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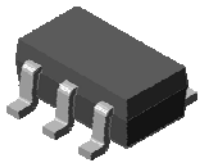
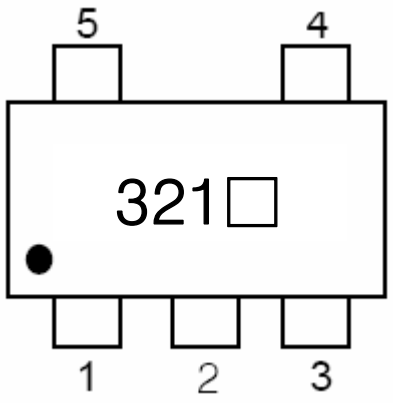
Low Power Single OP-AMP SN321



SOT-25

ORDERING INFORMATION

Product Name.	Marking	Package Name
SN321	321□	SOT-25



[Marking Detail Information]

321 : P/N Marking

□ : Year & Week Code

Description

The SN321 consists of a high gain Internally frequency compensated operational amplifier designed to operate from a single power supply over a wide range of voltage.
The input common mode range includes ground and the device is able to operate in single supply applications, even in dual supply applications. it is also can be driven large capacitive loads.

The SN321 is available in the SOT-25(SOT23-5) package.

Application

◈ Power supplies
◈ Chargers
◈ Desktops
◈ Conventional operational amplifiers
◈ Communications infrastructure

Features and Benefits

◈ Input common mode voltage range includes ground

◈ Internally frequency compensated for unity gain

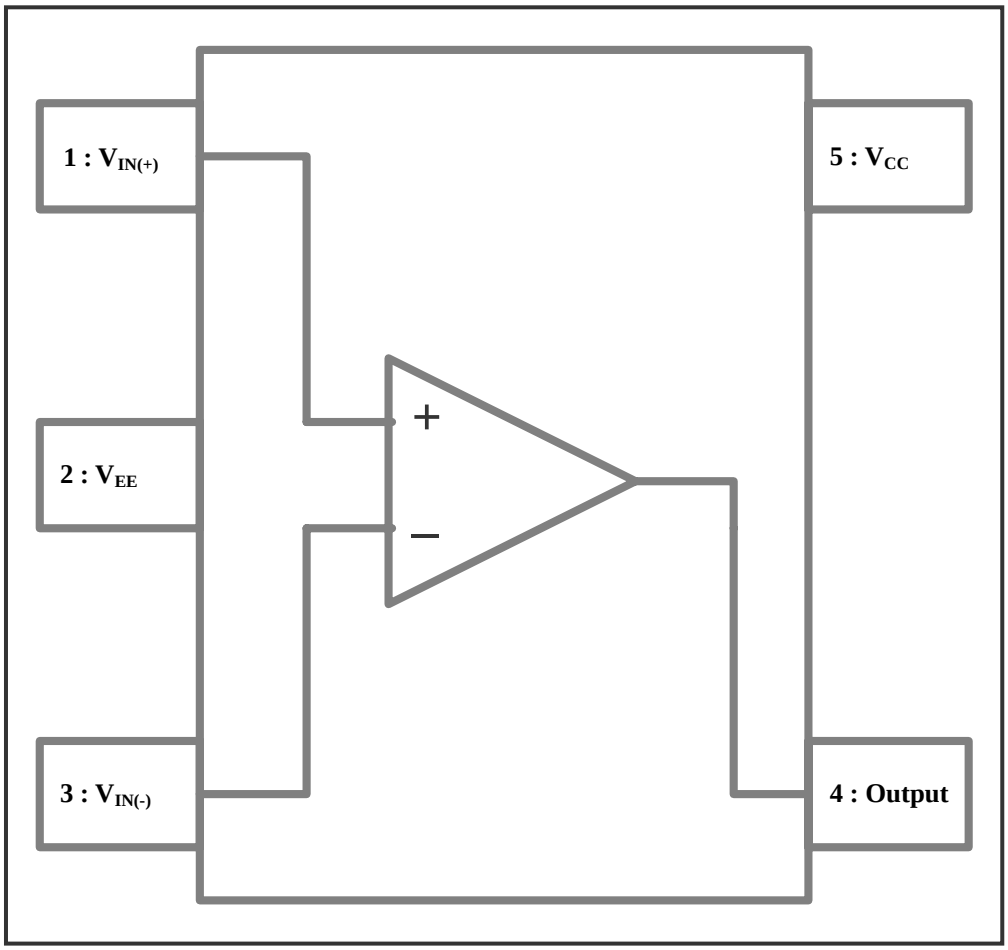
◈ Large DC voltage gain : 100dB

◈ Wide bandwidth for unity gain : 1 MHz

◈ Very low power consumption

◈ Wide supply voltage range :
[Single : 3V ~ 30V, Dual : ±1.5 ~ ±15V]

◈ Internal Block Diagram



◈ Pin Description

No	Symbol	I/O	Description
1	$V_{IN(+)}$	I	OP-Amp's Non-inverting Input
2	V_{EE}	GND	GND
3	$V_{IN(-)}$	I	OP-Amp's Inverting Input
4	Output	O	Output
5	V_{CC}	V_{CC}	V_{CC} for OP-AMP

Absolute maximum ratings

Characteristic	Symbol	Ratings	Unit
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	P_D	300	mW
Operating temperature	T_{opr}	-45 ~ +85	°C
Storage temperature	T_{stg}	-55 ~ 150	°C

* Mount on a glass epoxy circuit board of 30x30mm Pad dimension of 50mm2

Electrical Characteristics

(Unless otherwise specified. V_{CC} = 5V and –45 °C ≤ Ta ≤ +85 °C)

Characteristic	Symbol	Test Condition		Min.	Typ.	Max.	Unit
Input offset voltage	V_{IOS}	5V ≤ V_{CC} ≤ 30V	(Ta=25 °C)	-	±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	-	μV/ °C
Input offset current	I_{IOS}	-	(Ta=25 °C)	-	±5	±50	nA
				-		±150	
Input offset current drift	$\Delta I_{IOS}/\Delta T$	-		-	10	-	pA/ °C
Input bias current	I_{IB}	-	(Ta=25 °C)	-	45	250	nA
				-	40	500	
Input common mode voltage range	V_{ICR}	V_{CC} = 30V	(Ta=25 °C)	0	-	V_{CC} –1.5	V
				0	-	V_{CC} –2	V
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	V_{CC} = 15V R_L ≥ 2 KΩ	(Ta=25 °C)	25	100	-	V/mV
				15	-	-	
Output voltage swing	V_{OH}	V_{CC} = 30V	R_L=2 KΩ	26	-	-	V
			R_L=10 KΩ	27	28	-	
	V_{OL}	V_{CC} =5V, R_L ≤10 KΩ		-	3	20	mV
Common mode rejection ratio	CMRR	(Ta=25 °C)		65	90	-	dB
Power supply rejection ratio	PSRR	(Ta=25 °C)		65	100	-	dB
Output source current	I_{O+}	V_{CC} = 15V	(Ta=25 °C)	20	40	-	mA
		V_{IN+} = 1V, V_{IN-} = 0V		10	20	-	
Output sink current	I_{O-}	V_{CC} = 15V	(Ta=25 °C)	10	20	-	mA
		V_{IN+} = 0V, V_{IN-} = 1V		5	8	-	
		V_{OUT} = 200mV, V_{IN+} = 0V, V_{IN-} = 1V	(Ta=25 °C)	12	50	-	μA
Output short circuit to ground	I_{SC}	Ta=25 °C		-	40	60	mA

Electrical Characteristic Curves

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

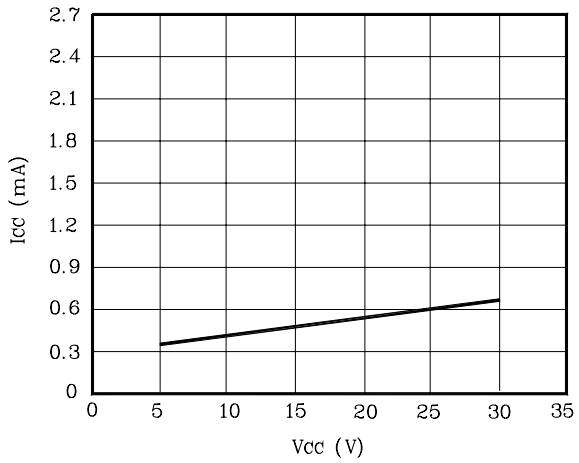


Fig. 2 I_{IB}-V_{CC}

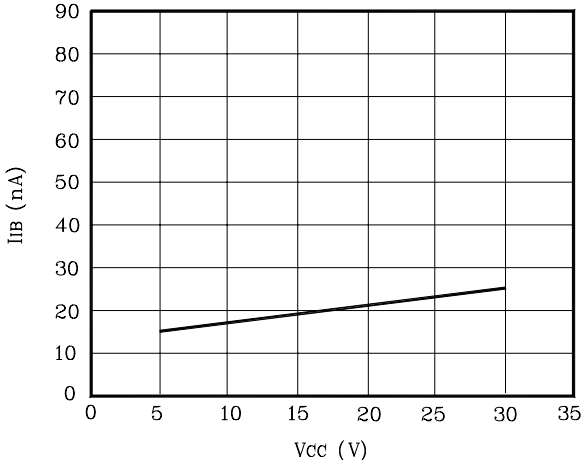


Fig. 3 V_{IOS}-T_a

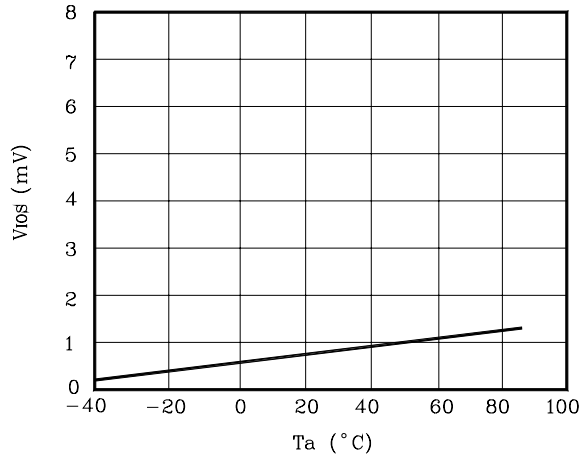


Fig. 4 I_O-T_a

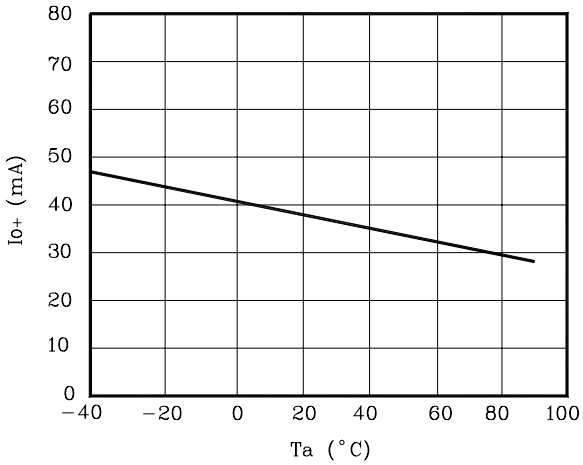


Fig. 5 CMRR-f

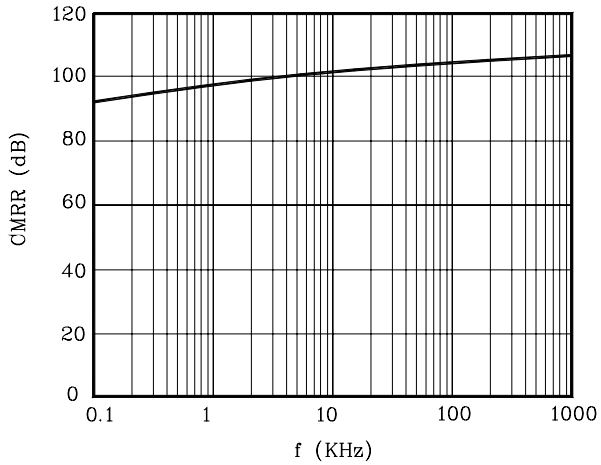
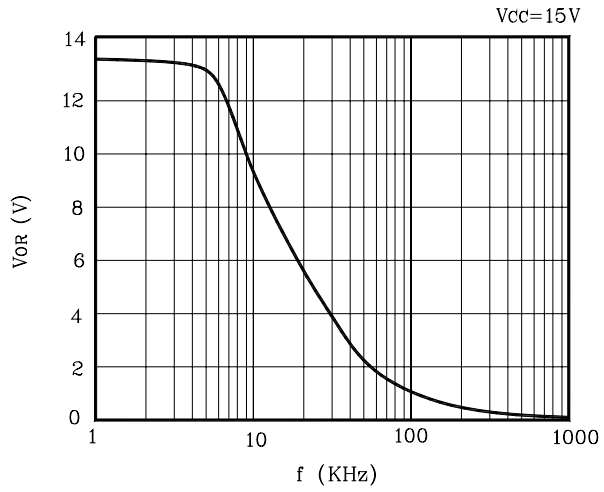
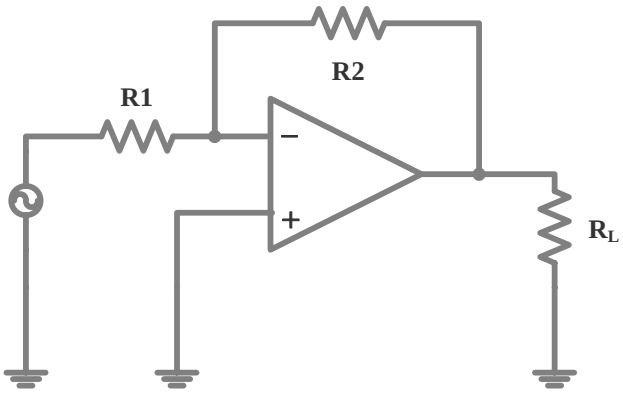


Fig. 6 V_{OR}-f

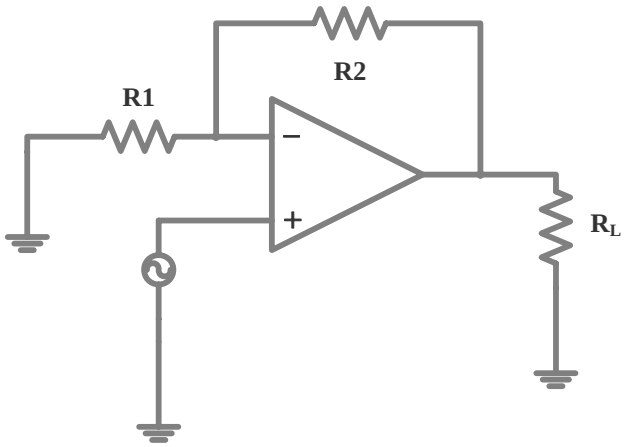


Typical Applications

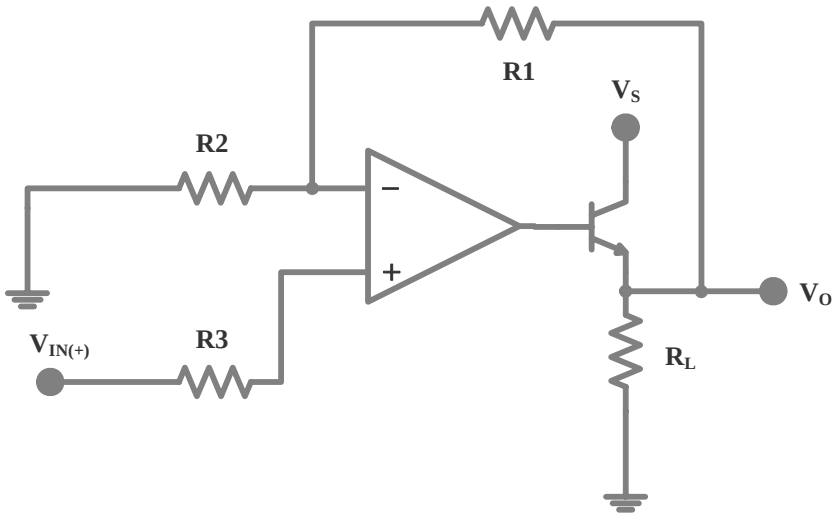
Inverting Amplifier



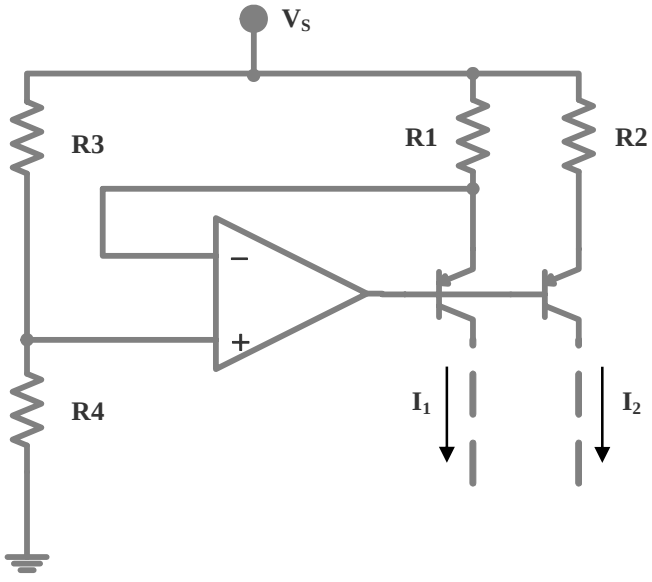
Non-inverting Amplifier



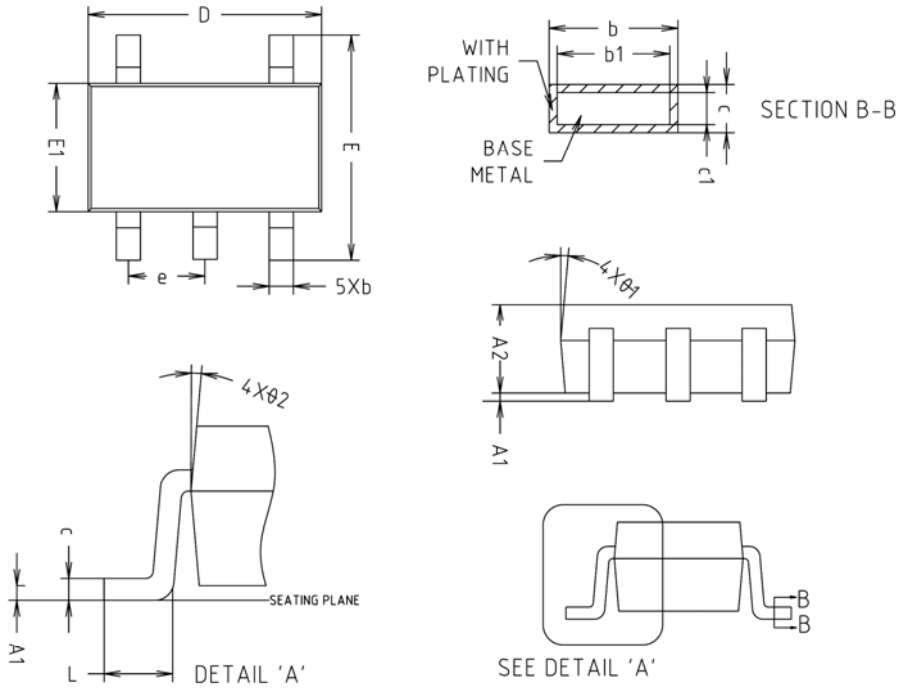
Power Amplifier



Fixed Current Sources

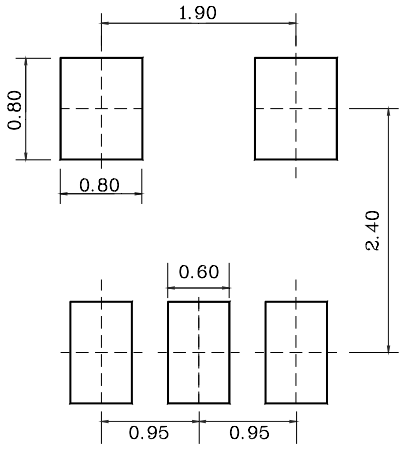


Outline Dimension (Unit : mm)



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A1	0.000	0.050	0.100	
A2	1.000	1.100	1.200	
b	-	0.400	0.450	
b1	-	0.375	0.425	
c	0.110	0.150	0.190	
c1	0.085	0.125	0.165	
D	2.800	2.900	3.000	
E	2.600	2.800	3.000	
E1	1.500	1.600	1.700	
e	0.930	0.950	0.970	
L	0.400	-	-	
θ1	5° REF			
θ2	5° REF			

※ Recommend PCB solder land (Unit : mm)



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