

### Description

The S358 consists of two independent high gain Internally frequency compensated operational amplifiers designed to operate from a single power supply over a wide range of voltage.

### Features

- Input common mode voltage range includes ground
- Internally frequency compensated for unity gain
- Large DC voltage gain : 100dB
- Wide bandwidth for unity gain : 1 MHz
- Very low power consumption
- Wide supply voltage range : Single : 3V ~ 30V, Dual :  $\pm 1.5 \sim \pm 15V$

### Applications

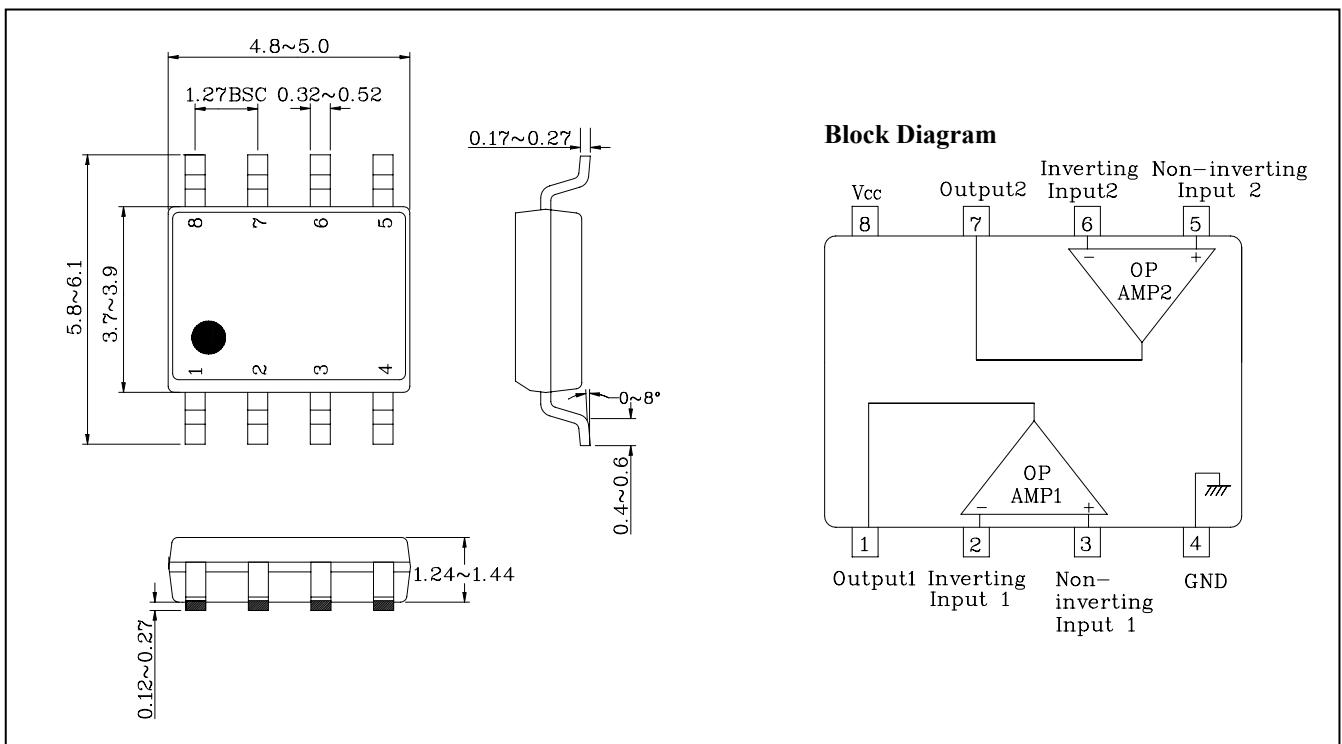
- Transducer amplifier
- DC gain blocks
- Conventional operational amplifiers

### Ordering Information

Type NO.	Marking	Package Code
S358	S358	SOP-8

### Outline Dimensions

unit : mm



## Absolute maximum ratings

Characteristic	Symbol	Ratings	Unit
Supply voltage	$V_{CC}$	36 or $\pm 18$	V
Differential input voltage	$V_{IND}$	32	V
Input voltage	$V_{IN}$	-0.3 ~ +32	V
Power Dissipation	$P_D$	300	mW
Operating temperature	$T_{opr}$	-45 ~ +85	$^{\circ}\text{C}$
Storage temperature	$T_{stg}$	-55 ~ 150	$^{\circ}\text{C}$

## Electrical Characteristics

(Unless otherwise specified.  $V_{CC} = 5\text{V}$  and  $-45\text{ }^{\circ}\text{C} \leq T_a \leq +85\text{ }^{\circ}\text{C}$ )

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input offset voltage	$V_{IOS}$	$5\text{V} \leq V_{CC} \leq 30\text{V}$ (Ta=25 $^{\circ}\text{C}$ )	-	$\pm 2$	$\pm 7$	mV
		$R_g = 0\Omega, 0\text{V} \leq V_{IC} \leq V_{CC} - 1.5\text{V}$	-	-	$\pm 9$	
Input offset voltage drift	$\Delta V_{IOS}/\Delta T$	$R_g = 0\Omega$	-	7	-	$\mu\text{V}/^{\circ}\text{C}$
Input offset current	$I_{IOS}$	(Ta=25 $^{\circ}\text{C}$ )	-	$\pm 5$	$\pm 50$	nA
			-		$\pm 150$	
Input offset current drift	$\Delta I_{IOS}/\Delta T$	-	-	10	-	$\text{pA}/^{\circ}\text{C}$
Input bias current	$I_{IB}$	(Ta=25 $^{\circ}\text{C}$ )	-	45	250	nA
			-	40	500	
Input common mode voltage range	$V_{ICR}$	$V_{CC} = 30\text{V}$ (Ta=25 $^{\circ}\text{C}$ )	0	-	$V_{CC} - 1.5$	V
			0	-	$V_{CC} - 2$	V
Supply current	$I_{CC}$	$V_{CC} = 30\text{V}, R_L = \infty$	-	1	2	mA
		$V_{CC} = 5\text{V}, R_L = \infty$	-	0.7	1.2	
Large signal voltage gain	$G_V$	$V_{CC} = 15\text{V}$ (Ta=25 $^{\circ}\text{C}$ )	25	100	-	V/mV
		$R_L \geq 2\text{K}\Omega$	15	-	-	
Output voltage swing	$V_{OH}$	$V_{CC} = 30\text{V}$				V
			$R_L = 2\text{K}\Omega$	26	-	
		$R_L = 10\text{K}\Omega$	27	28	-	
	$V_{OL}$	$V_{CC} = 5\text{V}, R_L \leq 10\text{K}\Omega$	-	3	20	mV
Common mode rejection ratio	CMRR	(Ta=25 $^{\circ}\text{C}$ )	65	90	-	dB
Power supply rejection ratio	PSRR	(Ta=25 $^{\circ}\text{C}$ )	65	100	-	dB
Output source current	$I_{O+}$	$V_{CC} = 15\text{V}$ (Ta=25 $^{\circ}\text{C}$ )	20	40	-	mA
		$V_{IN+} = 1\text{V}, V_{IN-} = 0\text{V}$	10	20	-	
Output sink current	$I_{O-}$	$V_{CC} = 15\text{V}$ (Ta=25 $^{\circ}\text{C}$ )	10	20	-	mA
		$V_{IN+} = 0\text{V}, V_{IN-} = 1\text{V}$	5	8	-	
		$V_{OUT} = 200\text{mV},$ (Ta=25 $^{\circ}\text{C}$ ) $V_{IN+} = 0\text{V}, V_{IN-} = 1\text{V}$	12	50	-	$\mu\text{A}$
Output short circuit to ground	$I_{SC}$	Ta=25 $^{\circ}\text{C}$	-	40	60	mA

## Electrical Characteristic Curves

Fig. 1  $I_{CC}-V_{CC}$

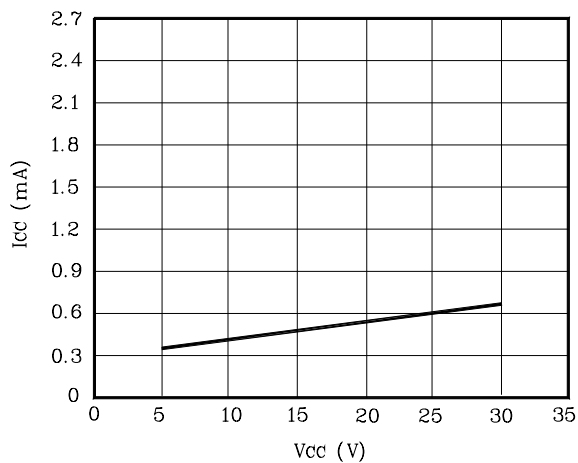


Fig. 2  $I_{IB}-V_{CC}$

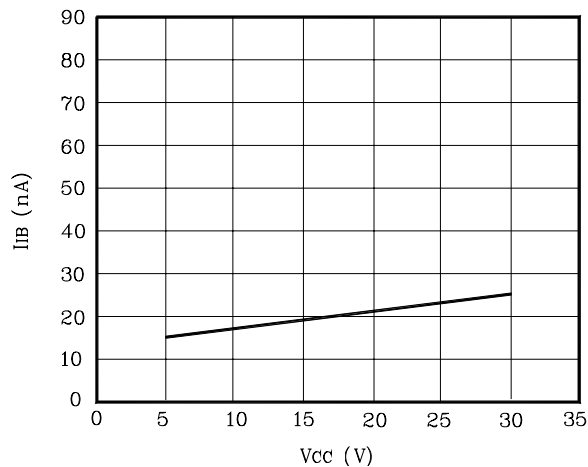


Fig. 3  $V_{IOS}-T_a$

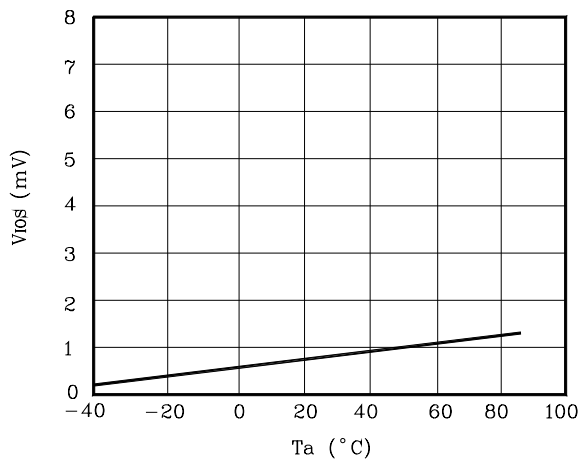


Fig. 4  $I_O-T_a$

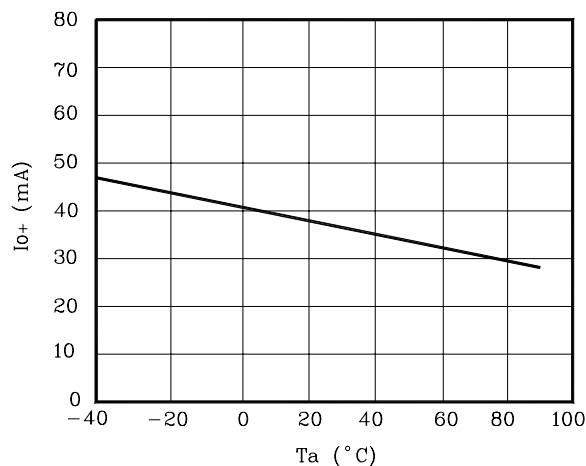


Fig. 5 CMRR-f

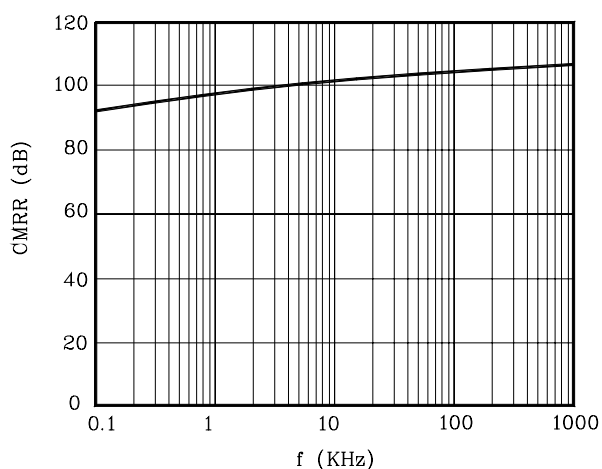
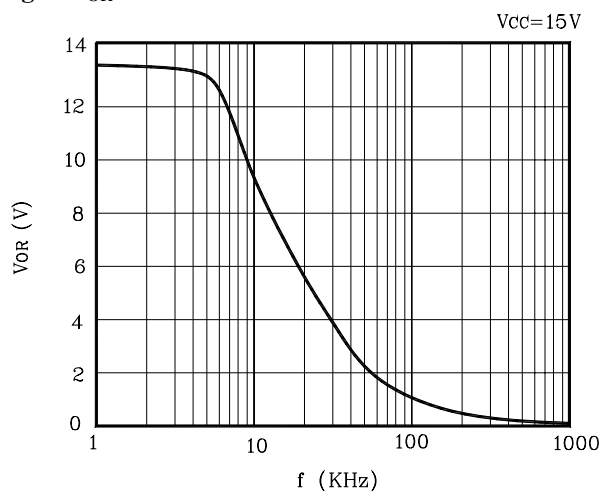


Fig. 6  $V_{OR}-f$



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