

Aim:- Design and verify gain and frequency response of Inverting amplifire.

IC 741 As Inverting

Amplifier. Objective:-

- (1) To study IC 741 as Inverting Amplifier.
- (2) To see the effect on O/P by changing R1 & RF.
- (3) To Study,” Why this Amplifier is called an Inverting Amplifier”.

Apparatus:-

Signal generator, CRO- dual channel, and Patch chord.

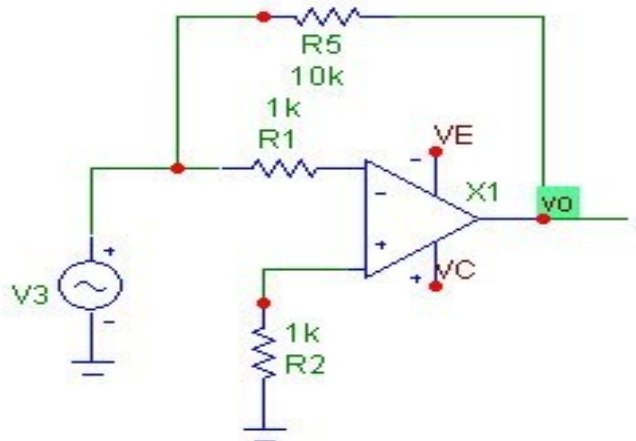
Components :-

R11 = 10K,	R12 = 1K,	R13 = 100Ω,	RF1 = 10K ,	RF2 = 100K
RF3 = 33K,	R2 → 10K,	R2 → 10K,	R3 → 1K,	R4 → 100Ω ,
RL = 10K ,	IC741.			

Theory: -

An op-Amp can be used for number of application like Amplifier, Adder, Subtractor, Rectifier, Multivibrators, and Analog computer etc. Here we are using 741 as a inverting amplifier. It is called as inverting amplifier because here input is connected at inverting input i.e. pin no.2 So we get inverted signal of the input at the output The basic ckt of inverting amplifier is shown below. In this mode of operation the positive input terminal of the amplifier is grounded and the input signal v_i is applied to the negative input terminal via resistor R_{r1} . The feedback applied through R_f from the input terminal, is negative. This helps to in maintaining gain stable. The inverting operation performed by circuit is determined by R_F & R_1 .

Circuit Diagram:-



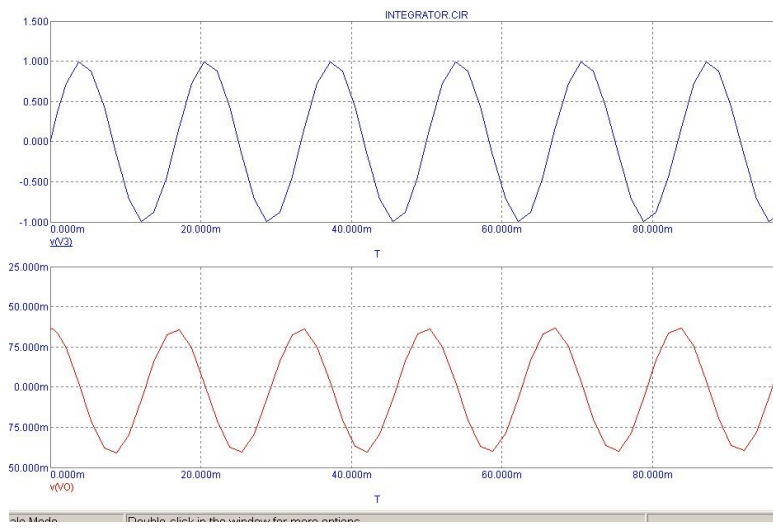
Procedure:-

- (1) Connect the ckt. as shown in fig.
- (2) Select proper R_1 & R_f .
- (3) Connect 1 – channel of CRO at the o/p & other at I/p.
- (4) Connect signal generator at I/p. Adjust I/p at 200m.vp-p.
- (5) Observe the o/p with respect .to I/p.
- (6) Observe the change in o/p by change in resistor between pin 3 & gnd.
- (7) Calculate theoretical & practical gain.
- (8) Draw the waveform on graph.

Observation Table: -

SR.NO.	FREQUENCY (Hz)	O/P VOLTAGE V_o (volts)	GAIN $A_f = v_o/v_{in}$	GAIN in DB $20 \log_{10} A_f$

Simulation Results:-



Inverting waveforms