

# GL358/358A

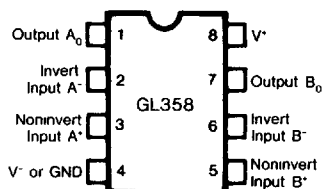
## DUAL OPERATIONAL AMPLIFIER

### Description

The GL358 consists of two independent, high gain, internally frequency compensated operational amplifiers which were specifically to operate from a single power supply over a wide range of voltage and the power supply current drain is independent of the magnitude of the power supply voltage

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

### Pin Configuration



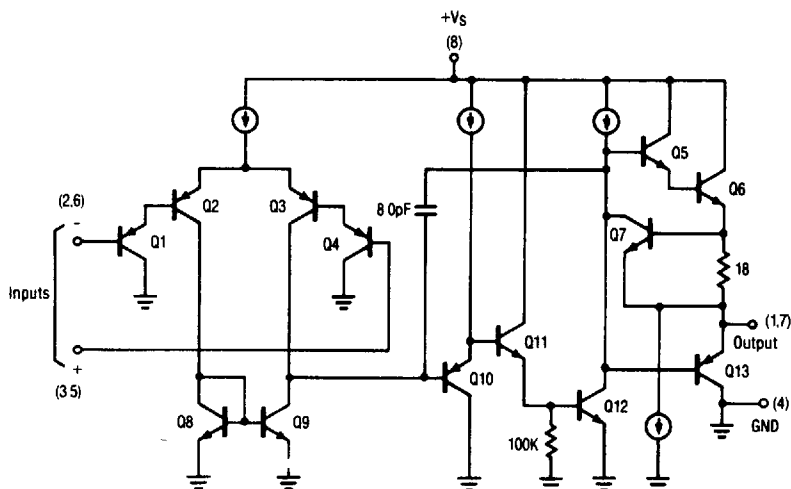
### Features

- Input Common Mode Voltage Range Includes Ground.
- Wide Power Supply Range. (Single or Dual Supply) 3V to 30V or  $\pm 1.5V$  to  $\pm 16V$
- Large Output Voltage Swing. 0V to  $V^+ - 1.5V$
- Internally Frequency Compensated for Unity Gain.
- Low Input Bias Current.
- Low Input Offset Voltage.
- Very Low Supply Current Drain.

### Absolute Maximum Ratings

Supply Voltage, $V^+$	32 or $\pm 16$	V
Differential Input Voltage	$\pm 32$	V
Input Voltage	-0.3 to 32	V
Power Dissipation	570	mW
Operating Temperature Range	0 to 70	$^{\circ}C$
Storage Temperature Range	-55 to 125	$^{\circ}C$
Lead Temperature	260	$^{\circ}C$

### Schematic Diagram (Each Amplifier)



**Electrical Characteristics:**

Unless otherwise stated, these specification apply for  $V^*=5V$ ,  $V^*Max=30V$  and  $0^\circ C \leq T_A \leq 70^\circ C$

PARAMETER	SYMBOL	TEST CONDITIONS	GL358			GL358A			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Input Offset Voltage	$V_{IO}$	$V^*=5V$ to Max, $V_O=1.4V$ , $R_S=0\Omega$ $V_{ICR}=0V$ to $V^*-1.5V$ $T_A=25^\circ C$		$\pm 2$	$\pm 7$ $\pm 9$		$\pm 2$	$\pm 3$ $\pm 5$	mV
Input Offset Current	$I_{IO}$	$I_{IN(+)} - I_{IN(-)}$ , $V_O=1.4V$ $T_A=25^\circ C$		$\pm 5$	$\pm 50$ $\pm 150$		$\pm 5$	$\pm 30$ $\pm 75$	nA
Input Bias Current	$I_{IB}$	$I_{IN(+)}$ or $I_{IN(-)}$ , $V_O=1.4V$ $T_A=25^\circ C$		45 40	250 500		45 40	100 200	nA
Input Common-Mode Voltage range	$V_{ICR}$	$V^*=5V$ to Max $T_A=25^\circ C$	0 to $V^*-1.5V$ $V^*-2.0V$			0 to $V^*-1.5V$ $V^*-2.0V$			V
Supply Current	$I^+, I^-$	$R_L = \infty$		0.7	1.2		0.7	1.2	mA
		$V^*=5V$ , $V_O=2.5V$ $V^*=Max$ , $V_O=15V$		1	2		1	2	
Large-Signal Voltage Gain	$A_{VD}$	$V^*=15V$ , $R_L \geq 2K\Omega$ $V_O=-5V$ to $+5V$ $T_A=25^\circ C$	25 15	100		25 15	100		V/mV
Output Voltage Swing	$V_{OH}$	$V^*=MAX$							V
		$R_L=2K\Omega$ $R_L \geq 10K\Omega$	26 27	28		26 27	28		
	$V_{OL}$	$V^*=5V$ , $R_L \leq 10K\Omega$		5	20		5	20	mV
Common Mode Rejection Ratio	CMRR	$T_A=25^\circ C$ $V^*=5V$ to Max	65	70		65	85		dB
Power Supply Rejection Ratio	PSRR	$V^*=5V$ to Max $T_A=25^\circ C$	65	100		65	100		dB
Output Current	Source	$V_{IN(+)}=1V$ , $V_{IN(-)}=0V$ $T_A=25^\circ C$ $V^*=15V$ , $V_O=4V$	20	40		20	40		mA
	Sink	$V^*=15V$ $V_{IN(-)}=1V$ $V_{IN(+)}=0V$ $T_A=25^\circ C$	10	20		10	20		mA
		$V_O=15V$ $V_O=200mV$	12	50		12	50		$\mu A$
Short Circuit Current	$I_{OS}$	$V^*=5V$ $T_A=25^\circ C$ $V_O=0V$		40	60		40	60	mA
Input Offset Voltage Drift	$\Delta V_{OS}/\Delta T$			7			7		$\mu V/^\circ C$
Input Offset Current Drift	$\Delta I_{IO}/\Delta T$			10			10		$pA/^\circ C$

TYPICAL PERFORMANCE CURVES

Figure 1 - Input Voltage Range

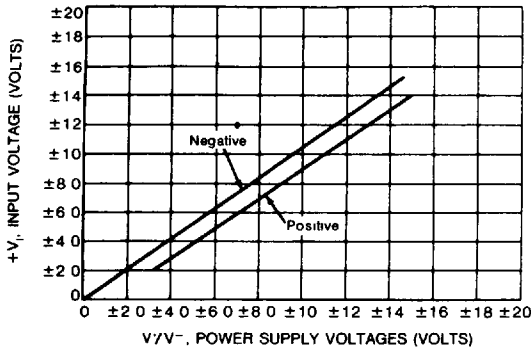


Figure 2 - Open Loop Frequency Response

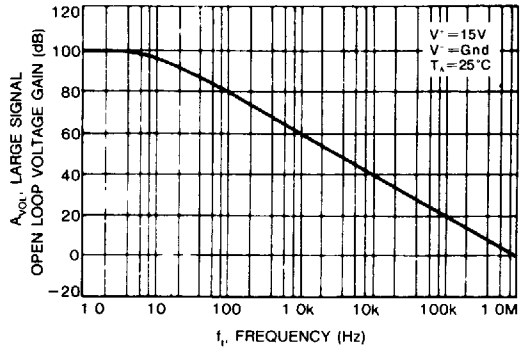


Figure 3 - Large Signal Frequency Response

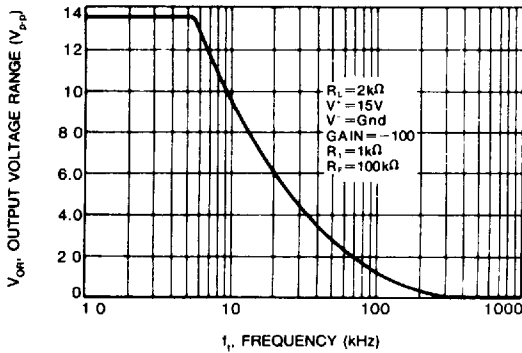


Figure 4 - Small Signal Follower Pulse Response (Non Inverting)

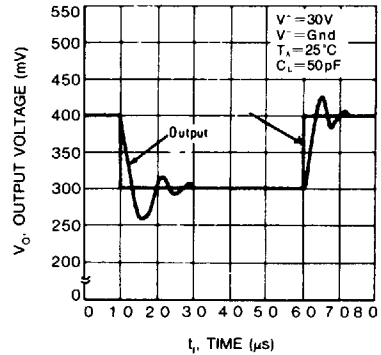


Figure 5 - Power Supply Current versus Power Supply Voltage

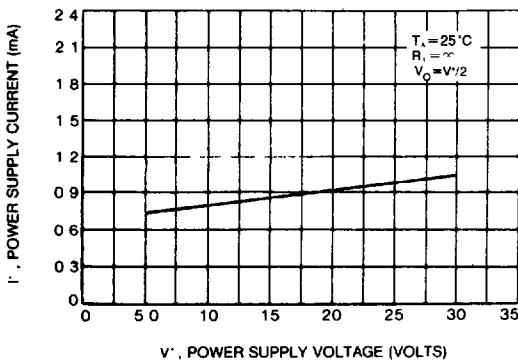
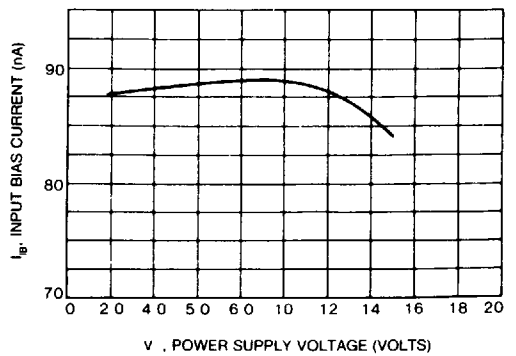


Figure 6 - Input Bias Current versus Supply Voltage



Typical Application

Figure 1 — Function Generator

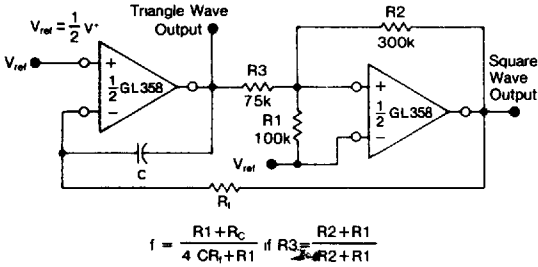


Figure 2 — Wien Bridge Oscillator

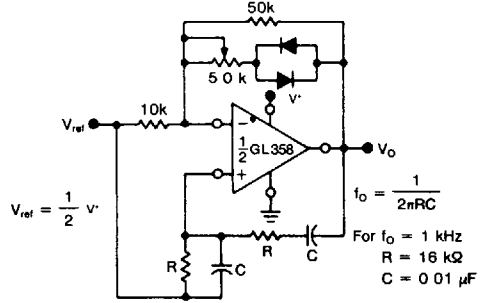


Figure 3 — High Impedance Differential Amplifier

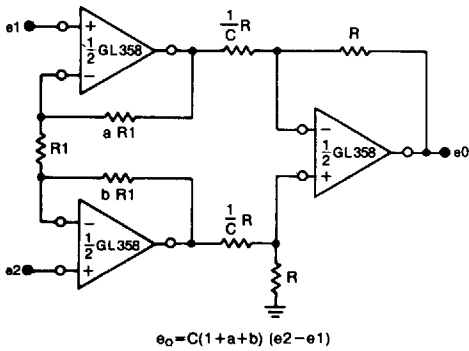


Figure 4 — Comparator With Hysteresis

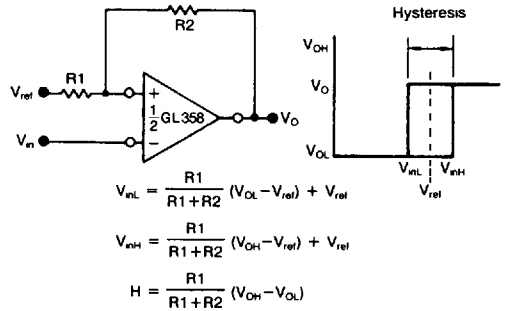


Figure 5 — Bi-Quad Filter

