Dual Operational Amplifier

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 : ±1.5 ~ ±15V]

Typical Applications

- Transducer amplifier
- DC gain blocks
- Conventional operational amplifiers

Ordering Information

Part No	Package	Packing	Finish	Halogen	Packing Unit
AP358	SOP-8	Tape & Reel	Sn	Free	2,500ea

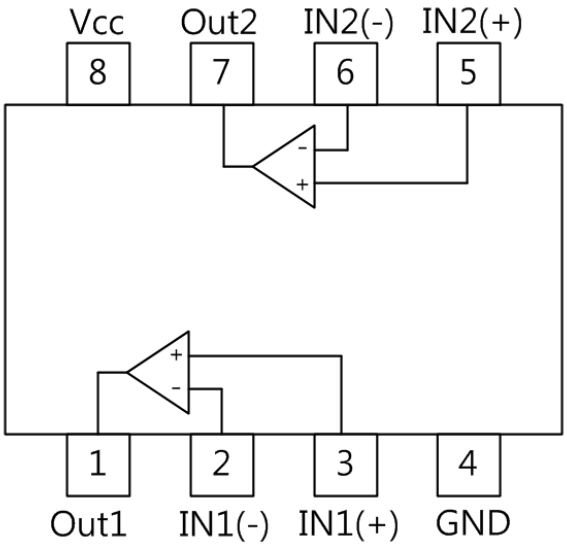
Marking Layout

1ST Line : Company logo

2nd Line : Device name : AP358S
-S : SOP-8 PKG code

3rd Line : Date code
- WW : Work week calendar
- YY : Last one digit of calendar year
- Z : ASSEMBLY SITE

Internal Block Diagram



Pin Diagram

Pin No	Symbol	I/O	Description
1	Out1	O	OP-Amp1 Output
2	IN1(-)	I	OP-Amp1's Inverting Input
3	IN1(+)	I	OP-Amp1's Non-inverting Input
4	GND	GND	GND
5	IN2(+)	I	OP-Amp2's Non-inverting Input
6	IN2(-)	I	OP-Amp2's Inverting Input
7	Out2	O	OP-Amp2 Output
8	Vcc	PWR	Vcc for Dual Operational Amplifier

Maximum Ratings Characteristics (TA = 25℃ unless otherwise specified)

Parameter	Symbol	Values	Units
Supply Voltage	V_{CC}	36 or ±18	V
Differential input voltage	V_{IND}	32	V
Input voltage	V_{IN}	-0.3 ~ +32	V
Power Dissipation	PD	600	mW
Operating temperature	T_{OPR}	-45 ~ +85	℃
Storage temperature	T_{STG}	-55 ~ +150	℃

Electrical Characteristics (TA = 25℃ unless otherwise specified)

Characteristics	Symbol	Test Condition		Min.	Typ.	Max.	Units
Input offset voltage	V_{IOS}	5V≤V_{CC}≤30V	(Ta = 25℃)	-	±2	±7	mV
		Rg = 0Ω, 0V≤V_{IC}≤V_{CC}-1.5V		-	-	±9	
Input offset voltage drift	$\Delta V_{IOS}/\Delta T$	Rg = 0Ω		-	7	-	uV/℃
Input offset current	I_{IOS}	-	(Ta = 25℃)	-	±5	±50	nA
				-	-	±150	
Input offset current drift	$\Delta I_{IOS}/\Delta T$	-		-	10	-	pA/℃
Input bias current	I_{IB}	-	(Ta = 25℃)	-	45	250	nA
				-	40	500	
Input common mode voltage range	V_{ICR}	V_{CC} = 30V	(Ta = 25℃)	0	-	Vcc-1.5	V
				0	-	Vcc-2	
Supply current	I_{CC}	V_{CC} = 30V, R_L = ∞		-	1	2	mA
		V_{CC} = 5V, R_L = ∞		-	0.7	1.2	
Large signal voltage gain	G_V	VCC = 15V	(Ta = 25℃)	25	100	-	V/mV
		R_L ≥ 2kΩ		15	-	-	
Output voltage swing	V_{OH}	V_{CC} = 30V	R_L = 2kΩ	26	-	-	V
			R_L = 10kΩ	27	28	-	
	V_{OL}	V_{CC} = 5V, R_L ≤ 10kΩ		-	3	20	mV
Common mode rejection ratio	CMRR	(Ta = 25℃)		65	90	-	dB
Power supply rejection ratio	PSRR	(Ta = 25℃)		65	100	-	
Output source current	I_O+	V =15V	(Ta = 25℃)	20	40	-	mA
		V_{IN+} = 1V, V_{IN-} = 0V		10	20	-	
Output sink current	I_O-	V_{CC} = 15V	(Ta = 25℃)	10	20	-	mA
		VIN+ = 0V, VIN- = 1V		5	8	-	
		VOUT = 200mV	(Ta = 25℃)	12	50	-	μA
		V_{IN+} = 0 V, V_{IN-} = 1V					
Output short circuit to ground	I_{SC}	Ta = 25℃		-	40	60	mA

Characteristics Curves

(TA = 25℃ unless otherwise specified)

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

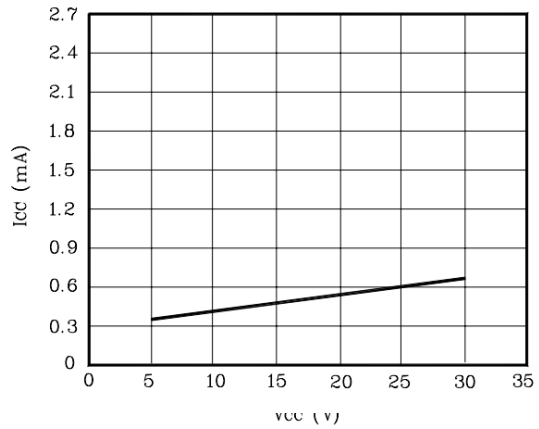


Fig. 2 I_{IB}-V_{CC}

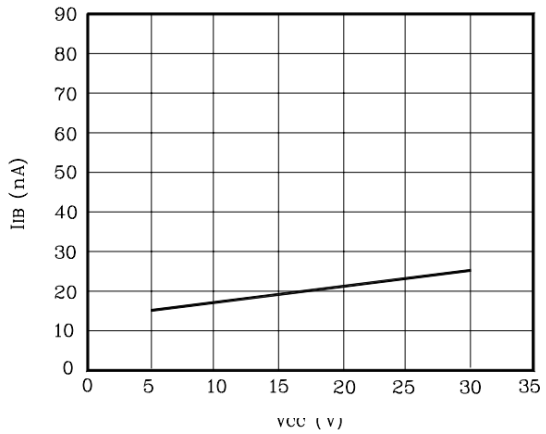


Fig. 3 V_{IOS}-T_a

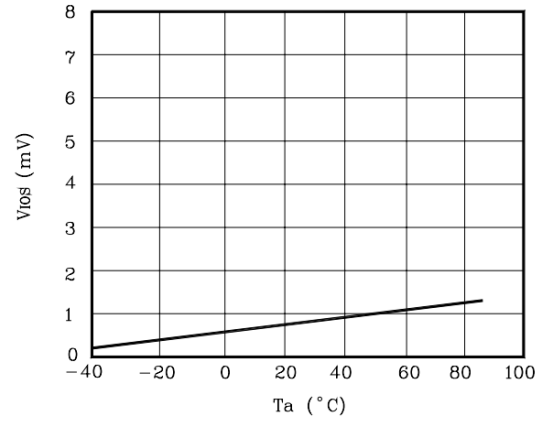


Fig. 4 I_O-T_a

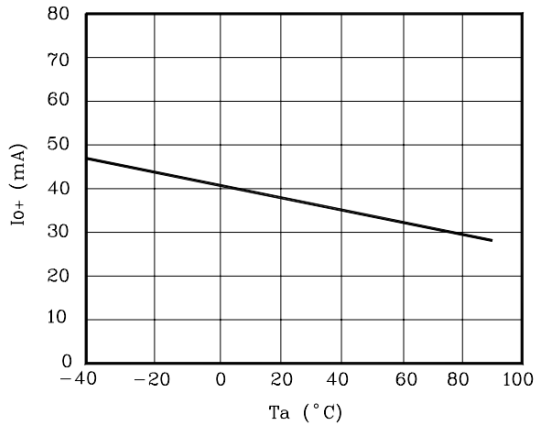


Fig. 5 CMRR-f

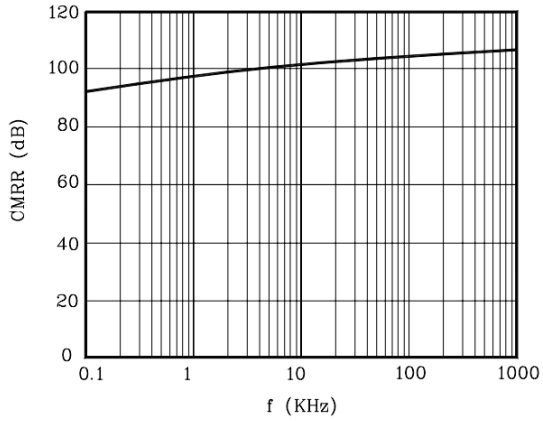
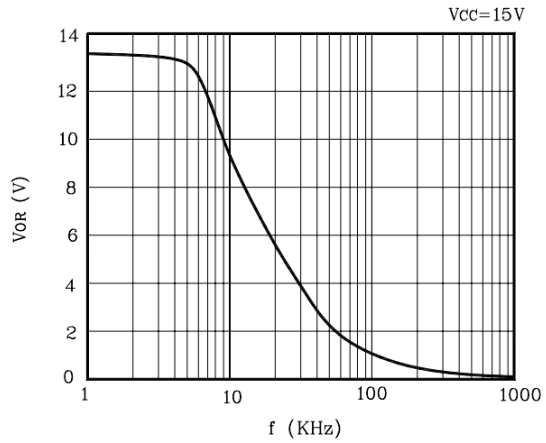
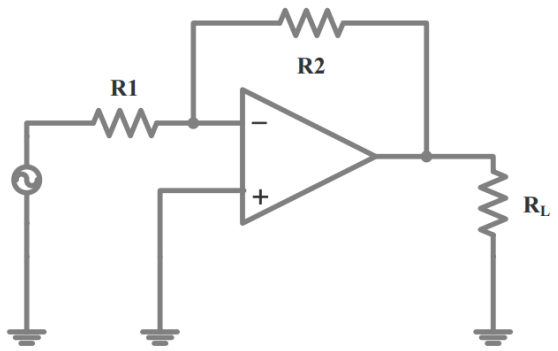


Fig. 6 V_{OR}-f

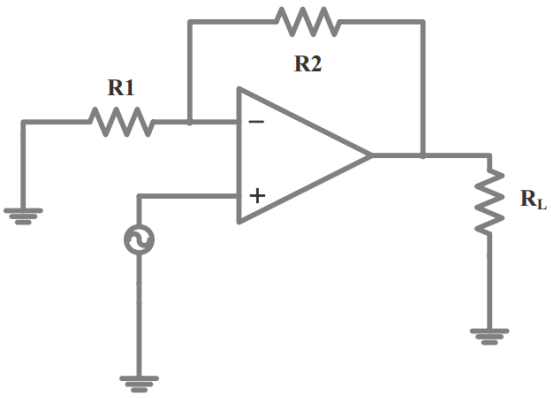


Typical Applications

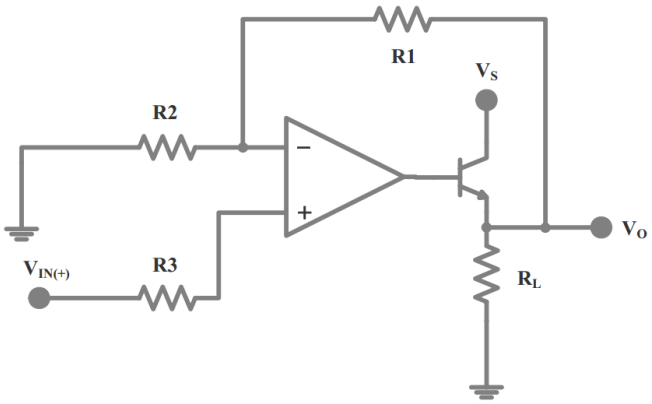
Inverting Amplifier



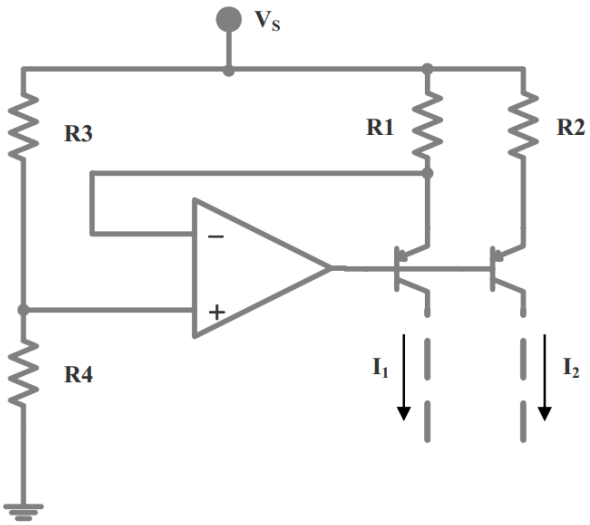
Non-inverting Amplifier



Power Amplifier

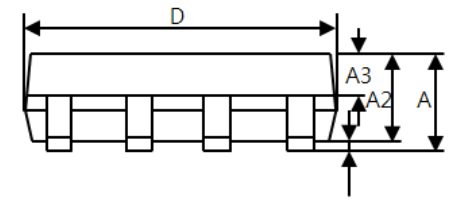


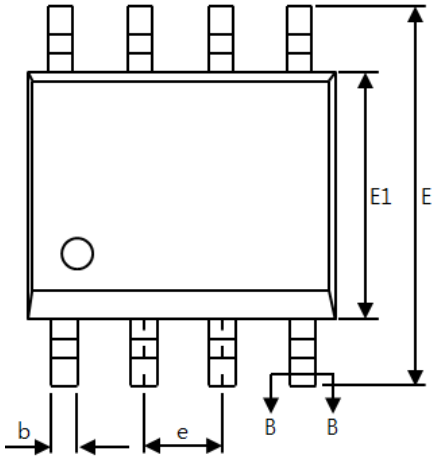
Fixed Current Sources

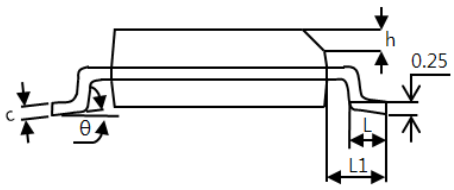


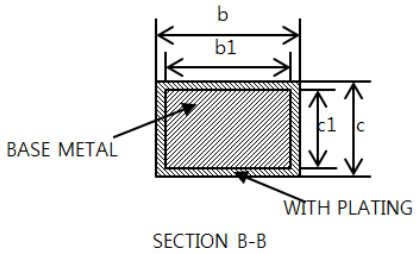
Package Dimensions

SOP-8









SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	1.75
A1	0.10	—	0.225
A2	1.30	1.40	1.50
A3	0.60	0.65	0.70
b	0.39	—	0.48
b1	0.38	0.41	0.43
c	0.21	—	0.26
c1	0.19	0.20	0.21
D	4.70	4.90	5.10
E	5.80	6.00	6.20
E1	3.70	3.90	4.10
e	1.27BSC		
h	0.25	—	0.50
L	0.50	—	0.80
L1	1.05BSC		
θ	0	—	8°
L/F	80*80	90*90	95*130

Revision History

No	Date	Contents
0	2017-04-03	Initial Brief Datasheet Release

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