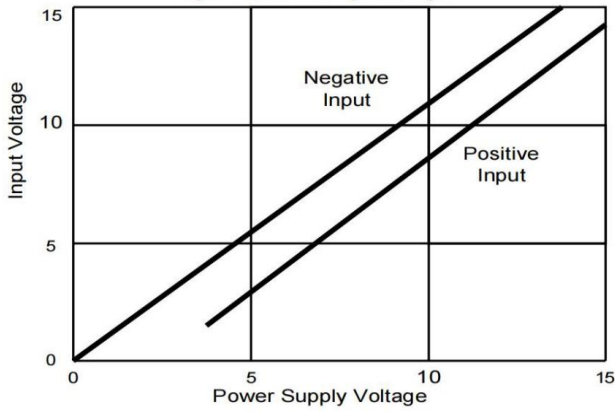


Fig.2 Input Current vs Temperature

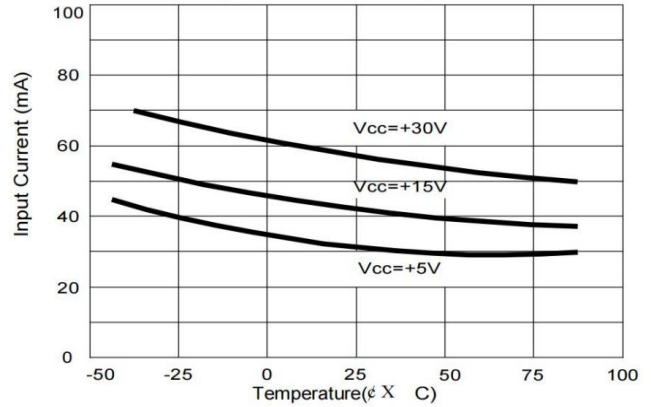


Fig.3 Input Current vs Supply Voltage

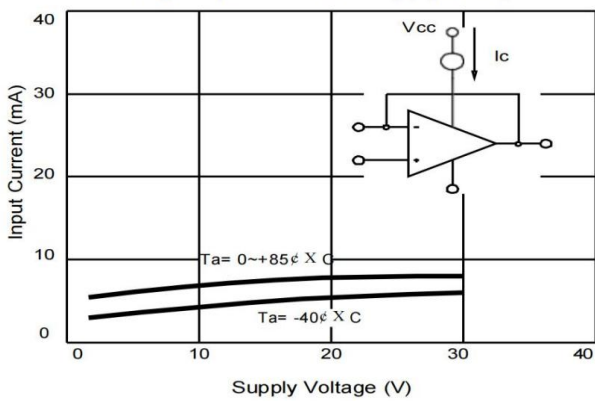


Fig. 4 Voltage Gain vs Supply Voltage

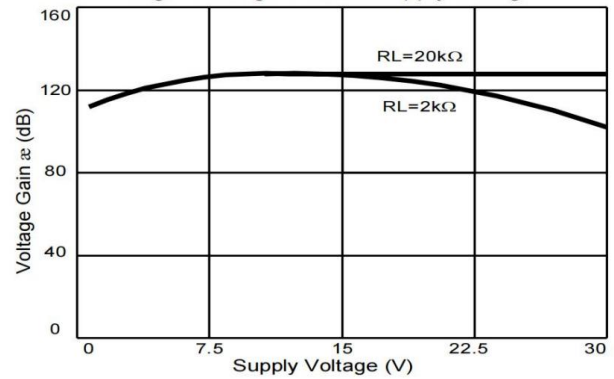


Fig. 5 Open Loop Gain vs Frequency

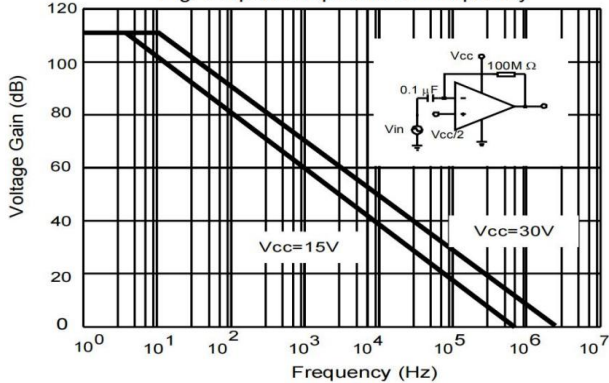


Fig. 6 Common Mode Rejection Ratio vs Frequency

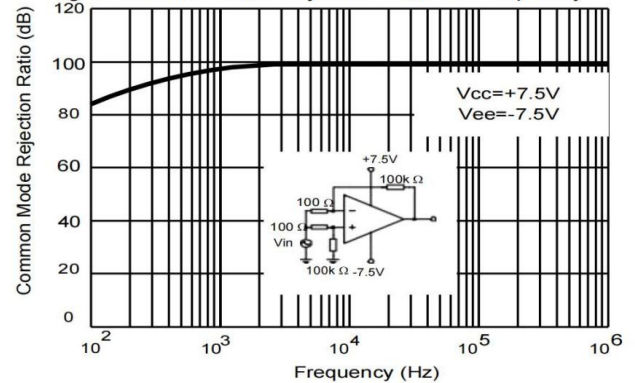


Fig. 7 Voltage Follower Pulse Response

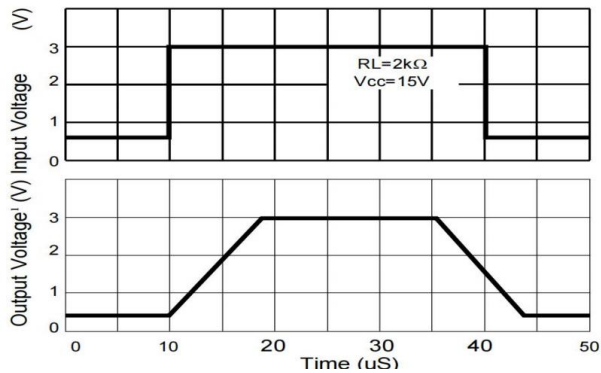


Fig. 8 Voltage Follower Response (Small Signal)

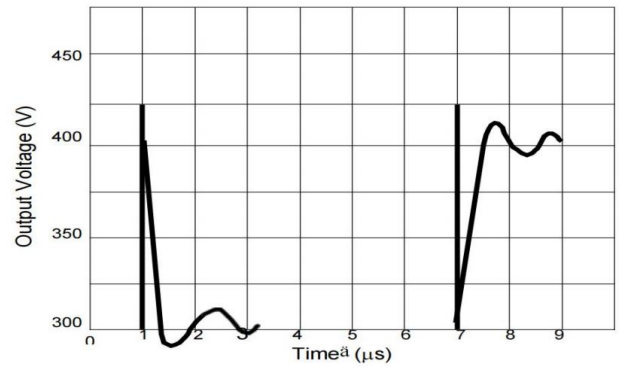


Fig. 9 Gain vs Large Signal Frequency

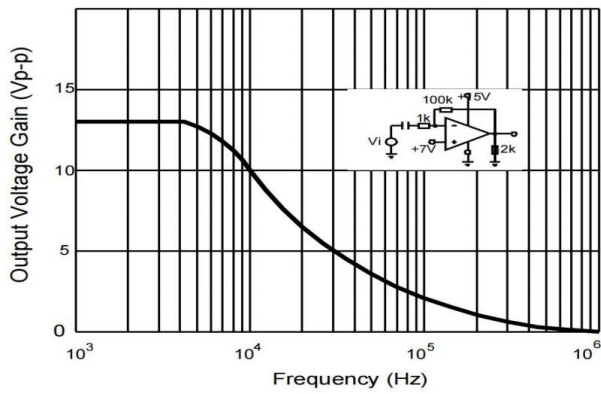


Fig. 10 Output Current Sinking vs Output Voltage

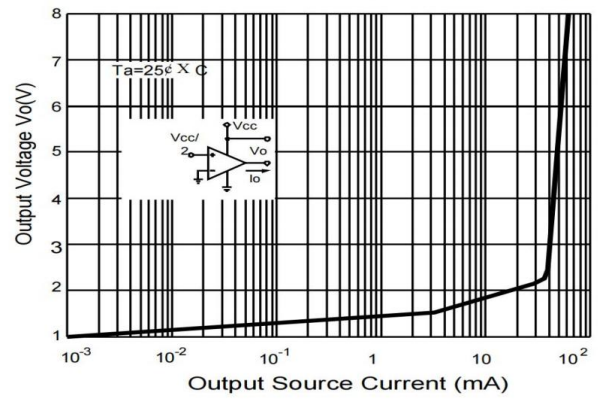


Fig. 11 Output Sink Current vs Output Voltage

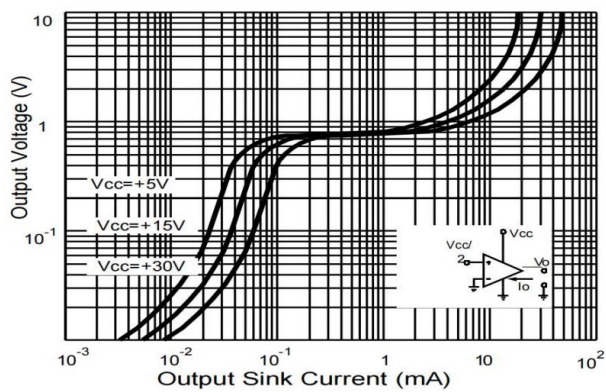
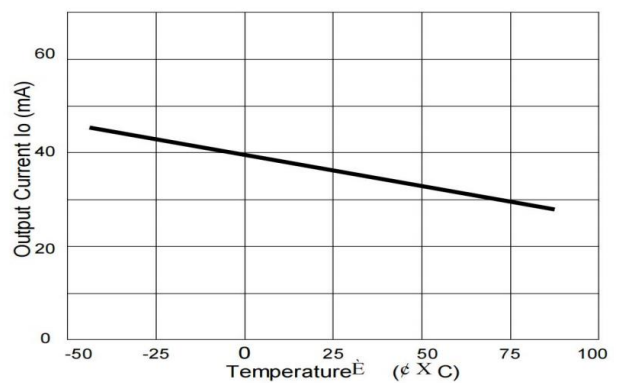


Fig. 12 Current Limiting vs Temperature



◆ Attention

- AOTE implements dynamic technical updates. Specifications are subject to change. Refer to the official website for the latest version.
- Users must strictly adhere to specified conditions. Failures caused by misuse (overload, high temperature, incompatible circuits) are excluded from warranty.
- Contact technical support for customized validation in critical applications (medical devices, industrial control).
- This document is valid until December 31, 2026. Updates will be notified on the official website.
- For further clarification on technical specifications or application solutions, please contact us through official channels: